DRAFT

PRELIMINARY ECOLOGICAL RISK ASSESSMENT REPORT

BENNING ROAD FACILITY
3400 BENNING ROAD, N.E.
WASHINGTON, DC

PREPARED FOR:

Pepco and Pepco Energy Services
701 9th Street, NW
Washington, DC 20068

PREPARED BY:

AECOM
8320 Guilford Road, Suite L
Columbia, MD 21046

Contents

List of Attachments

List of Tables

A PHI Company

List of Figures

List of Acronyms

AUF	Area Use Factor
AVS	Acid Volatile Sulfide
AWQC	Ambient Water Quality Criteria
BERA	Baseline Ecological Risk Assessment
B-IBI	Benthic Index of Biotic Integrity
BMP	Best Management Practices
CBR	Critical Body Residue
CCME	Canadian Council of Ministers of Environment
COPC	Constituent of Potential Concern
CSM	Conceptual Site Model
CSO	Combined Sewer Overflow
DAF	Dilution Attenuation Factor
DDOE	District of Columbia Department of Environment
DDT	Dichlorodiphenyltrichloroethane
DO	Dissolved Oxygen
ED	Exposure Duration
EPC	Exposure Point Concentration
ERA	Ecological Risk Assessment
ERAGS	Ecological Risk Assessment Guidance for Superfund
ERED	Environmental Residue Effects Database
ESV	Ecological Screening Value
FOD	Frequency of Detection
ft	feet
HEM	n-Hexane Extractable Material
HMW	High Molecular Weight
HpCDD	Heptachlorodibenzo-p-dioxin
HpCDF	Heptachlorodibenzofuran
HQ	Hazard Quotient
LC50	Lethal Concentrations resulting in 50% mortality
LMW	Low Molecular Weight
LOAEL	Lowest Observed Adverse Effect Level

LOEC	Lowest Observed Effects Concentration
LWZ	Lower Water-bearing Zone
m^3/sec	cubic meters per second
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MLLW	Mean Low Low Water
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
NPDES	National Pollutant Discharge Elimination System
NRDA	Natural Resource Damage Assessment
OC	Organochlorine
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OMOE	Ontario Ministry of the Environment
ORNL	Oak Ridge National Laboratory
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PBDE	Polybrominated Diphenyl Ethers
PEC	Probable effect concentration
PEL	Probable Effect Level
QAPP	Quality Assurance Project Plan
QC	Quality Control
RI/FS	Remedial Investigation and Feasibility Study
SCV	Secondary Chronic Value
SEL	Severe Effect Level
SEM	Simultaneously Extracted Metals
SMDP	Scientific/Management Decision Point
SVOC	Semi Volatile Organic Compound
SQuiRT	Screening Quick Reference Table
SSQL	Sample Specific Quantitation Limit
SWO	Stormwater Outfalls

TDD	Total Daily Dose
TEC	Threshold Effect Concentration
TEF	Toxic Equivalency Factors
TEL	Threshold Effect Level
TOC	Total Organic Carbon
tPCBs	Total PCBs
TRV	Toxicity Reference Value
TSS	Total Suspended Solids
UCL	Upper Confidence Limit
UET	Upper Effects Threshold
µg/L	Micrograms per liter
µmhos/cm	micromhos per centimeter
µmol/g_{oc}	micromole per gram organic carbon
USEPA	United States Environmental Protection Agency
USFW	United States Fish and Wildlife Services
USGS	United States geological Services
UST	Underground Storage Tank
UWZ	Upper Water-bearing Zone
VOC	Volatile Organic Compounds
WQS	Water Quality Standards
ww	wet weight

1 Introduction

AECOM Technology Services (AECOM) has prepared this preliminary Ecological Risk Assessment (ERA) on behalf of the Potomac Electric Power Company and Pepco Energy Services, Inc. (collectively "Pepco") to evaluate the potential for risks to ecological receptors in a segment of the Anacostia River (the River) adjacent to Pepco's Benning Road facility (the Site), located at 3400 Benning Road NE, Washington, DC. The Site location is shown on **Figure 1**. Together, the Site and the adjacent segment of the River are referred to herein as the "Study Area", and the River portion of the study area is referred to as the "Waterside Investigation Area". This ERA focuses solely on the evaluation of potential risks to ecological receptors in the Waterside Investigation Area. Due to a perimeter fence surrounding the Site and bulkheads along the shoreline, no significant terrestrial ecological exposure is assumed for the Landside Investigation Area.

The ERA was conducted as part of a Remedial Investigation and Feasibility Study (RI/FS) for the Study Area. This preliminary ERA was based on the RI investigation for which principal field sampling activities were conducted between January 2013 and December 2014. Additional field investigation is necessary to address remaining data gaps and uncertainties. This preliminary ERA will be revised based on the results of the additional field investigation. Pepco has agreed to perform the RI/FS pursuant to a consent decree that was entered by the U.S. District Court for the District of Columbia on December 1, 2011 (the Consent Decree). The Consent Decree documents an agreement between Pepco and the District of Columbia Department of Energy and Environment (DOEE; previously referred to as the District Department of the Environment or "DDOE"), which is part of DOEE's larger effort to address contamination in and along the lower Anacostia River.

The primary objective of this ERA is to evaluate whether or not populations of ecological receptors are potentially at risk due to exposure to chemical stressors within the Anacostia River Waterside Investigation Area. As indicated in **Figure 2**, the Waterside Investigation Area encompasses approximately 38 acres of the Anacostia River and extends approximately 1,500 linear feet to the south of the Site (approximately 1,000 ft south of the Benning Road Bridge) and 1,000 linear feet to the north of the Site's main storm water outfall area (depicted as Outfall 013 on **Figure 2**).

This assessment of potential ecological risks includes analysis of Site-specific surface water and sediment data collected during the Waterside Investigation Area field sampling program, which was conducted between September 23, 2013 and January 31, 2014 in support of the RI. The Waterside Investigation Area field program focused on collection of abiotic media samples, and did not include any Site-specific fish tissue residue sampling and analysis. In lieu of Site-specific data, the ERA relies on analysis of historically collected fish tissue data from the Anacostia River in the general vicinity of the Study Area.

1.1 Ecological Risk Assessment Guidance and Methodology

The ERA was conducted according to the general tiered approach and methodology provided in the United States Environmental Protection Agency (USEPA) Ecological Risk Assessment Guidance for Superfund (ERAGS): Process for Designing and Conducting Ecological Risk Assessment, Interim Final (USEPA, 1997), Guidelines for Ecological Risk Assessment (USEPA, 1998), and The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments (USEPA, 2001). The general approach for the ERA was presented in the Ecological Risk Assessment Work Plan, which was included as Appendix F to the Final RI/FS Work Plan (AECOM, 2012). Pepco previously submitted the RI/FS Work Plan to DOEE and revised it to address comments from DOEE prior to obtaining final approval from DOEE in December 2012.

The ERA was designed based on USEPA's eight-step ecological risk assessment process (USEPA, 1997) in which Constituents of Potential Concern (COPCs) identified in Steps 1 and 2 are retained for further investigation for specific receptors/pathways (**Figure 3**). Step 3a, a sub-tier of Step 3, serves to refine the list of COPCs identified in the conservative evaluation conducted in Steps 1 and 2 by considering additional site-specific factors. In many cases, the Step 3a refined risk estimate provides the basis for defining potential risk drivers which may be further evaluated for remedial decisions, or alternatively a complete baseline ERA (BERA) may be conducted, which follows Step 3b through Step 8 of the USEPA ERA process. At the conclusion of an ERA, a scientific/management decision point (SMDP) is reached where a conclusion can be made that (1) the available data indicate the potential for ecological risk and further investigation is warranted, (2) the available data indicate either no or low potential for ecological risk and no further work is warranted, or (3) there are data gaps that must be addressed before the presence or absence of risk can be concluded (e.g., additional sampling or analysis).

In accordance with the USEPA guidance and process documents, the principal components of the ERA include:

- **Problem Formulation**: In this phase, the objectives of the ERA are defined, and a plan for characterizing and analyzing risks is determined. Available information regarding stressors and Site-specific receptors is evaluated to develop assessment endpoints and the ERA Conceptual Site Model (CSM).
- **Risk Analysis**: During the risk analysis phase of work, data are evaluated to characterize potential ecological exposures and effects.

- **Risk Characterization**: During risk characterization, exposure and stressor response profiles are integrated through risk estimation. Risk characterization also includes a summary of uncertainties, strengths, and weaknesses associated with the risk assessment.

These three components are conceptually sequential. However, the risk assessment process is frequently iterative, and new information brought forth during the risk characterization phase, for instance, may lead to a review of the problem formulation phase, or additional data collection and analysis. The results of the ERA will be used to help inform the need for any additional evaluation and/or remedial action at the Site, and will also help inform the Natural Resource Damage Assessment (NRDA) process.

1.2 Report Organization

The following sections present a summary of the ERA components:

- **Section 2** presents the Problem Formulation, which was used to determine the focus and scope of this ERA. The Benning Road Problem Formulation includes a summary of an ecological assessment Site visit, and the identification of ecological receptors and potentially complete exposure pathways at the Site. Assessment endpoints and the CSM are developed in the Problem Formulation Statement.
- **Section 3** presents the ERA Risk Analysis. This section includes a summary of data analysis, and presents the characterization of potential exposure and potential effects for ecological receptors which may be exposed to Anacostia River surface water or sediment, including warmwater fish, benthic invertebrates, and vertebrate wildlife.
- **Section 4** presents the Risk Characterization, which uses the results of the exposure and effects analysis to evaluate the likelihood of adverse effects associated with exposure to the Site-related chemical stressors (e.g., COPCs). This section includes a summary of the assumptions and uncertainties used in this ERA and discusses the significance of the ERA results in the context of the urbanized Anacostia River corridor.
- **Section 5** presents the Uncertainty Evaluation, which discusses the assumptions of the ERA process that may influence the risk assessment results and conclusions.
- **Section 6** presents the Summary and Recommendations, which presents the conclusions of the ERA along with recommendations for further evaluation, if needed.

2 Problem Formulation

Problem formulation is the initial step of the ERA process and provides the basis for decisions regarding the scope and objectives of the ERA. The problem formulation phase includes:

- Definition of risk assessment objectives;
- Description and ecological characterization of Site;
- Exposure pathway evaluation;
- Identification of data evaluated in the ERA;
- Identification of assessment endpoints and measurement endpoints;
- Development of the ecological CSM; and
- Method for selection of COPCs.

2.1 Definition of Risk Assessment Objectives

The ERA has several objectives: 1) to identify potential ecological receptors and habitats associated with the Waterside Investigation Area; 2) to determine which Waterside Investigation Area ecological exposure pathways are potentially complete; 3) to determine whether or not Site-related COPCs present within the potentially complete exposure pathways have the potential to pose a significant environmental risk; and 4) to determine the need, if any, for additional ecological risk analysis.

2.2 Site Description and Background

Most of the Site is comprised of the Benning Service Center, which involves activities related to construction, operation and maintenance of Pepco's electric power transmission and distribution system serving the Washington, DC area. The Site also was the location of the former Benning Road Power Plant, which was permanently shut down on June 1, 2012. Demolition and removal of the power plant building and related infrastructure commenced in 2014, and all demolition and Site restoration activities are expected to be completed in May 2015. The Site has been identified as a suspected source of contamination along the Anacostia River, and is one of six environmental cleanup sites located on the shorelines of the River. The other five sites are identified on **Figure 4**.

The majority of the Site is covered by impervious surfaces such as concrete or asphalt; other areas used for storage that are not covered in impervious material are covered in gravel. Structures present on-Site include buildings associated with the Benning Service Center and with the former power plant.

Roads, parking lots, and railroad tracks (no longer in use) are also present on-Site. The Site is surrounded by fence with two guarded entrances.

Stormwater from the Site is discharged to the Anacostia River via two outfalls, known as Outfall 013 and Outfall 101. The majority of the runoff from the facility is conveyed through a concrete pipe and discharges to the River via Outfall 013. In addition, Outfall 013 was also permitted to receive cooling tower blow down and cooling tower basin wash water when the cooling towers were in operation. These towers are no longer operational, as Pepco ceased the operations at Benning Road Power Plant effective June 1, 2012. There are non-Pepco outfalls located next to Outfall 013 (photodocumentation of these these outfalls is presented in the RI Report). Outfall 101 receives storm water runoff from inlets in the southwest corner of the property. A detailed facility drainage area map is included in **Appendix A** of the accompanying RI report. Outfall 101 also received storm water collected in secondary containment basins for transformers associated with the power plant. The transformers and their containment areas have been demolished and removed as part of the power plant demolition, eliminating the secondary containment discharges to Outfall 101.

2.3 Ecological Setting

The Waterside Investigation Area is located on the Anacostia River approximately 4.7 river miles upstream of the confluence with the Potomac River. The Anacostia River is a freshwater tidal estuary, with tidal influence extending upstream to the Northeast and Northwest Branches of the river. As detailed in Section 3 of the RI Report, the river surface elevations in the Study Area typically range from -1.7 ft to 3.3 ft mean low low water (MLLW) and the average variation in river stage during a tidal cycle is approximately 1 meter (3.3 ft). Measured flow velocities during the tidal cycle ranged from 0 to 0.3 meters per second (0 to 1 feet per second) (Katz et al., 2001). The river is subject to low flow velocities and as a result, sedimentation is high because most sediment entering the system likely settles instead of being transported downstream to the Potomac River. Study Area sedimentation rates are assumed to be in the range of 1.2 to 9.1 centimeters per year (0.5 to 3.6 inches per year) based on a evaluation of sediment data by Scatena (1987). This is consistent with more recent estimates of Velinsky et al. (2011), who estimated that sedimentation rates (based on radiodating studies) ranged from approximately 1.1 to 2.8 inches/year (2.8 cm/year to 7.1 cm/year).

The aquatic species present in the vicinity of the Site include algae, aquatic (water-dwelling) and benthic (sediment-dwelling) invertebrates, fish, and some aquatic birds. Surveys conducted by the United States Fish and Wildlife Service (USFWS) and others in the lower Anacostia River indicated that the invertebrate and fish communities were composed of species typical to large, tidal, urban rivers. Fish species observed in the River include white perch (*Morone americana*), striped bass (*Morone saxatilis*), river herring (which include blueback herring [*Alosa aestivalis*] and alewife [*A. pseudoharengus*]), American and hickory shad (*Dorosoma* spp.), American eel (*Anguilla rostrata*), bluegill (*Lepomis macrochirus*), pumpkinseed (*L. gibbosus*), carp (*Cyprinus carpio*), channel catfish (*Ictalarus punctatus*), blue catfish (*Ictalarus furcatus*), brown bullhead (*Ameiurus nebulosus*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), and yellow perch (*Perca flavescens*) (AWTA, 2002).

Due to the urban and industrial land uses surrounding the river and the resulting degraded water quality and river substrate, the benthic community of the Anacostia River is typically characterized by low diversity, low abundance, and dominance by pollution-tolerant worms (AWTA, 2002). Benthic community sampling conducted by the USFWS at 20 stations within the Anacostia River found that all locations were dominated by oligochaetes, which ranged from 42 percent (%) to 92% of the organisms at a given station. Other taxonomic groups included midges, mollusks, crustaceans, leeches, and other insects. Results of the Benthic Index of Biotic Integrity (B-IBI) indicated that 8 of 20 stations (40%) were classified as "degraded" (B-IBI < 3). However, qualitative and quantitative comparisons with sediment quality benchmarks indicated no clear relationship between benthic community health and contaminant concentrations (McGee, et al., 2009). The non-native red swamp crayfish, native and introduced freshwater clams, and freshwater mussels also likely occur in the river (AWTA, 2002).

A summary of bird species observed in the vicinity of the Anacostia River at the nearby Anacostia Park (http://www.mbr-pwrc.usgs.gov/infocenter/Nps/anacintro.htm) include:

- Eastern kingbirds (*Tyrannus tyrannus*), warbling vireos (*Vireo gilvus*), and orchard and Baltimore Orioles (*Icterus spurius* and *Icterus galbula,* respectively) that nest in trees along the river.
- Great blue herons (*Ardea herodias*), Canada geese (*Branta Canadensis*), mallards (*Anas platyrhynchos)*, and gull species including ring-billed (*Larus delawarensis)*, herring (*Larus argentatus*), and great black-backed (*Larus marinus)* are present year-round.
- Laughing gulls (*Leucophaeus atricilla*) and Forster's tern (*Sterna forsteri*) are present in the late summer/fall.
- American coots (*Fulica Americana*), double-crested cormorants (*Phalacrocorax auritus*), buffleheads (*Phalacrocorax auritus*), hooded mergansers (*Lophodytes cucullatus*), and ruddy ducks (*Oxyura jamaicensis*) are present during migration in the fall and winter.

The mammal community of the Anacostia River includes a variety of species known to inhabit limited the wildlife resources of urban areas. A list of mammals generated by the United States Geological Service (USGS) at the Kenilworth Park and Aquatic Gardens (available at http://www.pwrc.usgs.gov/blitz/mambio.html) included eastern mole (*Scalopus aquaticus*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), white-footed mouse (*Peromyscus leucopus*), muskrat (*Ondatra zibethica*), beaver (*Castor canadensis*), eastern gray squirrel (*Sciurus carolinensis*), big brown bat (*Eptesicus fuscus*), and red bat (*Lasiurus borealis*).

According to the District's Wildlife Action Plan (DOEE, 2006a), the greatest threats to the aquatic habitats of the river are invasives and alien species, sedimentation, changes to hydrologic regime related to urban development (such as increased impervious surface and loss of wetlands), stormwater erosion, and pollution. The River has been affected by nutrient loading, trash, on-going sedimentation, and moderate oil spills and receives significant input of metals and organic contaminants from urban nonpoint sources (SRC, 2000). The destruction of wetlands and marshes within the River and tributaries has resulted in the loss of the watershed's filtering capacity. These losses have resulted in the River acting as a sink for contaminants (AWTA, 2002). In addition, combined sewer overflows (CSOs) and stormwater outfalls (SWOs), combined with landscape fertilizers and pet wastes have contributed to an excess of nutrients, causing algal blooms. These algal blooms produce areas of very low dissolved oxygen, which contribute to the overall stress on the system (AWRP, 2010; Metropolitan Washington Council of Governments, 2007).

The Anacostia River has been listed by American Rivers as one of the 10 most contaminated rivers in the country and one of three areas of concern for the Chesapeake Bay (http://www.americanrivers.org/endangered-rivers/previous/). Contaminants such as PCBs, metals, other inorganic constituents, organochlorine (OC) pesticides such as dichlorodiphenyltrichloroethane (DDT) and its metabolites, and polycyclic aromatic hydrocarbons (PAHs) have been well-documented in sediment of the Anacostia River (NOAA, 2009; Velinsky and Cummins 1994; Velinsky and Cummins 1996; Pinkney et al. 2001). Evidence of PAH inputs during both base flow and storm events suggests that upstream sources provide a substantial continuing source of PAHs to the lower part of the river (Foster, 2008). Velinsky et al. (2011) conducted a study using chemical and radiodating analysis of sediment cores and found that many organic constituents including PCBs, PAHs, chlordanes, and DDT were present at higher concentrations in deeper sediments than near the surface, suggesting declining loads of these constituents over time. Several inorganic constituents, including arsenic, cadmium, copper, mercury, lead, and zinc, were more enriched at mid-depth levels and surficial sediments than in deeper sediments.

2.4 Characterization of Ecological Exposure Areas

As part of the Problem Formulation, ecological receptors and habitats within the Waterside Investigation Area were characterized through assessment of available maps, documents, and observations made during the RI field program in November, 2014, and during a site visit conducted in December, 2014. In addition, letters were sent to National Oceanographic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), USFWS, and DOEE requesting information on the presence of listed or sensitive species at or near the Site. The following sections present summaries of the ecological site assessment and agency responses.

2.4.1 Ecological Site Assessment

On December 17, 2014, an AECOM ecologist and scientist visited the Benning Road Facility site to conduct an ecological site assessment using the USEPA's Ecological Assessment Checklist (USEPA, 1997b) as specified by USEPA Region 3 ecological risk assessment guidance (http://www.epa.gov/reg3hwmd/risk/eco/faqs/slera.htm). This checklist includes both aquatic and terrestrial habitat assessments. Because the ERA is focused on the Waterside Investigation Area, the site assessment focused on evaluating the aquatic habitat within this area. Therefore, the terrestrial habitat checklist was not completed. **Attachment A** provides documentation of the checklist and photographs of the ecological exposure areas identified during the Site visit.

The Waterside Investigation Area was viewed from several locations along the eastern shoreline of the Anacostia River (on right side looking upstream). The Langston Golf Course is located on the western (opposite) shoreline from the Site and was not readilly accessible during the Site visit. Several photos of both shorelines were taken during the site visit (**Attachment A**). The majority of photos were taken at the southern end of the Site where the Benning Bridge provided a viewpoint of both Anacostia River shorelines looking upstream and downstream. The surrounding land use is mostly urban and lightly industrial with some urban residential areas and recreational areas nearby including the National Arboretum, River Terrace National Park, Anacostia Park, Kingman Island, and Langston Golf Course.

Two patches of emergent wetland vegetation (approximately 2,000 and 10,000 square feet in area) were observed along the eastern shoreline, in the vicinity of the Benning Bridge. A sign on the shoreline indicated that these patches are part of the Anacostia River Fringe Wetlands Restoration project. The dominant vegetation of these patches is common reed (*Phragmites australis)* and cattail (*Typha* sp.) Both wetlands are contained within sheet pile bulkhead with openings for surface water movement between the wetlands and the river. The Site visit occurred during low tide and several mudflat areas were exposed throughout the River and along the eastern shoreline. In addition, evidence of flooding (e.g., watermarks on wetland vegetation and trees) was observed. Potential routes of off-site migration of COPCs from the landside to the Waterside Investigation Area include surface water runoff and discharge from two stormwater outfalls, known as Outfalls 101 and 013.

Most of the eastern shoreline is stabilized with either sheet pile or rockwall. A narrow strip of riparian vegetation was present, consisting of large trees and shrubs, which ranged from dense in some areas to sparse in other areas. Tree species included maple, oak, and sycamore. The bank slope ranged from gradual to shallow slope to the river edge. The western shoreline was observed to be uniformly stabilized with a continuous rock wall with a fringe of trees along the shoreline separating the golf course and river. The bank appeared steeply sloped in some areas.

A view of the river near Outfall 013 was obtained from the Solid Waste Transfer Station. Mudflats were exposed in this area along the eastern shoreline and some small patches of *Phragmites* were observed along the shoreline. The shoreline was gradual in slope with little bank stabilization. The western bank was steeper with a fringe of tree cover along the shoreline.

Several bird species were observed on the water and on mudflats in the river on December 17, 2014, including mallards (*Anas platyrhynchos*), gulls (*Laridae* family), Canada geese (*Branta canadensis*), and belted kingfisher (*Megaceryle alcyon*). In addition, wildlife observations were made during sediment sampling activities in November, 2014. The following bird species were observed in the vicinity of the Waterside Investigation Area:

- Canada geese
- Mallards
- Gulls
- Great blue heron
- Double crested cormorant
- Bald eagle (*Haliaeetus leucocephalus*) (upstream near National Arboretum)
- Bufflehead ducks
- Great egret (*Ardea alba*)

In addition, freshwater bivalves and American eel (*Anguilla rostratra*) were noted in the Ponar grabs used to collect surficial sediment for chemical characterization and white-tailed deer were observed near the Site.

2.4.2 Presence of Listed or Sensitive Species

AECOM consulted with the DOEE, USFWS Chesapeake Bay Field Office, and NOAA NMFS to determine if any federally listed species or other sensitive receptors exist at or in the vicinity of the Waterside Investigation Area. Letters requesting information on the presence of listed or sensitive species were submitted to each agency in December, 2014. Agency responses are presented in **Attachment B**.

No federally listed or proposed threatened or endangered species under NOAA NMFS jurisdiction are present in the vicinity of the Waterside Investigation Area. In addition, DOEE found that no listed or sensitive species or communities are present. DOEE made their determination based on their Wildlife Action Plan (DOEE, 2006a), which is a USFWS-accepted plan for species conservation in the District of Columbia.

2.5 Identification of Receptors and Potentially Complete Exposure Pathways

USEPA (1997, 1998a) defines a complete exposure pathway as “one in which the chemical can be traced or expected to travel from the source to a receptor that can be affected by the chemicals.” Therefore, in order for a complete exposure pathway to exist, a chemical, a migration pathway, a receptor, and mechanisms of toxicity of that chemical must be demonstrated.

Potentially complete exposure pathways for ecological receptors were identified through a review of documents and reconnaissance of the Waterside Investigation Area. Exposure pathways for several groups of ecological receptors were identified as potentially relevant. Each exposure pathway includes a potential source of COPCs, an environmental medium (e.g., surface water or sediment), and a potential exposure route to relevant environmental receptors. Incomplete routes of exposure were not evaluated in the ERA. This approach was used to focus the risk evaluation on exposure pathways that are considered to be potentially complete and for which there are adequate data pertaining to the receptors, exposure, and toxicity for completion of the risk analysis.

The available data suggest that surface water and sediment are the primary media of potential ecological concern within the Waterside Investigation Area. Surface water and sediment are present within the riverine corridor. Although no fish tissue residue data were collected in support of this ERA, available data from Pinkney (2014) and MDE (2012) suggests that some species of fish in the Anacostia River contain elevated levels of organic compounds such as PCBs. Therefore, for the purpose of this ERA, available fish tissue data were also considered to better understand potential food chain transfer of bioaccumulative compounds from abiotic media at the Site. Groundwater may discharge to the Anacostia River adjacent to the Site, so on-Site groundwater may also represent a medium of concern, but only indirectly, upon discharge. A Site-specific dilution attenuation factor (DAF) was used to estimate the surface water concentrations from groundwater concentrations measured in samples collected at nearshore monitoring wells. The DAF calculation is presented in Section 3.1.3 of this ERA.

Potentially complete exposure pathways were determined to exist for fish, benthic macroinvertebrates, and piscivorous wildlife. Therefore, the ecological exposure pathways evaluated in the ERA include:

- Direct contact with sediment by benthic macroinvertebrates;
- Direct contact with surface water and sediment, and ingestion of sediment and contaminated food sources, by warmwater fish; and

- Ingestion of contaminated prey items (i.e., fish) and abiotic media (i.e., surface water, sediment) by selected vertebrate wildlife receptors (i.e., piscivorous birds and mammals).

2.6 Identification of Assessment Endpoints and Measurement Endpoints

Assessment endpoints describe the characteristics of an ecosystem that have an intrinsic environmental value that is to be protected (i.e., protection of warmwater fish community). Typically, assessment endpoints and receptors are selected for their potential exposure, ecological significance, economic importance, and/or societal relevance.

Because assessment endpoints often cannot be measured directly, a set of surrogate ERA endpoints (measurement endpoints) are generally selected that relate to the assessment endpoints and have measurable attributes (e.g., comparison of media concentrations to screening levels, results of food web models) (USEPA, 1997, 1998). These measurement endpoints provide a quantitative metric for evaluating potential effects of constituents on the ecosystem components potentially at risk. Since each measurement endpoint has intrinsic and extrinsic strengths and limitations, several measurement endpoints will be used to evaluate each assessment endpoint.

The following assessment and measurement endpoints were selected for this ERA:

- **Assessment Endpoint 1** – Protection and maintenance of freshwater benthic invertebrate populations in aquatic habitats within the Anacostia River typical of comparable aquatic habitats with similar morphology, hydrology, and urban setting.
  - **Measurement Endpoint 1a** – **Comparison of sediment concentrations to literature-derived sediment screening values**. Concentrations above the screening values are considered indicative of a potential for ecological risks. Qualitative comparisons between Site sediment concentration data and background sediment data were used to distinguish between Site-related and system-wide (e.g., anthropogenic and natural background) conditions.
  - **Measurement Endpoint 1b – Characterization of bioavailability potential in sediment based on Simultaneously Extracted Metals (SEM) and Acid Volatile Sulfide (AVS) relationships**. SEM/AVS ratios greater than one in a sediment sample are considered an indicator of potential bioavailability for divalent cationic metals. The SEM and AVS difference (SEM-AVS) and the influence of sediment organic carbon content was also considered in this evaluation. Evaluation of Site SEM, AVS, and Total Organic Carbon (TOC) data relative to Site-specific background SEM, AVS, and TOC data were used to determine if bioavailability of divalent metals at the Site is similar in Site-specific background sediment.

- **Assessment Endpoint 2** – Protection and maintenance of fish communities in aquatic habitats within the Anacostia River typical of comparable upstream aquatic habitats with similar morphology, hydrology, and urban setting.
  - **Measurement Endpoint 2a** – **Comparison of surface water concentrations to chronic and acute surface water screening values**. Concentrations above the chronic screening values were considered indicative of a potential for ecological risks. Qualitative comparisons between Site surface water concentration data and Site-specific background data were used to distinguish between Site-related and system-wide (e.g., anthropogenic and natural background) conditions.
  - **Measurement Endpoint 2b – Comparison of groundwater concentrations collected from nearshore monitoring wells to surface water chronic screening values**. Site-specific dilution factors were applied to nearshore monitoring well groundwater data to provide a preliminary estimate surface water concentrations at the point of discharge to the River. Concentrations above the surface water screening values were considered indicative of a potential for ecological risks and may warrant further evaluation through Site-specific modeling or additional data collection efforts.
  - **Measurement Endpoint 2c – Comparison of fish tissue COPC burdens to available critical body residue (CBR) thresholds and background tissue concentrations**. Concentrations above the no effect CBRs were considered indicative of a potential for ecological risks. Qualitative comparisons between tissue residue concentrations from near-Site river reaches and the river reaches located downstream and upstream were used to evaluate regional trends (e.g., anthropogenic and natural background) conditions.
- **Assessment Endpoint 3** – Protection and maintenance of a piscivorous vertebrate wildlife community in aquatic and wetland habitats within the Anacostia River typical of comparable aquatic habitats with similar morphology, hydrology, and urban setting.
  - **Measurement Endpoint 3a – Comparison of calculated potential daily exposure for avian and mammalian receptors from exposure to bioaccumulative COPCs in abiotic media (surface water and sediment) and ingestion of contaminated prey items (fish) to constituent-specific toxicity reference values (TRVs).** Estimated doses above the TRVs were considered indicative of a potential for ecological risks. Qualitative comparisons between daily doses based on tissue residue concentrations from near-Site river reaches and doses based on tissue from the river reaches located downstream and upstream were used to evaluate regional trends (e.g., anthropogenic and natural background) conditions.

A PHI Company

2.7 Ecological Conceptual Site Model

An ecological CSM was developed to provide a clear and concise description of how ecological receptors may come into contact with COPCs via release mechanisms and exposure to sediment, surface water, or fish tissue. The ecological CSM provides a schematic representation of the potential COPC release mechanisms, the exposure pathways, and potential ecological communities or wildlife receptors to be assessed. The overall RI CSM is currently being updated and the ecological CSM will be updated accordingly in the revised ERA.

Figure 5 presents an ecological CSM for the Site identifying potential source areas, migration pathways, and potentially exposed ecological receptors. Potential sources are segregated into the Benning Road Facility (e.g., past on-Site spills and releases of PCBs, metals, and Semi Volatile Organic Compound [SVOCs] and permitted point source discharges) and non-Site related anthropogenic sources. As discussed below, however, the risk calculations are based on the aggregate contaminant concentrations and do not differentiate between on-Site and off-Site sources. The source media are soils and groundwater from which contaminants may be transported to sediment and surface water, as well as point source discharges that may contribute contaminants directly to surface water and sediments. Exposure media include surface sediment and surface water and fish tissue of Anacostia River. Potentially complete pathways identified for benthic invertebrates and fish include incidental ingestion of and dermal or direct contact with sediment and surface water. Potentially complete pathways for wildlife include incidental ingestion of sediment and ingestion of contaminated prey (i.e., fish) of the Anacostia River.

3 Risk Analysis

The risk analysis phase of the ERA is based on the CSM developed in problem formulation and includes the characterization of potential ecological exposure and effects. The ecological exposure assessment involves the identification of potential exposure pathways and an evaluation of the magnitude of exposure of identified ecological receptors. The ecological effects assessment describes the potential adverse effects associated with ecological receptor exposure to the identified COPC and reflects the type of assessment endpoints selected. The methodology and data used to identify and characterize ecological exposure and effects for each assessment endpoint are described in the following sections.

3.1 Characterization of Ecological Exposure

This section presents a summary of the data included in the ERA and describes how these data were treated and summarized . Sampling and analysis activities are described in detail in Section 2 of the RI report. Sample locations for sediment, surface water, and groundwater in the Waterside Investigation Area are presented in **Figure 6**. The ten Site-specific background sampling locations for sediment and surface water are presented on **Figure 7**. Analytical data included in the ERA are presented in **Attachment C** and summary statistics are presented in **Attachment D**.

3.1.1 Sediment Data

Sediment samples were collected at 46 locations in the Waterside Investigation Area and at 10 Site-specific background sampling locations between November 5, 2013 and January 31, 2014. Surface sediment grab samples were collected from a depth of 0 to 6 inches below sediment surface using a Petite Ponar grab sampler. All samples were analyzed for total organic carbon (TOC), grain size, metals, SEM and AVS, PCB Aroclors, and 16 PAHs. A sub-set of samples were analyzed for VOCs, SVOCs, pesticides, and dioxin/furans.

3.1.2 Surface Water Data

Surface water samples were collected at 10 locations in the Waterside Investigation Area and at 10 Site-specific background sampling location between September 23 and October 3, 2013. Samples were collected approximately one foot above the sediment-water interface at each location. All samples were analyzed for total and dissolved metals, PCB Aroclors, 16 PAHs, and hardness. A sub-set of samples was analyzed for oil and grease, Volatile Organic Compounds (VOCs), SVOCs, pesticides, and dioxin/furans.

3.1.3 Groundwater Data

Groundwater monitoring wells were installed on Site between September 22 and October 17, 2014 at 15 locations across the Site at two depths: shallow and deep. Four of these locations were close to the shoreline (**Figure 6**). Two additional monitoring wells, MW08 and MW11, were included at the request of DOEE (DOEE, 2015) for a total of six upper aquifer monitoring well samples and seven lower aquifer monitoring well samples including a field duplicate at MW08B. The analytical data collected at these locations in November 2014 were used to provide an initial evaluation of the potential pathway of groundwater discharge to Anacostia River surface water . All samples were analyzed for total and dissolved metals, PCB Aroclors, 16 PAHs, VOCs, SVOCs, pesticides, and dioxin/furans. As discussed in the RI Report, the Patapsco Formation underlying the Site is divided by a semi-confining layer into an upper water-bearing zone (UWZ) and a lower water-bearing zone (LWZ). Groundwater discharges from the Site to the River were calculated for the UWZ and LWZ at the six pairs of nested waterfront wells (MW-01, -02, -03, -04, -08, and -11), from which dilution attenuation factors (DAFs) were computed. Groundwater flux was computed using Darcy's Law: Q = KIA, where "Q" is discharge (ft^3/sec), "K" is hydraulic conductivity (ft/sec), "I" is hydraulic gradient (unitless), and "A" is the area through which the groundwater flows (ft^2). For waterfront wells in which aquifer testing was conducted during the RI (MW-01, MW-03, and MW-11), the average calculated K value was used for the wells' hydraulic conductivity. For wells in which aquifer testing was not conducted, the geometric mean of hydraulic conductivities from the three nearest aquifer-tested wells was used. A local hydraulic gradient was calculated for each well using the slope of the plane formed by the low-tide groundwater level in the well and the groundwater levels in two up-gradient wells (three-point problem approach). A unique cross-sectional area was computed for each well based on water-bearing zone thickness at the well (upper or lower) and a length of boundary segment through which groundwater flows to the River.

The DAFs were calculated by dividing the groundwater discharges for each waterfront well by the 7-day, 10-year low streamflow (7Q10) of the River adjacent to the Site (13.9 ft^3/sec), estimated using the US Geological Survey (USGS) Maryland StreamStats application, an online GIS tool for estimating streamflows at ungauged locations. The 7Q10 is the lowest 7-day average streamflow that occurs on average once every 10 years. The instream concentrations for each constituent detected in the waterfront wells was calculated by multiplying the groundwater concentrations by the corresponding DAF. The resulting DAFs ranged from 3.8E-06 at MW04A to 2.0E-04 at MW11A for the UWZ and from 4.2E-05 at MW04B to 1.6E-04 at MW08B for the LWZ.

In addition to the well-specific calculations described above, a flow-weighted average concentration was calculated for each chemical to account for upstream surface water contributions and to evaluate if groundwater discharge contributions from the Site will result in surface water concentrations that exceed surface water ESVs. The average of chemical concentrations detected at the Site-specific background locations 1, 2, 3, 4, 5, and 6 was used to represent upstream surface water contributions. The following equation was used to calculate the flow-weighted average concentration for each chemical:

$$\text{Flow-weighted Average Concentration} = \frac{([C_{MW1A}*Q_{MW1A}] + [C_{MW1B}*Q_{MW1B}] + \ldots) + (C_{SWBCK}*7Q10)}{(Q_{MW1A} + Q_{MW1A} + \ldots + 7Q10)}$$

where:

C_{MW1A} = Chemical concentration measured at monitoring well MW1A
Q_{MW1A} = Discharge rate calculated for monitoring well MW1A
C_{SWBCK}= Average chemical concentration of upstream background surface water samples 1, 2, 3, 4, 5, and 6
7Q10 = the lowest 7-day average flow that occurs on average once every 10 years

The UWZ and LWZ groundwater concentrations, the estimated in-stream concentrations for each well and the flow-weighted average concentrations are presented in Section 3.4. The calculation of the DAF is provided in **Attachment E**.

3.1.4 Fish Tissue Data

In accordance with the approved RI/FS Work Plan (AECOM, 2012b), biota samples were not collected as part of this phase of the RI (AECOM, 2012b). Rather, as specified in the Work Plan, studies conducted by others were evaluated to determine whether relevant and appropriate Anacostia River fish tissue data are available for inclusion in this ERA.

During the past two decades, several investigations of chemical contaminants in Anacostia River fish tissue data have been conducted, including data summarized by Velinsky and Cummins (1996), SRC (2000), and Haywood and Buchanan (2007). These data were reviewed and fish tissue data collected within the last 10 years were considered for inclusion in this ERA based on the assumption that recently collected tissue will better reflect current Site conditions. Two sources of recent fish tissue data were identified (Pinkney, 2014 and MDE, 2012). These data were divided into three areas of the Anacostia River: Upper Anacostia River Area (which includes the area adjacent to the Site), Lower Anacostia River Area, and Upstream Maryland Area (north of Maryland state line). These areas and a summary of tissue samples available in each area are presented on **Figure 8**. It is important to recognize that the fish tissue data evaluated in this ERA were not collected as part of the RI and therefore were not intended to assign attribution to any upland source. It is unknown if these samples are reflective of conditions in the vicinity of PEPCO or are simply reflective of the several mile long river reach that was sampled.

1. Pinkney (2014) reported on the collection of fish tissue samples in 2013 by DOEE in the Upper and Lower Anacostia River Sampling Areas. This study was conducted to support fish consumption advisories for the protection of human health. DOEE conducted a similar effort

in 2000 (Pinkney et al., 2001) and 2007 (Pinkney, 2009). The 2013 tissue data were included in the ERA because they best represent current conditions. In the Upper Anacostia River Sampling Area (as defined by Pinkney), seven species-specific composite samples were collected including brown bullhead (*Ameiurus nebulosus*), blue catfish (*Ictalurus furcatus*), carp (*Cyprinus carpio*), channel catfish (*Ictalurus punctatus*), largemouth bass (*Micropterus salmoides*), northern snakehead (*Channa argus*), and sunfish (*Centrarchidae* sp.). The Waterside Invesitgatrion Area subject to this ERA is located entirely within the Upper Anacostia River Sampling Area. In the Lower Anacostia River Sampling Area, six species-specific composite samples were collected including American eel (*Anguilla rostrata*), blue catfish, carp, channel catfish, largemouth bass, and sunfish.

According to Pinkney (2014), all specimens from the 2013 field survey were filleted and the skin was left on for most species with the exception of channel and blue catfish (skin-off fillets) and American eel (skin and viscera removed and muscle and bone included in the sample). Three or more individual fish were composited by species for chemical analyses which included PCB congeners, PAHs, pesticides, polybrominated diphenyl ethers (PBDEs), metals, lipids, and moisture content. PCB congener analysis included a list of 119 congeners. Total PCB concentrations were calculated as the sum of congeners (tPCBs), and Aroclors were estimated based on homologue composition (Pinkney, 2014).

2. Maryland Department of the Environment sampled fish at three locations in the Anacostia River upstream of the Site (in Maryland) to support the state's evaluation of fish consumption advisories (MDE, 2012). For the purposes of this ERA, and in order to qualitatively evaluate background fish tissue residues upstream of the Upper Anacostia River, all data from the three sample locations were combined into one sampling area (i.e., Upstream Maryland Area). In the Upstream Maryland Area (**Figure 8**), 23 species-specific composite tissue samples were collected from 2003[1] through 2010 including two American eel samples, two blue catfish samples, one brown bullhead sample, one yellow bullhead sample, one carp sample, four channel catfish samples, six redbreast sunfish (*Lepomis auritus*) samples, one pumpkinseed sunfish (*Lepomis gibbosus*) sample, and four white sucker (*Catostomus commersonii*) samples. All specimens were filleted and skin and ribs removed with the exception of the sunfish, for which the skin and ribs were left on. Composite samples were comprised of three to five fish. Chemical analyses for the MDE fish tissue data include PCB congeners, metals, pesticides, and PBDEs. Eighteen (18) samples were analyzed for 116

---

[1] Tissue samples collected in 2003 only were available for the Northwest Branch location, and therefore, the 2003 tissue data available for this location and for the Northeast Branch location were included in this evaluation. Tissue samples collected in 2002 at the mainstem Anacostia River location were not included in this evaluation.

individual PCB congeners; tPCBs were calculated as the sum of congener (MDE, 2012). A subset of samples was analyzed for mercury (n=15), pesticides (n=2), and PBDEs (n=6).

Fish tissue samples were collected in 2015 as part of the Anacostia River Sediment Project Remedial Investigation (Tetra Tech, 2014). These data were not available for inclusion in this preliminary ERA, but will be considered in the revised ERA.

3.1.5 Data Quality Assessment

The data collected as part of the RI program were validated by project chemists as specified in the Quality Assurance Project Plan (QAPP) (AECOM, 2012). All project data from laboratory chemical analyses were validated using criteria specified in the approved QAPP, the relevant EPA reference methods, and EPA's National Functional Guidelines for Inorganic and Organic Data Review.

The laboratory quality control (QC) results, specified as laboratory deliverables in the QAPP, were reviewed. The method-specific QC results included method blanks, equipment blanks, laboratory control samples, matrix spikes, matrix duplicates, laboratory duplicates, field duplicates, and/or surrogates, and were summarized on QC forms, where applicable. Additional method specific parameters and the laboratory report narratives, which detail all QC non-conformances, were also reviewed with regard to any potential impacts to the sample data usability.

Qualifiers were applied to the data due to QC non-conformances where applicable. Upon completion of the data validation of each data set, data validation reports were prepared, which summarize the sample delivery group(s) and parameter(s) reviewed, and any QC non-conformances. In addition, the reports summarize the qualifiers applied to the data as a result of any non-conformances noted during the validation process. Data validation reports for each data set are included in Appendix Q of the RI report. A summary of the data validation and project quality assurance assessments is provided in Section 4.1 of the RI report. Overall, greater than 99% of the data reviewed were found to be reliable and acceptable for use in risk assessment and remedial decision-making.

The fish tissue datasets collected by DOEE (Pinkney, 2014) and MDE (2012) used in the ERA to evaluate the fish tissue residue chemistry and the wildlife evaluation included QC results. Pinkney (2014) noted that quality assurance procedures followed included the analysis of blanks, laboratory and field replicates, and standard reference materials. The MDE dataset included field replicates; however, there is no information available on other quality assurance procedures followed. It is uncertain whether formal data validation was conducted on either data set.

3.1.6 Data Treatment

Exposure point concentrations (EPCs) were estimated within each medium of interest for each COPC in order to evaluate the potential exposures to ecological receptors. These EPCs represent the range of media concentrations that ecological receptors may encounter. Average and maximum EPCs were considered in the food chain evaluation and in the comparison of historic and recently collected sediment and surface water concentration data against benchmarks. The maximum EPC is the upper confidence limit (UCL) on the arithmetic mean, or the maximum when UCLs cannot be calculated due to data limitations (i.e., insufficient number of samples or number of detected results).

All analytical data were compiled and tabulated in a database for statistical analysis. Data for samples and their duplicates were averaged before summary statistics are calculated, such that a sample and its duplicate were treated as one sample for calculation of summary statistics (including maximum detection and frequency of detection). Where both the sample and the duplicate were not detected, the resulting values were the average of the sample-specific quantitation limits (SSQLs). Where both the sample and the duplicate were detected, the resulting values were the average of the detected results. Where one of the pair was reported as not detected and the other was detected, the detected concentration is used.

USEPA's ProUCL Version 5.0 software (USEPA, 2013a) was used to calculate UCLs on the arithmetic mean and arithmetic means according to USEPA guidance (USEPA, 2002), using ProUCL and the Kaplan-Meier method where non-detects are present (using SSQLs and appropriate substitution methods), and simple arithmetic means of detected concentrations for datasets with no non-detects. The ProUCL recommended UCL (i.e., 95%, 97.5%, 99%) were used as the selected UCL. Based on information presented in the ProUCL guidance (USEPA, 2013b,c) regarding minimum sample size and frequency of detection, UCLs and Kaplan-Meier means were calculated where at least 10 samples and at least six detected results were available. While ProUCL version 5.0 recommends a minimum of 10 samples with six detected values in order to calculate reliable UCLs, the guidance recognizes that this may not always be possible due to resource or other restraints, and allows the user best professional judgment when determining the validity of the calculations.

The following summary statistics were calculated:

- **Frequency of Detection (FOD):** The frequency of detection is reported as the number of samples reported as detected for a specific constituent and the total number of samples analyzed. The total number of samples reflects the averaging of duplicates discussed above.
- **Maximum Detected Concentration:** This is the maximum detected concentration for each constituent/area/medium combination, after duplicates have been averaged.

- **Minimum Detected Concentration:** This is the minimum detected concentration for each constituent/area/medium combination, after duplicates have been averaged.
- **Mean Detected Concentration:** This is the arithmetic mean concentration for each constituent/area/medium combination, after duplicates have been averaged, based on detected results only.
- **Kaplan Meier Method Mean:** When non-detects are present in the dataset, the mean concentrations was derived by the program using appropriate SSQL substitution methods (USEPA, 2013b,c).
- **UCL:** The UCL recommended by ProUCL version 5.0. If more than one UCL was recommended by the program (i.e., 95%, 97.5%, 99%), the higher UCL was selected.
- **Maximum EPC:** The lower of the selected UCL and the maximum detected concentration was selected.
- **Average EPC:** Arithmetic mean for datasets with no non-detects; Kaplan-Meier mean for datasets with non-detects. When the Kaplan-Meier mean could not be calculated due to an insufficient number of detects, then the arithmetic mean of the detected results was selected.

3.2 Characterization of Ecological Effects

COPCs are a subset of all the constituents detected in media at the Site that are carried through the quantitative ERA process. Selection of COPCs focuses the analysis on those constituents with a potential to pose a risk to ecological receptors.

COPCs were identified and evaluated for sediment and surface water using a two phase approach.

1. In the first phase, maximum detected constituent concentrations were compared to low effect ecological screening values (ESVs) identified for various ecological receptors (e.g., benthic and aquatic invertebrates, fish). Any contaminant for which the maximum detected concentration in sediment or surface water exceeded its respective low effect sediment ESV or chronic surface water ESV was identified as a COPC.
2. In the second phase, the detected concentration of COPCs in each sediment and surface water sample was screened against both low effect and probable effect ESVs for sediment (chronic and acute ESVs for surface water) to further characterize the range and spatial patterns of elevated concentrations in the Waterside Investigation Area.

The presence of COPCs in environmental media at concentrations above the ESVs does not necessarily constitute ecological risk; only that additional evaluation is warranted.

As part of the identification of COPCs for the ERA, essential nutrients (i.e., calcium, magnesium, sodium, and potassium) were eliminated from further investigation (USEPA, 1989; USEPA, 2001). These naturally occurring chemicals are toxic only at very high doses, are essential to some ecological receptors, and are not expected to be related to Site activities.

The following sub-sections describe the ESVs identified for each medium. The ESVs for sediment and surface water are presented in **Tables 3-1 and 3-2,** respectively.

3.2.1 Sediment Screening Values

Sediment analytical chemistry analysis results were compared to available low effect and probable effect ESVs selected using a hierarchy of the following sources:

- Freshwater sediment values, presented by NOAA in the Screening Quick Reference Tables (SQUIRT) (Buchman, 2008);
- USEPA Region 3 Freshwater Sediment Screening Benchmarks (USEPA, 2006b);
- USEPA Region 5 Ecological Screening Levels for sediment (USEPA, 2003); and
- Ontario Ministry of the Environment (OMOE) Provincial Sediment Quality Guidelines (Persaud et al., 1993)

Low effect ESVs selected from Buchman (2008) were typically the Threshold Effect Level (TEL) or Threshold Effect Concentration (TEC) from MacDonald et al. (2000) or CCME (2002). Probable effect ESVs were typically the Upper Effect Threshold (UET) from Buchman (1999 as cited in Buchman [2008]) or Severe Effect Level (SEL) from Persaud et al. (1993). Sediment ESVs used in this ERA are presented in **Table 3-1**.

3.2.2 Surface Water Screening Values

Surface water ESVs were selected from the following hierarchy of resources to evaluate potential exposure to surface water and to diluted and attenuated groundwater:

- DOEE Water Quality Standards (WQS) for the protection of freshwater aquatic life (DOEE, 2010)
- USEPA Region 3 Freshwater Screening Benchmarks (USEPA, 2006a).
- Literature-based toxicological benchmarks (Suter & Tsao, 1996 and Buchman, 2008).

Acute and chronic ESVs are presented in **Table 3-2.** Chronic values were selected from the above sources for the identification of COPCs. Inorganic ESVs were based primarily on the dissolved standards presented in the DOEE WQS (2010) with the exception of mercury and selenium for which total phase standards are presented in the DOEE WQS. In addition, EPA conversion factors were used to calculate both total and dissolved ESVs for several hardness dependent constituents (cadmium, chromium, copper, lead, nickel, and zinc).

3.3 Sediment COPC Selection

Consitutents were identified as COPCs if the maximum concentration in sediment was greater than the low effect ESV (**Table 3-1**) or because a sediment ESV was not available for a particular COPC.

The results of the COPC identification process are presented in **Table 3-3**. Sediment COPCs identified because the maximum detected concentration was greater than the low effect ESV included:

- 13 metals: antimony, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, silver, and zinc
- 11 pesticides: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, cis-chlordane, trans-chlordane, dieldrin, endosulfan sulfate, endrin, endrin ketone, heptachlor epoxide, and methoxychlor.
- Total PCBs
- Five SVOCs: 2-methylnaphthalene, 4-methylphenol, bis-(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-octylphthalate
- Total High Molecular Weight (HMW) PAHs, Total Low Molecular Weight (LMW) PAHs, and Total PAHs
- One VOC: acetone
- 17 dioxin/furan compounds

In addition, nine COPCs were identified because no sediment ESVs were available: aluminum, beryllium, selenium, thallium, vanadium, acetophenone, benzaldehyde, caprolactam, and carbazole.

Individual PAHs and PCBs were screened in **Table 3-3**. However, these compounds will be evaluated further as the sum or total of individual detected compounds. In general, individual PAHs and PCBs all exhibit a similar mode of toxicity to many ecological receptors and are often evaluated as total PAHs or PCBs in ERAs. Total PAHs and PCBs were calculated as the sum of the detected individual PAHs or PCBs in a sediment sample.

3.4 Surface Water COPC Selection

Surface water COPCs were identified by comparing maximum detected chemical concentrations measured in surface water to applicable chronic ESVs (**Table 2**). Chemicals were identified as COPCs if the maximum concentration was greater than the chronic ESV or because a surface water

ESV was not available for a particular COPC. The results of the COPC identification process are presented in **Table 3-4**. Surface water COPCs include:

- One dissolved metal - barium
- One pesticide - 4,4-DDT
- Two SVOCs: anthracene and pyrene

In addition, two COPCs (carbazole, n-Hexane Extractable Material [HEM; oil and grease]) were identified because no ESVs were available.

Table 3-5 presents surface water concentrations estimated from chemicals that were detected in groundwater at each nearshore monitoring well location (both shallow and deep wells). A description of the groundwater-to-surface water calculations is presented in Section 3.1.3 and in **Attachment E**. None of the Estimated surface water concentrations were greater than the surface water ESVs with the exception of the TCDD TEQ concentration (0.00003 μg/L) calculated for MW11B (lower aquifer), which exceeds the surface water ESV of 0.00001 μg/L. However, this elevated TCDD TEQ concentration is likely attributable to turbidity and not likely representative of dissolved concentrations that are mobile and have the potential to migrate. Pepco will re-develop and re-sample MW-11 to address the turbidity issues as part of the upcoming additional field investigation. In addition, none of the flow-weighted average concentrations exceed the surface water ESVs. Therefore, although there is some uncertainty with this approach, no groundwater COPCs were identified in this preliminary ERA based on the evaluation of wells with the potential to discharge to the river. In addition, potential risks to benthic organisms exposed to sediment porewater will be further addressed via direct sampling of porewater as part of the upcoming additional field investigation.

3.5 Fish Tissue Residue Risk Analysis

Potential risks to fish from COPC exposure via ingestion of sediment and contaminated food items was evaluated through an assessment of fish tissue body burdens. Tissue concentrations of COPCs measured in fish tissue samples collected in the vicinity of the Waterside Investigation Area were evaluated relative to literature-derived CBRs. This section presents the COPC identified for this pathway, the tissue data used to evaluate exposure, and the derivation of effects concentrations (CBRs)

3.5.1 COPC Identification for the Fish Tissue Evaluation

This preliminary ERA considers total PCBs as the only COPC for the fish tissue evaluation, however the revised ERA will consider a broader array of organic and inorganic COPCs in fish tissue and will consider the most recent fish tissue data collected as part of the ongoing Anacostia River Sediment Project RI/FS (these data are not available for inclusion in the preliminary ERA).

PCBs are known to accumulate in fish tissue through the ingestion of contaminated sediment or prey. Some inorganics may also accumulate in tissue, such as mercury. However, mercury was not detected in surface water, and detected mercury concentrations in sediment did not exceed the sediment probable effect ESVs and were found to be similar to background (the preliminary background evaluation is presented in Appendix V of the RI Report). Other inorganics can accumulate in tissue, but aquatic organisms vary in how they metabolize and regulate metals and comparison of a measured total metal concentration in fish tissue to a literature-derived tissue threshold is not recommended (Adams et al., 2010). While pesticides are known to accumulate in fish tissue, pesticides are found throughout the watershed at comparable levels and are not associated with past Site operations (see Appendix V in RI Report). Therefore, for this preliminary BERA, PCBs are expected to be the most relevant potentially Site-related bioaccumlulative compound and were identified as the COPC for the fish tissue evaluation.

3.5.2 Fish Tissue Data Used in the Evaluation

As detailed in Section 3.1, tissue samples were collected in three sampling areas on the Anacostia River and species-specific composite samples were comprised of similar species, including smaller forage fish such as sunfish, bottom-feeding invertivores such as channel catfish and American eel, and piscivorous fish such as largemouth bass.

Pinkney (2014) reported Total PCB Aroclor concentrations detected in fish tissue samples (fillet) collected by DOEE in 2013 in two sampling areas of the Anacostia River in the District of Columbia (**Table 3-6**). The Lower Anacostia River Sampling Area extends from the confluence with the Potomac River upstream to the CSX Railroad Bridge and the Upper Anacostia River Sampling Area extends from the CSX Bridge upstream to the DC/Maryland Boundary at US Route 50 (**Figure 8**). The Benning Road facility is located within the Upper Anacostia River Sampling Area. Seven composite samples, consisting of 3 to 7 individuals per composite, are available for the Upper Anacostic River Sampling Area with fillet concentrations ranging from 0.0419 in sunfish to 0.254 mg/kg wet weight in channel catfish. In the Lower Anacostia River Sampling Area, six composite samples are available, consisting of 4 to 9 individuals per composite, with fillet concentrations ranging from 0.0411 in sunfish to 0.645 mg/kg wet weight in American eel.

Concentrations of tPCBs detected in fish tissue samples collected in the Anacostia River upstream of the DC/Maryland border are available from MDE (2012) and presented in **Table 3-7**. A total of 18 fillet tissue samples were collected at three locations in this Upstream Area, which extends from the DC/Maryland border at US Route 50 upstream to the extent of tidal influence on both the northeast and northwest branches of the Anacostia River (**Figure 8**). Total PCB congener concentrations ranged from 0.0177 mg/kg wet weight (pumpkinseed sunfish) to 1.83 mg/kg wet weight (carp).

Because whole body concentrations are more appropriate for characterizing ecological exposures, the fillet concentrations from the two data sources described above were adjusted to whole body concentrations using ratios available from the literature. A mean fillet-to-whole body ratio of 0.5 was calculated for multiple species for total PCBs by the Washington State Department of Health (Washington State, 2004). The mean ratio was used to represent all species because a ratio for each individual species was not available. The fillet concentrations presented in **Tables 3-6** and **3-7** were divided by this ratio to estimate whole body concentrations.

3.5.3 Identification of Fish Tissue CBRs

In order to evaluate the potential impact to the fish community due to exposure to COPCs in the Anacostia River within the Waterside Investigation Area, ranges of no-effect and low-effect CBRs for total PCBs were compiled from the literature. These ranges represent tissue concentrations resulting from actual exposures that could potentially result in adverse biological effects. Values were derived based on no observed effect concentrations (NOECs) and lowest observed effects concentrations (LOECs). NOECs indicate a body residue concentration at which no adverse effects were observed and LOECs indicate a body residue concentration at which adverse effects may begin to be observed.

A search of the toxicological literature was conducted for studies with measured effects on fish as a result of exposure to total PCBs in water or through ingestion of food. Two databases were queried for relevant studies: Environmental Residue Effects Database (ERED; http://el.erdc.usace.army.mil/ered/) and Jarvinen and Ankley (1999). In addition, a general literature search was conducted for relevant studies. Studies were considered valid for the purposes of this evaluation if they met the following requirements:

- Based on whole body tissue residues
- Based on freshwater fish species (saltwater species were not included)
- Based on Reproduction, Growth, and Survival/Mortality effects

Any no-effect CBR values with no associated effects values from the same study were not included (i.e., no-effect values must be bounded by an effect value for the same endpoint from the same study). In addition, only NOECs or LOECs were considered; alternative effects levels, such as LC50 (lethal concentrations resulting in 50% mortality), were considered if no acceptable no-effect or low-effect values were available. Twenty-four studies were identified with 48 NOEC and LOEC values. The results of the CBR search are presented in **Attachment F**.

The range of NOECs and LOECs identified for mortality, growth, and reproduction endpoints are presented in **Table 3-8**. The lowest NOEC (0.14 mg/kg wet weight) was identified for mortality based on a zebra danio (*Danio rerio*) study with a corresponding LOEC of 1.1 mg/kg wet weight (Orn et al., 1998). The highest NOEC (350 mg/kg wet weight) was identified for a study of fathead minnows (Niimi, 1996), which also reported a LOEC of >30 mg/kg wet weight based on reduced spawning and hatching success. The lowest LOEC (0.14 mg/kg wet weight) was also identified from the Orn et al. (1998) study where growth effects on zebra danio were observed after 13 weeks following oral doses of PCB mixtures. The highest LOEC (648 mg/kg wet weight) was identified from a study involving exposure of fathead minnows in water to PCB Aroclor 1254 that resulted in reduced survival (van Wezel et al., 1995).

3.6 Evaluation of Wildlife Risk Analysis

Potential exposure routes for wildlife receptors include potential direct or indirect ingestion of surface water, sediment, and ingestion of food items containing COPCs. To evaluate potential wildlife exposure, representative wildlife species were selected for evaluation in a food web model that estimate exposures to wildlife species respective to their position in the food chain. The following subsections present representative species, exposure parameters, COPC concentrations in prey items, calculation of potential doses, and evaluation of effects for vertebrate wildlife receptors. The evaluation of potential risks to wildlife in the Waterside Investigation Area is focused on PCBs. As detailed for the Fish Tissue Evaluation (Section 3.5.1), PCBs are expected to be the most relevant Site-related bioaccumulative compound within the exposure area and were the sole COPC included in the wildlife evaluation in this Preliminary ERA. However, the revised ERA will include a broader array of inorganic and organic COPC in the wildlife risk evaluation, and will include fish tissue residue data collected as part of the ongoing Anacostia River Sediment Project RI/FS (these data are not available for inclusion in the preliminary ERA),

3.6.1 Representative Species

As described in Section 2.4, the Waterside Investigation Area includes riverine aquatic habitat and wetland habitat. These areas may offer habitat resources for a variety of vertebrate wildlife species. Due to the steep elevation change between the upland and the river, there is a general lack of wading habitat along most of the shoreline adjacent to the Site (i.e., the river becomes deep very quickly). However, it was assumed that birds and mammals could be exposed to sediments and prey items (i.e., fish) from within the Waterside Investigation Area.

Since constituents may biomagnify through the food web, representative vertebrate wildlife species from upper trophic levels were selected for evaluation. Carnivores and piscivores represent the top of the food chain and are potentially exposed to the higher levels of bioaccumulated analytes.

Therefore, the following two piscivorous wildlife receptors, great blue heron and raccoon, were evaluated in the food web model. The following is a brief description of both species.

- **Great Blue Heron (*Ardea herodias*)** – The great blue heron was selected as a representative avian piscivore for evaluation of potential risks associated with exposure through the ingestion of fish. The great blue heron occupies a variety of freshwater and marine areas, including brackish marshes, coastal wetlands, lakes, and rivers where small fish are abundant in shallow areas. Fish are preferred prey, but they also feed on amphibians, reptiles, insects, crustaceans, birds, and mammals (EPA, 1993). The great blue heron is a wading bird and not likely to be found in deep water.
- **Belted Kingfisher *(Megaceryle alcyon)*** – The belted kingfisher was selected as an additional piscivorous avian receptor for the evaluation of potential risks associated with exposure through ingestion of fish. The belted kingfisher inhabits shorelines of rivers, streams, and estuaries and feed on fish swimming near the surface or in shallow waters. In addition to fish, belted kingfishers consume crayfish, crabs, mussels, small amphibians and reptiles such as frogs and lizards, young birds and mice, and berries (EPA, 1993). The belted kingfisher feeds by diving head first into the water, and water depths of 60 cm or less is preferred (EPA, 1993).

- **Raccoon (*Procyon lotor*)** – The raccoon was selected as a representative small omnivorous mammalian wildlife species that may be found within aquatic exposure areas. The raccoon is the most abundant and widespread medium-sized omnivore in North America. Raccoons are commonly found in aquatic habitats, particularly in hardwood swamps, floodplain forests, and freshwater and saltwater marshes. They are also common in suburban residential areas. Raccoons are omnivorous and feed primarily on insects, small mammals, birds, lizards, and fruits (EPA, 1993). The raccoon is expected for forage on the nearshore and banks of the Waterside Investigation Area, and is unlikely for forage in deep waters.

3.6.2 Estimates of Exposure

Wildlife species may potentially be exposed to PCBs in surface water, sediment, and fish tissue through the incidental ingestion and food chain exposure pathways. Exposure assumptions (e.g., body weights, food and water ingestion rates, relative consumption of food items, foraging range, exposure duration, etc.) for the great blue heron and raccoon were obtained from the USEPA's Wildlife Exposure Factors Handbook (USEPA, 1993) and are provided in **Table 3-9**. Allometric equations developed for birds and mammals (Nagy, 2001 and Calder and Braun, 1983) were used to estimate food and water ingestion rates, respectively. Calculation of the ingested doses is discussed below.

Wildlife exposure parameters and concentrations of PCBs in sediment, and surface water, and fish tissue were used to estimate the potential ingested doses to which wildlife receptors might be exposed at the Site. Both maximum and average EPCs for sediment, surface water, and fish tissue were used in the food web model. Due to the size of the 2013 Upper Anacostia fish tissue data set (Pinkney, 2014), a UCL could not be calculated and the maximum EPC for tissue was selected as the maximum detected concentration.

The food web model included the following species- and chemical-specific assumptions regarding exposure factors:

- Representative species body weight and food intake are the average for the range identified in the literature.
- PCBs in sediment, water and fish tissue are 100 percent bioavailable to representative species.
- Raccoons and belted kingfisher are present year-round.
- Herons are present for eight months of the year, and some herons may overwinter in the Anacostia River, therefore, it was assumed that herons are present year-round.
- Representative species obtain all of their daily dietary requirements from within the Study Area (i.e., they only consume food found within the Waterside InvestigationArea).
- Diets of representative species were modeled as exclusive diets (i.e., consisting of 100% fish represented by the 2013 Upper Anacostia data set).

3.6.2.1 Calculation of Potential Doses

To estimate potential dietary exposure, a total daily dose (TDD) was estimated for each species. The TDD calculation considers the following factors: concentrations of PCBs in the food items that the species would consume, estimated amounts of abiotic media (e.g., sediment) that it would incidentally ingest, the relative amount of different food items in its diet, body weight, exposure duration (ED), species-specific area use factors (AUFs), and food ingestion rates. The ED represents the portion of the year that the receptor is exposed to the site (e.g., may be modified by migration). An AUF is defined as the ratio of the area of organisms' home range to the available habitat area within the site, and for the purposes of this evaluation, was assumed to be equal to one (i.e., both representative species could use the entire exposure area).

The following generalized equation was used to evaluate the TDD from all sources (i.e., prey items, drinking water, incidental ingestion) for each COPC:

$$TDD = \underline{\Sigma([IR_f \times C_f] + [IR_s \times C_s] + [IR_w \times C_w]) \times ED \times AUF}$$

A PHI Company

Body Weight

where:

IR_f = Ingestion rate of food (kg_{ww}/day)

IR_s = Incidental ingestion rate of sediment (kg_{dw}/day)

IR_w = Ingestion rate of water (L/day)

C_f = Concentration of COPC in prey (mg_{ww}/kg)

C_s= Concentration of COPC in sediment (mg_{dw}/kg)

C_w = Concentration of COPC in water (mg/L)

ED = Exposure duration (fraction of time receptor spends within exposure area)

AUF = Area use factor (ratio of the receptor's home range, etc,... relative to the size of exposure area)

The sum of the doses from the various sources represents the full TDD from PCBs that a receptor may be exposed through as a result of foraging within the Waterside Investigation Area. This generalized equation was modified for each representative species using the exposure parameters presented in **Table 9**.

3.6.3 Estimation of Effects

For the purpose of evaluating potential risks to wildlife, TRVs were identified for both avian and mammalian receptors. The TRV relates the dose of a respective COPC from oral exposure with a potential adverse effect. TRVs can be defined as the daily dose of a constituent that is considered protective of wildlife (mammals and birds) populations or individuals. The dose is expressed in milligram per kilogram body weight per day (mg/kg_{bw}/day) and can be based on either a NOAEL or a LOAEL.

USEPA guidance (USEPA, 1997) specifies that it is preferred that TRVs represent a NOAEL for chronic exposure to Site-related constituents. Should a NOAEL not be available, USEPA guidance allows the use of the lowest exposure level shown to produce adverse effects (i.e., the LOAEL) in the development of TRVs. NOAEL-based TRVs were preferably based on chronic NOAELs, with an emphasis on studies that measured effects on survival, reproduction, and growth endpoints applicable to the protection of wildlife populations.

Both upper and lower bound TRVs (LOAEL-based TRVs and NOAEL-based TRVs, respectively) were developed for this assessment in order to estimate a range of potential risks to mammalian and avian receptors. The NOAEL-based TRVs represent non-hazardous exposure levels for the wildlife species evaluated, while the LOAEL-based TRVs represent potential exposure levels at which adverse effects may become evident. **Attachment G** describes the derivation of the PCB TRVs used in the food web model.

3.7 Background Data Evaluation

As detailed in the Ecological Setting (Section 2.3), the Anacostia River is impacted by multiple anthropogenic stressors. To address the potential influence of urban background on the Waterside Investigation Area, a preliminary Background Evaluation was conducted (presented in Appendix V in the RI Report). This evaluation will be updated following additional field investigation and will incorporate additional data and revised analyses. Evaluation of Site sediment, surface water, and fish tissue COPC data relative to background conditions is presented for in Section 5.1.

4 Risk Characterization

The results of the risk analysis were analyzed and interpreted to determine the potential for adverse environmental effects, and to determine whether a conclusion of no significant risk can be reached for each assessment endpoint evaluated. As discussed in Section 1,this preliminary ERA was based on the RI activities completed to date. Additional field investigation is necessary to address remaining data gaps and uncertainties. The risk characterization results contained in this preliminary ERA will be revised based on the results of these investigations. The revised ERA will be documented following the completion of the additional field investigation necessary to address remaining data gaps and uncertainties. The risk characterization results contained in this preliminary ERA will be revised based on the results of the additional field investigations. The revised ERA will be documented following the completion of the additional field investigation.

For benthic invertebrates and fish communities, a hazard quotient (HQ) was calculated for each COPC based on the maximum detected concentration in surface water or sediment divided by the low effect or chronic ESVs:

HQ = Maximum Detected Concentration/ESV

Potential risks from exposure to surface water and sediment were further evaluated on a sample-by-sample basis through comparison of detected concentrations of COPCs to ESVs.

For higher trophic level wildlife receptors, the risk estimate is based on the hazard quotient (HQ), defined as the ingested dose (i.e., the TDD) divided by the species-specific TRV:

HQ = TDD/TRV

The HQ is not a predictor of risk but rather is an index used to indicate whether or not there is potential risk. When the HQ based on the maximum detected concentration was equal to or less than 1 (i.e., the concentration was less than the ESV), exposure to the constituent was assumed to fall below the range considered to be associated with adverse effects for growth, reproduction, or survival and no population level risks were assumed to be present. An HQ above 1 indicates the potential for adverse effects and further evaluation of potential risk is conducted. Due to the multiple conservative assumptions implicit in the ERA, the presence of HQs above 1 does not necessarily constitute ecological risk; only that additional consideration is warranted.

4.1 Benthic Macroinvertebrate Community Evaluation

Benthic organisms (e.g., those living in sediment) may potentially be exposed to COPCs from direct contact with sediment. Two measurement endpoints were used to evaluate Assessment Endpoint 1, which was developed for the benthic macroinvertebrate community in the Waterside Investigation Area:

- Comparison of sediment concentrations to sediment ESVs.
- Characterization of bioavailability potential in sediment based on SEM and AVS relationships.

4.1.1 Evaluation of Sediment Chemistry Relative to ESVs

COPCs identified for sediment, and the resulting maximum HQs for each COPC, are presented in **Table 3-3**. HQs based on the maximum detected concentration and the low effect ESV ranged from 1.2 to 800.

The COPCs identified for sediment in **Table 3-3** were screened against low effect and probable effect ESVs on a sample-by-sample basis for the Waterside Investigation Area in **Table 4-1**. Although a number of compounds were present at concentrations in excess of low effect screening values, very few (12 out of 52) COPC concentrations exceeded the probable effects concentrations. The COPCs that exceed the probable effects concentrations are further discussed below.

Concentrations of six inorganic compounds (cadmium, chromium, copper, lead, nickel, and zinc) sporadically exceeded the probable effects ESV. Samples with inorganic COPC concentrations in excess of the probable effect ESVs were located predominantly in the vicinity of Outfall 013. A similar trend was observed for organic compounds – very few organic COPCs were present at concentrations in excess of the probable effects ESVs. The exceptions included tPCBs, bis-2-ethyl-hexyl-phthalate, total high molecular weight PAHs, and several pesticides. Acetone and dioxin and furan compounds exceed the low effect ESV at many locations; a probable effect ESV was not available for these compounds.

Concentrations of these COPCs in excess of the probable effects ESV were detected primarily in samples located near Outfall 013. Lead, nickel, and tPCBs exceed the probable effect ESV with the highest frequency and Site concentrations of these three COPCs are presented on **Figures 9, 10, and 11**, respectively. Only these three COPCs were included on **Figures 9, 10, and 11** because exceedances of other COPCs occur at lower frequencies primarily in the same areas in the Waterside Investigation Area, near Outfall 013 in particular, as lead, nickel, and tPCBs.

Inorganic COPCs

Metals were detected in all 46 samples in the Waterside Investigation Area, with the exception of antimony (45 detected concentrations out of 46 total). As discussed above, most maximum detected concentrations of metals (with the exception of cobalt and several metals for which no ESVs are available) are higher than the low effect ESV but lower than the probable effect ESV. The exceptions are cadmium, chromium, copper, lead, nickel, and zinc for which elevated concentrations of these metals at some locations near Outfall 013 exceed the probable effect ESVs, which were all based on the PECs derived by MacDonald et al. (2000). The following is a summary of these metals.

- **Cadmium and Chromium:** Only one detected concentration of cadmium (5.2 mg/kg at SED7.5E) and chromium (140 mg/kg at SED5.5B) was higher than the probable effect ESVs for these metals (4.98 mg/kg and 111 mg/kg, respectively). All remaining 45 samples were detected at concentrations lower than the probable effect ESVs for both cadmium and chromium.
- **Copper**: Concentrations detected at three locations (SED7.5D, SED7.5E, and SED7F), ranging from 160 mg/kg to 240 mg/kg, are higher than the probable effect ESV (149 mg/kg).
- **Lead**: Concentrations at seven locations (SED6.5D, SED6.5E, SED7.5D, SED7.5E, SED7D, SED7E, and SED7F), ranging from 130 to 320 mg/kg, are higher than the probable effect ESV (128 mg/kg; **Figure 9**).
- **Nickel**: Concentrations at eight locations (SED6.5D, SED6.5E, SED7.5D, SED7.5E, SED7D, SED7E, SED7F, and SED7G), ranging from 50 mg/kg to 160 mg/kg, are higher than the probable effect ESV (48.6 mg/kg; **Figure 10**).
- **Zinc**: Concentrations detected at two locations (580 mg/kg at SED7.5E and 630 mg/kg at SED7F) exceed the probable effect ESV (459 mg/kg). All remaining 43 samples were detected at concentrations lower than the probable effect ESV.

Pesticides

Pesticide compounds were detected in most of the 14 samples analyzed for these compounds in the Waterside Investigation Area at levels below the probable effect ESVs, which were all based on the PECs derived by MacDonald et al. (2000). Concentrations of 4,4-DDD, 4,4-DDE, 4,4-DDT, and trans-chlordane exceeded their respective probable effect ESV for these compounds at a few locations, including in the vicinity of Outfall 013 as well as more sporadically throughout the Waterside Investigation Area. A summary of concentrations of these pesticides relative to ESV is presented below:

- **4,4-DDD and 4,4-DDT**: Concentrations at one location (0.052 mg/kg and 0.75 mg/kg, respectively, at SED4B) are higher than the probable effect ESVs for these compounds (0.028 mg/kg and 0.063 mg/kg, respectively).
- **4,4-DDE**: Concentrations at one location (0.046 mg/kg at SED7B) is elevated relative to the probable effect ESV (0.0313 mg/kg).
- **Trans-chlordane**: Concentrations at two locations (0.022 mg/kg and 0.024 mg/kg at WSED1 and WSED2) exceeds the probable effect ESV (0.0176 mg/kg).

Total PCBs

Total PCB Aroclors were detected in 45 out of 46 sediment samples in the Waterside Investigation Area. Concentrations at five locations near or downstream of Outfall 013 (SED5C, SED6.5D, SED7.5D, SED7.5E, SED7E, and SED7F; **Figure 11**), ranging from 0.75 mg/kg to 1.9 mg/kg, exceeded the probable effect ESV of 0.676 mg/kg, which was the PEC for total PCBs derived by MacDonald et al. (2000). All other detected concentrations are lower than the probable effect ESV.

SVOCs

Total HMW PAHs were detected in 45 out of 46 samples at levels that exceed the low effect ESV. Total HMW PAH concentrations detected in 14 samples samples (SED1.5B, SED2.5B, SED2C, SED3C, SED4.5B, SED4B, SED5C, SED6B, SED7F, SED7G, SED8A, SED9C, WSED1, and WSED2) ranged from 6.65 mg/kg to 13 mg/kg, and exceeded the probable effect ESV of 6.5 mg/kg, which was the Upper Effects Threshold (UET) derived by NOAA (Buchman, 2008).

Total PAHs and total LMW PAHs were detected in all 44 and 45 samples, respectively, out of 46 total. Concentrations of both exceed the low effect ESVs at all but two locations. However, no concentrations exceed the probable effect ESV for these compound mixtures.

Bis-(2-Ethylhexyl)phthalate was detected in all 14 samples analyzed for this compound. Concentrations of bis-(2-Ethylhexyl)phthalate in nine samples (SED2C, SED6.5E, SED6B, SED7B, SED8C, SED9C, SED10B, WSED1, and WSED2) ranged from 0.83 mg/kg to 1.6 mg/kg, and exceeded the probable effect ESV of 0.75 mg/kg, which was the UET derived by NOAA.

VOCs

Acetone was detected in the Waterside Investigation Area at levels that exceed the low effect ESV. It was noted that all reporting limits for acetone also exceed the low effect ESV. A probable effect ESV was not available.

Dioxin/Furans

One to several dioxin and furan compound concentrations exceeds the low effect ESV (0. 0000378 mg/kg) at all 14 locations. No probable effect ESV is available. The ESV is a UET derived by NOAA (Buchman, 2008), and organic carbon normalized based on the mean TOC measured in Site sediment samples (4.3%). The highest detected concentrations were detected for OCDD, OCDF, 1,2,3,4,6,7,8-HpCDD, and 1,2,3,4,6,7,8-HpCDF compounds.

4.1.2 Evaluation of Divalent Metals Bioavailability

To better understand the divalent metals bioavailability at the Site, SEM, AVS, and TOC were measured in sediments collected from the Waterside Investigation Area and from Site-specific background locations.

Several approaches are available to assess the potential bioavailability of the divalent metals using these data. The first approaches consider only the potential for binding to the sulfides by evaluating SEM:AVS ratios and the difference between the SEM and AVS concentrations (SEM minus AVS). Sediments with SEM:AVS ratios less than 1 typically have sufficient metal binding capacity to maintain dissolved metals concentrations in the pore water below toxic levels. When the SEM:AVS molar ratio is less than 1, the USEPA briefing report to the USEPA science advisory board (USEPA, 1995) states that "in virtually no instance has metals toxicity been observed." Similarly, when SEM minus AVS is above zero the portion of the metals in excess of the AVS concentration can potentially exist as free metals, and thus can potentially be bioavailable and toxic. Conversely, when the SEM:AVS ratio is greater than 1 (or the SEM minus AVS is below zero), toxicity is often, but not always, predicted. This suggests that other binding phases beyond AVS (i.e., TOC) may also limit the bioavailability and resulting toxicity of metals in sediments.

USEPA (2005) guidance on metals bioavailability evaluates possible binding of metals by both AVS and organic matter. Sediment data were evaluated on a sample-by-sample basis using the following scale (USEPA, 2005), in addition to the SEM:AVS ratios and the SEM minus AVS concentration, to evaluate whether or not the organic carbon binding phase (represented as fraction organic carbon or f_{oc}), in conjunction with the AVS, is affecting the bioavailability of divalent metals in sediments:

- If the $(\sum SEM\text{-}AVS)/f_{oc}$ excess exceeds 3000 µmol/g_{oc}, the sediments are presumed to be "likely to be toxic";
- If the $(\sum SEM\text{-}AVS)/f_{oc}$ excess is between 130 and 3,000 µmol/g_{oc}, predictions of effects are uncertain; and

- If the (∑SEM-AVS)/f_{oc} excess is less than 130 µmol/g_{oc}, the sediments are presumed to "not likely" be toxic.

A review of the SEM, AVS, and TOC data presented in **Table 4-2** indicates that the SEM:AVS ratios and the SEM minus AVS concentrations for several samples suggest that the divalent metals may be bioavailable. These results indicate that the sulfides may not be sufficient to limit the bioavailability of the divalent metals. However, when the binding capability of the TOC is also considered, very few samples within the Waterside Investigation Area are predicted to have bioavailable divalent metals.

As indicated in **Table 4-2**, the ratio of total SEM concentration to AVS, normalized to the organic carbon content (referred to as (∑SEM/AVS)/f_{oc}), does not exceed the benchmark of 130 µmol/g_{oc} in the majority of the samples. This indicates that the sediment from these locations are likely to pose low risk of adverse biological effects to ecological receptors as a result of divalent metals exposure.

The (∑SEM/AVS)/f_{oc} for sediments collected from six Site locations (SED3B, SED3.5B, SED7B, SED7E, SED7G, SED8C), out of 46 locations total, exceed 130 µmol/g_{oc} (but are below 3,000 µmol/g_{oc}), indicating that prediction of adverse biological effects to ecological organisms due to exposure to divalent metals at these locations is uncertain. None of the samples contained (∑SEM/AVS)/f_{oc} at concentrations in excess of 3,000 µmol/g_{oc}.

The locations SED3B and SED3.5B are near Outfall 101 and SED7B, SED7E, SED7G, and SED8C are located near Outfall 013. These results indicate that, in most locations within the Waterside Investigation Area, the divalent metals are not expected to be bioavailable (see Section 5.1 for a discussion of the Site-specific background samples). In addition, the results for most of these samples are driven by low AVS and not high metal concentrations.

4.2 Fish Community Evaluation

Fish may potentially be exposed to COPCs from direct contact with surface water and sediment and ingestion of sediment and contaminated food items. Three measurement endpoints were used to evaluate Assessment Endpoint 2, which was developed for the warmwater fish community in the Waterside Investigation Area:

- Comparison of surface water concentrations to acute and chronic surface water ESVs.
- Comparison of fish tissue COPC burdens to available CBR thresholds and background tissue concentrations.

A PHI Company

The following sections present the methodology used to evaluate each measurement endpoint, followed by the risk analysis and characterization. Uncertainties associated with each endpoint are also discussed.

4.2.1 Evaluation of Surface Water Chemistry

The COPCs identified for surface water in **Table 3-4** were screened against both chronic and acute ESVs on a sample-by-sample basis for the Waterside Investigation Area in **Table 4-3**.

All detected dissolved concentrations of barium, and total concentrations of 4,4'-DDT and anthracene are greater than the chronic ESV, but less than acute ESVs (when an acute ESV is available). For pyrene, three out of four detected concentrations are greater than the chronic ESV; no acute ESV is available.

- **Barium:** All Site dissolved barium concentrations, ranging from 28 µg/L to 36 µg/L, exceed the chronic ESV (4 µg/L), but are less than the acute freshwater ESV (110 µg/L).
- **4,4-DDT:** Concentrations of 4,4-DDT detected in all five Site surface water samples ranged from 0.0011 µg/L to 0.0016 µg/L and are above the chronic ESV (0.0010 µg/L), but less than the acute ESV (1.1 µg/L). Both ESVs are from DOEE WQS (DOEE, 2006b).
- **Anthracene:** The concentrations of anthracene detected in one out of 10 Site surface water samples (0.018 µg/L) was above the chronic ESV (0.012 µg/L) from USEPA Region 3, but below the acute ESV (13 µg/L). The reporting limits for the non-detected samples were also higher than the chronic ESV.
- **Pyrene**: Concentrations of pyrene detected in three out of 10 Site surface water samples, ranging from 0.026 µg/L to 0.038 µg/L, are higher than the chronic ESV (0.025 µg/L) from USEPA Region 3. The reporting limits for pyrene are also higher than the chronic ESV. No acute ESV is available for pyrene.

4.2.2 Evaluation of Fish Tissue Residue Chemistry

Total PCBs detected in fish tissue samples collected in the three areas summarized in Section 3.1.4 were compared to the tPCB CBRs (**Figure 12)**. Fish tissue total PCB concentrations are similar in range among the three sampling areas with the lowest range of tissue concentrations measured in samples collected in the Upper Anacostia Sampling Area, which includes the Waterside Investigation Area (**Figure 8** depicts the three sampling areas). The highest tPCB concentration detected in the Upper Anacostia River Sampling Area was in a channel catfish tissue sample (0.25 mg/kg ww in fillet tissue and 0.51 mg/kg ww in estimated whole body tissue) and the highest tPCB concentration detected in the Lower Anacostia River Sampling Area was in an American eel tissue sample (0.645 mg/kg ww in fillet tissue and 1.3 mg/kg ww in estimated whole body tissue). Sunfish tissue samples

A PHI Company

had the lowest concentrations in the Lower and Upper Anacostia Sampling Areas as well (0.04 mg/kg ww in fillet tissue and 0.08 mg/kg ww in estimated whole body tissue in both areas).

The total number of samples available and the range of concentrations was higher in the Upstream Maryland Area, which is located upstream of the Waterside Investigation Area. The highest tPCB concentration (1.8 mg/kg ww in fillet tissue and 3.7 mg/kg ww in estimated whole body tissue) was detected in a carp sample collected in 2010 in the Upstream Maryland Area, and the lowest concentration in the Upstream Area (0.02 mg/kg ww in fillet tissue and 0.035 mg/kg ww in estimated whole body tissue) was detected in a pumpkinseed sunfish sample collected in 2008.

Because of the limited fish tissue data set available, quantitative comparisons between the measured fish tissue concentrations and the range of NOEC and LOEC CBRs were not possible. A comparison of estimated whole body tissue concentrations and the range of whole body CBR concentrations for each endpoint are presented graphically in **Figure 12**. For the growth endpoint, the NOEC values ranged from 0.6 to 202 mg/kg ww and LOEC values ranged from 0.14 to 202 mg/kg ww. For the reproductive endpoint, the NOEC values ranged from 1.6 to 350 mg/kg ww, and the LOEC values ranged from 1.1 to 429 mg/kg ww. The mortality endpoint, the NOEC values ranged from 0.14 to 71 mg/kg ww and the LOEC values ranged from 0.36 to 648 mg/kg ww. Approximately eleven species are represented among the CBR values. The number of values per endpoint ranged from 2 values for the no effect mortality endpoint to 16 values for the low effect mortality endpoint.

The range of tissue concentrations of total PCBs from all three areas was lower than most NOEC and LOEC total PCB CBRs for growth and reproduction endpoints and lower than the median NOEC and LOEC mortality CBRs. In the Upper Anacostia River Sampling Area, only one tissue sample concentration (0.25 mg/kg ww for channel catfish) out of seven had total PCB concentrations greater than the minimum NOEC value (0.14 mg/kg ww for mortality endpoint). In the Upstream Maryland Area, eight tissue samples out of 18 total had concentrations less than the minimum NOEC CBR. Downstream in the Lower Anacostia River Sampling Area, three out of six tissue samples had concentrations less than the minimum NOEC value.

4.3 Wildlife Evaluation

Potential risks to mammals and birds from exposure to PCBs within the Waterside Investigation Area were assessed using food web models which estimated a TDD and compared the dose to NOAEL- and LOAEL-based TRVs. Attachment H provides the supporting calculations for the food web model.

As indicated in **Table 4-4**, the PCB HQs for the belted kingfisher, great blue heron, and raccoon were well below 1 for all exposure scenarios (i.e., considering maximum and average EPCs and NOAEL-and LOAEL-based TRVs). Therefore, risks to birds and mammals from food chain exposure to PCBs within the Waterside Investigation Area are not expected.

A PHI Company

5 Uncertainty Evaluation

The objective of the uncertainty analysis is to discuss the assumptions of the ERA process that may influence the risk assessment results and conclusions. Uncertainty is “the imperfect knowledge concerning the present or future state of the system under consideration; a component of risk resulting from imperfect knowledge of the degree of hazard or of its spatial and temporal distribution” (USEPA, 1997). Uncertainties may lead to an over-estimate or under-estimate of risk and may be a factor for each stage of the risk assessment process. It is important to recognize these uncertainties, and the influence they may have in limiting the degree of certainty for characterization of ecological risks.

Each estimate or assumption used can introduce some level of uncertainty into the risk assessment. As noted by USEPA in *Guidelines for Ecological Risk Assessment* (USEPA, 1998a), one major source of uncertainty comes from extrapolations and the more extrapolations, the greater is the potential for uncertainty. The assumptions of this ERA were designed to provide a conservative exposure term to the receptors with the presumption being that if no potential risk is indicated under such stringent conditions, there is unlikely to be risk under any foreseeable circumstances. However, the finding of potential risk under the scenarios considered in this ERA does not, in itself, indicate that ecological risk is present under actual site-specific conditions; only that further evaluation is warranted. Many potential sources of uncertainty and conservatism raised in the ERA are evaluated in the following sections.

5.1 Background Evaluation

As noted in the Ecological Setting (Section 2.3), many stressors to the ecology of the Anacostia River have been well-documented including pollution, sedimentation, and changes to the hydrologic regime (DOEE, 2006a; AWTA, 2002). The river receives significant inputs of metals and organic contaminants from upstream urban non-point sources (AWTA, 2002; SRC, 2000). In addition, several other sites have been identified as known or suspected sources of contaminants to the river, some of which are identified on **Figure 4**. Therefore, discharges or releases of non-Site related anthropogenic sources are identified as other potential sources of contamination to the Site in the ecological CSM (**Figure 5**).

A preliminary comparison of Site data to background data was conducted to provide another line of evidence to determine whether COPCs retained in the screening level evaluation warrant further evaluation in subsequent ERA steps. This COPC refinement step is consistent with Step 3a of the

USEPA's 8-step ERA process (depicted in **Figure 3**). The Preliminary Background Data Evaluation only considered the six metals that exceed probable effect ESVs, not the full list of inorganic COPCs identified on **Table 3-3**. The methods used and the results of this preliminarybackground evaluation are presented in Appendix V of the RI Report. However, this evaluation will be updated using a revised background conditions assessment that will be prepared in conjunction with the additional field investigation. A discussion of the background evaluation is presented below for each environmental medium.

5.1.1 Sediment Chemistry Background Evaluation

As indicated for Measurement Endpoint 1a, qualitative comparisons between Site sediment concentration data and background sediment data were used to distinguish between Site-related and system-wide (e.g., anthropogenic and natural background) conditions. The surficial sediment samples collected during the Phase 2 sampling events at the ten background locations are described in Section 3.1 and depicted in **Figure 7**. Summary statistics of the background sediment data are presented in Appendix V of the RI Report.

The COPCs identified in **Table 3-3** were also screened against ESVs on a sample-by-sample basis for the background samples in **Table 5-1**. Similar to the Waterside Investigation Area, many of the COPCs in the background samples are present at concentrations greater than the low effect ESV, but less than the probable effect ESVs. A discussion of the Background concentrations for COPCs that exceed the probable effect ESVs in Site samples is presented below (these COPCs were discussed for Site samples in Section 4.1.1). Additional discussion of sediment concentrations detected in background locations relative to those detected within the Study Area, including graphical and statistical comparisons of Site and background concentrations, is presented in Appendix V of the RI report.

In addition to the site-specific background data set collected as part of this RI effort described above, regional watershed data obtained from the NOAA DARRP Query Manager Database (queried March 2015) were evaluated to represent "regional conditions" for selected COPCs. In addition, a sub-set of the NOAA DARRP regional watershed data absent data from the reach of the Anacostia River between the D.C.-Maryland state line and the confluence with the Potomac River was evaluated as "regional background". Regional conditions and regional background of the COPCs were evaluated in the boxplots presented in Appendix V of the RI Report.

Aside from some locations near Outfall 013 with elevated inorganic COPCs, the ranges of concentrations of inorganic COPCs measured at background locations are similar to the range of Site concentrations, as indicated in the boxplot comparisons in Appendix V of the RI Report. Site medians are slightly greater than the site-specific background medians, but not the regional background or regional conditions medians. Background concentrations of copper, lead, and nickel exceed the probable effect ESVs at one location (SEDBACK13 for copper and lead and SEDBACK11 for nickel); whereas, all background concentrations of cadmium, chromium, and zinc exceed the low effect ESVs but are lower than the probable effect ESVs (**Table 5-2**). All mean probable effect HQs calculated for the Study Area and background are lower than one, and Study Area mean HQs are slightly higher but similar in value to Background. In addition, based on the population tests (presented in Appendix V), background and Study Area concentrations of copper, lead, and nickel are similar, whereas Study Area concentrations of cadmium, chromium, and zinc are greater than background. Based on the BTV comparison, mean concentrations of all six of the inorganic COPCs in Study Area sediment are below their respective site-specific BTVs. These five lines of evidence (comparisons of Study Area and Background concentrations in boxplots, of Background concentrations to ESVs, of Study Area and Background mean probable effect HQs, population tests, and BTV comparisons) suggest that Background levels of inorganic COPCs are similar to concentrations detected in the Study Area with the exception of concentrations detected near Outfall 013.

The majority of organic COPCs were also detected in background samples with similar ranges of concentrations (boxplot comparisons are presented in Appendix V of RI Report). Background concentrations of trans-chlordane, bis-(2-Ethylhexyl)phthalate, and total HMW PAHs exceed the probable effect ESVs at one or more Background locations (**Table 5-2**). Background concentrations of 4,4-DDD, 4,4-DDE, 4,4-DDT, and tPCBs exceed the low effect ESVs but are lower than the probable effect ESVs. Mean probable effect HQs calculated for Study Area and background organic compounds are lower than one with the exception of bis-(2-Ethylhexyl)phthalate and total HMW PAHs. The range of background concentrations of bis-(2-Ethylhexyl)phthalate, trans-chlordane, and total HMW PAHs are higher than Study Area concentrations. The population tests illustrated that background and Site concentrations of total HMW PAHs are similar whereas Study Area concentrations of tPCBs were found to be significantly higher than background (data for the other organic COPCs are insufficient for population comparison tests). Based on the BTV comparisons, mean Study Area concentrations of 4,4'-DDE, trans-chlordane, total HMW PAHs, and bis-(2-Ethylhexyl)phthalate are below their respective BTVs. However, the mean Study Area concentrations of 4,4'-DDD, 4,4'-DDT, and tPCBs exceed the BTV. These five lines of evidence (comparisons of Study Area and Background concentrations in boxplots, of Background concentrations to ESVs, and of Study Area and Background mean probable effect HQs and the results of the population tests and BTV comparisons) suggest that Background levels of most organic COPCs are similar to or higher than Study Area levels with the exception of tPCB concentrations detected mostly near Outfall 013.

Background concentrations of dioxin and furan compounds exceed the low effect ESV at six out of seven background locations. Four dioxin and furan compounds with the highest concentrations detected in Study Area samples were selected for comparison with background samples

(1,2,3,4,6,7,8-HpCDD, 1,2,3,4,7,8,9-HpCDF, OCDD, and OCDF) (**Table 5-2**). Background concentrations of 1,2,3,4,6,7,8-HpCDD and OCDD are higher than the low effect ESV whereas concentrations of the two furan compounds are lower than this ESV. A probable effect ESV is not available for dioxin and furan compounds. The mean HQ based on the low effect ESVs are greater than one for both Study Area and Background samples for OCDD and for Study Area samples only for 1,2,3,4,6,7,8-HpCDD and OCDF. The mean concentrations of the four dioxin and furan congeners in Study Area sediment are above their respective site-specific BTVs. These lines of evidence for dioxin and furan compounds suggest that elevated Study Area concentrations at several locations near Outfall 013 result in elevated mean low effect HQs for these compounds.

Acetone was not detected in any background location, and it was noted that the reporting limits for acetone exceed the ESV. Given the low frequency of detection in Study Area samples, it is unlikely that acetone poses risks to benthic organisms.

These results indicate that many of the surficial sediment COPCs found in the Study Area reach of the river are present at similar levels in the Anacostia River background data set. However, determining the contributions of upstream sources versus Site-related sources of these COPCs is difficult. In addition to Site sources, inorganic compounds can also enter waterways through stormwater run-off, CSOs, and from tributaries upstream. For example, average concentrations of lead in surface water of the Northeast and Northwest Branches of the Anacostia River exceeded the chronic freshwater screening level (Buchman, 2008) in a study conducted by Miller et al. (2007). The occurrence of pesticides, PAHs, and PCBs throughout the Anacostia River is well-documented (Phelps, 2005, 2008). Biomonitoring studies using translocated clams have identified the upper tributaries in Maryland, including the Northeast Branch of the Anacostia River and Watts Branch tributary, as sources of bioavailable chlordane (Phelps, 2005; Phelps, 2008). Total pesticides (including 4,4-DDD, 4,4-DDE, and 4,4-DDT) concentrations in clam tissues were found to be highest in the Northeast Branch and a second-order tributary site in Maryland (Phelps, 2005). In addition, high levels of bioavailable PCBs and PAHs were found to be associated with upstream sources in Prince George's County, Maryland (Phelps, 2005). Stormwater inputs of total PCBs to the river from upstream tributaries, Lower Beaverdam Creek in particular, were found to be significant in a study conducted by Hwang and Foster (2008).

5.1.2 SEM AVS Background Evaluation

The results of the SEM:AVS ratios and the SEM minus AVS concentrations at the Site-specific background locations are similar to the Study Area results (**Table 4-2**). Sediments from two of the ten locations exceed 130 µmol/g_{oc} (but are below 3,000 µmol/g_{oc}), which indicates that the sediment from these locations are likely to pose low risk of adverse biological effects to ecological receptors as a result of divalent metals exposure. Therefore, in the locations where the divalent metals may be bioavailable, the frequency of occurrence of samples exceeding the 130 µmol/g_{oc} threshold and the range of (∑SEM/AVS)/f_{oc} levels is similar within the Waterside Investigation Area and the Site-specific Background locations.

5.1.3 Surface Water Background Evaluation

The COPCs in surface water identified in **Table 3-4** were screened against chronic and acute ESVs on a sample-by-sample basis for the Site-specific Background samples in **Table 5-3**. Similar to the Study Area, nearly all detected background concentrations of COPCs are greater than the chronic ESV, but less than acute ESVs, when an acute ESV is available. Boxplot comparisons, population test comparisons, and BTV comparisons of surface water concentrations for COPCs in the Study Area and at the ten Site-specific background locations are presented in Appendix V of the RI report. The range of Study Area concentrations of dissolved barium, 4,4-DDT, anthracene and pyrene (i.e., the only COPCs that exceed chronic ESVs) are very similar to or lower than the Site-specific background ranges.

- **Dissolved Barium**: Concentrations in Background samples ranged up to 58 µg/L and also exceed the chronic ESV indicating that background levels of barium are above the chronic ESV. Similar to Study Area concentrations, none of background barium concentrations exceed the acute ESV. Based on the results of the population test (presented in Appendix V), background and Study Area concentrations of barium are similar. In addition, the mean concentration of Study Area barium is less than the BTV.
- **4,4'-DDT**: Concentrations of detected 4,4-DDT in Site-specific background samples exceed the chronic ESV indicating that background levels of 4,4-DDT exceed the ESV. No Study Area or Background 4,4-DDT concentrations exceed the acute ESV of 1.1 µg/L. The mean concentration of Site 4,4'-DDT is equal to the BTV.
- **Anthracene**: Anthracene was not detected in Background samples.
- **Pyrene**: Similar levels of pyrene were detected in the Background locations, although none at levels higher than the chronic ESV. The mean concentration of pyrene in the Study Area is less than the BTV.

The background evaluation presented above suggests that COPCs are found at similar levels in the Study Area and at the Site-specific Background locations, which suggests that Site-related risks due to COPCs in surface water are not expected.

5.1.4 Fish Tissue Background Evaluation

Pinkney (2014) reported a substantial decline in median PCB concentrations detected in most fish tissue samples over time, based on qualitative comparisons among years. As shown in **Figure 13**, the median and maximum total PCB concentrations in the Upper and Lower Anacostia River Areas have declined from 2000 to 2013. This decline does not appear to be related to differences in fish size or lipid content; Pinkney (2014) noted that similar-sized fish were collected over the years and there was no discernable pattern in lipid content among species over time.

Based on the comparison among the three areas for which fish tissue data are available (**Figure 12**), total PCB concentrations in fish tissue appear to be relatively consistent throughout the river. In addition, the median tissue concentration of the Upper Anacostia River Area is lower than both the Lower Anacostia River Area and the Upper Maryland Area. However, the Upper Anacostia River Area fish tissue samples are composited over a larger area than the Study Area, and as such, the representativeness of these samples of Study Area conditions versus those upstream or downstream is uncertain.

5.2 Uncertainties Associated with Sediment Evaluation

The ESVs considered in the ERA were derived from sources typically used in screening level ERAs (e.g., low effect ESVs) and therefore represent conservative values that may overestimate risks. These values are useful in identifying areas or media where no adverse ecological effects would be expected and which can then be eliminated from further consideration.

Due to a lack of ESVs, it was not possible to fully evaluate some COPCs. The COPCs without low effect sediment ESVs included aluminum, beryllium, selenium, thallium, vanadium, acetophenone, benzaldehyde, caprolactam, and carbazole. All of these COPCs were detected in similar frequency and range of concentrations at background locations and therefore, are not expected to contribute significantly to the potential for ecological risk at the Study Area. The exception is vanadium, for which Study Area maximum concentration (at SED7F) is an order of magnitude higher than the maximum detected concentration in background. Location SED7F is at Outfall 013 and is consistent with the locations of elevated concentrations of nickel and lead. Several additional COPCs lacked probable effect ESVs and there is some uncertainty related to the magnitude of potential risks from these COPCs.

The bioavailability of several of the sediment COPCs, particularly the divalent metals (cadmium, copper, lead, nickel, zinc), may be over-estimated. AVS and TOC have a high binding capacity for divalent metals in sediments, thereby reducing or eliminating the bioavailability to sediment-associated receptors (USEPA, 2005). The TOC results indicate that some binding to organic carbon may occur. However, 100% bioavailability of these and all other sediment COPCs was conservatively assumed in the benthic invertebrate ESV evaluation and is likely to over-estimate the potential for risks.

The derivation of screening values typically includes conservative assumptions, such as the application of safety factors. The safety factor is intended to account for low predicted toxicity (i.e., using a lower concentration than what was measured with associated effects) and bioaccumulation to higher trophic level aquatic organisms (i.e., the guidelines were not derived for bioaccumulation and lower concentrations are assumed to be better protective to higher trophic levels). The safety factor likely overestimates potential risks to the benthic invertebrate community.

Laboratory-based ecological screening values are typically derived under conditions that favor high bioavailability (e.g., using sediment with low pH and organic matter [USEPA, 2005] or using soluble chemical forms [lead acetate] to conduct tests). For example, the probable effect ESVs derived from PECs (MacDonald et al., 2000) and UETs (Buchman, 2008) are based on 1% TOC and may over-estimate risks within the exposure area where the mean TOC is 4.3%. Therefore, these laboratory conditions may not be replicated under field conditions.

USEPA guidance on deriving Equilibrium Partitioning Sediment Benchmarks (ESBs; USEPA, 2003) for PAHs presents an approach for screening concentrations of 34 parent and alkylated PAHs in sediment. Each PAH concentration is normalized to the sample-specific TOC level and that concentration is divided by a TOC-normalized screening level to result in a toxic unit (TU) for each individual PAH. The sum of all of the TUs within a sample is calculated and divided by TOC-normalized benchmarks to result in the ΣESBTU factor. If the ΣESBTU is less than or equal to 1, benthic organisms should not be adversely impacted. When the ΣESBTU is greater than 1, additional evaluation may be warranted to determine whether sensitive benthic organisms may be adversely affected due to direct exposure to PAHs.

Table 5-4 presents the evaluation of PAHs in sediment using the ESB approach. Alkylated PAHs were analyzed using Method ID-0016 for five sediment samples collected in the Waterside Investigation Area and three Site-specific background samples. For the remainder of the sediment samples, only 16 parent PAHs were analyzed for using Method 8270. When fewer than the 34 PAHs are available for this analysis, EPA recommends using a safety factor to adjust for the missing alkylated PAH data. Using the eight samples for which all 34 PAH concentrations are available, a site-specific safety factor of 1.55 was derived based on the ratio of parent PAHs to alkylated PAHs. The sum of PAH TUs for the 16 parent PAHs were multiplied by this safety factor to account for the alkylated PAHs.

Most Waterside Area and Site-specific background Area ΣESBTU values are less than 1 indicating no adverse impacts to benthic organisms. Only one Waterside location (SED7G) and two Site-specific background locations (BACK3 and 4) had values greater than 1. The mean site and background ΣESBTU values are very similar, which is consistent with the findings presented in Tables 4-1 and 5-1.

5.3 Uncertainties Associated with SEM and AVS Evaluation

There are a number of uncertainties associated with the SEM, AVS, and TOC data evaluation which may over or under estimate risks. AVS formation is affected by a number of abiotic and biotic factors, including temperature, redox conditions, sediment resuspension, seasonal changes, and sulfate concentrations.

The SEM, AVS, and TOC data evaluation approach is based on equilibrium partitioning theory, which assumes a steady-state system (USEPA, 2005). This assumption may or may not be as valid in field conditions as it is in laboratory tests of the method. In addition, the SEM, AVS, and TOC data evaluation approach does not take into account possible toxicity from any other inorganic constituents detected in the sediment, and does not explicitly consider bioaccumulation or ingestion of contaminated sediment.

There are also uncertainties associated with the evaluation of $(\sum SEM\text{-}AVS)/f_{oc}$. Normalization of SEM-AVS to fraction organic carbon reduces the variability in exposure assessments, especially in laboratory experiments. There is some uncertainty in extrapolating these relationships into field conditions. In particular, there is evidence that the effect of organic carbon on bioavailability depends on the nature of the organic carbon (such as when the organic carbon is present as biological complexes that would tend to increase bioavailability; USEPA, 2005).

Under conditions of low AVS concentrations, as were observed for several samples where the SEM:AVS ratios and the SEM minus AVS concentrations predict that the divalent metals may be bioavailable, other binding phases may also play a role in moderating bioavailability. In these samples, the $(\sum SEM\text{-}AVS)/f_{oc}$ conclusions indicate that binding by TOC plays a large role.

5.4 Uncertainties Associated with Surface Water Evaluation

The surface water ESVs were derived from sources typically used in screening level ERAs (e.g., DOEE WQS) and therefore represent conservative values that may overestimate risks. These values are useful in identifying areas or media where no adverse ecological effects would be expected and which can then be eliminated from further consideration. Specific uncertainties with the ESVs are addressed below.

- Barium - The chronic ESV is a USEPA Region 3 freshwater screening benchmark for dissolved barium. This ESV is a Tier II secondary chronic value (SCV) presented by Suter and Tsao (1996) and is based on 16% reproductive impairment at 5,800 μg/L in a 21-day test on *Daphnia magna* (all site concentrations of barium are well below this level). Tier II values are based on a smaller data set than is required to develop an state WQS or AWQC and uncertainty factors are applied to the available data to derive the SCV. Therefore, the risks predicted based on the chronic ESV for barium may be overestimated.
- 4,4-DDT - The chronic ESV for 4,4-DDT was derived for the NAWQC based on the lowest freshwater tissue residue concentration, which was based on reduced reproductivity for brown pelicans (USEPA, 1980). The freshwater residue derived for fish was 0.019 μg/L, which is greater than all concentrations detected in the Waterside Investigation Area. Therefore, the risks predicted based on the chronic ESV for 4,4-DDT may be overestimated.
- Anthracene - The chronic ESV was originally derived by Canadian Council of Ministers of the Environment (CCME, 1999) based on a 24-hourexposure of invertebrates to 1.2 μg/L anthracene which immobilized daphnids after 15 mins exposure at this level. Fish were less sensitive where the lowest 96-hour LC50 value was 4.5 μg/L. CCME derived the interim aquatic life guideline for anthracene as 0.012 μg/L, which is 1.2 μg/L with a safety factor of 0.01 applied. Therefore, the risks predicted based on the chronic ESV for anthracene may be overestimated.
- Pyrene - The chronic ESV was originally derived by Canadian Council of Ministers of the Environment (CCME, 1999) based on an LC50 of 2.5 μg/L for mosquito larvae. CCME derived the interim aquatic life guideline for pyrene as 0.025 μg/L, which is 2.5 μg/L with a safety factor of 0.01 applied. No pyrene concentrations detected at Site locations are higher than 2.5 μg/L. Therefore, the risks predicted based on the chronic ESV for pyrene may be overestimated.

Toxicity data are typically not available for all species considered in an ERA so ESVs based on surrogate species are used. It is assumed that species used to derive the ESVs are protective of other species. However, the inter-species extrapolation of toxicity data produces unknown bias in risk calculations. The selection of conservative values in the ERA (e.g., lowest surface water ESVs) helps to limit this uncertainty.

ESVs are often based on studies conducted in the laboratory and may not accurately represent field conditions. Chemical forms of COPCs used in toxicity testing may be more bioavailable than the

COPCs found in the field and lab conditions are unlikely to represent the variable conditions found in the field. This extrapolation represents an unknown source of bias in the ERA.

ESVs used in this ERA are based on chronic effects to analyze the potential for ecological risk to freshwater fish communities. Chronic toxicity values were used because it was assumed that surface water and sediment indicator species would experience continuous exposures within the aquatic exposure area. The assumption of chronic exposure may be realistic for the sediment-associated species (i.e., amphipods) and small juvenile fish, but is likely conservative for surface water species (i.e., adult fish) which may forage over greater distances, particularly in the Anacostia River. The surface water ESVs are also designed to be protective of sensitive species which may not be present within the Waterside Investigation Area; therefore, this may result in an overestimate of potential toxicity for many aquatic organisms.

In general, PAHs are hydrophobic and likely to sorb onto solid phases in aquatic environments. It is likely that the PAHs detected in the surface water are present on particulate matter within the water column and not present in the dissolved phase; thus, the PAHs are likely less bioavailable and toxic. Therefore, it is expected that the comparison of surface water PAHs, such as anthracene and pyrene, concentrations against the chronic ESVs likely over-estimates risks to aquatic receptors.

5.5 Uncertainties Associated with Groundwater Evaluation

The groundwater discharge to surface water ESVs were derived from sources typically used in screening level ERAs (e.g., ORNL screening levels) and therefore represent conservative values that may overestimate risks. These values are useful in identifying areas or media where no adverse ecological effects would be expected and which can then be eliminated from further consideration. Specific uncertainties with the ESVs are addressed in Section 5.4.

Uncertainties related to the site characterization of groundwater evaluation include the representativeness of groundwater discharging to surface water at the six nearshore monitoring wells. In addition, DAF values calculated specifically for each shallow (UWZ) and deep (LWZ) well were applied to all detected compounds. It is uncertain whether those values are applicable to all chemical compounds as each compound will vary in ability sorb and desorb. The DAF calculations also assume an instantaneous dilution of groundwater within the entire water column which may not be realistic for all chemicals. It is more likely that groundwater would mix gradually with surface water and full dilution would occur downstream of the Site. A reduced DAF would increase estimated concentrations. Therefore, the DAFs used in this evaluation may underestimate potential surface water concentrations.

Uncertainties associated with the groundwater evaluation could be better understood through collection of Site-specific pore water data.

5.6 Uncertainties Associated with Fish Tissue Evaluation

The fish tissue evaluation contained in this preliminary ERA focuses solely on PCBs and does not include other potential organic or inorganic COPCs. Therefore, there is uncertainty relative to the evaluation of total potential site risks. This uncertainty will be reduced in the revised ERA, which will include evaluation of a broader array of COPCs, and include an evaluation of fish tissue residue data collected as part of the ongoing Anacostia River RI/FS.

The fish tissue samples collected by DOEE (Pinkney, 2014) in the Upper Anacostia River Sampling Area are not representative of the Site. The Upper Anacostia River Sampling Area extends approximately two miles downstream and upstream of the Waterside Investigation Area (Figure 6), and these data were not collected to evaluate Site attribution. Fish specimens caught throughout this area were combined to create one composite sample per species to represent the Upper Anacostia River Sampling Area. Fish species vary in how far they will travel for food and spawning: for example, sunfish typically have a small home range (e.g., 0.23-1.12 ha; Fish and Savitz [1983]) whereas brown bullhead has been found to have a home range of up to 1.3 miles in the Anacostia River (Sakaris et al., 2005). Therefore, the total PCB concentrations detected in the fish tissue composite samples may represent conditions throughout the approximately 4-mile Upper Anacostia River Sampling Area, but they are not representative of conditions in the Waterside Investigation Area.

As described in Section 3.5.2, the fish tissue data available are based on fillet samples collected to support fish consumption advisories for the protection of human health. However, the purpose of this ERA is to evaluate the health of the fish community, and because whole body PCB concentrations are typically higher than fillet concentrations, whole body fish tissue data are more appropriate for this purpose. The use of fillet data may underestimate the potential risks associated with PCBs in fish tissue. The mean fillet-to-whole body ratio of 0.5 from Washington State (2004) was used to estimate whole body concentrations from the fillet tissue concentrations for all species. Species-specific ratios were not available for all species from the various sources evaluated (Bevelhimer, et al., 1997; Amrhein, 1999; USEPA, 2004; Washington State, 2004). The species-specific ratios presented in Washington State (2004) ranged from 0.1 in walleye to 1.0 in brown trout. Therefore, the mean ratio of 0.5 may overestimate tissue concentrations for some species and underestimate for others.

There are several uncertainties inherent in the determination of tissue CBRs (i.e., tissue residues representing a toxicity threshold) based on the variety of test conditions and tested species reported in the literature. In particular, the NOEC values are dependent on the experimental design (e.g., selection of exposure concentrations). The actual no-effect tissue residue concentration from a study could be higher or lower than the designated NOEC and up to the LOEC from the study.

5.7 Uncertainties Associated with the Wildlife Evaluation

The wildlife risk evaluation contained in this preliminary ERA focuses solely on PCBs and does not include other potential organic or inorganic COPCs. Therefore, there is uncertainty relative to the evaluation of total potential site risks. This uncertainty will be reduced in the revised ERA, which will include evaluation of a broader array of COPCs, and include an evaluation of potential risks to wildlife associated with consumption of fish tissue collected as part of the ongoing Anacostia River RI/FS.

There are several sources of uncertainty in the evaluation of wildlife risks that may over- or under-estimate risks. The representative species evaluated in the food web model were selected to represent species that may be present within the Waterside Investigation Area. Site-specific information is not available for these receptors (e.g., body weights, dietary composition) so assumptions were made in the model. Assuming an average body weight is expected to be protective of the average receptor, but may not be protective of sensitive receptors. Most of the assumptions (i.e., 100% bioavailability, 100% fish diet, AUF of 1, ED of 1) are conservative in nature and likely to over-estimate risks.

The sediment data set represents surface sediments collected throughout the Waterside Investigation Area. The heron and raccoon forage from the shoreline so they are unlikely to be exposed to sediment in deeper water. Although the nearshore PCB concentrations appear to be slightly higher than PCBs in the deeper water sediments, sediment ingestion contributes less than 5% of the TDD for the kingfisher, the heron and the raccoon so an increase in the sediment concentration would not significantly impact the HQs.

The RI work plan called for the collection of two wetland surface hydric soil samples in the restored fringe wetland along the eastern shoreline near the Benning Bridge. However, the boundary of this wetland is sheet pile wall, which prevented access to the interior of the wetland by boat, and access by land (i.e., on foot) was not possible due to the soft substrate of the wetland. Therefore, it was not possible to collect these samples. However, this wetland area was created with dredge materials and samples of this dredged sediment were collected and analyzed for PCBs as part of a monitoring program for substances of concern in water and sediment of the Anacostia River (Pepco, 1995). PCB concentrations of the post-dredged material ranged from 0.119 to 0.934 mg/kg. This range falls within

pepco
A PHI Company

the range of total PCB concentrations measured in the Waterside Investigation Area (0.0031 to 1.9 mg/kg). It is uncertain at what depth the samples were collected (i.e., at the surface or deeper). However, because PCBs are persistent compounds, the range of total PCB concentrations of the Waterside Investigation Area is likely representative of PCB levels in the wetland area.

The use of a river-specific fish tissue data set (i.e., 2013 data collected by USFWS) reduces uncertainties associated with modeling fish tissue concentrations of PCBs from sediment. However, there are uncertainties associated with the use of the 2013 fish tissue. Several of these uncertainties were discussed in Section 5.1.4 and 5.6 and apply to this evaluation as well (e.g., site-relatedness of the data). The 2013 fish tissue data set is composed of fillet data collected to support the evaluation of human health fish advisories. Whole body fish tissue data are more appropriate for use in a food web model because they better represent the diet of piscivorous ecological receptors. As described in Section 5.6, a fillet-to-whole body ratio of 0.5 was used to estimate whole body concentrations for all species. Because species-specific ratios were not available for all species of the fish tissue datasets, it is uncertain whether this ratio over- or underestimates the whole body concentrations.

Fat soluble organic contaminants such as PCBs accumulate in tissues with high lipid content. If the lipid content of the fillets is similar to that of the whole fish, then the PCB concentrations would be expected to be similar. Species that store much of their lipid content within the abdominal cavity (e.g., bass), rather than in muscle tissue (e.g., catfish) would likely have higher whole body PCB levels (Bevelhimer, et al., 1997). Lipid content of the 2013 Upper Anacostia fish tissue data set ranged from 1.3% for the sunfish to 13.7% for the carp; however, lipid levels for the whole fish are unknown. The maximum detected PCB concentration of 0.25 mg/kg ww was obtained from a catfish which is likely to store lipids within muscle, so the whole body catfish PCB concentration may be similar to the fillet concentration. Based on the fillet-to-whole body ratio described above, the estimated whole body concentration for this catfish is 0.51 mg/kg ww, which may overestimate tissue concentrations.

No studies were identified that directly examined the toxicity of PCBs in the diet of the kingfisher, raccoon, or great blue heron. Studies with mink and the ring-necked pheasant, respectively, were selected to derive the TRVs for the food web model. Mink are known to be highly sensitive to PCB exposures (Restum et al., 1998). The raccoon may not be as sensitive to PCBs as the mink; however, there is no specific information available regarding the sensitivity of raccoon to PCBs. Therefore, a mink study, rather than other studies showing higher NOAELs for rats, are used to evaluate risks to the raccoon in the food web model. Because gallinaceous birds, such as the ring-necked pheasant, are among the most sensitive of avian species to the effects of PCBs, it is expected that these TRVs will be protective of piscivores such as the great blue heron and kingfisher.

6 Summary and Recommendations

This section presents a summary of the preliminary ERA findings and provides an interpretation of the magnitude of potential ecological risk and its significance relative to background conditions in the Anacostia River. The conclusions presented in this section are preliminary and are based on the RI activities conducted to date. Additional field investigation is necessary to address remaining data gaps and uncertainties. The preliminary ERA will be revised based on the results of these investigations and the revised ERA will include an updated summary and recommendations.

The primary objective of this ERA was to evaluate whether or not populations of ecological receptors are potentially at risk due to exposure to chemical stressors in the Waterside Investigation Area. The ERA relies on Site-specific analysis of surficial sediment and surface water chemistry data, as well as an evaluation of regional fish tissue data collected by others. The potential risks associated with the potentially complete exposure pathways in the Waterside Investigation Area were characterized using different screening level measurement endpoints, depending upon the available data; however, it is important to recognize that no Site-specific biological or toxicological data were available for inclusion in this ERA.

The following narrative summarizes the ERA results:

Benthic Macroinvertebrates:

1. A number of COPCs are present in surficial sediment in the Study Area at concentrations in excess of low effect ESVs. These include 13 metals, 11 pesticides, Total PCBs, nine SVOCs, one VOC, and dioxin and furan compounds.
2. Relatively few COPCs are present in surficial sediment at concentrations in excess of probable effect ESVs. Compounds present at concentrations in excess of probable effect ESVs include cadmium, chromium, copper, lead, nickel, zinc, tPCBs, 4,4-DDD, 4,4-DDE, 4,4-DDT, trans-chlordane, total HMW PAHs, and bis-(2-Ethylhexyl)phthalate. Several dioxin and furan compounds exceed the low effect ESV; no probable effect ESV is available.
3. The SEM, AVS, and TOC analysis suggests that divalent metals in surficial sediment are largely not bioavailable.
4. Many of the concentrations of COPCs in the surficial sediment in the Study Area are likely to be consistent with background conditions. Review of Study Area data relative to background data indicates a high degree of concentration overlap among both organic and inorganic COPCs.

5. The highest concentrations of several COPCs were found in the vicinity of Outfall 013. These include inorganic COPCs, tPCBs, 4,4-DDT, and dioxin and furan compounds.

Based on this analysis, there is a limited potential for risk to the benthic macroinvertebrate community from exposure to COPCs in surficial sediments in the Waterside Investigation Area, especially in the vicinity of Outfall 013. However, for many of these COPCs, concentrations in surficial sediment in the Waterside Investigation Area are consistent with conditions at the background sampling locations, and therefore the risk cannot be solely attributed to Site-related sources. Additional field investigations and analyses are recommended to reduce the uncertainties associated with this preliminary ERA finding.

Fish Community:

1. The maximum concenrations of one metal (dissolved barium), one pesticide (4,4-DDT), and two VOCs (anthracene and pyrene) were identified as COPCs. No other consituents in surface water exceeded low effect (chronic) ESVs. These compounds were also present at the background locations at concentrations in excess of chronic ESVs with the exception of pyrene.
2. No detected Waterside Investigation Area COPC concentrations exceed the acute ESVs.
3. The range of Study Area and Background surface water concentrations are similar.
4. No COPCs were identified in Site groundwater discharging to Anacostia River surface water and no significant risks to the aquatic community via this pathway were identified.
5. Although PCBs are present in fish tissue throughout the Anacostia River, available data suggest that the fish from the river reach nearest the Site do not differ markedly from fish collected upstream or downstream of the Site. In fact, based on the limited available data, upstream concentrations of PCBs in fish tissue may be higher than fish collected from the reach adjacent to the Site.
6. The range of tissue concentrations of total PCBs from all three river reaches evaluated was lower than the majority of NOEC and LOEC tPCB CBRs

Based on this analysis there is limited potential for ecological risks to the fish community in the Waterside Investigation Area due to total PCBs tissue residue concentrations. However, based on the available data, this appears to be a riverwide phenomenon and assigning Site attribution is not possible. This preliminary ERA finding will be updated in the revised ERA, which will include evaluation of a broader array of organic and inorganic fish tissue data, including analysis of data from the ongoing Anacostia River RI/FS.

pepco
A PHI Company

Wildlife Receptor Risk Evaluation:

1. The evaluation of potential risks to wildlife in the Waterside Investigation Area focused on PCBs because they are expected to be the most relevant Site-related bioaccumulative compound within the exposure area.
2. Potential exposure of the raccoon, the belted kingfisher, and the great blue heron were evaluated in a food web model. Both average and maximum EPCs of sediment and surface water and available fish tissue data from the Upper Anacostia River Sampling Area were used to estimate exposure.
3. The PCB HQs for the raccoon, the belted kingfisher, and the great blue heron were below 1 under all exposure scenarios (i.e., considering maximum and average EPCs and NOAEL- and LOAEL-based TRVs). Therefore, risks to birds and mammals from exposure to PCBs within the Waterside Investigation Area are not expected.

Based on this analysis, there is little to no potential for ecological risks to the wildlife community in the Waterside Investigation Area from ingestion of prey items containing PCBs. This preliminary ERA finding will be updated in the revised ERA, which will include evaluation of wildlife consumption of prey items containing a broader array of organic and inorganic constituents, including constituents in fish tissue collected as part of the ongoing Anacostia River RI/FS.

7 References

Adams, W.J., Blust, R., Borgmann, U., Brix, K.V., DeForest, D.K., Green, A.S., Meyer, J.S., McGeer, J.C., Paquin, P.R., Rainbow, P.S., Wood, C.M. 2010. Utility of Tissue Residues for Predicting Effects of Metals on Aquatic Organisms. Integrated Environmental Assessment and Management 7(1): 75-98.

AECOM. 2012. Final RI/FS Work Plan for the Benning Road Facility. Prepared for Pepco and Pepco Energy Services. Prepared by AECOM, Columbia, MD. July 2012.

Amrhein, J.F., C.A. Stow, and C. Wible. 1999. Whole-Fish Versus Fillet Polychlorinated Biphenyl Concentrations: An Analysis Using Classification and Regression Tree Models. Environ. Toxicol. Chem., 18(8):1817-1823.

AWRP. 2010. Anacostia River Watershed Restoration Plan and Report. Final Draft. Anacostia River Watershed Restoration Partnership. February 2010.

AWTA. 2002. Charting a Course Toward Restoration: A Toxic Chemical Management Strategy for the Anacostia River.

Bevelhimer, M.S., Beauchamp, .J.J, Sample, B.E., and G.R. Southworth. 1997. Estimation of whole-fish contaminant concentrations from fish fillet data. Prepared for the US Department of Energy, Office of Environmental Management. Oak Ridge National Laboratory, Oak Ridge, Tenn.

Buchman, M.F. 2008. NOAA Screening Quick Reference Tables (SQuiRTs). NOAA OR&R Report 08-1. Seattle WA. Office of Response and Restoration Division National Oceanic and Atmospheric Administration, 34 pages.

Calder, W.A. and E.J. Braun. 1983. Scaling of osmotic regulation in mammals and birds. American Journal of Physiology. 244: R601-R606.

CCME. 1999. Canadian water quality guidelines for the protection of aquatic life: Polycyclic aromatic hydrocarbons (PAHs). In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

DOEE. 2006a. District of Columbia Wildlife Action Plan. District of Columbia Department of Energy and Environment, Fisheries and Wildlife Division. Washington, DC. Available at: http://green.dc.gov/publication/wildlife-action-plan.

DOEE, 2010. Water Quality Standards. Title 21, Chapter 1104. District of Columbia Department of Energy and Environment. Available at: http://dcregs.dc.gov/Gateway/ChapterHome.aspx?ChapterNumber=21-11.

DOEE. 2015. Comments on the BERA dated July 30, 2015. DC Department of Energy and Environment.

Fish, P., J. Savitz. 1983. Variations in Home Ranges of Largemouth Bass, Yellow Perch, Bluegills, and Pumpkinseeds in an Illinois Lake. Transactions of the American Fisheries Society, 112/2a: 147–153.

Foster, G.D. 2008. PCBs and PAHs in the Anacostia River. Presentation at the Anacostia Watershed Toxics Alliance (AWTA) meeting, Washington, DC. October 28, 2008.

Haywood, H. C. and C. Buchanan. 2007. Total maximum daily loads of polychlorinated biphenyls (PCBs) for tidal portions of the Potomac and Anacostia rivers in the District of Columbia, Maryland, and Virginia. Interstate Commission on the Potomac River Basin. ICPRB Report 07-7. Rockville, MD. October 2007.

Hwang, Hyun-Min, and Foster, Gregory D., 2008. Polychlorinated Biphenyls in Stormwater Runoff Entering the Tidal Anacostia River, Washington, DC, Through Small Urban Catchments and Combined Sewer Outfalls. Journal of Environmental Science and Health Part A, 43, 567-575.

Katz, C.N., A.R. Carlson and D.B. Chadwick. 2001. Draft Anacostia River Seepage and Pore water Survey Report. Space and Naval Warfare Systems Center (SPAWAR). 59 pp.

Jarvinen, A.W., and G.T. Ankley. 1999. Linkage of effects to tissue residues: Development of a comprehensive database for aquatic organisms exposed to inorganic and organic chemicals. SETAC Press, pp. 1-358.

MacDonald, D.D., C.G. Ingersoll and T.A. Berger. 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Arch. Environ. Contam. Toxicol. 39. 20-31.

MDE. 2012. Database query for contaminant concentrations in fish tissue collected from the Anacostia River, 2002 to 2010. John Hill, Environmental Specialist, Maryland Department of

Environment.
May 21, 2012.

McGee, B.L., A.E. Pinkney, D.J. Velinsky, J.T.F. Ashley, D.J. Fisher, L.C. Ferrington, and T.J. Norbert-King. 2009. Using the Sediment Quality Triad to characterize baseline condition in the Anacostia River, Washington, DC, USA. Environ Monit Assess.156: 51-67.

Metropolitan Washington Council of Governments, 2007. Anacostia River Watershed. Environmental Condition and Restoration Overview. Draft. March 2007.

Miller, Cherie V., Gutierrez-Magness, Angelica L., Feit Majedi, Brenda L., and Foster, Gregory D., 2007. Water Quality in the Upper Anacostia River, Maryland: Continuous and Discrete Monitoring with Simulations to Estimate Concentrations and Yields, 1003-05, Scientific Investigations Report 2007-5142, prepared for the United States Department of the Interior and the United States Geologic Survey, 2007.

Nagy, K.A., 2001. Food requirements of wild animals: predictive equations for free-living mammals, reptiles, and birds. Nutrition Abstracts and Reviews, Series B 71, 21R-31R.

Niimi, A.J. 1996. PCBs in aquatic organisms. Pages 117-152 in Beyer W.N., Heinz G.H. and A.W. Redmon-Norwood (eds.). Environmental contaminants in wildlife - interpreting tissue concentrations. Lewis Publishers, CRC Press Inc. Boca Raton, FL. 494 pp.

NOAA, 2009. White Paper on PCB and PAH Contaminated Sediment in the Anacostia River. Draft Final. National Oceanic and Atmospheric Administration. February 23, 2009. Available at: http://www.anacostia.net/Archives/AWSC/documents/WhitePaper.pdf

NOAA. 2015. Anacostia River Watershed Database and Mapping Project Software & Data. National Oceanic and Atmospheric Administration. Accessed in March 2015.

Orn, S., P.L. Anderson, L. Forlin, M. Tysklind, L. Norrgren. 1998. Arch Environ Contam Toxicol 35:53-57.

Pepco. 1995. Draft Study Plan for Surface Water and Sediment Analysis for Benning Road Generating Station Intake Dredging/Wetland Project. April 27, 1995.

Persaud, D., R. Jaagumagi, and A. Hayton, 1993. Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario, Ontario Ministry of the Environment, Queen's Printer for Ontario; 23 pp.

Phelps, HL. 2005. Identification of PCB, PAH and Chlordane Source Areas in the Anacostia River Watershed. DC Water Resources Research Center Report. 9p.

Phelps, H.L. 2008. Active Biomonitoring for PCB, PAH and Chlordane Sources in the Anacostia Watershed: Final Report to the DC Water Resources Research Center. 11p.

Pinkney, AE, Dobony, CA, Brown, PD. 2001. Analysis of Contaminant Concentrations in Fish Tissue Collected from the Waters of the District of Columbia. Final Report. CBFO-C01-01. U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, Annapolis, MD. August 2001.

Pinkney, AE. 2009. Analysis of Contaminant Concentrations in Fish Tissue Collected from the Waters of the District of Columbia. Final Report. CBFO-C08-03. U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, Annapolis, MD. March 2009.

Pinkney, A.E. 2014. Analysis of contaminant concentrations in fish tissue collected from the waters of the District of Columbia. Final Report. CBFO-C14-03. U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, Annapolis, MD. September 2014.

Restum, J.C., Bursian, S.J., Giesy, J.P., Render, J.A., Helferich, W.G., Shipp, E.B., Verbrugge, D.A. 1998. Multigenerational Study of the Effects of Consumption of PCB-contaminated Carp From Saginaw Bay, Lake Huron, Ontario Mink. Part A. Journal of Toxicology and Environmental Health 54: 343-375.

Sakaris, P.C., Jesien, R.V., Pinkney, A.E. 2005. Brown Bullhead as an Indicator Species: Seasonal Movement Patterns and Home Ranges within the Anacostia River, Washington, DC. Transactions of the American Fisheries Society 134: 1262-1270.

Scatena, F.N., 1987. Sediment Budgets and Delivery in a Suburban Watershed. (PhD Dissertation). Department of Geography and Environmental Engineering, Johns Hopkins University, Baltimore, Maryland.

Syracuse Research Corporation (SRC). 2000. Interpretive summary of existing data relevant to potential contaminants of concern within the Anacostia River watershed. North Syracuse, NY: SRC.

Suter, G.W. and C.L. Tsao, 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision. Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN. ES/ER/TM-96/R2.

Tetra Tech. 2014. Anacostia River Sediment Project Remedial Investigation Work Plan. Draft. Prepared for District of Columbia Department of the Environment. Prepared by Tetra Tech, Reston,

PA.
January 29, 2014.

USEPA. 1980. Ambient Water Quality Criteria for DDT. U.S. Environmental Protection Agency, Office of Water Regulations and Standards, Criteria and Standards Division. EPA 440/5-80-038.

USEPA, 1993. Wildlife Exposure Factors Handbook. Vols. I and II. U.S. Environmental Protection Agency, Office of Research and Development; Washington, D.C. EPA/600-R/R-93/187a,187b.

USEPA, 1995. Science Advisory Board Review of the Agency's Approach for Developing Sediment Criteria for Five Metals (cadmium, copper, lead, nickel, and zinc). US Environmental Protection Agency. EPA-SAB-EPEC-95-020.

USEPA, 1996. The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion. US Environmental Protection Agency. June 1996. EPA 823-B-96-007.

USEPA, 1997a. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (Interim Final). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response. EPA 540/R-97/006. June 1997.

USEPA, 1997b. Superfund Program Representative Sampling Guidance, Volume 3: Biological, Appendix A: Checklist for Ecological Assessment/Sampling (Interim Final). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response. May 1997. Available at: http://www.epa.gov/oswer/riskassessment/ecorisk/pdf/appb.pdf.

USEPA, 1998. Guidelines for Ecological Risk Assessment. Risk Assessment Forum. U.S. Environmental Protection Agency; Washington, D.C. EPA/630/R-95/002F. April 1998.

USEPA, 2001. The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments. ECO UPDATE. Interim Bulletin Number 12. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER Directive 9285.6-10. December 2002.

USEPA, 2003a. USEPA Region 5 Ecological Screening Levels. Revision August 2003. Available at: http://www.epa.gov/reg5rcra/ca/edql.htm.

USEPA. 2003. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures. EPA-600-R-02-013. Office of Research and Development. Washington, DC 20460.USEPA, 2004. Ecological Risk Assessment for General Electric (GE)/Housatonic River Site, Rest of River (ERA). Prepared by Weston Solutions, Inc., West Chester, PA, for the U.S. Army Corps of Engineers, New England District, and the U.S. Environmental Protection Agency, New England Region. November 2004.

USEPA, 2005. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metals Mixtures (Cadmium, Copper, Lead, Nickel, Silver and Zinc). EPA/600/R-02/011. January 2005.

USEPA, 2006a. EPA Region III BTAG Freshwater Screening Benchmarks. July 2006. http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fw/R3_BTAG_FW_Benchmarks_07-06.pdf.

USEPA, 2006b. EPA Region III BTAG Freshwater Sediment Screening Benchmarks. August 2006. http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fwsed/R3_BTAG_FW_Sediment_Benchmarks_8-06.pdf.

USEPA. 2008. Framework for Application of the Toxicity Equivalence Methodology for Polychlorinated Dioxins, Furans, and Biphenyls in Ecological Risk Assessment. Office of the Science Advisor, US Environmental Protection Agency, Washington, DC. EPA/100/R-08/004. June 2008.

USEPA. 2009. Final Site Inspection Report for the Pepco Benning Road Site, Washington, DC

USEPA. 2013a. ProUCL Version 5.0.00. Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations. EPA600/R-07/041. Office of Research and Development, US Environmental Protection Agency, Washington, DC. Updated September 2013. Available from: http://www.epa.gov/osp/hstl/tsc/software.htm.

USEPA. 2013b. ProUCL Version 5.0.00 technical guide (draft). EPA/600/R-07/041 [online]. Office of Research and Development, US Environmental Protection Agency, Washington, DC. Updated September 2013. Available from: http://www.epa.gov/osp/hstl/tsc/software.htm.

Van Wezel, A. P., and Opperhuizen, A., 1995. Narcosis due to environmental pollutants in aquatic organisms: Residue-based toxicity, mechanisms, and membrane burdens. Crit. Rev. Toxicol. 25: 255-279.

Velinsky, DJ, Cummins, JD. 1996. Distribution of Chemical Contaminants in 1993-1995 Wild Fish Species in the District of Columbia. ICPRB Report 96-1. Interstate Commission on the Potomac River Basin, Rockville, MD.

Velinsky, D.J. G.F. Riedel, J.T.F. Ashley, J.C. Cornwell, 2011. Historical Contamination of the Anacostia River, Washington DC. Environ. Monit. Assess. 183:307-328.

Washington State. 2004. Evaluation of Contaminants in Fish from Lake Washington, King County, Washington. Final Report. Prepared by Washington State Department of Health. DOH 333-061. September 2004.

Tables

Table 3-1
Sediment Ecological Screening Values
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Detected Chemical	Low Effect ESV (a)		Low Effect ESV Source	Probable Effect ESV (b)		Probable Effect ESV Source
INORGANICS						
Aluminum	NV			NV		
Antimony	2.0		USEPA, 2006	3		Buchman, 2008
Arsenic	5.9		Buchman, 2008	33		MacDonald, 2000
Barium	0.7	(c)	Buchman, 2008	NV		
Beryllium	NV			NV		
Cadmium	0.583		Buchman, 2008	4.98		MacDonald, 2000
Calcium	EN			EN		
Chromium	26		Buchman, 2008	111		MacDonald, 2000
Cobalt	50		USEPA, 2006	NV		
Copper	31.6		USEPA, 2006	149		MacDonald, 2000
Iron	20000		USEPA, 2006	40000		Buchman, 2008
Lead	31		Buchman, 2008	128		MacDonald, 2000
Magnesium	EN			EN		
Manganese	460		Buchman, 2008	1100		Buchman, 2008
Mercury	0.174		Buchman, 2008	1.06		MacDonald, 2000
Nickel	16		Buchman, 2008	48.6		MacDonald, 2000
Potassium	EN			EN		
Selenium	NV			NV		
Silver	0.5		Buchman, 2008	4.5		Buchman, 2008
Sodium	EN			EN		
Thallium	NV			NV		
Vanadium	NV			NV		
Zinc	98		Buchman, 2008	459		MacDonald, 2000
PESTICIDES						
4,4'-DDD	0.00354		Buchman, 2008	0.028		MacDonald, 2000
4,4'-DDE	0.00316		Buchman, 2008	0.0313		MacDonald, 2000
4,4'-DDT	0.00119		Buchman, 2008	0.0629		MacDonald, 2000
Aldrin	0.002		Buchman, 2008	nCOPC		
alpha-BHC	0.006		Buchman, 2008	nCOPC		
alpha-Chlordane	0.00003	(d)	Buchman, 2008	0.0176		MacDonald, 2000
beta-BHC	0.005		Buchman, 2008	nCOPC		
delta-BHC	0.01	(d)	Buchman, 2008	nCOPC		
Dieldrin	0.0019		Buchman, 2008	0.0618		MacDonald, 2000
Endosulfan	0.0029		USEPA, 2006	nCOPC		
Endosulfan II	0.014		USEPA, 2006	nCOPC		
Endosulfan sulfate	0.0054		USEPA, 2006	NV		
Endrin	0.00222		Buchman, 2008	0.207		MacDonald, 2000
Endrin aldehyde	0.00222	(e)	Buchman, 2008	nCOPC		
Endrin ketone	0.00222	(e)	Buchman, 2008	0.207	(e)	MacDonald, 2000
gamma-BHC (Lindane)	0.00237		Buchman, 2008	nCOPC		
gamma-Chlordane	0.00003	(d)	Buchman, 2008	0.0176		MacDonald, 2000
Heptachlor	0.01		Buchman, 2008	nCOPC		
Heptachlor epoxide	0.0006		Buchman, 2008	0.016		MacDonald, 2000
Methoxychlor	0.0187		USEPA, 2006	NV		
POLYCHLORINATED BIPHENYLs						
Aroclor-1248	0.026	(f)	Buchman, 2008	nCOPC		
Aroclor-1260	0.026	(f)	Buchman, 2008	nCOPC		
Total PCBs	0.026		Buchman, 2008	0.676		MacDonald, 2000
SEMI-VOLATILE ORGANIC COMPOUNDS						
1,1'-Biphenyl	1.22		USEPA, 2006	nCOPC		
2,4-Dimethylphenol	0.029		USEPA, 2006	nCOPC		
2-Methylnaphthalene	0.0202		USEPA, 2006	NV		
4-Chloroaniline	0.146		USEPA, 2003	nCOPC		
4-Methylphenol	0.0051		Buchman, 2008	NV		
Acenaphthene	0.00671		Buchman, 2008	NV		
Acenaphthylene	0.00587		Buchman, 2008	nCOPC		
Acetophenone	NV			NV		
Anthracene	0.01		Buchman, 2008	nCOPC		
Benzaldehyde	NV			NV		
Benzo(a) pyrene	0.0319		Buchman, 2008	nCOPC		
Benzo(a)anthracene	0.01572		Buchman, 2008	nCOPC		
Benzo(b) fluoranthene	10.4		USEPA, 2003	nCOPC		
Benzo(g,h,i) perylene	0.17		Buchman, 2008	nCOPC		

Table 3-1
Sediment Ecological Screening Values
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Detected Chemical	Low Effect ESV (a)		Low Effect ESV Source	Probable Effect ESV (b)	Probable Effect ESV Source
Benzo(k) fluoranthene	0.0272		Buchman, 2008	nCOPC	
Bis(2-ethylhexyl) phthalate	0.1		Buchman, 2008	nCOPC	
Butylbenzylphthalate	0.1		Buchman, 2008	nCOPC	
Caprolactam	NV			NV	
Carbazole	NV			NV	
Chrysene	0.027		Buchman, 2008	nCOPC	
Dibenzo(a,h) anthracene	0.0062		Buchman, 2008	nCOPC	
Dibenzofuran	5.1		Buchman, 2008	nCOPC	
Diethylphthalate	0.53		Buchman, 2008	nCOPC	
Di-n-butylphthalate	0.44	(g)	Buchman, 2008	NV	
Di-n-octylphthalate	0.1	(d)	Buchman, 2008	NV	
Fluoranthene	0.031		Buchman, 2008	nCOPC	
Fluorene	0.01		Buchman, 2008	nCOPC	
Indeno(1,2,3,-cd) pyrene	0.017		Buchman, 2008	nCOPC	
Naphthalene	0.015		Buchman, 2008	nCOPC	
Phenanthrene	0.019		Buchman, 2008	nCOPC	
Pyrene	0.044		Buchman, 2008	nCOPC	
Total PAHs	0.26		Buchman, 2008	22.8	MacDonald, 2000
Total LMW PAHs	0.076		Buchman, 2008	5.3	Buchman, 2008
Total HMW PAHs	0.193		Buchman, 2008	6.5	Buchman, 2008
VOLATILE ORGANIC COMPOUNDS					
2-Butanone	35	(d)	Buchman, 2008	nCOPC	
Acetone	0.0099		USEPA, 2003	NV	
Chloroform	0.02	(d)	Buchman, 2008	nCOPC	
DIOXIN/FURANs					
1,2,3,4,6,7,8-HpCDD	0.00003784	(g)	Buchman, 2008	NV	
1,2,3,4,6,7,8-HpCDF	0.00003784	(h)		NV	
1,2,3,4,7,8,9-HpCDF	0.00003784	(h)		NV	
1,2,3,4,7,8-HxCDD	0.00003784	(h)		NV	
1,2,3,4,7,8-HxCDF	0.00003784	(h)		NV	
1,2,3,6,7,8-HxCDD	0.00003784	(h)		NV	
1,2,3,6,7,8-HxCDF	0.00003784	(h)		NV	
1,2,3,7,8,9-HxCDD	0.00003784	(h)		NV	
1,2,3,7,8,9-HxCDF	0.00003784	(h)		NV	
1,2,3,7,8-PeCDD	0.00003784	(h)		NV	
1,2,3,7,8-PeCDF	0.00003784	(h)		NV	
2,3,4,6,7,8-HxCDF	0.00003784	(h)		NV	
2,3,4,7,8-PeCDF	0.00003784	(h)		NV	
2,3,7,8-TCDD	0.00003784	(h)		NV	
2,3,7,8-TCDF	0.00003784	(h)		NV	
OCDD	0.00003784	(h)		NV	
OCDF	0.00003784	(h)		NV	

Notes:
All screening values reported in milligrams per kilogram (mg/kg).
EN - Essential nutrient.
nCOPC - Not identified as a COPC following the screen comparing Low Effect ESVs to maximum detected concentrations.
NOAA - National Oceanic and Atmospheric Administration.
NV - No value identified.
OMOE - Ontario Ministry of Environment and Energy
TCDD TEQ - Tetrachlorodibenzo-p-dioxin Toxicity Equivalency Factor
USEPA - United States Environmental Protection Agency.
ESVs are presented for detected chemicals only.
(a) Low effect ESVs selected based on a hierarchy of freshwater values from NOAA SQuiRT tables (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006), USEPA Region 5 Ecological Screening Levels (USEPA 2003), and values from OMOE (Persaud 1993).
(b) Probable effect ESVs are based on the Probable Effects Concentrations (MacDonald et al. 2000), or either the Upper Effects Thresholds (UET) or Severe Effect Level (SEL) if the UET was not available (Buchman, 2008).
(c) Background value for freshwater sediment (Buchman 2008).
(d) Target standard from E.M.J Verbruggen, R. Posthumus, and A.P. van Wezel. 2001. Ecotoxicological Serious Risk Concentrations for soil, sediment, and groundwater. Risk limits are typically divided by 100 to derive the Target value.
(e) Value for endrin used due to structural similarities.
(f) Value for Total PCBs used for individual Aroclors without screening values.
(g) Upper Effects Thresholds (Buchman, 2008), based on average Study Area TOC (4.3%).
(h) Value for 2,3,7,8-TCDD used due to structural similarity. 2,3,7,8-TCDD is expected to be the most toxic congener, so this is a conservative assumption.

Table 3-2
Surface Water Ecological Screening Values
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Detected Chemical	Chronic ESV (a)		Chronic ESV Source	Acute ESV (b)	Acute ESV Source
INORGANICS - DISSOLVED PHASE					
Antimony	30		USEPA, 2006	nCOPC	
Arsenic	150		DOH, 2010	nCOPC	
Barium	4		USEPA, 2006	110	Buchman, 2008
Beryllium	0.66		USEPA, 2006	nCOPC	
Calcium	116000		USEPA, 2006	nCOPC	
Chromium	11.0	(d)	DOH, 2010	nCOPC	
Cobalt	23		USEPA, 2006	nCOPC	
Copper	5.79	(c)	DOH, 2010	nCOPC	
Iron	1000		DOH, 2010	nCOPC	
Magnesium	82000		USEPA, 2006	nCOPC	
Manganese	120		USEPA, 2006	nCOPC	
Nickel	33.8	(c)	DOH, 2010	nCOPC	
Potassium	53000		USEPA, 2006	nCOPC	
Silver	1.34	(c,e)	DOH, 2010	nCOPC	
Sodium	680000		USEPA, 2006	nCOPC	
Vanadium	20		USEPA, 2006	nCOPC	
Zinc	76.6	(c)	DOH, 2010	nCOPC	
INORGANICS - TOTAL RECOVERABLE PHASE					
Selenium	5		DOH, 2010	nCOPC	
Thallium	0.8		USEPA, 2006	nCOPC	
PESTICIDES					
4,4'-DDT	0.001		DOH, 2010	1.1	DOH, 2010
beta-BHC	2.2	(f,g)	USEPA, 2006	nCOPC	
delta-BHC	141	(f)	USEPA, 2006	nCOPC	
Endosulfan sulfate	0.056	(h)	DOH, 2010	nCOPC	
gamma-Chlordane	0.0022	(f,i)	USEPA, 2006	nCOPC	
Heptachlor epoxide	0.0038		DOH, 2010	nCOPC	
POLYCHLORINATED BIPHENYLs					
Total PCBs	0.014		DOH, 2010	nCOPC	
SEMI-VOLATILE ORGANIC COMPOUNDS					
1,1'-Biphenyl	14	(f)	USEPA, 2006	nCOPC	
2-Methylnaphthalene	4.7	(f)	USEPA, 2006	nCOPC	
4-Methylphenol	543		USEPA, 2006	nCOPC	
Bis(2-ethylhexyl) phthalate	16		USEPA, 2006	nCOPC	
Butylbenzylphthalate	19	(f)	USEPA, 2006	nCOPC	
Carbazole	NV			nCOPC	
Dibenzofuran	3.7	(f)	USEPA, 2006	nCOPC	
Di-n-butylphthalate	19		USEPA, 2006	nCOPC	
Pentachlorophenol	5.10	(j)	DOH, 2010	nCOPC	
Phenol	4		USEPA, 2006	nCOPC	
Acenaphthene	50		DOH, 2010	nCOPC	
Acenaphthylene	4840		Buchman, 2006	nCOPC	
Anthracene	0.012		USEPA, 2006	13	Suter and Tsao, 1996
Fluoranthene	400		DOH, 2010	nCOPC	
Fluorene	3		USEPA, 2006	nCOPC	
Naphthalene	600		DOH, 2010	nCOPC	
Phenanthrene	0.4		USEPA, 2006	nCOPC	
Pyrene	0.025		USEPA, 2006	NV	
VOLATILE ORGANIC COMPOUNDS					
2-Butanone	14000	(f)	USEPA, 2006	nCOPC	
Acetone	1500	(f)	USEPA, 2006	nCOPC	
Bromodichloromethane	NV			nCOPC	
Carbon disulfide	0.92	(f)	USEPA, 2006	nCOPC	
Chloroform	3000		DOH, 2010	nCOPC	
cis-1,2-Dichloroethene	NV			nCOPC	
Dibromochloromethane	NV			nCOPC	
Methyl tert-butyl ether	11070	(f)	USEPA, 2006	nCOPC	
Tetrachloroethene	800		DOH, 2010	nCOPC	
Toluene	600		DOH, 2010	nCOPC	
Trichloroethene	21		Buchman, 2008	nCOPC	
DIOXIN/FURANs					
TCDD TEQ Fish	0.00001	(k)	Buchman, 2008	nCOPC	

Notes:
All units are in micrograms per liter (μg/L).
Acute ESV - Acute Ecological Screening Value.
Chronic ESV - Chronic Ecological Screening Value.
COPC - Chemical of Potential Concern.
nCOPC - Not identified as a COPC following the screen comparing chronic ESVs to maximum detected concentrations.
NV - No value.
SAV - Secondary Acute Value (Suter and Tsao, 1996).
ESVs are presented for detected chemicals only in surface water and groundwater.
(a) Chronic ESVs selected based on a hierarchy of water quality standards and benchmarks from DDOE WQS Criteria (DOH, 2010), USEPA Region 3 freshwater sediment screening values (USEPA, 2006), and literature values (Suter and Tsao 1996, Buchman 2008).
(b) Acute ESVs selected based on freshwater acute criteria available from DDOE (DOH, 2010), Buchman (2008), and Suter and Tsao (1996; SAV).

Table 3-2
Surface Water Ecological Screening Values
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

(c) Hardness dependent criteria. Value presented has been adjusted by a mean hardness of 60 mg/L as $CaCO_3$ for the Waterside Investigation Area.
(d) Value for Hexavalant Chromium used.
(e) Value based on acute water quality criteria.
(f) Value is for dissolved concentration.
(g) Value for BHC (non-Lindane) is used as a surrogate due to structural similarities.
(h) Value for endosulfan used due to structural similarities.
(i) Value for chlordane used as a surrogate due to structural similarities.
(j) Value for pentachlorophenol adjusted by mean pH of 6.73 for the Waterside Investigation Area.
(k) Chronic freshwater value (Buchman 2006).

pepco
A PHI Company

Table 3-3
Identification of Sediment COPCs
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Detected Analyte	FOD	Detected Concentrations Minimum	Mean	Maximum	Selected Sediment ESV (a)	COPC Determination and Rationale	Hazard Quotient
INORGANICS							
Aluminum	46 : 46	1900	8000	18000	NV	Yes - No ESV	NC
Antimony	45 : 46	0.05	0.54	2.8	2.0	Yes - Max detect > ESV	1.4
Arsenic	46 : 46	0.79	3.9	17	5.9	Yes - Max detect > ESV	2.9
Barium	46 : 46	17	84	180	0.7	Yes - Max detect > ESV	257.1
Beryllium	46 : 46	0.15	1.1	2.2	NV	Yes - No ESV	NC
Cadmium	46 : 46	0.24	1.2	5.2	0.583	Yes - Max detect > ESV	8.9
Calcium	46 : 46	870	3000	17000	EN	EN	nCOPC
Chromium	46 : 46	11	39	140	26	Yes - Max detect > ESV	5.4
Cobalt	46 : 46	4.8	15	32	50	No - Max detect < ESV	nCOPC
Copper	46 : 46	9.6	57	240	31.6	Yes - Max detect > ESV	7.6
Iron	46 : 46	8200	20000	33000	20000	Yes - Max detect > ESV	1.7
Lead	46 : 46	11	78	320	31.0	Yes - Max detect > ESV	10.3
Magnesium	46 : 46	640	2800	12000	EN	EN	nCOPC
Manganese	46 : 46	100	290	570	460	Yes - Max detect > ESV	1.2
Mercury	46 : 46	0.033	0.19	0.69	0.174	Yes - Max detect > ESV	4.0
Nickel	46 : 46	7.7	38	160	16	Yes - Max detect > ESV	10.0
Potassium	46 : 46	230	920	1500	EN	EN	nCOPC
Selenium	46 : 46	0.034	0.89	1.8	NV	Yes - No ESV	NC
Silver	46 : 46	0.044	0.56	3.5	0.5	Yes - Max detect > ESV	7.0
Sodium	46 : 46	25	120	420	EN	EN	nCOPC
Thallium	46 : 46	0.037	0.2	0.63	NV	Yes - No ESV	NC
Vanadium	46 : 46	8.5	61	440	NV	Yes - No ESV	NC
Zinc	46 : 46	46	210	630	98	Yes - Max detect > ESV	6.4
PESTICIDES							
4,4'-DDD	14 : 14	0.00076	0.0089	0.052	0.00354	Yes - Max detect > ESV	14.7
4,4'-DDE	13 : 14	0.0014	0.011	0.046	0.00316	Yes - Max detect > ESV	14.6
4,4'-DDT	14 : 14	0.00037	0.057	0.75	0.00119	Yes - Max detect > ESV	630.3
Aldrin	13 : 14	0.000074	0.00065	0.0019	0.002	No - Max detect < ESV	nCOPC
alpha-BHC	1 : 14	0.00024	0.00024	0.00024	0.006	No - Max detect < ESV	nCOPC
beta-BHC	7 : 14	0.00029	0.00093	0.002	0.005	No - Max detect < ESV	nCOPC
cis-Chlordane	14 : 14	0.0014	0.0064	0.015	0.00003	Yes - Max detect > ESV	500.0
delta-BHC	9 : 14	0.00052	0.0017	0.0055	0.01	No - Max detect < ESV	nCOPC
Dieldrin	14 : 14	0.00026	0.0018	0.0049	0.0019	Yes - Max detect > ESV	2.6
Endosulfan I	3 : 14	0.00064	0.0011	0.0015	0.0029	No - Max detect < ESV	nCOPC
Endosulfan II	13 : 14	0.00019	0.001	0.005	0.014	No - Max detect < ESV	nCOPC
Endosulfan Sulfate	14 : 14	0.00017	0.002	0.01	0.0054	Yes - Max detect > ESV	1.9
Endrin	14 : 14	0.00031	0.0047	0.022	0.00222	Yes - Max detect > ESV	9.9
Endrin aldehyde	13 : 14	0.00016	0.00086	0.0016	0.00222	No - Max detect < ESV	nCOPC
Endrin ketone	12 : 14	0.00052	0.003	0.008	0.00222	Yes - Max detect > ESV	3.6
gamma-BHC (Lindane)	14 : 14	0.000077	0.00053	0.0016	0.00237	No - Max detect < ESV	nCOPC
Heptachlor	14 : 14	0.00022	0.0017	0.0044	0.01	No - Max detect < ESV	nCOPC
Heptachlor Epoxide	14 : 14	0.00012	0.0013	0.0062	0.0006	Yes - Max detect > ESV	10.3
Methoxychlor	14 : 14	0.0017	0.012	0.027	0.0187	Yes - Max detect > ESV	1.4
trans-Chlordane	14 : 14	0.0019	0.0093	0.024	0.00003	Yes - Max detect > ESV	800.0

pepco
A PHI Company

Table 3-3
Identification of Sediment COPCs
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Detected Analyte	FOD	Detected Concentrations Minimum	Mean	Maximum	Selected Sediment ESV (a)	COPC Determination and Rationale	Hazard Quotient
POLYCHLORINATED BIPHENYLS (PCBs)							
Aroclor-1248	41 : 46	0.032	0.21	0.89	0.026	Yes - Max detect > ESV	34.2
Aroclor-1260	45 : 46	0.0031	0.14	1	0.026	Yes - Max detect > ESV	38.5
PCB, Total Aroclors	45 : 46	0.0031	0.33	1.9	0.026	Yes - Max detect > ESV	73.1
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)							
1,1'-Biphenyl	1 : 14	0.018	0.018	0.018	1.22	No - Max detect < ESV	nCOPC
2,4-Dimethylphenol	2 : 14	0.027	0.027	0.027	0.029	No - Max detect < ESV	nCOPC
2-Methylnaphthalene	13 : 14	0.0092	0.036	0.074	0.0202	Yes - Max detect > ESV	3.7
4-Chloroaniline	2 : 14	0.057	0.07	0.082	0.146	No - Max detect < ESV	nCOPC
4-Methylphenol	6 : 14	0.021	0.072	0.11	0.0051	Yes - Max detect > ESV	21.6
Acenaphthene	36 : 46	0.0077	0.041	0.14	0.00671	Yes - Max detect > ESV	20.9
Acenaphthylene	36 : 46	0.016	0.059	0.17	0.00587	Yes - Max detect > ESV	29.0
Acetophenone	6 : 14	0.015	0.029	0.044	NV	Yes - No ESV	NC
Anthracene	44 : 46	0.016	0.1	0.22	0.01	Yes - Max detect > ESV	22.0
Benzaldehyde	11 : 13	0.024	0.15	0.32	NV	Yes - No ESV	NC
Benzo(a)anthracene	45 : 46	0.021	0.44	1	0.01572	Yes - Max detect > ESV	63.6
Benzo(a)pyrene	45 : 46	0.028	0.5	1.1	0.0319	Yes - Max detect > ESV	34.5
Benzo(b)fluoranthene	45 : 46	0.043	0.77	1.7	10.4	No - Max detect < ESV	nCOPC
Benzo(g,h,i)perylene	45 : 46	0.029	0.53	1.2	0.17	Yes - Max detect > ESV	7.1
Benzo(k)fluoranthene	44 : 46	0.066	0.29	0.56	0.0272	Yes - Max detect > ESV	20.6
bis-(2-Ethylhexyl)phthalate	14 : 14	0.2	1	1.6	0.1	Yes - Max detect > ESV	16.0
Butylbenzylphthalate	7 : 14	0.063	0.1	0.18	0.1	Yes - Max detect > ESV	1.8
Caprolactam	1 : 14	0.39	0.39	0.39	NV	Yes - No ESV	NC
Carbazole	14 : 14	0.023	0.087	0.25	NV	Yes - No ESV	NC
Chrysene	45 : 46	0.031	0.72	1.5	0.02683	Yes - Max detect > ESV	55.9
Di-n-butylphthalate	4 : 14	0.023	0.072	0.2	0.44	No - Max detect < ESV	nCOPC
Di-n-octylphthalate	4 : 14	0.042	0.13	0.24	0.1	Yes - Max detect > ESV	2.4
Dibenzo(a,h)anthracene	44 : 46	0.024	0.12	0.21	0.0062	Yes - Max detect > ESV	33.8
Dibenzofuran	4 : 14	0.027	0.062	0.11	5.1	No - Max detect < ESV	nCOPC
Diethylphthalate	1 : 14	0.078	0.078	0.078	0.53	No - Max detect < ESV	nCOPC
Fluoranthene	45 : 46	0.037	1	2.8	0.031	Yes - Max detect > ESV	89.0
Fluorene	38 : 46	0.012	0.05	0.12	0.01	Yes - Max detect > ESV	12.0
Indeno(1,2,3-cd)pyrene	45 : 46	0.022	0.42	1.2	0.017	Yes - Max detect > ESV	69.3
Naphthalene	24 : 46	0.0049	0.033	0.095	0.015	Yes - Max detect > ESV	6.5
Phenanthrene	44 : 46	0.092	0.45	2	0.019	Yes - Max detect > ESV	106.8
Pyrene	45 : 46	0.036	0.86	2.1	0.044	Yes - Max detect > ESV	47.4
Total High-molecular-weight PAHs	45 : 46	0.25	5.7	13	0.193	Yes - Max detect > ESV	67.4
Total Low-molecular-weight PAHs	44 : 46	0.15	0.7	2.6	0.076	Yes - Max detect > ESV	34.0
Total PAHs (sum 16)	45 : 46	0.25	6.4	14	0.26	Yes - Max detect > ESV	53.0
VOLATILE ORGANIC COMPOUNDS (VOCs)							
2-Butanone	1 : 14	0.012	0.012	0.012	35	No - Max detect < ESV	nCOPC
Acetone	2 : 14	0.02	0.038	0.055	0.0099	Yes - Max detect > ESV	5.6
Chloroform	2 : 14	0.0011	0.0012	0.0013	0.02	No - Max detect < ESV	nCOPC

pepco
A PHI Company

Table 3-3
Identification of Sediment COPCs
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Detected Analyte	FOD	Detected Concentrations Minimum	Mean	Maximum	Selected Sediment ESV (a)		COPC Determination and Rationale	Hazard Quotient
DIOXIN/FURANS								
2,3,7,8-TCDD	9 : 14	0.00000006	0.000006	0.00004	0.00003784		Yes - Max detect > ESV	1.0
1,2,3,7,8-PeCDD	14 : 14	0.00000004	0.000027	0.00028	0.00003784	(b)	Yes - Max detect > ESV	7.3
1,2,3,6,7,8-HxCDD	14 : 14	0.00000027	0.000052	0.00055	0.00003784	(b)	Yes - Max detect > ESV	14.5
1,2,3,4,7,8-HxCDD	14 : 14	0.00000016	0.000028	0.00029	0.00003784	(b)	Yes - Max detect > ESV	7.6
1,2,3,7,8,9-HxCDD	14 : 14	0.00000021	0.000069	0.00071	0.00003784	(b)	Yes - Max detect > ESV	18.6
1,2,3,4,6,7,8-HpCDD	14 : 14	0.00000842	0.000423	0.00410	0.00003784	(b)	Yes - Max detect > ESV	108.4
OCDD	14 : 14	0.00033800	0.002950	0.01470	0.00003784	(b)	Yes - Max detect > ESV	388.5
2,3,7,8-TCDF	13 : 14	0.00000013	0.000008	0.00006	0.00003784	(b)	Yes - Max detect > ESV	1.5
1,2,3,7,8-PeCDF	13 : 14	0.00000011	0.000015	0.00012	0.00003784	(b)	Yes - Max detect > ESV	3.3
2,3,4,7,8-PeCDF	13 : 14	0.00000035	0.000025	0.00022	0.00003784	(b)	Yes - Max detect > ESV	5.7
1,2,3,6,7,8-HxCDF	14 : 14	0.00000011	0.000030	0.00027	0.00003784	(b)	Yes - Max detect > ESV	7.2
1,2,3,7,8,9-HxCDF	11 : 14	0.00000006	0.000003	0.00002	0.00003784	(b)	No - Max detect < ESV	nCOPC
1,2,3,4,7,8-HxCDF	14 : 14	0.00000009	0.000056	0.00047	0.00003784	(b)	Yes - Max detect > ESV	12.4
2,3,4,6,7,8-HxCDF	14 : 14	0.00000007	0.000029	0.00029	0.00003784	(b)	Yes - Max detect > ESV	7.5
1,2,3,4,6,7,8-HpCDF	14 : 14	0.00000024	0.000120	0.00108	0.00003784	(b)	Yes - Max detect > ESV	28.5
1,2,3,4,7,8,9-HpCDF	14 : 14	0.00000008	0.000015	0.00015	0.00003784	(b)	Yes - Max detect > ESV	4.0
OCDF	14 : 14	0.00000051	0.000109	0.00100	0.00003784	(b)	Yes - Max detect > ESV	26.4

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Hazard quotient is calculated by dividing the maximum detected concentration by the ESV.
COPC - Constituent of Potential Concern.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
FOD - Frequency of Detection.
NC - Not Calculated.
NCOPC - Not a COPC.
NOAA - National Oceanic and Atmospheric Administration.
NV - No Value.
OMOE - Ontario Ministry of Environment and Energy.
PAH - Polycyclic Aromatic Hydrocarbon.
SQuiRTs - Screening Quick Reference Tables.
USEPA - United States Environmental Protection Agency.
(a) Screening values selected based on a hierarchy of freshwater values from NOAA SQuirTs (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006a), USEPA Region 5 ESLs (USEPA 2003), and values from OMOE (Persaud 1993). See Table 3-1.
(b) Value for 2,3,7,8-TCDD used due to structural similarity.

pepco
A PHI Company

Table 3-4
Identification of Surface Water COPCs
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Detected Analyte	FOD	Detected Concentrations Minimum	Mean	Maximum	Chronic ESV (a)		COPC Determination and Rationale	Hazard Quotient
INORGANICS - DISSOLVED								
Antimony	10 : 10	0.74	0.93	1.8	30		No - Max detect < ESV	NCOPC
Arsenic	7 : 10	0.32	0.49	0.64	150		No - Max detect < ESV	NCOPC
Barium	10 : 10	28	33	36	4		Yes - Max detect > ESV	9.0
Beryllium	5 : 10	0.037	0.05	0.079	0.66		No - Max detect < ESV	NCOPC
Calcium	10 : 10	14000	16000	19000	116000		EN	NCOPC
Chromium	10 : 10	1.6	1.9	2.3	11		No - Max detect < ESV	NCOPC
Cobalt	10 : 10	0.093	0.28	0.71	23		No - Max detect < ESV	NCOPC
Copper	10 : 10	1.7	2.5	3.9	5.8	(b)	No - Max detect < ESV	NCOPC
Iron	5 : 10	8.9	12	18	1000		No - Max detect < ESV	NCOPC
Magnesium	10 : 10	3700	4700	5800	82000		EN	NCOPC
Manganese	8 : 10	29	54	77	120		No - Max detect < ESV	NCOPC
Nickel	10 : 10	1.5	2.1	2.5	33.8	(b)	No - Max detect < ESV	NCOPC
Potassium	10 : 10	3100	3500	3800	53000		EN	NCOPC
Silver	1 : 10	0.062	0.062	0.062	1.3	(b)	No - Max detect < ESV	NCOPC
Sodium	10 : 10	15000	18000	20000	680000		EN	NCOPC
Vanadium	7 : 10	0.14	0.37	1	20		No - Max detect < ESV	NCOPC
Zinc	10 : 10	4	7.4	12	76.6	(b)	No - Max detect < ESV	NCOPC
INORGANICS - TOTAL								
Selenium	2 : 10	0.5	0.68	0.86	5		No - Max detect < ESV	NCOPC
Thallium	10 : 10	0.015	0.045	0.1	0.8		No - Max detect < ESV	NCOPC
PESTICIDES								
4,4'-DDT	5 : 5	0.0011	0.0013	0.0016	0.001		Yes - Max detect > ESV	1.6
SEMI-VOLATILE ORGANIC COMPOUNDS								
2-Methylnaphthalene	1 : 5	0.016	0.016	0.016	4.7		No - Max detect < ESV	NCOPC
Anthracene	1 : 10	0.018	0.018	0.018	0.012		Yes - Max detect > ESV	1.5
bis-(2-Ethylhexyl)phthalate	3 : 5	1.4	1.9	2.2	16		No - Max detect < ESV	NCOPC
Butylbenzylphthalate	1 : 5	0.86	0.86	0.86	19		No - Max detect < ESV	NCOPC
Carbazole	1 : 5	0.037	0.037	0.037	NV		Yes - No ESV	NC
Di-n-butylphthalate	1 : 5	0.49	0.49	0.49	19		No - Max detect < ESV	NCOPC
Fluoranthene	6 : 10	0.019	0.029	0.036	400		No - Max detect < ESV	NCOPC
Pyrene	4 : 10	0.021	0.03	0.038	0.025		Yes - Max detect > ESV	1.5
VOLATILE ORGANIC COMPOUNDS								
Carbon Disulfide	1 : 5	0.40	0.40	0.40	0.92		No - Max detect < ESV	NCOPC
Toluene	1 : 5	0.15	0.15	0.15	600		No - Max detect < ESV	NCOPC
DIOXIN/FURANs								
TCDD TEQ Fish	5 : 5	7.44E-08	2.70E-07	4.25E-07	1.00E-05		No - Max detect < ESV	NCOPC

pepco
A PHI Company

Table 3-4
Identification of Surface Water COPCs
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Detected Analyte	FOD	Detected Concentrations			Chronic ESV (a)	COPC Determination and Rationale	Hazard Quotient
		Minimum	Mean	Maximum			
PETROLEUM HYDROCARBONS							
HEM (Oil and Grease)	5 : 5	1700	1900	2200	NV	Yes - No ESV	NC

Notes:
All units are in micrograms per liter (μg/L).
Hazard quotient is calculated by dividing the maximum detected concentration by the ESV.
COPC - Constituent of Potential Concern.
DDOE - District of Columbia Department of Environment.
EN - Essential Nutrient.
ESV - Ecological Screening Value.
FOD - Frequency of Detection.
HEM - N-Hexane Extractable Material.
NC - Not Calculated.
NCOPC - Not a COPC.
NV - No Value.
PAH - Polycyclic Aromatic Hydrocarbon.
TCDD TEQ - Tetrachlorodibenzo-p-dioxin toxic equivalence.
USEPA - United States Environmental Protection Agency.
WQS - Water Quality Standards.
(a) Chronic ESVs selected based on a hierarchy of water quality standards and benchmarks from DOEE WQS (DOEE, 2010), USEPA Region 3 freshwater surface water screening values (USEPA 2006b), and othre literature values (Suter and Tsao 1996, Buchman 2008). See Table 3-2.
(b) Value presented has been adjusted by a hardness of 60 mg/L as $CaCO_3$ for the Waterside Investigation Area.

pepco
A PHI Company

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Nearshore Groundwater Wells - Upper Aquifer											
Location ID	**MW01**		**MW02**		**MW03**		**MW04**		**MW08**		**MW11**	
Sample ID	**MW01AN**		**MW02AN**		**MW03AN**		**MW04AN**		**MW08AN**		**MW11AN**	
Sample Date	**11/5/2014**		**11/5/2014**		**11/4/2014**		**11/4/2014**		**11/10/2014**		**11/4/2014**	
Chemical (d)												
DIOXIN TEQs												
TCDD TEQ Fish	2.76E-08		NA		1.25E-09		1.20E-08		NA		4.23E-02	
INORGANICS - DISSOLVED PHASE												
Arsenic	1	U	2.3		1.2		1	U	1.2		1	U
Barium	180		16		92		86		58		38	
Beryllium	1	UJ	1	U	1	U	1	UJ	1	U	1	U
Calcium	72000		50000		37000		57000		38000		20000	
Cobalt	8.5		0.5	U	5.8		30		5.3		2.2	
Iron	50	U	50	U	50	U	50	U	50	U	50	U
Magnesium	11000		5000		4300		15000		7300		4100	
Manganese	3800		200		3800		5000		1300		430	
Nickel	0.28	J-	0.41	J	3		5.7		2		1.1	
Potassium	6200		7400		5900		6800		6000		4000	
Sodium	100000		96000		42000		160000		26000		14000	
Thallium	1	U	1	U	1	U	1	U	0.043	J	1	U
Vanadium	4.7	J+	6.5	J+	4.5	J+	2.6	J	4.1	J+	5.8	J+
Zinc	5	U	5	U	5	U	5	U	5	U	5	U
INORGANICS - TOTAL RECOVERABLE PHASE												
Thallium	1	U	1	U	1	U	1	U	0.043	J	1	U
PESTICIDES												
4,4'-DDE	0.0012	U	0.0013	U	0.0012	U	0.0013	U	0.0013	U	0.0012	U
4,4'-DDT	0.0012	U	0.0013	U	0.0012	U	0.0013	U	0.0013	U	0.0012	U
beta-BHC	0.0012	U	0.0013	U	0.00095	J	0.0013	U	0.0013	U	0.0012	U
delta-BHC	0.0012	U	0.0004	J	0.0012	U	0.0013	U	0.0013	U	0.0012	U
Endosulfan Sulfate	0.0012	U	0.0013	U	0.0012	U	0.0013	U	0.0013	U	0.0012	U
Endrin	0.0012	U	0.0013	U	0.0012	U	0.0013	U	0.0013	U	0.0012	U
Heptachlor Epoxide	0.0012	U	0.0013	U	0.0012	U	0.0013	U	0.0013	U	0.0012	U
trans-Chlordane	0.0012	U	0.0013	U	0.0012	U	0.0013	U	0.0013	U	0.0012	U
POLYCHLORINATED BIPHENYLs (PCBs)												
Total PCBs (Aroclors)	0.0095	U	0.0096	U	0.0095	U	0.0098	U	0.0097	U	0.0095	U
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)												
1,1'-Biphenyl	1	U	0.27	J	1	U	1.1	U	1	U	1	U
2-Methylnaphthalene	0.029	J	1.2		0.21	U	0.22	U	0.2	U	0.2	U
4-Methylphenol	0.33	J	0.96	U	1	U	1.1	U	1	U	1	U
4-Nitrophenol	5	U	4.8	U	5.2	U	5.4	U	5	U	5	U
Acenaphthene	0.2	U	1.3		0.21	U	0.22	U	0.2	U	0.2	U
Acenaphthylene	0.2	U	0.086	J	0.21	U	0.22	U	0.2	U	0.2	U
Anthracene	0.2	U	0.044	J	0.21	U	0.22	U	0.2	U	0.2	U
Carbazole	1	U	0.27	J	1	U	1.1	U	1	U	1	U
Dibenzofuran	1	U	0.71	J	1	U	1.1	U	1	U	1	U
Fluoranthene	0.2	U	0.088	J	0.21	U	0.22	U	0.2	U	0.2	U
Fluorene	0.2	U	0.64		0.21	U	0.22	U	0.2	U	0.2	U
Naphthalene	0.2		13	J	0.21	U	0.22	U	0.046	J	0.2	U
Pentachlorophenol	1	U	0.96	U	1	U	1.1	U	1	U	1	U
Phenanthrene	0.2	U	0.67		0.21	U	0.22	U	0.2	U	0.2	U
Phenol	0.57	J	0.96	U	1	U	1.1	U	1	U	1	U
Pyrene	0.2	U	0.042	J	0.21	U	0.22	U	0.2	U	0.2	U

pepco
A PHI Company

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Nearshore Groundwater Wells - Upper Aquifer											
Location ID	**MW01**		**MW02**		**MW03**		**MW04**		**MW08**		**MW11**	
Sample ID	**MW01AN**		**MW02AN**		**MW03AN**		**MW04AN**		**MW08AN**		**MW11AN**	
Sample Date	**11/5/2014**		**11/5/2014**		**11/4/2014**		**11/4/2014**		**11/10/2014**		**11/4/2014**	
Chemical (d)												
VOLATILE ORGANIC COMPOUNDS (VOCs)												
2-Butanone	5	U	5	U	7.5		5	U	5	U	5	U
Acetone	5	U	5	U	4.1	J	5	U	5	U	5	U
Benzene	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	1	U	1	U	1	U	1	U	1	U	1	
Chloroform	1	U	1	U	1.2		0.22	J	1.2		1	U
cis-1,2-Dichloroethylene	0.92	J	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	1	U	1	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether (MTBE)	1.6		1	U	1	U	0.29	J	1	U	1	U
Methylene Chloride	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethylene	4.4		2.3		0.32	J	0.25	J	1	U	0.18	J
Toluene	1	U	1	U	0.34	J	1	U	1	U	1	U
Trichloroethene	0.43	J	1	U	1	U	1	U	1	U	1	U

Notes:

All units are in µg/L.
DAF - Dilution Attenuation Factor.
ESV - Ecological Screening Value.
J - Estimated value.
NA - Not analyzed.
NC - Not calculated.
NV - No Value.
TCDD TEQ - Dioxin Toxicity Equivalence.
U - Not detected above the laboratory reporting limit.
UJ - Not detected above laboratory reporting limit; Estimated value.
+/- Likely to have a high (+) or low (-) bias.

(a) Surface water concentrations were estimated by multiplying groundwater results from the nearshore monitoring wells by well-specific dilution attenuation factor (DAF). DAFs were derived separately for the upper and lower aquifers for each well.

(b) See Table 3-2 for specific source of screening level and surrogate used (if applicable).

(c) The flow-weighted average concentration is calculated using the following equation:

$$\frac{([CMW1A*QMW1A]+[CMW1B*QMW1B]+\ldots)+(CSWBCK*7Q10)}{(QMW1A+QMW1A+\ldots+7Q10)}$$

where:

CMW1A = Chemical concentration measured at monitoring well MW1A
QMW1A = Discharge rate calculated for monitoring well MW1A
CSWBCK= Average chemical concentration of upstream background surface water samples 1, 2, 3, 4, 5, and 6 (presented in Appendix J.
7Q10 = the lowest 7-day average flow that occurs on average once every 10 years

(d) Only chemicals detected at least once in nearshore groundwater monitoring wells are presented.

pepco
A PHI Company

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Nearshore Groundwater Wells - Lower Aquifer													
Location ID	**MW01**		**MW02**		**MW03**		**MW04**		**MW08**		**MW08**		**MW11**	
Sample ID	**MW01BN**		**MW02BN**		**MW03BN**		**MW04BN**		**MW08BN**		**MW08BR**		**MW11BN**	
Sample Date	**11/5/2014**		**11/5/2014**		**11/4/2014**		**11/4/2014**		**11/5/2014**		**11/5/2014**		**11/4/2014**	
Chemical (d)														
DIOXIN TEQs														
TCDD TEQ Fish	2.37E-09		NA		2.83E-09		2.53E-06	U	NA		NA		2.57E-01	
INORGANICS - DISSOLVED PHASE														
Arsenic	1	U	1	U	0.48	J	0.91	J	0.31	J	1	U	2.2	
Barium	190		75		150		100		140		130		120	
Beryllium	1	UJ	0.51	J	1	U	1	U	1	U	1	U	1	U
Calcium	30000		12000		20000		25000		17000		16000		29000	
Cobalt	8.2		26		1.9		1.9		0.83		0.75		0.2	J
Iron	5800	J	30000	J	190	J	570	J	50	U	50	U	50	
Magnesium	13000		4800		6100		7900		6400		5700		6800	
Manganese	3400		1600		530		950		280		250		360	
Nickel	4.3	J-	11		1.2		1.6		0.87	J	0.67	J	0.33	J
Potassium	5000		2400		2700		3600		3900		3500		9700	
Sodium	120000		36000		13000		18000		19000		17000		46000	
Thallium	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vanadium	3.2	J	3.5	J+	2.5	J+	1.4	J+	1	U	4.2	J+	3.8	J+
Zinc	5.4	U	39		7.5	U	5	U	5	U	5	U	5	U
INORGANICS - TOTAL RECOVERABLE PHASE														
Thallium	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PESTICIDES														
4,4'-DDE	0.0013	U	0.0012	U	0.0013	U	0.0012	U	0.0013	U	0.001	J	0.0013	U
4,4'-DDT	0.0013	U	0.0012	U	0.0013	U	0.0012	U	0.0042		0.0037		0.0028	
beta-BHC	0.0013	U	0.0011	J	0.0013	U	0.0012	U	0.0013	U	0.0013	U	0.0013	U
delta-BHC	0.0013	U	0.0012	U	0.0013	U	0.0012	U	0.0013	U	0.0013	U	0.0013	U
Endosulfan Sulfate	0.0013	U	0.0012	U	0.0013	U	0.00073	J	0.0013	U	0.0013	U	0.0013	U
Endrin	0.0013	U	0.0012	U	0.0013	U	0.0012	U	0.0017		0.002		0.0013	U
Heptachlor Epoxide	0.0013	U	0.0012	U	0.0013	U	0.0014	J	0.0016	J	0.0013	J	0.0013	U
trans-Chlordane	0.0013	U	0.0012	U	0.0013	U	0.0014		0.0026	J	0.00098	J	0.0013	U
POLYCHLORINATED BIPHENYLs (PCBs)														
Total PCBs (Aroclors)	0.0096	U	0.0095	U	0.0097	U	0.0094	U	0.11		0.077		0.0096	U
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)														
1,1'-Biphenyl	1	U	1	U	1	U	1	U	1	U	1	U	0.96	U
2-Methylnaphthalene	0.02	J	0.2	U	0.2	U	0.21	U	0.21	U	0.2	U	0.19	U
4-Methylphenol	1	U	1	U	1	U	1	U	1	U	0.49	J	0.96	U
4-Nitrophenol	5	U	5	U	5	U	5.2	U	5.2	U	5		4.8	U
Acenaphthene	0.2	U	0.2	U	0.2	U	0.21	U	0.21	U	0.2	U	0.19	U
Acenaphthylene	0.2	U	0.2	U	0.2	U	0.21	U	0.21	U	0.2	U	0.19	U
Anthracene	0.2	U	0.2	U	0.2	U	0.21	U	0.21	U	0.2	U	0.19	U
Carbazole	1	U	1	U	1	U	1	U	1	U	1	U	0.96	U
Dibenzofuran	1	U	0.11	J	1	U	1	U	1	U	1	U	0.96	U
Fluoranthene	0.2	U	0.2	U	0.2	U	0.21	U	0.21	U	0.2	U	0.19	U
Fluorene	0.2	U	0.2	U	0.2	U	0.21	U	0.21	U	0.2	U	0.19	U
Naphthalene	0.27		2.6		0.2	U	0.21	U	0.21	U	0.2	U	0.19	U
Pentachlorophenol	0.53	J	1	U	1	U	1	U	1	U	1	U	0.96	U
Phenanthrene	0.2	U	0.068	J	0.2	U	0.21	U	0.21	U	0.2	U	0.19	U
Phenol	0.26	J	1	U	1	U	1	U	0.12	J	0.22	J	0.96	U
Pyrene	0.2	U	0.2	U	0.2	U	0.21	U	0.21	U	0.2	U	0.19	U

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Nearshore Groundwater Wells - Lower Aquifer													
Location ID	**MW01**		**MW02**		**MW03**		**MW04**		**MW08**		**MW08**		**MW11**	
Sample ID	**MW01BN**		**MW02BN**		**MW03BN**		**MW04BN**		**MW08BN**		**MW08BR**		**MW11BN**	
Sample Date	**11/5/2014**		**11/5/2014**		**11/4/2014**		**11/4/2014**		**11/5/2014**		**11/5/2014**		**11/4/2014**	
Chemical (d)														
VOLATILE ORGANIC COMPOUNDS (VOCs)														
2-Butanone	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	5	U	5	U	5	U	2.8	J	5	U	5		5	U
Benzene	1	U	1	U	1	U	1	U	0.22	J	0.68	J	1	U
Bromodichloromethane	1	U	1	U	0.65	J	1	U	0.23	J	1	U	1	U
Carbon Disulfide	0.27	J	1	U	1.8		1.1		1	U	1	U	0.78	J
Chloroform	0.87	J	1	U	3.2		1.4		3.2		2		0.29	J
cis-1,2-Dichloroethylene	2.6		1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	1	U	1	U	0.24	J	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether (MTBE)	1		0.39	J	1	U	1	U	1	U	1	U	1	U
Methylene Chloride	1	U	1	U	1	U	1	U	1	U	0.2	J	1	U
Tetrachloroethylene	110		1	U	1	U	1	U	1	U	1	U	1	U
Toluene	1	U	1	U	0.28	J	1	U	0.18	J	0.19	J	0.19	J
Trichloroethene	25		1	U	1	U	1	U	1	U	1	U	1	U

Notes:

All units are in µg/L.
DAF - Dilution Attenuation Factor.
ESV - Ecological Screening Value.
J - Estimated value.
NA - Not analyzed.
NC - Not calculated.
NV - No Value.
TCDD TEQ - Dioxin Toxicity Equivalence.
U - Not detected above the laboratory reporting limit.
UJ - Not detected above laboratory reporting limit; Estimated value.
+/- Likely to have a high (+) or low (-) bias.

(a) Surface water concentrations were estimated by multiplying groundwater results from the nearshore monitoring wells by well-specific dilution attenuation factor (DAF). DAFs were derived separately for the upper and lower aquifers for each well.

(b) See Table 3-2 for specific source of screening level and surrogate used (if applicable).

(c) The flow-weighted average concentration is calculated using the following equation:

$$\frac{([CMW1A*QMW1A]+[CMW1B*QMW1B]+\ldots)+(CSWBCK*7Q10)}{(QMW1A+QMW1A+\ldots+7Q10)}$$

where:

CMW1A = Chemical concentration measured at monitoring well MW1A
QMW1A = Discharge rate calculated for monitoring well MW1A
CSWBCK= Average chemical concentration of upstream background surface water samples 1, 2, 3, 4, 5, and 6 (presented in Appendix J.
7Q10 = the lowest 7-day average flow that occurs on average once every 10 years

(d) Only chemicals detected at least once in nearshore groundwater monitoring wells are presented.

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Estimated Surface Water Concentrations Based on Well-Specific DAFs Applied to Measured Groundwater Data - Upper Aquifer (a)											
Location ID		**MW01**		**MW02**		**MW03**		**MW04**		**MW08**		**MW11**	
Sample ID		**MW01AN**		**MW02AN**		**MW03AN**		**MW04AN**		**MW08AN**		**MW11AN**	
Sample Date	**Surface Water**	**11/5/2014**		**11/5/2014**		**11/4/2014**		**11/4/2014**		**11/10/2014**		**11/4/2014**	
	ESV (b)	DAF = 1.25E-04		DAF = 6.28E-05		DAF = 1.16E-05		DAF = 3.81E-06		DAF = 1.06E-04		DAF = 2.01E-04	
Chemical (d)													
DIOXIN TEQs													
TCDD TEQ Fish	1.00E-05	3.45E-12		NC		1.45E-14		4.58E-14		NC		8.49E-06	
INORGANICS - DISSOLVED PHASE													
Arsenic	150	0.00013	U	0.00014		0.00001		0.000004	U	0.00013		0.00020	U
Barium	4	0.02253		0.00100		0.00107		0.00033		0.00613		0.00763	
Beryllium	0.66	0.00013	UJ	0.00006	U	0.00001	U	0.000004	UJ	0.00011	U	0.00020	U
Calcium	116000	9.0		3.1		0.4		0.2		4.0		4.0	
Cobalt	23	0.00106		0.00003	U	0.00007		0.00011		0.00056		0.00044	
Iron	1000	0.0063	U	0.0031	U	0.0006	U	0.0002	U	0.0053	U	0.0100	U
Magnesium	82000	1.38		0.31		0.05		0.06		0.77		0.82	
Manganese	120	0.48		0.01256		0.04		0.02		0.14		0.09	
Nickel	33.8	0.00004	J-	0.00003	J	0.00003		0.00002		0.00021		0.00022	
Potassium	53000	0.78		0.46		0.07		0.03		0.63		0.80	
Sodium	680000	12.5		6.0		0.5		0.6		2.7		2.8	
Thallium	NV	0.00013	U	0.00006	U	0.00001	U	0.00000	U	0.000005	J	0.00020	U
Vanadium	20	0.00059	J+	0.00041	J+	0.00005	J+	0.00001	J	0.00043	J+	0.00116	J+
Zinc	76.6	0.00063	U	0.00031	U	0.00006	U	0.00002	U	0.00053	U	0.00100	U
INORGANICS - TOTAL RECOVERABLE PHASE													
Thallium	0.8	0.00013	U	0.00006	U	0.00001	U	0.00000	U	0.00000	J	0.00020	U
PESTICIDES													
4,4'-DDE	0.001	1.50E-07	U	8.16E-08	U	1.39E-08	U	4.96E-09	U	1.37E-07	U	2.41E-07	U
4,4'-DDT	0.001	1.50E-07	U	8.16E-08	U	1.39E-08	U	4.96E-09	U	1.37E-07	U	2.41E-07	U
beta-BHC	2.2	1.50E-07	U	8.16E-08	U	1.10E-08	J	4.96E-09	U	1.37E-07	U	2.41E-07	U
delta-BHC	141	1.50E-07	U	2.51E-08	J	1.39E-08	U	4.96E-09	U	1.37E-07	U	2.41E-07	U
Endosulfan Sulfate	0.056	1.50E-07	U	8.16E-08	U	1.39E-08	U	4.96E-09	U	1.37E-07	U	2.41E-07	U
Endrin	0.036	1.50E-07	U	8.16E-08	U	1.39E-08	U	4.96E-09	U	1.37E-07	U	2.41E-07	U
Heptachlor Epoxide	0.0038	1.50E-07	U	8.16E-08	U	1.39E-08	U	4.96E-09	U	1.37E-07	U	2.41E-07	U
trans-Chlordane	0.0022	1.50E-07	U	8.16E-08	U	1.39E-08	U	4.96E-09	U	1.37E-07	U	2.41E-07	U
POLYCHLORINATED BIPHENYLs (PCBs)													
Total PCBs (Aroclors)	0.014	1.19E-06	U	6.03E-07	U	1.10E-07	U	3.74E-08	U	1.03E-06	U	1.91E-06	U
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)													
1,1'-Biphenyl	14	0.00013	U	0.00002	J	0.00001	U	0.000004	U	0.00011	U	0.00020	U
2-Methylnaphthalene	4.7	0.00000	J	0.00008		0.000002	U	0.000001	U	0.00002	U	0.00004	U
4-Methylphenol	543	0.00004	J	0.00006	U	0.00001	U	0.000004	U	0.00011	U	0.00020	U
4-Nitrophenol	60	0.00063	U	0.00030	U	0.00006	U	0.00002	U	0.00053	U	0.00100	U
Acenaphthene	50	0.00003	U	0.00008		0.000002	U	0.000001	U	0.00002	U	0.00004	U
Acenaphthylene	4840	0.00003	U	0.00001	J	0.000002	U	0.000001	U	0.00002	U	0.00004	U
Anthracene	0.012	0.00003	U	0.000003	J	0.000002	U	0.000001	U	0.00002	U	0.00004	U
Carbazole	NV	0.00013	U	0.00002	J	0.00001	U	0.000004	U	0.00011	U	0.00020	U
Dibenzofuran	3.7	0.00013	U	0.00004	J	0.00001	U	0.000004	U	0.00011	U	0.00020	U
Fluoranthene	400	0.00003	U	0.00001	J	0.000002	U	0.000001	U	0.00002	U	0.00004	U
Fluorene	3	0.00003	U	0.00004		0.000002	U	0.000001	U	0.00002	U	0.00004	U
Naphthalene	600	0.00003		0.00082	J	0.000002	U	0.000001	U	0.00000	J	0.00004	U
Pentachlorophenol	5.10	0.00013	U	0.00006	U	0.00001	U	0.000004	U	0.00011	U	0.00020	U
Phenanthrene	0.4	0.00003	U	0.00004		0.000002	U	0.000001	U	0.00002	U	0.00004	U
Phenol	4	0.00007	J	0.00006	U	0.00001	U	0.000004	U	0.00011	U	0.00020	U
Pyrene	0.025	0.00003	U	0.000003	J	0.000002	U	0.000001	U	0.00002	U	0.00004	U

pepco
A PHI Company

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Estimated Surface Water Concentrations Based on Well-Specific DAFs Applied to Measured Groundwater Data - Upper Aquifer (a)											
Location ID		**MW01**		**MW02**		**MW03**		**MW04**		**MW08**		**MW11**	
Sample ID		**MW01AN**		**MW02AN**		**MW03AN**		**MW04AN**		**MW08AN**		**MW11AN**	
Sample Date	**Surface Water**	**11/5/2014**		**11/5/2014**		**11/4/2014**		**11/4/2014**		**11/10/2014**		**11/4/2014**	
	ESV (b)	DAF = 1.25E-04		DAF = 6.28E-05		DAF = 1.16E-05		DAF = 3.81E-06		DAF = 1.06E-04		DAF = 2.01E-04	
Chemical (d)													
VOLATILE ORGANIC COMPOUNDS (VOCs)													
2-Butanone	14000	0.00063	U	0.00031	U	0.00009		0.00002	U	0.00053	U	0.00100	U
Acetone	1500	0.00063	U	0.00031	U	0.00005	J	0.00002	U	0.00053	U	0.00100	U
Benzene	1000	0.00013	U	0.00006	U	0.00001	U	0.00000	U	0.00011	U	0.00020	U
Bromodichloromethane	NV	0.00013	U	0.00006	U	0.00001	U	0.000004	U	0.00011	U	0.00020	U
Carbon Disulfide	0.92	0.00013	U	0.00006	U	0.00001	U	0.000004	U	0.00011	U	0.00020	
Chloroform	3000	0.00013	U	0.00006	U	0.00001		0.000001	J	0.00013		0.00020	U
cis-1,2-Dichloroethylene	NV	0.00012	J	0.00006	U	0.00001	U	0.000004	U	0.00011	U	0.00020	U
Dibromochloromethane	NV	0.00013	U	0.00006	U	0.00001	U	0.000004	U	0.00011	U	0.00020	U
Methyl tert-Butyl Ether (MTBE)	11070	0.00020		0.00006	U	0.00001	U	0.000001	J	0.00011	U	0.00020	U
Methylene Chloride	NV	0.00013	U	0.00006	U	0.00001	U	0.00000	U	0.00011	U	0.00020	U
Tetrachloroethylene	800	0.00055		0.00014		0.000004	J	0.000001	J	0.00011	U	0.00004	J
Toluene	600	0.00013	U	0.00006	U	0.000004	J	0.000004	U	0.00011	U	0.00020	U
Trichloroethene	21	0.00005	J	0.00006	U	0.00001	U	0.000004	U	0.00011	U	0.00020	U

Notes:

All units are in µg/L.
DAF - Dilution Attenuation Factor.
ESV - Ecological Screening Value.
J - Estimated value.
NA - Not analyzed.
NC - Not calculated.
NV - No Value.
TCDD TEQ - Dioxin Toxicity Equivalence.
U - Not detected above the laboratory reporting limit.
UJ - Not detected above laboratory reporting limit; Estimated value.
+/- Likely to have a high (+) or low (-) bias.

(a) Surface water concentrations were estimated by multiplying groundwater results from the nearshore monitoring wells by well-specific dilution attenuation factor (DAF). DAFs were derived separately for the upper and lower aquifers for each well.

(b) See Table 3-2 for specific source of screening level and surrogate used (if applicable).

(c) The flow-weighted average concentration is calculated using the following equation:

$$\frac{([CMW1A*QMW1A]+[CMW1B*QMW1B]+\ldots)+(CSWBCK*7Q10)}{(QMW1A+QMW1A+\ldots+7Q10)}$$

where:

CMW1A = Chemical concentration measured at monitoring well MW1A
QMW1A = Discharge rate calculated for monitoring well MW1A
CSWBCK= Average chemical concentration of upstream background surface water samples 1, 2, 3, 4, 5, and 6 (presented in Appendix J.
7Q10 = the lowest 7-day average flow that occurs on average once every 10 years

(d) Only chemicals detected at least once in nearshore groundwater monitoring wells are presented.

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Estimated Surface Water Concentrations Based on Well-Specific DAFs Applied to Measured Groundwater Data - Lower Aquifer (a)													
Location ID		**MW01**		**MW02**		**MW03**		**MW04**		**MW08**		**MW08**		**MW11**	
Sample ID		**MW01BN**		**MW02BN**		**MW03BN**		**MW04BN**		**MW08BN**		**MW08BR**		**MW11BN**	
Sample Date	**Surface Water**	**11/5/2014**		**11/5/2014**		**11/4/2014**		**11/4/2014**		**11/5/2014**		**11/5/2014**		**11/4/2014**	
	ESV (b)	DAF = 5.08E-05		DAF = 1.09E-04		DAF = 8.56E-05		DAF = 4.16E-05		DAF = 1.63E-04		DAF = 1.63E-04		DAF = 1.21E-04	
Chemical (d)															
DIOXIN TEQs															
TCDD TEQ Fish	0.00001	1.20E-13		NC		2.42E-13		1.05E-10	U	NC		NC		**0.00003**	
INORGANICS - DISSOLVED PHASE															
Arsenic	150	0.00005	U	0.00011	U	0.00004	J	0.00004	J	0.00005	J	0.00016	U	0.00027	
Barium	4	0.00965		0.00815		0.01284		0.00416		0.02286		0.02123		0.01450	
Beryllium	0.66	0.00005	UJ	0.00006	J	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
Calcium	116000	1.5		1.3		1.7		1.0		2.8		2.6		3.5	
Cobalt	23	0.00042		0.00282		0.00016		0.00008		0.00014		0.00012		0.00002	J
Iron	1000	0.29	J	3.26	J	0.01627	J	0.02370	J	0.00817	U	0.00817	U	0.00604	
Magnesium	82000	0.66		0.52		0.52		0.33		1.05		0.93		0.82	
Manganese	120	0.17		0.17		0.05		0.040		0.046		0.041		0.044	
Nickel	33.8	0.00022	J-	0.00119		0.00010		0.00007		0.00014	J	0.00011	J	0.00004	J
Potassium	53000	0.25		0.26		0.23		0.15		0.64		0.57		1.17	
Sodium	680000	6.1		3.9		1.1		0.7		3.1		2.8		5.6	
Thallium	NV	0.00005	U	0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
Vanadium	20	0.00016	J	0.00038	J+	0.00021	J+	0.00006	J+	0.00016	U	0.00069	J+	0.00046	J+
Zinc	76.6	0.00027	U	0.00424		0.00064	U	0.00021	U	0.00082	U	0.00082	U	0.00060	U
INORGANICS - TOTAL RECOVERABLE PHASE															
Thallium	0.8	0.00005	U	0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
PESTICIDES															
4,4'-DDE	0.001	6.60E-08	U	1.30E-07	U	1.11E-07	U	4.99E-08	U	2.12E-07	U	1.63E-07	J	1.57E-07	U
4,4'-DDT	0.001	6.60E-08	U	1.30E-07	U	1.11E-07	U	4.99E-08	U	6.86E-07		6.04E-07		3.38E-07	
beta-BHC	2.2	6.60E-08	U	1.19E-07	J	1.11E-07	U	4.99E-08	U	2.12E-07	U	2.12E-07	U	1.57E-07	U
delta-BHC	141	6.60E-08	U	1.30E-07	U	1.11E-07	U	4.99E-08	U	2.12E-07	U	2.12E-07	U	1.57E-07	U
Endosulfan Sulfate	0.056	6.60E-08	U	1.30E-07	U	1.11E-07	U	3.04E-08	J	2.12E-07	U	2.12E-07	U	1.57E-07	U
Endrin	0.036	6.60E-08	U	1.30E-07	U	1.11E-07	U	4.99E-08	U	2.78E-07		3.27E-07		1.57E-07	U
Heptachlor Epoxide	0.0038	6.60E-08	U	1.30E-07	U	1.11E-07	U	5.82E-08	J	2.61E-07	J	2.12E-07	J	1.57E-07	U
trans-Chlordane	0.0022	6.60E-08	U	1.30E-07	U	1.11E-07	U	5.82E-08		4.25E-07	J	1.60E-07	J	1.57E-07	U
POLYCHLORINATED BIPHENYLs (PCBs)															
Total PCBs (Aroclors)	0.014	4.88E-07	U	1.03E-06	U	8.30E-07	U	3.91E-07	U	1.80E-05		1.26E-05		1.16E-06	U
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)															
1,1'-Biphenyl	14	0.00005	U	0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
2-Methylnaphthalene	4.7	0.000001	J	0.00002	U	0.00002	U	0.00001	U	0.00003	U	0.00003	U	0.00002	U
4-Methylphenol	543	0.00005	U	0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00008	J	0.00012	U
4-Nitrophenol	60	0.00025	U	0.00054	U	0.00043	U	0.00022	U	0.00085	U	0.00082	U	0.00058	U
Acenaphthene	50	0.00001	U	0.00002	U	0.00002	U	0.00001	U	0.00003	U	0.00003	U	0.00002	U
Acenaphthylene	4840	0.00001	U	0.00002	U	0.00002	U	0.00001	U	0.00003	U	0.00003	U	0.00002	U
Anthracene	0.012	0.00001	U	0.00002	U	0.00002	U	0.00001	U	0.00003	U	0.00003	U	0.00002	U
Carbazole	NV	0.00005	U	0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
Dibenzofuran	3.7	0.00005	U	0.00001	J	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
Fluoranthene	400	0.00001	U	0.00002	U	0.00002	U	0.00001	U	0.00003	U	0.00003	U	0.00002	U
Fluorene	3	0.00001	U	0.00002	U	0.00002	U	0.00001	U	0.00003	U	0.00003	U	0.00002	U
Naphthalene	600	0.00001		0.00028		0.00002	U	0.00001	U	0.00003	U	0.00003	U	0.00002	U
Pentachlorophenol	5.10	0.00003	J	0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
Phenanthrene	0.4	0.00001	U	0.00001	J	0.00002	U	0.00001	U	0.00003	U	0.00003	U	0.00002	U
Phenol	4	0.00001	J	0.00011	U	0.00009	U	0.00004	U	0.00002	J	0.00004	J	0.00012	U
Pyrene	0.025	0.00001	U	0.00002	U	0.00002	U	0.00001	U	0.00003	U	0.00003	U	0.00002	U

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Location ID / Sample ID / Sample Date	Surface Water ESV (b)	Estimated Surface Water Concentrations Based on Well-Specific DAFs Applied to Measured Groundwater Data - Lower Aquifer (a)													
		MW01 **MW01BN** **11/5/2014**		**MW02** **MW02BN** **11/5/2014**		**MW03** **MW03BN** **11/4/2014**		**MW04** **MW04BN** **11/4/2014**		**MW08** **MW08BN** **11/5/2014**		**MW08** **MW08BR** **11/5/2014**		**MW11** **MW11BN** **11/4/2014**	
		DAF = 5.08E-05		DAF = 1.09E-04		DAF = 8.56E-05		DAF = 4.16E-05		DAF = 1.63E-04		DAF = 1.63E-04		DAF = 1.21E-04	
Chemical (d)															
VOLATILE ORGANIC COMPOUNDS (VOCs)															
2-Butanone	14000	0.00025	U	0.00054	U	0.00043	U	0.00021	U	0.00082	U	0.00082	U	0.00060	U
Acetone	1500	0.00025	U	0.00054	U	0.00043	U	0.00012	J	0.00082	U	0.00082		0.00060	U
Benzene	1000	0.00005	U	0.00011	U	0.00009	U	0.00004	U	0.00004	J	0.00011	J	0.00012	U
Bromodichloromethane	NV	0.00005	U	0.00011	U	0.00006	J	0.00004	U	0.00004	J	0.00016	U	0.00012	U
Carbon Disulfide	0.92	0.00001	J	0.00011	U	0.00015		0.00005		0.00016	U	0.00016	U	0.00009	J
Chloroform	3000	0.00004	J	0.00011	U	0.00027		0.00006		0.00052		0.00033		0.00004	J
cis-1,2-Dichloroethylene	NV	0.00013		0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
Dibromochloromethane	NV	0.00005	U	0.00011	U	0.00002	J	0.00004	U	0.00016	U	0.00016	U	0.00012	U
Methyl tert-Butyl Ether (MTBE)	11070	0.00005		0.00004	J	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
Methylene Chloride	NV	0.00005	U	0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00003	J	0.00012	U
Tetrachloroethylene	800	0.00559		0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U
Toluene	600	0.00005	U	0.00011	U	0.00002	J	0.00004	U	0.00003	J	0.00003	J	0.00002	J
Trichloroethene	21	0.00127		0.00011	U	0.00009	U	0.00004	U	0.00016	U	0.00016	U	0.00012	U

Notes:

All units are in µg/L.
DAF - Dilution Attenuation Factor.
ESV - Ecological Screening Value.
J - Estimated value.
NA - Not analyzed.
NC - Not calculated.
NV - No Value.
TCDD TEQ - Dioxin Toxicity Equivalence.
U - Not detected above the laboratory reporting limit.
UJ - Not detected above laboratory reporting limit; Estimated value.
+/- Likely to have a high (+) or low (-) bias.

(a) Surface water concentrations were estimated by multiplying groundwater results from the nearshore monitoring wells by well-specific dilution attenuation factor (DAF). DAFs were derived separately for the upper and lower aquifers for each well.

(b) See Table 3-2 for specific source of screening level and surrogate used (if applicable).

(c) The flow-weighted average concentration is calculated using the following equation:

$$\frac{([CMW1A*QMW1A]+[CMW1B*QMW1B]+\ldots)+(CSWBCK*7Q10)}{(QMW1A+QMW1A+\ldots+7Q10)}$$

where:

CMW1A = Chemical concentration measured at monitoring well MW1A
QMW1A = Discharge rate calculated for monitoring well MW1A
CSWBCK= Average chemical concentration of upstream background surface water samples 1, 2, 3, 4, 5, and 6 (presented in Appendix J.
7Q10 = the lowest 7-day average flow that occurs on average once every 10 years

(d) Only chemicals detected at least once in nearshore groundwater monitoring wells are presented.

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Location ID Sample ID Sample Date	Flow-weighted Average Concentration (c)
Chemical (d)	
DIOXIN TEQs	
TCDD TEQ Fish	2.86E-06
INORGANICS - DISSOLVED PHASE	
Arsenic	0.04
Barium	2.82
Beryllium	0.000074
Calcium	1464
Cobalt	0.01
Iron	0.92
Magnesium	459
Manganese	0.09
Nickel	0.13
Potassium	271
Sodium	1908
Thallium	0.00171
Vanadium	0.010
Zinc	0.39
INORGANICS - TOTAL RECOVERABLE PHASE	
Thallium	0.001876
PESTICIDES	
4,4'-DDE	9.57E-08
4,4'-DDT	7.24E-05
beta-BHC	9.65E-08
delta-BHC	9.34E-08
Endosulfan Sulfate	9.60E-08
Endrin	1.04E-07
Heptachlor Epoxide	9.98E-08
trans-Chlordane	1.04E-07
POLYCHLORINATED BIPHENYLs (PCBs)	
Total PCBs (Aroclors)	1.73E-06
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)	
1,1'-Biphenyl	0.00007
2-Methylnaphthalene	0.00002
4-Methylphenol	0.00007
4-Nitrophenol	0.00039
Acenaphthene	0.00002
Acenaphthylene	0.00002
Anthracene	0.00001
Carbazole	0.00007
Dibenzofuran	0.00007
Fluoranthene	0.0020
Fluorene	0.00002
Naphthalene	0.0019
Pentachlorophenol	0.00008
Phenanthrene	0.00347
Phenol	0.00006
Pyrene	0.00155

pepco
A PHI Company

Table 3-5
Evaluation of the Groundwater to Surface Water Migration Pathway
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Location ID Sample ID Sample Date	Flow-weighted Average Concentration (c)
Chemical (d)	
VOLATILE ORGANIC COMPOUNDS (VOCs)	
2-Butanone	0.00039
Acetone	0.24
Benzene	0.00007
Bromodichloromethane	0.00007
Carbon Disulfide	0.00008
Chloroform	0.00011
cis-1,2-Dichloroethylene	0.00008
Dibromochloromethane	0.00007
Methyl tert-Butyl Ether (MTBE)	0.00008
Methylene Chloride	0.00007
Tetrachloroethylene	0.00050
Toluene	0.02162
Trichloroethene	0.00016

Notes:

All units are in µg/L.
DAF - Dilution Attenuation Factor.
ESV - Ecological Screening Value.
J - Estimated value.
NA - Not analyzed.
NC - Not calculated.
NV - No Value.
TCDD TEQ - Dioxin Toxicity Equivalence.
U - Not detected above the laboratory reporting limit.
UJ - Not detected above laboratory reporting limit; Estimated value.
+/- Likely to have a high (+) or low (-) bias.

(a) Surface water concentrations were estimated by multiplying groundwater results from the nearshore monitoring wells by well-specific dilution attenuation factor (DAF). DAFs were derived separately for the upper and lower aquifers for each well.

(b) See Table 3-2 for specific source of screening level and surrogate used (if applicable).

(c) The flow-weighted average concentration is calculated using the following equation:

$$\frac{([CMW1A*QMW1A]+[CMW1B*QMW1B]+\ldots)+(CSWBCK*7Q10)}{(QMW1A+QMW1A+\ldots+7Q10)}$$

where:

CMW1A = Chemical concentration measured at monitoring well MW1A
QMW1A = Discharge rate calculated for monitoring well MW1A
CSWBCK= Average chemical concentration of upstream background surface water samples 1, 2, 3, 4, 5, and 6 (presented in Appendix J.
7Q10 = the lowest 7-day average flow that occurs on average once every 10 years

(d) Only chemicals detected at least once in nearshore groundwater monitoring wells are presented.

Table 3-6
Fish Tissue Samples Collected by DDOE in 2013
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Collection Dates	Species	Sample Code	Length Range (mm)	Number of Individuals Per Composite	Lipid content (%)	Total PCB Congeners (mg/kg ww) [a]	Fillet : Whole Body Ratio [b]	Estimated Whole Body Concentration (mg/kg ww) [c]
Lower Anacostia Sampling Area								
2013	American eel	LAAE01O	227-286	4	20.76	0.645	0.5	1.290
	Blue catfish	LABC01O	476-503	4	6.30	0.452	0.5	0.904
	Carp	LACA01O	479-517	4	33.5	0.542	0.5	1.084
	Channel Catfish	LACC01O	432-440	4	3.54	0.12	0.5	0.240
	Largemouth Bass	LALB01O	326-335	4	1.78	0.114	0.5	0.228
	Sunfish	LASF01O	152-163	9	1.30	0.0411	0.5	0.082
Upper Anacostia Sampling Area								
2013	Brown Bullhead	UABB01O	265-307	7	2.59	0.0562	0.5	0.112
	Blue catfish	UABC01O	498-582	4	2.10	0.141	0.5	0.282
	Carp	LPCA01O	555-615	3	13.73	0.101	0.5	0.202
	Channel Catfish	UACC01O	394-436	4	6.59	0.254	0.5	0.508
	Largemouth Bass	UALB01O	362-372	3	1.65	0.12	0.5	0.240
	Northern Snakehead	UANS01O	566-607	3	2.75	0.0496	0.5	0.099
	Sunfish	LASF01O	152-163	9	1.30	0.0419	0.5	0.084

Notes:
mg/kg ww - Milligrams per killigram wet weight.
mm - Millimeters.
% - Percent.
[a] Total PCB congeners is the sum of 119 congeners, including congeners that co-elute.
[b] The average fillet to whole body ratio from Washington State Department of Health (WDOH, 2004).
[c] Whole body concentrations were estimated by dividing the fillet concentration by the fillet-to-whole body ratio.

Source: Pinkney, AE. 2014. Analysis of Contaminant Concentrations in Fish Tissue Collected from the Waters of the District of Columbia. Final Report. CBFO-C14-03. U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, Annapolis, MD. September 2014.

Table 3-7
Fish Tissue Samples Collected by Maryland Department of Environment, 2003-2010
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Collection Dates	Fish Species	Sample Code	Average Length (mm)	Number of Individuals Per Composite	Total PCB Congeners (mg/kg ww) [a]	Fillet : Whole Body Ratio [b]	Estimated Whole Body Concentration (mg/kg ww) [c]
Anacostia River - mainstem (ARBR location)							
Sep-07	Brown Bullhead	ANA_09112007_fish_bbc2	264	5	0.0340	0.5	0.068
	Pumpkinseed Sunfish	ANA_09112007_fish_pps	122	5	0.0177	0.5	0.035
May-10	Blue catfish	2010FTC-ANAC-C	551	4	0.711	0.5	1.422
	Blue catfish	2010FTC-ANAC-D	487	4	0.505	0.5	1.010
	Channel Catfish	2010FTC-ANAC-B	402	5	0.538	0.5	1.076
	Carp	2010FTC-ANAC-A	547	5	1.83	0.5	3.653
Northeast Branch Anacostia River (NEBAR location)							
Sep-03	Channel Catfish	NEBAR_09112003_fish_cc	408	4	0.290	0.5	0.580
	Channel Catfish	NEBAR_09112003_fish_cc1	436	5	0.494	0.5	0.988
	Channel Catfish	NEBAR_09112003_fish_cc2	499	5	0.501	0.5	1.002
	Redbreast Sunfish	NEBAR_09112003_fish_rbs	130	5	0.107	0.5	0.214
	Redbreast Sunfish	NEBAR_09112003_fish_rbs1	149	5	0.241	0.5	0.482
Oct-08	American Eel	2008FTC_NEBR_C	495	3	0.201	0.5	0.401
	Redbreast Sunfish	2008FTC_NEBR_A	133	5	0.0240	0.5	0.048
	White Sucker	2008FTC_NEBR_B	301	4	0.0821	0.5	0.164
Northwest Branch Anacostia River (NWBAR location)							
Sep-03	American Eel	NWBAR_09112003_fish_ae	622	3	0.276	0.5	0.552
	Redbreast Sunfish	NWBAR_09112003_fish_rbs	150	5	0.0942	0.5	0.188
	Redbreast Sunfish	NWBAR_09112003_fish_rbs1	132	5	0.0643	0.5	0.129
	Redbreast Sunfish	NWBAR_09112003_fish_rbsrep	150	5	0.0989	0.5	0.198

Notes:
mg/kg ww - Milligrams per killigram wet weight.
mm - Millimeters.
[a] Total PCB congeners is the sum of 116 congeners, including congeners that co-elute.
[b] The average fillet to whole body ratio from Washington State Department of Health (WDOH, 2004).
[c] Whole body concentrations were estimated by dividing the fillet concentration by the fillet-to-whole body ratio.

Source: MDE. 2012. Database query for contaminant concentrations in fish tissue collected from the Anacostia River, 2002 to 2010. John Hill, Environmental Specialist, Maryland Department of Environment. May 21, 2012.

A PHI Company

Table 3-8
Range of Fish Tissue Critical Body Residues
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Range of Literature Tissue Concentrations (mg/kg wet weight) Measured Effect		
		Mortality	**Growth**	**Reproduction**
PCBs	NOECs LOECs	0.14 [*Dr*] - 71 *[Sf]* 0.15 *[Sf]* - 648 *[Pp]*	0.6 *[Ok]* - 202 *[Sn]* 0.14 *[Dr]* - 250 *[Ok]*	1.6 *[Pp]* - 350 *[Pp]* 1.1 *[Dr] - 429 [Pp]*

Notes:
Values are whole body concentrations, unless otherwise noted.
Values represent the range of acceptable LOECs and NOECs. All LOECs and NOECs considered are presented in Table 1 of Attachment E.
LOED - Lowest observed effect concentration.
NOED - No observed effect concentration.
Species codes:

[Dr]	*Danio rerio*	Zebra danio
[Pp]	*Pimephales promelas*	Fathead Minnow
[Ok]	Oncorhynchus kisutch	Coho Salmon
[Sf]	*Salvelinus fontinalis*	Brook Trout
[Sn]	*Salvelinus namaycush*	Lake Trout

pepco
A PHI Company

Table 3-9
Wildlife Exposure Factors
Benning Road Facility RI Report
3400 Benning Rd, N.E., Washington DC 20019

Receptor Species	Body Weight (kg)	Assumed Diet — Fraction of diet as %; Amount as kg_{ww}/day: Units	Fish	Food Ingestion Rate (kg_{dw}/day)	Food Ingestion Rate (kg_{ww}/day)	Fraction Sediment in Diet (%) Amount as kg_{dw}/day	Water Intake Rate (kg/day)	Home Range (ha)	Exposure Duration (unitless)
Great Blue Heron (*Ardea herodias*)	2.336 (a)	% kg_{ww}/day	100% 0.5812 (b)	0.1453 (c)	0.5812 (d)	5% 0.0073 (e)	0.1042 (f)	4.5 (g)	1 (h)
Belted kingfisher (*Megaceryle alcyon*)	0.147 (a)	% kg_{ww}/day	100% 0.0930 (b)	0.0233 (c)	0.0930 (d)	2% 0.0005 (e)	0.0164 (f)	1.65 (g)	1 (h)
Raccoon (*Procyon lotor*)	5.7 (a)	% kg_{ww}/day	100% 0.6082 (b)	0.1520 (c)	0.6082 (d)	9.4% 0.0143 (e)	0.4742 (f)	156 (g)	1 (h)

General Notes:

Food ingestion rates are wet weight for food items and dry weight for sediment/soil ingestion. As needed, rate may be converted.
Ingested diet and ingested abiotic media (i.e., soil or sediment) total 100% of dietary ingestion.
See individual organism notes for source, units, and conversion.
Moisture content of food items assumed to be as follows: 75% for Fish (USEPA, 1993).

BW - Body Weight.
COPC - Constituent of Potential Concern.
dw - Dry Weight.
FIR - Food Ingestion Rate.
ha - hectare.
USEPA - United States Environmental Protection Agency.
WIR - Water Ingestion Rate (1 L of water has weight of 1 kg).
ww - Wet Weight.

Footnotes for individual species parameters and assumptions presented on next pages.

Table 3-9
Wildlife Exposure Factors
Benning Road Facility RI Report
3400 Benning Rd, N.E., Washington DC 20019

Notes for Great Blue Heron (*Ardea herodias*):
(a) Average body weight of adult male and female herons (USEPA, 1993).
(b) Diet assumed to be exclusively fish.
(c) Food ingestion rate calculated using algorithm for carnivorous birds developed by Nagy, 2001 [FIR (g_{dw}/day) = $0.849*BW^{0.663}$].
(d) Dry weight food ingestion rate converted to wet weight food ingestion rate:

$$FIR_{ww} = \text{Sum } \{[(\text{Proportion of food}_i \text{ in diet}) \times (FIR_{dw})] / (1\text{-moisture content}_i)\}$$

(e) Assumption for wading bird based on best professional judgement.
(f) Water ingestion rate calculated using algorithm for all birds developed by Calder and Braun, 1983 [WIR (kg/day) = $0.059*BW^{0.67}$].
(g) Average feeding territory size based on studies conducted in freshwater marsh and estuary in Oregon (USEPA, 1993).
(h) Great blue heron assumed to be present and actively foraging year-round.

Notes for Belted Kingfisher (*Megaceryle alcyon*):
(a) Average body weight of adult male and female kingfishers (USEPA, 1993).
(b) Diet assumed to be exclusively fish.
(c) Food ingestion rate calculated using algorithm for carnivorous birds developed by Nagy, 2001 [FIR (g_{dw}/day) = $0.849*BW^{0.663}$].
(d) Dry weight food ingestion rate converted to wet weight food ingestion rate:

$$FIR_{ww} = \text{Sum } \{[(\text{Proportion of food}_i \text{ in diet}) \times (FIR_{dw})] / (1\text{-moisture content}_i)\}$$

(e) Assumption for kingfisher based on best professional judgement.
(f) Water ingestion rate calculated using algorithm for all birds developed by Calder and Braun, 1983 [WIR (kg/day) = $0.059*BW^{0.67}$].
(g) Average territory (km shoreline) based on studies conducted in streams in Pennsylvania and Ohio (USEPA, 1993).
(h) Belted kingfisher assumed to be present and actively foraging year-round.

Notes for Raccoon (*Procyon lotor*):
(a) Average body weight of adult male and female raccoons in Illinois, Missouri, and Alabama studies (USEPA, 1993).
(b) Diet assumed to be exclusively fish.
(c) Food ingestion rate calculated using algorithm for omnivorous mammals developed by Nagy, 2001 [FIR (g_{dw}/day) = $0.432*BW^{0.678}$].
(d) Dry weight food ingestion rate converted to wet weight food ingestion rate:

$$FIR_{ww} = \text{Sum } \{[(\text{Proportion of food}_i \text{ in diet}) \times (FIR_{dw})] / (1\text{-moisture content}_i)\}$$

(e) Value for raccoon soil consumption (Table 4-4; USEPA, 1993).
(f) Water ingestion rate calculated using algorithm for all mammals developed by Calder and Braun, 1983 [WIR (kg/day) = $0.099*BW^{0.90}$].
(g) Mean of home ranges from Michigan study (USEPA, 1993).
(h) Raccoon assumed to be present and actively foraging year-round.

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED1.5B		SED10A		SED10B		SED10C		SED1A		SED1B		SED1C	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
INORGANICS																
Antimony	2	3	0.48	J-	0.05	J-	0.2	J-	0.31	J-	0.62	J-	0.29		0.39	
Arsenic	5.9	33	4.1		2.8	J-	1.3	J-	2.1	J-	4		3.9		2	
Barium	0.7	NV	98		79	J+	38		63		110		140		53	
Cadmium	0.583	4.98	1.4		0.33		0.37		0.6		1		0.62		0.58	
Chromium	26	111	47	J+	13	J+	16	J+	24	J+	49	J+	37		24	
Copper	31.6	149	53	J+	9.8		22		40		65	J+	50		28	
Iron	20000	40000	27000		17000		12000		17000		31000		30000		14000	
Lead	31	128	99		11	J	31		44		73		50		37	
Manganese	460	1100	470		480		190	J+	210	J+	460		470		160	
Mercury	0.174	1.06	0.17		0.075		0.099	J	0.1	J	0.23		0.23		0.11	
Nickel	16	48.6	38		16		16		26		39		23		19	
Silver	0.5	4.5	0.48		0.061	J	0.1		0.18		0.36		0.25		0.15	
Zinc	98	459	250		46	J+	99	J	160	J	240		150		140	
PESTICIDES																
4,4'-DDD	3.54E-03	2.80E-02					2.20E-03	J					7.60E-04	J		
4,4'-DDE	3.16E-03	3.13E-02					3.80E-03	J					1.40E-03			
4,4'-DDT	1.19E-03	6.29E-02					1.70E-03	J					3.70E-04	J		
cis-Chlordane (alpha)	3.00E-05	1.76E-02					3.60E-03	J					1.40E-03	J		
Dieldrin	1.90E-03	6.18E-02					8.10E-04	J					2.60E-04	J		
Endosulfan Sulfate	5.40E-03	NV					6.00E-04	J					1.70E-04	J		
Endrin	2.22E-03	2.07E-01					1.90E-03	J					3.10E-04	J		
Endrin ketone	2.22E-03	2.07E-01					1.50E-03	J					5.20E-04			
Heptachlor Epoxide	6.00E-04	1.60E-02					4.50E-04	J					1.20E-04	J		
Methoxychlor	1.87E-02	NV					5.70E-03						1.70E-03	J		
trans-Chlordane (gamma)	3.00E-05	1.76E-02					5.60E-03	J					2.10E-03			
POLYCHLORINATED BIPHENYLS (PCBs)																
Total PCB Aroclors	2.60E-02	6.76E-01	2.30E-01		3.10E-03		6.60E-02		7.70E-02		1.50E-01		7.80E-02		1.10E-01	
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)																
2-Methylnaphthalene	2.02E-02	NV					1.10E-02	J					2.10E-02	J		
4-Methylphenol	5.10E-03	NV					3.00E-01	U					1.60E-01	U		
bis-(2-Ethylhexyl)phthalate	1.00E-01	7.50E-01					1.10E+00						5.20E-01			
Butylbenzylphthalate	1.00E-01	NV					1.10E-01	J					1.60E-01	U		
Di-n-octylphthalate	1.00E-01	NV					3.00E-01	U					1.60E-01	U		
Total High-molecular-weight PAHs	1.93E-01	6.50E+00	1.30E+01		2.50E-01		5.00E+00		5.90E+00		5.50E+00		3.30E+00		5.80E+00	
Total Low-molecular-weight PAHs	7.64E-02	5.30E+00	1.40E+00		4.20E-02	U	3.90E-01		5.60E-01		3.70E-01		4.40E-01		4.50E-01	
Total PAHs	2.64E-01	2.28E+01	1.40E+01		2.50E-01		5.30E+00		6.50E+00		5.80E+00		3.80E+00		6.30E+00	

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED1.5B		SED10A		SED10B		SED10C		SED1A		SED1B		SED1C	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
VOLATILE ORGANIC COMPOUNDS (VOCs)																
Acetone	9.90E-03	NV					4.70E-02	U					4.70E-02	U		
DIOXIN/FURANS																
1,2,3,4,6,7,8-HpCDD	3.78E-05	NV					2.49E-05						8.42E-06			
1,2,3,4,6,7,8-HpCDF	3.78E-05	NV					4.33E-06	J					2.37E-07	J		
1,2,3,4,7,8,9-HpCDF	3.78E-05	NV					5.92E-07	J					8.00E-08	JN		
1,2,3,4,7,8-HxCDD	3.78E-05	NV					4.79E-07	JN					1.58E-07	JN		
1,2,3,4,7,8-HxCDF	3.78E-05	NV					5.74E-07	JN					9.02E-08	JN		
1,2,3,6,7,8-HxCDD	3.78E-05	NV					1.18E-06	J					2.65E-07	J		
1,2,3,6,7,8-HxCDF	3.78E-05	NV					1.13E-06	JN					1.05E-07	JN		
1,2,3,7,8,9-HxCDD	3.78E-05	NV					1.33E-06	J					2.09E-07	JN		
1,2,3,7,8,9-HxCDF	3.78E-05	NV					6.05E-08	JN					1.48E-08	U		
1,2,3,7,8-PeCDD	3.78E-05	NV					4.80E-07	JN					4.26E-08	JN		
1,2,3,7,8-PeCDF	3.78E-05	NV					1.93E-07	JN					1.77E-08	U		
2,3,4,6,7,8-HxCDF	3.78E-05	NV					5.20E-07	J					7.37E-08	JN		
2,3,4,7,8-PeCDF	3.78E-05	NV					4.80E-07	J					1.56E-08	U		
2,3,7,8-TCDD	3.78E-05	NV					5.93E-08	JN					1.31E-08	U		
2,3,7,8-TCDF	3.78E-05	NV					2.88E-07	JN					1.18E-08	U		
OCDD	3.78E-05	NV					6.83E-04	J					3.43E-04			
OCDF	3.78E-05	NV					9.87E-06	J					5.14E-07	JN		

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Green highlighted cells indicate concentrations that are greater than the Low Effect ESV.
Blue highlighted cells indicate concentrations that are greater than the Probable Effect ESV.
ESVs identified on Table 1.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
NOAA - National Oceanic and Atmospheric Administra
NV - No ESV or Effects-based ESV Available.
OMOE - Ontario Ministry of Environment and Energy.
PAH - Polycyclic Aromatic Hydrocarbon.
PCB - Polychlorinated biphenyls.
SQuiRTs - Screening Quick Reference Tables.
USEPA - United States Environmental Protection Agency.
TCDD TEQ - Tetrachlorodibenzo-p-dioxin Toxicity Equivalency Factor
(a) Low Effect ESVs selected based on a hierarchy of freshwater values from NOAA SQuiRT tables (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006), USEPA Region 5 Ecological Screening Levels (USEPA 2003), and values from OMOE (Persaud 1993).
(b) Probable Effect ESVs are based on the Probable Effects Concentrations (MacDonald et al. 2000), or either the Upper Effects Thresholds (UET) or Severe Effect Level (SEL) if the UET was not available (Buchman, 2008).

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED2.5B		SED2A		SED2B		SED2C		SED3.5B		SED3A		SED3B	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
INORGANICS																
Antimony	2	3	0.39		0.53	J-	0.48	J-	0.5	J-	0.15	J-	0.2	U	0.17	
Arsenic	5.9	33	1.9		3.6		2.9		2.6		0.96	J-	1.8		0.79	
Barium	0.7	NV	60		86		76		61		30		180		29	
Cadmium	0.583	4.98	0.52		0.99		0.81		0.92		0.36		0.59		0.24	
Chromium	26	111	30		37	J+	38	J+	29	J+	11	J+	24		11	J+
Copper	31.6	149	33		54	J+	45	J+	40	J+	17		17		9.6	
Iron	20000	40000	17000		25000		22000		19000		8300		16000		8300	
Lead	31	128	44		72		63		61		19		16		20	
Manganese	460	1100	210		420		310		200		120	J+	300		120	J-
Mercury	0.174	1.06	0.086		0.16		0.13		0.15		0.067	J	0.064		0.033	
Nickel	16	48.6	22		37		30		29		11		26		8	
Silver	0.5	4.5	0.16		0.3		0.34		0.27		0.064	J	0.097	J	0.044	J
Zinc	98	459	130		190		180		200		68	J	73		60	
PESTICIDES																
4,4'-DDD	3.54E-03	2.80E-02							4.10E-03	J						
4,4'-DDE	3.16E-03	3.13E-02							6.50E-03	J						
4,4'-DDT	1.19E-03	6.29E-02							2.80E-03	J						
cis-Chlordane (alpha)	3.00E-05	1.76E-02							6.40E-03	J						
Dieldrin	1.90E-03	6.18E-02							1.50E-03	J						
Endosulfan Sulfate	5.40E-03	NV							1.50E-03							
Endrin	2.22E-03	2.07E-01							5.30E-03							
Endrin ketone	2.22E-03	2.07E-01							2.40E-03	J						
Heptachlor Epoxide	6.00E-04	1.60E-02							7.20E-04	J						
Methoxychlor	1.87E-02	NV							1.30E-02	J						
trans-Chlordane (gamma)	3.00E-05	1.76E-02							1.10E-02							
POLYCHLORINATED BIPHENYLS (PCBs)																
Total PCB Aroclors	2.60E-02	6.76E-01	7.60E-02		2.30E-01		1.10E-01		2.30E-01		5.00E-02		8.40E-03	U	4.20E-02	
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)																
2-Methylnaphthalene	2.02E-02	NV							2.70E-01	U						
4-Methylphenol	5.10E-03	NV							1.30E+00	U						
bis-(2-Ethylhexyl)phthalate	1.00E-01	7.50E-01							1.50E+00	J						
Butylbenzylphthalate	1.00E-01	NV							1.30E+00	U						
Di-n-octylphthalate	1.00E-01	NV							1.30E+00	U						
Total High-molecular-weight PAHs	1.93E-01	6.50E+00	7.90E+00		5.50E+00		5.10E+00		7.30E+00		1.40E+00		6.70E-03	U	1.60E+00	
Total Low-molecular-weight PAHs	7.64E-02	5.30E+00	6.70E-01		4.90E-01		5.20E-01		5.80E-01		1.50E-01		6.70E-03	U	2.30E-01	
Total PAHs	2.64E-01	2.28E+01	8.50E+00		6.00E+00		5.60E+00		7.80E+00		1.50E+00		6.70E-03	U	1.80E+00	

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED2.5B	SED2A	SED2B	SED2C	SED3.5B	SED3A	SED3B
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**							
VOLATILE ORGANIC COMPOUNDS (VOCs)									
Acetone	9.90E-03	NV				5.50E-02			
DIOXIN/FURANS									
1,2,3,4,6,7,8-HpCDD	3.78E-05	NV				1.81E-04			
1,2,3,4,6,7,8-HpCDF	3.78E-05	NV				1.55E-04			
1,2,3,4,7,8,9-HpCDF	3.78E-05	NV				4.83E-06 JN			
1,2,3,4,7,8-HxCDD	3.78E-05	NV				1.28E-05			
1,2,3,4,7,8-HxCDF	3.78E-05	NV				1.28E-04 J			
1,2,3,6,7,8-HxCDD	3.78E-05	NV				1.79E-05			
1,2,3,6,7,8-HxCDF	3.78E-05	NV				3.58E-05 JN			
1,2,3,7,8,9-HxCDD	3.78E-05	NV				3.32E-05 J			
1,2,3,7,8,9-HxCDF	3.78E-05	NV				7.98E-07 JN			
1,2,3,7,8-PeCDD	3.78E-05	NV				1.05E-05			
1,2,3,7,8-PeCDF	3.78E-05	NV				1.71E-05			
2,3,4,6,7,8-HxCDF	3.78E-05	NV				2.66E-05 JN			
2,3,4,7,8-PeCDF	3.78E-05	NV				2.83E-05			
2,3,7,8-TCDD	3.78E-05	NV				2.08E-06 JN			
2,3,7,8-TCDF	3.78E-05	NV				9.98E-06			
OCDD	3.78E-05	NV				3.18E-03			
OCDF	3.78E-05	NV				3.90E-05			

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Green highlighted cells indicate concentrations that are greater than the Low Effect ESV.
Blue highlighted cells indicate concentrations that are greater than the Probable Effect ESV.
ESVs identified on Table 1.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
NOAA - National Oceanic and Atmospheric Administra
NV - No ESV or Effects-based ESV Available.
OMOE - Ontario Ministry of Environment and Energy.
PAH - Polycyclic Aromatic Hydrocarbon.
PCB - Polychlorinated biphenyls.
SQuiRTs - Screening Quick Reference Tables.
USEPA - United States Environmental Protection Agency.
TCDD TEQ - Tetrachlorodibenzo-p-dioxin Toxicity Equivalency Factor
(a) Low Effect ESVs selected based on a hierarchy of freshwater values from NOAA SQuiRT tables (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006), USEPA Region 5 Ecological Screening Levels (USEPA 2003), and values from OMOE (Persaud 1993).
(b) Probable Effect ESVs are based on the Probable Effects Concentrations (MacDonald et al. 2000), or either the Upper Effects Thresholds (UET) or Severe Effect Level (SEL) if the UET was not available (Buchman, 2008).

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED3C		SED4.5B		SED4A		SED4B		SED4C		SED5.5B		SED5A	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
INORGANICS																
Antimony	2	3	0.46		0.87		0.47	J-	0.15	J-	0.64	J-	0.56	J-	0.59	
Arsenic	5.9	33	2.45		4.1		3.6	J-	2.85	J-	3.4	J-	4.2	J-	3.5	
Barium	0.7	NV	58		120		120		87		110		130		97	
Cadmium	0.583	4.98	0.525		1		0.97		0.985		1.1		1.4		0.81	
Chromium	26	111	24		54	J+	45	J+	58.5	J+	45		140		44	J+
Copper	31.6	149	28.5		68		66		32.5		66		65		51	
Iron	20000	40000	15000		32000		29000		15000		27000		29000		27000	
Lead	31	128	34.5		80		72		120		80		90		63	
Manganese	460	1100	195		560	J-	570	J+	165	J+	390		530		430	J-
Mercury	0.174	1.06	0.1255		0.2		0.25	J	0.185	J	0.24		0.28		0.14	
Nickel	16	48.6	22		40		39		18		37		33		33	
Silver	0.5	4.5	0.15		0.41		0.38		0.515		0.43		1.4		0.32	
Zinc	98	459	125		280		250	J	170	J	260	J-	250	J-	220	
PESTICIDES																
4,4'-DDD	3.54E-03	2.80E-02	2.80E-03	J					5.20E-02	J						
4,4'-DDE	3.16E-03	3.13E-02	3.10E-03	J					2.50E-02	J						
4,4'-DDT	1.19E-03	6.29E-02	2.75E-03	J					7.51E-01	J						
cis-Chlordane (alpha)	3.00E-05	1.76E-02	4.90E-03	J					5.25E-03	J						
Dieldrin	1.90E-03	6.18E-02	7.20E-04	J					1.55E-03	J						
Endosulfan Sulfate	5.40E-03	NV	5.30E-04	J					1.75E-03	J						
Endrin	2.22E-03	2.07E-01	1.40E-03	J					3.75E-03	J						
Endrin ketone	2.22E-03	2.07E-01	2.30E-03						1.41E-03	J						
Heptachlor Epoxide	6.00E-04	1.60E-02	4.45E-04	J					1.40E-03	J						
Methoxychlor	1.87E-02	NV	8.15E-03						1.15E-02	J						
trans-Chlordane (gamma)	3.00E-05	1.76E-02	7.70E-03						9.00E-03							
POLYCHLORINATED BIPHENYLS (PCBs)																
Total PCB Aroclors	2.60E-02	6.76E-01	1.75E-01		1.90E-01		1.50E-01		5.90E-01		3.90E-01		1.60E-01		1.30E-01	
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)																
2-Methylnaphthalene	2.02E-02	NV	1.50E-02	J					6.15E-02							
4-Methylphenol	5.10E-03	NV	7.10E-02	J					2.10E-02	J						
bis-(2-Ethylhexyl)phthalate	1.00E-01	7.50E-01	7.40E-01	J					2.00E-01	J						
Butylbenzylphthalate	1.00E-01	NV	7.80E-02	J					1.20E-01	U						
Di-n-octylphthalate	1.00E-01	NV	4.20E-02	J					1.20E-01	UJ						
Total High-molecular-weight PAHs	1.93E-01	6.50E+00	6.65E+00		7.20E+00		6.10E+00		6.75E+00		6.40E+00		5.70E+00		5.50E+00	
Total Low-molecular-weight PAHs	7.64E-02	5.30E+00	7.80E-01		5.90E-01		5.90E-01		1.79E+00		5.70E-01		7.20E-01		4.50E-01	
Total PAHs	2.64E-01	2.28E+01	7.45E+00		7.80E+00		6.70E+00		8.65E+00		7.00E+00		6.40E+00		5.90E+00	

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED3C		SED4.5B		SED4A		SED4B		SED4C		SED5.5B		SED5A	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
VOLATILE ORGANIC COMPOUNDS (VOCs)																
Acetone	9.90E-03	NV	5.40E-02	U					2.85E-02	U						
DIOXIN/FURANS																
1,2,3,4,6,7,8-HpCDD	3.78E-05	NV	4.50E-05	J					9.97E-05	J						
1,2,3,4,6,7,8-HpCDF	3.78E-05	NV	1.02E-05	JN					2.27E-05	J						
1,2,3,4,7,8,9-HpCDF	3.78E-05	NV	9.88E-07	JN					1.90E-06	J						
1,2,3,4,7,8-HxCDD	3.78E-05	NV	9.12E-07	J					1.66E-06	J						
1,2,3,4,7,8-HxCDF	3.78E-05	NV	1.70E-06	JN					4.78E-06	JN						
1,2,3,6,7,8-HxCDD	3.78E-05	NV	2.06E-06	JN					4.94E-06	J						
1,2,3,6,7,8-HxCDF	3.78E-05	NV	1.83E-06	JN					8.23E-06	JN						
1,2,3,7,8,9-HxCDD	3.78E-05	NV	2.34E-06	JN					4.29E-06	J						
1,2,3,7,8,9-HxCDF	3.78E-05	NV	9.58E-08	JN					2.54E-07	JN						
1,2,3,7,8-PeCDD	3.78E-05	NV	8.15E-07	JN					2.35E-06	JN						
1,2,3,7,8-PeCDF	3.78E-05	NV	5.93E-07	JN					1.35E-06	JN						
2,3,4,6,7,8-HxCDF	3.78E-05	NV	9.00E-07	JN					3.30E-06	JN						
2,3,4,7,8-PeCDF	3.78E-05	NV	1.32E-06	JN					3.83E-06	JN						
2,3,7,8-TCDD	3.78E-05	NV	3.34E-07	JN					1.72E-06	JN						
2,3,7,8-TCDF	3.78E-05	NV	6.47E-07	JN					4.11E-06	JN						
OCDD	3.78E-05	NV	1.02E-03	J					3.91E-03	J						
OCDF	3.78E-05	NV	1.78E-05						3.47E-05	J						

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Green highlighted cells indicate concentrations that are greater than the Low Effect ESV.
Blue highlighted cells indicate concentrations that are greater than the Probable Effect ESV.
ESVs identified on Table 1.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
NOAA - National Oceanic and Atmospheric Administra
NV - No ESV or Effects-based ESV Available.
OMOE - Ontario Ministry of Environment and Energy.
PAH - Polycyclic Aromatic Hydrocarbon.
PCB - Polychlorinated biphenyls.
SQuiRTs - Screening Quick Reference Tables.
USEPA - United States Environmental Protection Agency.
TCDD TEQ - Tetrachlorodibenzo-p-dioxin Toxicity Equivalency Factor
(a) Low Effect ESVs selected based on a hierarchy of freshwater values from NOAA SQuiRT tables (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006), USEPA Region 5 Ecological Screening Levels (USEPA 2003), and values from OMOE (Persaud 1993).
(b) Probable Effect ESVs are based on the Probable Effects Concentrations (MacDonald et al. 2000), or either the Upper Effects Thresholds (UET) or Severe Effect Level (SEL) if the UET was not available (Buchman, 2008).

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED5B		SED5C		SED6.5D		SED6.5E		SED6A		SED6B		SED6C	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
INORGANICS																
Antimony	2	3	0.8		0.27	J-	0.77	J-	1.4	J-	0.13	J-	0.35	J-	0.49	J-
Arsenic	5.9	33	4.6		5.3	J-	14	J-	5.9	J-	1.2	J-	1.9	J-	3.6	J-
Barium	0.7	NV	130		87	J+	120	J-	79		29		67		89	
Cadmium	0.583	4.98	1.1		1		2.8	J-	3.8	J-	0.33		0.52		1.2	
Chromium	26	111	57	J+	57	J+	47	J-	31		14		25		45	
Copper	31.6	149	70		40		130		96		13		34.5		65	
Iron	20000	40000	33000		23000		17000		16000		8200		18000		26000	
Lead	31	128	84		120	J	140		130		51		43.5		71	
Manganese	460	1100	560	J-	300		130	J-	150		100		280		390	
Mercury	0.174	1.06	0.2		0.38		0.27	J	0.23	J	0.045	J-	0.0955	J-	0.23	J+
Nickel	16	48.6	41		20		91	J-	65	J-	7.7		23		36	
Silver	0.5	4.5	0.43		0.9		0.8		1.5	J-	0.12		0.17		0.58	
Zinc	98	459	290		160	J+	300	J-	420		57	J-	145	J-	260	
PESTICIDES																
4,4'-DDD	3.54E-03	2.80E-02							2.40E-03	J			4.30E-03			
4,4'-DDE	3.16E-03	3.13E-02							3.50E-03	J			4.65E-03			
4,4'-DDT	1.19E-03	6.29E-02							1.90E-03	J			4.40E-03	J		
cis-Chlordane (alpha)	3.00E-05	1.76E-02							5.80E-03				6.90E-03	J		
Dieldrin	1.90E-03	6.18E-02							1.30E-03	J			1.40E-03	J		
Endosulfan Sulfate	5.40E-03	NV							2.90E-03				6.85E-04	J		
Endrin	2.22E-03	2.07E-01							5.50E-03	J			2.10E-03	J		
Endrin ketone	2.22E-03	2.07E-01							2.70E-03	J			2.25E-03	J		
Heptachlor Epoxide	6.00E-04	1.60E-02							2.10E-03	J			9.75E-04	J		
Methoxychlor	1.87E-02	NV							7.00E-03	J			9.80E-03	J		
trans-Chlordane (gamma)	3.00E-05	1.76E-02							7.70E-03				8.60E-03			
POLYCHLORINATED BIPHENYLS (PCBs)																
Total PCB Aroclors	2.60E-02	6.76E-01	2.30E-01		7.50E-01		1.80E+00		4.00E-01		1.40E-01		1.05E-01		2.40E-01	
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)																
2-Methylnaphthalene	2.02E-02	NV							7.40E-02				1.90E-02	J		
4-Methylphenol	5.10E-03	NV							5.50E-02	J			2.95E-01	U		
bis-(2-Ethylhexyl)phthalate	1.00E-01	7.50E-01							1.30E+00				1.15E+00			
Butylbenzylphthalate	1.00E-01	NV							3.00E-01	U			6.45E-02	J		
Di-n-octylphthalate	1.00E-01	NV							3.00E-01	U			7.15E-02	J		
Total High-molecular-weight PAHs	1.93E-01	6.50E+00	5.30E+00		7.70E+00		2.30E+00		5.60E+00		4.40E+00		6.75E+00		5.70E+00	
Total Low-molecular-weight PAHs	7.64E-02	5.30E+00	3.80E-01		1.10E+00		4.60E-01		5.90E-01		1.00E+00		7.85E-01		5.10E-01	
Total PAHs	2.64E-01	2.28E+01	5.70E+00		8.80E+00		2.70E+00		6.20E+00		5.40E+00		7.50E+00		6.20E+00	

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED5B		SED5C		SED6.5D		SED6.5E		SED6A		SED6B		SED6C	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
VOLATILE ORGANIC COMPOUNDS (VOCs)																
Acetone	9.90E-03	NV							4.30E-02	U			2.00E-02	J		
DIOXIN/FURANS																
1,2,3,4,6,7,8-HpCDD	3.78E-05	NV							1.08E-03				7.61E-05	J		
1,2,3,4,6,7,8-HpCDF	3.78E-05	NV							3.07E-04				1.87E-05	JN		
1,2,3,4,7,8,9-HpCDF	3.78E-05	NV							4.16E-05				1.22E-06	JN		
1,2,3,4,7,8-HxCDD	3.78E-05	NV							8.35E-05				1.03E-06	JN		
1,2,3,4,7,8-HxCDF	3.78E-05	NV							1.58E-04	JN			1.62E-06	J		
1,2,3,6,7,8-HxCDD	3.78E-05	NV							1.31E-04				2.75E-06	JN		
1,2,3,6,7,8-HxCDF	3.78E-05	NV							8.54E-05				2.34E-06	JN		
1,2,3,7,8,9-HxCDD	3.78E-05	NV							1.96E-04				2.48E-06	J		
1,2,3,7,8,9-HxCDF	3.78E-05	NV							6.56E-06				1.25E-07	JN		
1,2,3,7,8-PeCDD	3.78E-05	NV							7.60E-05				9.28E-07	JN		
1,2,3,7,8-PeCDF	3.78E-05	NV							4.59E-05				3.65E-07	JN		
2,3,4,6,7,8-HxCDF	3.78E-05	NV							8.13E-05	JN			8.94E-07	JN		
2,3,4,7,8-PeCDF	3.78E-05	NV							6.65E-05				9.99E-07	JN		
2,3,7,8-TCDD	3.78E-05	NV							1.37E-05				2.60E-07	JN		
2,3,7,8-TCDF	3.78E-05	NV							2.56E-05	JN			1.09E-06	J		
OCDD	3.78E-05	NV							8.61E-03	J			1.75E-03			
OCDF	3.78E-05	NV							2.89E-04				3.26E-05	JN		

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Green highlighted cells indicate concentrations that are greater than the Low Effect ESV.
Blue highlighted cells indicate concentrations that are greater than the Probable Effect ESV.
ESVs identified on Table 1.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
NOAA - National Oceanic and Atmospheric Administra
NV - No ESV or Effects-based ESV Available.
OMOE - Ontario Ministry of Environment and Energy.
PAH - Polycyclic Aromatic Hydrocarbon.
PCB - Polychlorinated biphenyls.
SQuiRTs - Screening Quick Reference Tables.
USEPA - United States Environmental Protection Agency.
TCDD TEQ - Tetrachlorodibenzo-p-dioxin Toxicity Equivalency Factor
(a) Low Effect ESVs selected based on a hierarchy of freshwater values from NOAA SQuiRT tables (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006), USEPA Region 5 Ecological Screening Levels (USEPA 2003), and values from OMOE (Persaud 1993).
(b) Probable Effect ESVs are based on the Probable Effects Concentrations (MacDonald et al. 2000), or either the Upper Effects Thresholds (UET) or Severe Effect Level (SEL) if the UET was not available (Buchman, 2008).

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED7.5D		SED7.5E		SED7A		SED7B		SED7D		SED7E		SED7F	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
INORGANICS																
Antimony	2	3	0.43	J-	1	J-	0.43	J-	0.255	J-	0.69	J-	1.2	J-	2.8	J-
Arsenic	5.9	33	11	J-	17	J-	2.2	J-	4	J-	4.3	J-	4.6	J-	11	J-
Barium	0.7	NV	97	J-	150	J-	62		92		110	J-	72	J-	100	
Cadmium	0.583	4.98	1.3	J-	5.2	J-	0.52		1.25		4.7	J-	3.7	J-	4.4	J-
Chromium	26	111	80	J-	76	J-	25		61.5		36	J-	29	J-	46	
Copper	31.6	149	160		240		38		43.5		64		110		190	
Iron	20000	40000	19000		25000		16000		22500		17000		14000		21000	
Lead	31	128	150		230		40		110		170		130		320	
Manganese	460	1100	180	J-	230	J-	270		265		180	J-	120	J-	200	
Mercury	0.174	1.06	0.28	J	0.69	J	0.11	J-	0.37	J-	0.24	J	0.27	J	0.46	J
Nickel	16	48.6	59	J-	150	J-	21		22		50	J-	120	J-	160	J-
Silver	0.5	4.5	0.89		3.3		0.19		1.1		1.3		0.92		3.5	J-
Zinc	98	459	280	J-	580	J-	140	J-	165	J-	380	J-	430	J-	630	
PESTICIDES																
4,4'-DDD	3.54E-03	2.80E-02							7.05E-03	J					1.20E-02	J
4,4'-DDE	3.16E-03	3.13E-02							4.60E-02						5.90E-03	J
4,4'-DDT	1.19E-03	6.29E-02							3.60E-03	J					1.10E-02	J
cis-Chlordane (alpha)	3.00E-05	1.76E-02							2.20E-03	J					1.00E-02	
Dieldrin	1.90E-03	6.18E-02							2.60E-03	J					4.90E-03	J
Endosulfan Sulfate	5.40E-03	NV							2.85E-03	J					1.00E-02	
Endrin	2.22E-03	2.07E-01							6.70E-03	J					2.20E-02	J
Endrin ketone	2.22E-03	2.07E-01							7.10E-04	U					8.00E-03	J
Heptachlor Epoxide	6.00E-04	1.60E-02							1.35E-03	J					6.20E-03	J
Methoxychlor	1.87E-02	NV							1.17E-02	J					2.30E-02	J
trans-Chlordane (gamma)	3.00E-05	1.76E-02							3.30E-03	J					8.20E-03	J
POLYCHLORINATED BIPHENYLS (PCBs)																
Total PCB Aroclors	2.60E-02	6.76E-01	8.70E-01		1.90E+00		2.30E-02		4.90E-01		6.20E-01		9.60E-01		7.70E-01	
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)																
2-Methylnaphthalene	2.02E-02	NV							2.95E-02	J					6.70E-02	
4-Methylphenol	5.10E-03	NV							6.50E-02	J					3.00E-01	U
bis-(2-Ethylhexyl)phthalate	1.00E-01	7.50E-01							8.30E-01						5.90E-01	J
Butylbenzylphthalate	1.00E-01	NV							2.10E-01	U					1.20E-01	J
Di-n-octylphthalate	1.00E-01	NV							2.10E-01	U					3.00E-01	U
Total High-molecular-weight PAHs	1.93E-01	6.50E+00	2.00E+00		3.90E+00		4.40E+00		2.40E+00		5.40E+00		6.00E+00		7.00E+00	
Total Low-molecular-weight PAHs	7.64E-02	5.30E+00	4.00E-01		9.00E-01		4.20E-01		5.00E-01		6.60E-01		7.90E-01		9.10E-01	
Total PAHs	2.64E-01	2.28E+01	2.40E+00		4.80E+00		4.80E+00		2.90E+00		6.10E+00		6.80E+00		7.90E+00	

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED7.5D		SED7.5E		SED7A		SED7B		SED7D		SED7E		SED7F	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
VOLATILE ORGANIC COMPOUNDS (VOCs)																
Acetone	9.90E-03	NV							3.65E-02	U					5.70E-02	U
DIOXIN/FURANS																
1,2,3,4,6,7,8-HpCDD	3.78E-05	NV							2.87E-05	J					4.10E-03	J
1,2,3,4,6,7,8-HpCDF	3.78E-05	NV							5.32E-06	J					1.08E-03	
1,2,3,4,7,8,9-HpCDF	3.78E-05	NV							6.51E-07	JN					1.51E-04	JN
1,2,3,4,7,8-HxCDD	3.78E-05	NV							4.20E-07	JN					2.89E-04	
1,2,3,4,7,8-HxCDF	3.78E-05	NV							8.35E-07	JN					4.70E-04	JN
1,2,3,6,7,8-HxCDD	3.78E-05	NV							1.21E-06	JN					5.48E-04	
1,2,3,6,7,8-HxCDF	3.78E-05	NV							2.01E-06	JN					2.72E-04	JN
1,2,3,7,8,9-HxCDD	3.78E-05	NV							1.02E-06	J					7.05E-04	J
1,2,3,7,8,9-HxCDF	3.78E-05	NV							7.31E-08	JN					2.43E-05	J
1,2,3,7,8-PeCDD	3.78E-05	NV							4.43E-07	JN					2.77E-04	JN
1,2,3,7,8-PeCDF	3.78E-05	NV							2.56E-07	JN					1.24E-04	
2,3,4,6,7,8-HxCDF	3.78E-05	NV							6.58E-07	JN					2.85E-04	
2,3,4,7,8-PeCDF	3.78E-05	NV							5.36E-07	JN					2.17E-04	
2,3,7,8-TCDD	3.78E-05	NV							2.11E-08	U					3.82E-05	
2,3,7,8-TCDF	3.78E-05	NV							5.73E-07	JN					5.67E-05	
OCDD	3.78E-05	NV							7.78E-04						1.47E-02	
OCDF	3.78E-05	NV							1.16E-05	J					1.00E-03	JN

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Green highlighted cells indicate concentrations that are greater than the Low Effect ESV.
Blue highlighted cells indicate concentrations that are greater than the Probable Effect ESV.
ESVs identified on Table 1.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
NOAA - National Oceanic and Atmospheric Administra
NV - No ESV or Effects-based ESV Available.
OMOE - Ontario Ministry of Environment and Energy.
PAH - Polycyclic Aromatic Hydrocarbon.
PCB - Polychlorinated biphenyls.
SQuiRTs - Screening Quick Reference Tables.
USEPA - United States Environmental Protection Agency.
TCDD TEQ - Tetrachlorodibenzo-p-dioxin Toxicity Equivalency Factor
(a) Low Effect ESVs selected based on a hierarchy of freshwater values from NOAA SQuiRT tables (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006), USEPA Region 5 Ecological Screening Levels (USEPA 2003), and values from OMOE (Persaud 1993).
(b) Probable Effect ESVs are based on the Probable Effects Concentrations (MacDonald et al. 2000), or either the Upper Effects Thresholds (UET) or Severe Effect Level (SEL) if the UET was not available (Buchman, 2008).

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED7G		SED8.5B		SED8A		SED8B		SED8C		SED9.5B		SED9A	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
INORGANICS																
Antimony	2	3	0.38		0.45	J-	0.55	J-	0.38	J-	0.33	J-	0.27	J-	0.43	J-
Arsenic	5.9	33	2.5		2.6	J-	2.9	J-	2	J-	3.3	J-	2.1	J-	3.2	J-
Barium	0.7	NV	17		84		99		68		67		44	J+	88	J+
Cadmium	0.583	4.98	0.74		0.73		0.87		0.61		0.845		0.35		0.88	
Chromium	26	111	33		32		40		25		39		18	J+	68	J+
Copper	31.6	149	54		45		55		38		48		21		38	
Iron	20000	40000	12000		22000		25000		17000		20000		12000		21000	
Lead	31	128	48		55		66		46		59		36	J	61	J
Manganese	460	1100	120		370		360		290		305		140		310	
Mercury	0.174	1.06	0.041		0.13	J-	0.2	J-	0.12	J-	0.165	J+	0.2		0.29	
Nickel	16	48.6	84		29		34		21		26.5		15		19	
Silver	0.5	4.5	0.083		0.24		0.31		0.26		0.36		0.15		0.69	
Zinc	98	459	260		190	J-	220	J-	140	J-	195		97	J+	150	J+
PESTICIDES																
4,4'-DDD	3.54E-03	2.80E-02	9.00E-03								6.60E-03	J				
4,4'-DDE	3.16E-03	3.13E-02	1.30E-03	U							2.05E-02	J				
4,4'-DDT	1.19E-03	6.29E-02	9.10E-04	J							5.50E-03	J				
cis-Chlordane (alpha)	3.00E-05	1.76E-02	1.70E-03	J							5.25E-03	J				
Dieldrin	1.90E-03	6.18E-02	2.30E-03	J							2.30E-03					
Endosulfan Sulfate	5.40E-03	NV	3.60E-03								1.95E-03					
Endrin	2.22E-03	2.07E-01	2.30E-03	J							3.95E-03	J				
Endrin ketone	2.22E-03	2.07E-01	1.30E-03	U							1.80E-03	J				
Heptachlor Epoxide	6.00E-04	1.60E-02	6.20E-04	J							1.37E-03	J				
Methoxychlor	1.87E-02	NV	1.90E-02	J							1.15E-02	J				
trans-Chlordane (gamma)	3.00E-05	1.76E-02	1.90E-03								8.60E-03					
POLYCHLORINATED BIPHENYLS (PCBs)																
Total PCB Aroclors	2.60E-02	6.76E-01	2.30E-01		1.10E-01		1.60E-01		1.00E-01		5.00E-01		3.80E-01		7.40E-02	
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)																
2-Methylnaphthalene	2.02E-02	NV	6.80E-02								2.80E-02	J				
4-Methylphenol	5.10E-03	NV	1.10E-01	J							2.40E-01	U				
bis-(2-Ethylhexyl)phthalate	1.00E-01	7.50E-01	5.50E-01								1.55E+00					
Butylbenzylphthalate	1.00E-01	NV	1.80E-01	J							6.25E-02	J				
Di-n-octylphthalate	1.00E-01	NV	1.50E-01	J							2.40E-01	U				
Total High-molecular-weight PAHs	1.93E-01	6.50E+00	1.10E+01		6.30E+00		7.80E+00		4.90E+00		5.30E+00		5.80E+00		6.20E+00	
Total Low-molecular-weight PAHs	7.64E-02	5.30E+00	2.60E+00		7.40E-01		7.30E-01		4.30E-01		4.20E-01		5.50E-01		7.30E-01	
Total PAHs	2.64E-01	2.28E+01	1.40E+01		7.00E+00		8.50E+00		5.30E+00		5.70E+00		6.40E+00		6.90E+00	

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED7G		SED8.5B		SED8A		SED8B		SED8C		SED9.5B		SED9A	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**														
VOLATILE ORGANIC COMPOUNDS (VOCs)																
Acetone	9.90E-03	NV	2.30E-02	U							5.10E-02	U				
DIOXIN/FURANS																
1,2,3,4,6,7,8-HpCDD	3.78E-05	NV	4.89E-05								5.07E-05	J				
1,2,3,4,6,7,8-HpCDF	3.78E-05	NV	1.83E-05	JN							1.05E-05	JN				
1,2,3,4,7,8,9-HpCDF	3.78E-05	NV	1.77E-06	J							1.17E-06	JN				
1,2,3,4,7,8-HxCDD	3.78E-05	NV	2.47E-06	J							1.09E-06	J				
1,2,3,4,7,8-HxCDF	3.78E-05	NV	2.39E-06	J							1.94E-06	JN				
1,2,3,6,7,8-HxCDD	3.78E-05	NV	4.11E-06	J							2.83E-06	J				
1,2,3,6,7,8-HxCDF	3.78E-05	NV	3.65E-06	JN							3.54E-06	JN				
1,2,3,7,8,9-HxCDD	3.78E-05	NV	6.05E-06								2.85E-06	J				
1,2,3,7,8,9-HxCDF	3.78E-05	NV	2.97E-07	U							1.28E-07	J				
1,2,3,7,8-PeCDD	3.78E-05	NV	6.90E-06	JN							1.24E-06	JN				
1,2,3,7,8-PeCDF	3.78E-05	NV	9.72E-07	J							6.16E-07	JN				
2,3,4,6,7,8-HxCDF	3.78E-05	NV	3.05E-06	J							1.18E-06	JN				
2,3,4,7,8-PeCDF	3.78E-05	NV	2.18E-06	J							1.48E-06	JN				
2,3,7,8-TCDD	3.78E-05	NV	5.20E-07	U							3.14E-07	JN				
2,3,7,8-TCDF	3.78E-05	NV	9.00E-07	J							1.16E-06	JN				
OCDD	3.78E-05	NV	3.41E-04								1.39E-03	J				
OCDF	3.78E-05	NV	2.18E-05								1.61E-05	JN				

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Green highlighted cells indicate concentrations that are greater than the Low Effect ESV.
Blue highlighted cells indicate concentrations that are greater than the Probable Effect ESV.
ESVs identified on Table 1.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
NOAA - National Oceanic and Atmospheric Administra
NV - No ESV or Effects-based ESV Available.
OMOE - Ontario Ministry of Environment and Energy.
PAH - Polycyclic Aromatic Hydrocarbon.
PCB - Polychlorinated biphenyls.
SQuiRTs - Screening Quick Reference Tables.
USEPA - United States Environmental Protection Agency.
TCDD TEQ - Tetrachlorodibenzo-p-dioxin Toxicity Equivalency Factor
(a) Low Effect ESVs selected based on a hierarchy of freshwater values from NOAA SQuiRT tables (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006), USEPA Region 5 Ecological Screening Levels (USEPA 2003), and values from OMOE (Persaud 1993).
(b) Probable Effect ESVs are based on the Probable Effects Concentrations (MacDonald et al. 2000), or either the Upper Effects Thresholds (UET) or Severe Effect Level (SEL) if the UET was not available (Buchman, 2008).

pepco
A PHI Company

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED9B		SED9C		WSED1		WSED2	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**								
INORGANICS										
Antimony	2	3	0.31	J-	0.48	J-	0.515	J-	0.74	J-
Arsenic	5.9	33	3.3	J-	2.5	J-	2.7		4	J-
Barium	0.7	NV	57	J+	66	J+	80		97	
Cadmium	0.583	4.98	0.43		0.59		1.07		0.95	
Chromium	26	111	20	J+	24	J+	31.5	J+	42	
Copper	31.6	149	27		30		41		59	
Iron	20000	40000	14000		17000		19000		25000	
Lead	31	128	44	J	49	J	103.5	J	70	J
Manganese	460	1100	240		230		250		310	
Mercury	0.174	1.06	0.18		0.15		0.265		0.15	
Nickel	16	48.6	16		20		30.5		39	J-
Silver	0.5	4.5	0.17		0.18		0.455	J	0.51	J
Zinc	98	459	100	J+	130	J+	195	J	250	
PESTICIDES										
4,4'-DDD	3.54E-03	2.80E-02			3.00E-03	J	6.45E-03	J	1.20E-02	J
4,4'-DDE	3.16E-03	3.13E-02			7.10E-03		7.65E-03	J	1.30E-02	J
4,4'-DDT	1.19E-03	6.29E-02			2.50E-03	J	4.40E-03	J	7.20E-03	J
cis-Chlordane (alpha)	3.00E-05	1.76E-02			6.60E-03	J	1.35E-02	J	1.50E-02	J
Dieldrin	1.90E-03	6.18E-02			1.40E-03	J	1.70E-03	J	2.70E-03	J
Endosulfan Sulfate	5.40E-03	NV			2.80E-04	J	1.17E-03	J	3.20E-04	J
Endrin	2.22E-03	2.07E-01			2.90E-03		4.25E-03	J	3.20E-03	J
Endrin ketone	2.22E-03	2.07E-01			3.10E-03		3.80E-03	J	6.10E-03	J
Heptachlor Epoxide	6.00E-04	1.60E-02			6.50E-04	J	1.10E-03	J	1.30E-03	J
Methoxychlor	1.87E-02	NV			1.30E-02		1.02E-02	J	2.70E-02	J
trans-Chlordane (gamma)	3.00E-05	1.76E-02			1.10E-02		2.20E-02	J	2.40E-02	J
POLYCHLORINATED BIPHENYLS (PCBs)										
Total PCB Aroclors	2.60E-02	6.76E-01	1.80E-01		1.70E-01		2.25E-01		1.70E-01	
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)										
2-Methylnaphthalene	2.02E-02	NV			9.20E-03	J	3.75E-02	J	2.20E-02	J
4-Methylphenol	5.10E-03	NV			3.20E-01	U	1.10E-01	J	5.20E-01	U
bis-(2-Ethylhexyl)phthalate	1.00E-01	7.50E-01			1.50E+00		1.45E+00		1.50E+00	
Butylbenzylphthalate	1.00E-01	NV			3.20E-01	U	8.60E-02		5.20E-01	U
Di-n-octylphthalate	1.00E-01	NV			3.20E-01	U	2.40E-01	J	5.20E-01	U
Total High-molecular-weight PAHs	1.93E-01	6.50E+00	5.30E+00		6.80E+00		6.95E+00		8.80E+00	
Total Low-molecular-weight PAHs	7.64E-02	5.30E+00	7.60E-01		5.90E-01		1.08E+00		8.70E-01	
Total PAHs	2.64E-01	2.28E+01	6.10E+00		7.30E+00		8.25E+00		9.60E+00	

Table 4-1
Ecological Screening of Sediment Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample location	SED9B		SED9C		WSED1		WSED2	
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**								
VOLATILE ORGANIC COMPOUNDS (VOCs)										
Acetone	9.90E-03	NV			4.50E-02	U	4.45E-02	U	7.60E-02	U
DIOXIN/FURANS										
1,2,3,4,6,7,8-HpCDD	3.78E-05	NV			1.38E-05		8.80E-05	J	7.52E-05	
1,2,3,4,6,7,8-HpCDF	3.78E-05	NV			2.73E-06	J	2.03E-05	JN	1.87E-05	JN
1,2,3,4,7,8,9-HpCDF	3.78E-05	NV			3.25E-07	JN	1.77E-06	JN	1.58E-06	JN
1,2,3,4,7,8-HxCDD	3.78E-05	NV			3.93E-07	JN	2.31E-06	JN	1.97E-06	JN
1,2,3,4,7,8-HxCDF	3.78E-05	NV			3.51E-07	JN	4.37E-06	JN	2.54E-06	JN
1,2,3,6,7,8-HxCDD	3.78E-05	NV			6.53E-07	JN	5.28E-06	J	3.64E-06	J
1,2,3,6,7,8-HxCDF	3.78E-05	NV			5.55E-07	JN	4.01E-06	JN	3.55E-06	JN
1,2,3,7,8,9-HxCDD	3.78E-05	NV			8.78E-07	JN	6.34E-06	J	3.96E-06	J
1,2,3,7,8,9-HxCDF	3.78E-05	NV			2.10E-08	U	2.93E-07	JN	3.01E-07	JN
1,2,3,7,8-PeCDD	3.78E-05	NV			5.09E-07	JN	2.64E-06	JN	1.65E-06	JN
1,2,3,7,8-PeCDF	3.78E-05	NV			1.13E-07	JN	1.39E-06	JN	1.25E-06	JN
2,3,4,6,7,8-HxCDF	3.78E-05	NV			3.39E-07	JN	2.47E-06	JN	1.89E-06	J
2,3,4,7,8-PeCDF	3.78E-05	NV			3.45E-07	J	2.95E-06	J	2.33E-06	JN
2,3,7,8-TCDD	3.78E-05	NV			1.50E-08	U	6.63E-07	JN	4.15E-08	U
2,3,7,8-TCDF	3.78E-05	NV			1.27E-07	JN	1.88E-06	J	1.96E-06	JN
OCDD	3.78E-05	NV			3.38E-04		2.36E-03	J	1.80E-03	
OCDF	3.78E-05	NV			4.21E-06	J	2.71E-05	JN	2.36E-05	

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Green highlighted cells indicate concentrations that are greater than the Low Effect ESV.
Blue highlighted cells indicate concentrations that are greater than the Probable Effect ESV.
ESVs identified on Table 1.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
NOAA - National Oceanic and Atmospheric Administra
NV - No ESV or Effects-based ESV Available.
OMOE - Ontario Ministry of Environment and Energy.
PAH - Polycyclic Aromatic Hydrocarbon.
PCB - Polychlorinated biphenyls.
SQuiRTs - Screening Quick Reference Tables.
USEPA - United States Environmental Protection Agency.
TCDD TEQ - Tetrachlorodibenzo-p-dioxin Toxicity Equivalency Factor
(a) Low Effect ESVs selected based on a hierarchy of freshwater values from NOAA SQuiRT tables (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006), USEPA Region 5 Ecological Screening Levels (USEPA 2003), and values from OMOE (Persaud 1993).
(b) Probable Effect ESVs are based on the Probable Effects Concentrations (MacDonald et al. 2000), or either the Upper Effects Thresholds (UET) or Severe Effect Level (SEL) if the UET was not available (Buchman, 2008).

Table 4-2
Evaluation of SEM, AVS, and TOC Data
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
	Sample Location	WSED1	WSED1 [duplicate]	WSED2	SED1A	SED1B	SED1C	SED1.5B	SED2A	SED2B	SED2C
	Sample ID	WSED100N	WSED100R	WSED200N	SED1A00N	SED1B00N	SED1C00N	SED1.5B00N	SED2A00N	SED2B00N	SED2C00N
	Sample Date	11/15/2013	11/15/2013	11/15/2013	11/6/2013	11/6/2013	11/7/2013	11/6/2013	11/6/2013	11/5/2013	11/6/2013
Chemical	Unit										
Cadmium	umol/g	0.013 J	0.004 J	0.005 J	0.0055	0.0043 U	0.0036	0.0071	0.0048	0.0027	0.0068
Copper	umol/g	0.55 J	0.39 J	0.48 J	0.72	0.36	0.23	0.37	0.47	0.19	0.33
Lead	umol/g	0.72 J	0.15 J	0.2 J	0.24	0.12	0.14	0.26	0.2	0.12	0.37
Nickel	umol/g	0.35 J	0.24 J	0.31 J	0.26	0.1	0.13	0.22	0.25	0.16	0.24
Silver	umol/g	0.0022 J	0.0023 UJ	0.0037 UJ	0.0031 UJ	0.0045 UJ	0.0019 UJ	0.0024 UJ	0.003 UJ	0.0025 UJ	0.0023 UJ
Zinc	umol/g	3.8 J	1.9 J	2.6 J	2.9	1.2	1.7	2.5	2.3	1.6 J	2.8
Acid Volatile Sulfide	umol/g	3.3 J	3.4 J	12 J	2 J	1.9 J	1.7 J	2.5 J	1.6 J	2.1 J	7.3 J
Total Organic Carbon	mg/kg	40000 J	54000 J	60000	51000	23000	25000	37000	48000	33000	35000
Sum SEM	umol/g	5.4	2.7	3.6	4.1	1.8	2.2	3.4	3.2	2.1	3.7
Sum SEM/AVS	unitless	**1.6**	0.79	0.30	**2.1**	0.94	**1.3**	**1.3**	**2.0**	0.99	0.51
Sum SEM-AVS	umol/g	**2.1**	-0.72	-8.4	**2.1**	-0.12	**1**	**0.86**	**1.6**	-0.027	-3.6
[Sum SEM-AVS]/f_{oc}	umol/g_{oc}	53.4	-13.3	-140	41.7	-5.2	20.1	23.2	33.9	-0.83	-102

Notes:
Non-detect data treated as a zero in calculations.
Sum SEM is the sum of the detected SEM. Silver concentration is divided by 2 in the sum per USEPA (2005).
AVS - Acid Volatile Sulfides.
f_{oc} - Fraction Organic Carbon.
J - Estimated concentration.
mg/kg - milligram/kilogram.
NC - Not calculated due to non-detect AVS value.
SEM - Simultaneously Extracted Metals.
U - Not detected.
umol/g - micromole per gram.
umol/g_{oc} - micromole per gram organic carbon.

Bold text indicates Sum SEM / AVS is greater than 1 or Sum SEM - AVS is greater than 0.

USEPA (2005) guidance on metals bioavailability evaluates possible binding of metals by both AVS and organic matter and provides the following scale to evaluate whether or not the organic carbon binding phase (represented as fraction organic carbon or f_{oc}), in conjunction with the AVS, is affecting the bioavailability of divalent metals in sediments:

If the $(\sum SEM\text{-}AVS)/f_{oc}$ exceeds 3000 µmol/g_{oc}, the sediments are presumed to be "likely to be toxic";
If the $(\sum SEM\text{-}AVS)/f_{oc}$ is between 130 and 3,000 µmol/g_{oc}, predictions of effects are uncertain; and
If the $(\sum SEM\text{-}AVS)/f_{oc}$ is less than 130 µmol/g_{oc}, the sediments are presumed to "not likely" be toxic.

pepco
A PHI Company

Table 4-2
Evaluation of SEM, AVS, and TOC Data
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
	Sample Location	SED2.5B	SED3A	SED3B	SED3C	SED3C [duplicate]	SED3.5B	SED4A	SED4B	SED4B [duplicate]	SED4C
	Sample ID	SED2.5B00N	SED3A00N	SED3B00N	SED3C00N	SED3C00R	SED3.5B00N	SED4A00N	SED4B00N	SED4B00R	SED4C00N
	Sample Date	11/7/2013	11/7/2013	11/8/2013	11/7/2013	11/7/2013	11/12/2013	11/12/2013	11/12/2013	11/12/2013	11/12/2013
Chemical	Unit										
Cadmium	umol/g	0.0028	0.0045 U	0.0017	0.0031	0.0032	0.0018	0.0044	0.0058	0.0057	0.0073 J
Copper	umol/g	0.23	0.14	0.086	0.19	0.21	0.15	0.54	0.27	0.19	0.75
Lead	umol/g	0.14	0.042	0.085	0.12	0.12	0.094	0.26	0.47	0.31	0.29 J
Nickel	umol/g	0.14	0.12	0.06	0.16	0.15	0.12	0.36	0.18	0.14	0.43
Silver	umol/g	0.002 UJ	0.0047 UJ	0.0016 UJ	0.0024 UJ	0.0025 UJ	0.0017 UJ	0.00067 J	0.00058 J	0.0035 J	0.00065 J
Zinc	umol/g	1.5	0.77	0.81	1.4	1.4	1	2.6	1.8	1.5	3.5
Acid Volatile Sulfide	umol/g	1.9 J	0.95 UJ	0.64 UJ	3 J	3.7 J	0.7 U	1.4 U	1.8	4.7	2.7 J
Total Organic Carbon	mg/kg	23000	46000	6300	37000	43000	8400	47000	17000	20000	56000
Sum SEM	umol/g	2.0	1.1	1.0	1.9	1.9	1.4	3.8	2.7	2.1	5.0
Sum SEM/AVS	unitless	**1.1**	NC	NC	0.62	0.51	NC	NC	**1.5**	0.46	**1.8**
Sum SEM-AVS	umol/g	**0.11**	**1.1**	**1.0**	-1.1	-1.8	**1.4**	**3.8**	**0.93**	-2.6	**2.3**
[Sum SEM-AVS]/f_{oc}	umol/g_{oc}	4.9	23.3	**166**	-30.5	-42.3	**163**	80.1	54.5	-128	40.7

Notes:
Non-detect data treated as a zero in calculations.
Sum SEM is the sum of the detected SEM. Silver concentration is divided by 2 in the sum per USEPA (2005).
AVS - Acid Volatile Sulfides.
f_{oc} - Fraction Organic Carbon.
J - Estimated concentration.
mg/kg - milligram/kilogram.
NC - Not calculated due to non-detect AVS value.
SEM - Simultaneously Extracted Metals.
U - Not detected.
umol/g - micromole per gram.
umol/g_{oc} - micromole per gram organic carbon.

Bold text indicates Sum SEM / AVS is greater than 1 or Sum SEM - AVS is greater than 0.

USEPA (2005) guidance on metals bioavailability evaluates possible binding of metals by both AVS and organic matter and provides the following scale to evaluate whether or not the organic carbon binding phase (represented as fraction organic carbon or f_{oc}), in conjunction with the AVS, is affecting the bioavailability of divalent metals in sediments:

If the (∑SEM-AVS)/f_{oc} exceeds 3000 μmol/g_{oc}, the sediments are presumed to be "likely to be toxic";
If the (∑SEM-AVS)/f_{oc} is between 130 and 3,000 μmol/g_{oc}, predictions of effects are uncertain; and
If the (∑SEM-AVS)/f_{oc} is less than 130 μmol/g_{oc}, the sediments are presumed to "not likely" be toxic.

pepco
A PHI Company

Table 4-2
Evaluation of SEM, AVS, and TOC Data
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
	Sample Location	SED4.5B	SED5A	SED5B	SED5C	SED5.5B	SED6A	SED6B	SED6B [duplicate]	SED6C	SED6.5D
	Sample ID	SED4.5B00N	SED5A00N	SED5B00N	SED5C00N	SED5.5B00N	SED6A00N	SED6B00N	SED6B00R	SED6C00N	SED6.5D00N
	Sample Date	11/8/2013	11/8/2013	11/8/2013	11/11/2013	11/12/2013	11/13/2013	11/13/2013	11/13/2013	11/14/2013	11/25/2013
Chemical	Unit										
Cadmium	umol/g	0.0058	0.0036	0.0048	0.0084	0.0094	0.0042	0.0031	0.0034	0.0078	0.033
Copper	umol/g	0.58	0.47	0.64	0.67	0.75	0.25	0.35	0.36	0.74	1.5
Lead	umol/g	0.25	0.23	0.3	0.58	0.31	0.31	0.15	0.15	0.28	0.62
Nickel	umol/g	0.27	0.32	0.42	0.57 J	0.36	0.16	0.24	0.25	0.39	1
Silver	umol/g	0.0028 UJ	0.00092 J	0.0012 J	0.0044 J	0.0065 J	0.00071 J	0.0012 J	0.0021 UJ	0.0011 J	0.0016 J
Zinc	umol/g	2.9	2.3	3.1	3.3	3.3	1.6	1.8	1.9	3.2	6.1
Acid Volatile Sulfide	umol/g	1.1 UJ	1.8 J	2.1 J	3.4	5.1 J	1.9 J	1 UJ	1 UJ	0.92 J	4.6 J
Total Organic Carbon	mg/kg	43000	35000	39000	31000	58000	11000	20000	28000	44000	50000
Sum SEM	umol/g	4.0	3.3	4.5	5.1	4.7	2.3	2.5	2.7	4.6	9.3
Sum SEM/AVS	unitless	NC	**1.8**	**2.1**	**1.5**	0.93	**1.2**	NC	NC	**5.0**	**2.0**
Sum SEM-AVS	umol/g	**4.0**	**1.5**	**2.4**	**1.7**	-0.37	**0.42**	**2.5**	**2.7**	**3.7**	**4.7**
[Sum SEM-AVS]/f_{oc}	umol/g_{oc}	93.2	43.5	60.7	55.8	-6.3	38.6	127	95.1	84.1	93.1

Notes:
Non-detect data treated as a zero in calculations.
Sum SEM is the sum of the detected SEM. Silver concentration is divided by 2 in the sum per USEPA (2005).
AVS - Acid Volatile Sulfides.
f_{oc} - Fraction Organic Carbon.
J - Estimated concentration.
mg/kg - milligram/kilogram.
NC - Not calculated due to non-detect AVS value.
SEM - Simultaneously Extracted Metals.
U - Not detected.
umol/g - micromole per gram.
umol/g_{oc} - micromole per gram organic carbon.

Bold text indicates Sum SEM / AVS is greater than 1 or Sum SEM - AVS is greater than 0.

USEPA (2005) guidance on metals bioavailability evaluates possible binding of metals by both AVS and organic matter and provides the following scale to evaluate whether or not the organic carbon binding phase (represented as fraction organic carbon or f_{oc}), in conjunction with the AVS, is affecting the bioavailability of divalent metals in sediments:

If the (∑SEM-AVS)/f_{oc} exceeds 3000 μmol/g_{oc}, the sediments are presumed to be "likely to be toxic";
If the (∑SEM-AVS)/f_{oc} is between 130 and 3,000 μmol/g_{oc}, predictions of effects are uncertain; and
If the (∑SEM-AVS)/f_{oc} is less than 130 μmol/g_{oc}, the sediments are presumed to "not likely" be toxic.

pepco
A PHI Company

Table 4-2
Evaluation of SEM, AVS, and TOC Data
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
	Sample Location	SED6.5E	SED7A	SED7B	SED7B [duplicate]	SED7D	SED7E	SED7F	SED7G	SED7.5D	SED7.5E
	Sample ID	SED6.5E00N	SED7A00N	SED7B00N	SED7B00R	SED7D00N	SED7E00N	SED7F00N	SED7G00N	SED7.5D00N	SED7.5E00N
	Sample Date	11/25/2013	11/13/2013	11/13/2013	11/13/2013	11/25/2013	11/25/2013	11/25/2013	1/30/2014	11/25/2013	11/25/2013
Chemical	Unit										
Cadmium	umol/g	0.033 J	0.0025	0.0071	0.0068	0.042	0.022	0.035 J	0.0031	0.0097	0.046
Copper	umol/g	1.3	0.35	0.46	0.48	0.79	1.3	2.6	0.56	2.9	3.1
Lead	umol/g	0.65	0.11	0.35	0.33	0.84	0.75	1.5	0.19 J	0.69	1
Nickel	umol/g	0.67 J	0.19	0.22	0.23	0.66	0.92 J	1.8	0.51 J	0.71	1.5
Silver	umol/g	0.0051 J	0.0019 UJ	0.0034 J	0.003 J	0.0048	0.0034 J	0.016 J	0.00026 J	0.0013 J	0.0088
Zinc	umol/g	8.6	1.6	2.1	2.1	6.5	6.7	11	2.2	5.1	9.7
Acid Volatile Sulfide	umol/g	4.1 J	1.6 UJ	4.5 J	1.6 UJ	4.4 J	1.8 J	0.46 J	1.6	5.3 J	7.6 J
Total Organic Carbon	mg/kg	86000 J	28000	21000	20000	49000	51000	240000 J	8400	40000	140000
Sum SEM	umol/g	11.3	2.3	3.1	3.1	8.8	9.7	16.9	3.5	9.4	15.4
Sum SEM/AVS	unitless	**2.7**	NC	0.70	NC	**2.0**	**5.4**	**36.8**	**2.2**	**1.8**	**2.0**
Sum SEM-AVS	umol/g	**7.2**	**2.3**	-1.4	**3.1**	**4.4**	**7.9**	**16.5**	**1.9**	**4.1**	**7.8**
[Sum SEM-AVS]/f_{oc}	umol/g_{oc}	83.2	80.4	-64.8	**157**	90.5	**155**	68.7	**222**	103	55.4

Notes:
Non-detect data treated as a zero in calculations.
Sum SEM is the sum of the detected SEM. Silver concentration is divided by 2 in the sum per USEPA (2005).
AVS - Acid Volatile Sulfides.
f_{oc} - Fraction Organic Carbon.
J - Estimated concentration.
mg/kg - milligram/kilogram.
NC - Not calculated due to non-detect AVS value.
SEM - Simultaneously Extracted Metals.
U - Not detected.
umol/g - micromole per gram.
umol/g_{oc} - micromole per gram organic carbon.

Bold text indicates Sum SEM / AVS is greater than 1 or Sum SEM - AVS is greater than 0.

USEPA (2005) guidance on metals bioavailability evaluates possible binding of metals by both AVS and organic matter and provides the following scale to evaluate whether or not the organic carbon binding phase (represented as fraction organic carbon or f_{oc}), in conjunction with the AVS, is affecting the bioavailability of divalent metals in sediments:

If the (∑SEM-AVS)/f_{oc} exceeds 3000 µmol/g_{oc}, the sediments are presumed to be "likely to be toxic";
If the (∑SEM-AVS)/f_{oc} is between 130 and 3,000 µmol/g_{oc}, predictions of effects are uncertain; and
If the (∑SEM-AVS)/f_{oc} is less than 130 µmol/g_{oc}, the sediments are presumed to "not likely" be toxic.

pepco
A PHI Company

Table 4-2
Evaluation of SEM, AVS, and TOC Data
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
	Sample Location	SED8A	SED8B	SED8C	SED8C [duplicate]	SED8.5B	SED9A	SED9B	SED9C	SED9.5B
	Sample ID	SED8A00N	SED8B00N	SED8C00N	SED8C00R	SED8.5B00N	SED9A00N	SED9B00N	SED9C00N	SED9.5B00N
	Sample Date	11/13/2013	11/13/2013	11/14/2013	11/14/2013	11/13/2013	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Chemical	Unit									
Cadmium	umol/g	0.005	0.0037	0.0053	0.0063	0.0042	0.0044	0.0039	0.0035	0.0034
Copper	umol/g	0.59	0.39	0.5	0.59	0.49	0.48	0.55	0.4	0.4
Lead	umol/g	0.21	0.16	0.21	0.24	0.19	0.24	0.24	0.21	0.19
Nickel	umol/g	0.36	0.25	0.26	0.3	0.31	0.29	0.34	0.31	0.3
Silver	umol/g	0.0027 UJ	0.00047 J	0.00039 J	0.00027 J	0.00038 J	0.0025 J	0.00096 J	0.00045 J	0.0004 J
Zinc	umol/g	2.7	1.9	2.3 J	5.9 J	2.4	2.2	2.5	2.2	2.1
Acid Volatile Sulfide	umol/g	2.2 UJ	1.2 UJ	0.87 J	0.36 J	1.4 UJ	1.6	1.1 U	1.2 U	2
Total Organic Carbon	mg/kg	41000	25000	29000	36000	31000	30000	35000	33000	39000
Sum SEM	umol/g	3.9	2.7	3.3	7.0	3.4	3.2	3.6	3.1	3.0
Sum SEM/AVS	unitless	NC	NC	**3.8**	**19.5**	NC	**2.0**	NC	NC	**1.5**
Sum SEM-AVS	umol/g	**3.9**	**2.7**	**2.4**	**6.7**	**3.4**	**1.6**	**3.6**	**3.1**	**0.99**
[Sum SEM-AVS]/f_{oc}	umol/g_{oc}	94.3	108	82.9	**185**	109	53.9	104	94.7	25.5

Notes:
Non-detect data treated as a zero in calculations.
Sum SEM is the sum of the detected SEM. Silver concentration is divided by 2 in the sum per USEPA (2005).
AVS - Acid Volatile Sulfides.
f_{oc} - Fraction Organic Carbon.
J - Estimated concentration.
mg/kg - milligram/kilogram.
NC - Not calculated due to non-detect AVS value.
SEM - Simultaneously Extracted Metals.
U - Not detected.
umol/g - micromole per gram.
umol/g_{oc} - micromole per gram organic carbon.

Bold text indicates Sum SEM / AVS is greater than 1 or Sum SEM - AVS is greater than 0.

USEPA (2005) guidance on metals bioavailability evaluates possible binding of metals by both AVS and organic matter and provides the following scale to evaluate whether or not the organic carbon binding phase (represented as fraction organic carbon or f_{oc}), in conjunction with the AVS, is affecting the bioavailability of divalent metals in sediments:

If the (∑SEM-AVS)/f_{oc} exceeds 3000 µmol/g_{oc}, the sediments are presumed to be "likely to be toxic";
If the (∑SEM-AVS)/f_{oc} is between 130 and 3,000 µmol/g_{oc}, predictions of effects are uncertain; and
If the (∑SEM-AVS)/f_{oc} is less than 130 µmol/g_{oc}, the sediments are presumed to "not likely" be toxic.

Table 4-2
Evaluation of SEM, AVS, and TOC Data
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Background	Background	Background	Background	Background	Background	Background
	Sample Location	SED10A	SED10B	SED10C	SEDBACK1	SEDBACK2	SEDBACK2 [duplicate]	SEDBACK3	SEDBACK4	SEDBACK5	SEDBACK5 [duplicate]
	Sample ID	SED10A00N	SED10B00N	SED10C00N	SEDBACK100N	SEDBACK200N	SEDBACK200R	SEDBACK300N	SEDBACK400N	SEDBACK500N	SEDBACK500R
	Sample Date	11/11/2013	11/11/2013	11/11/2013	12/3/2013	12/3/2013	12/3/2013	11/15/2013	11/14/2013	11/14/2013	11/14/2013
Chemical	Unit										
Cadmium	umol/g	0.0014 J	0.0022	0.0029	6.70E-05 J	8.80E-05 J	0.00022 J	0.00023 J	0.0027	0.0035	0.0028
Copper	umol/g	0.16	0.26 J	0.34	0.013	0.031	0.039	0.031 J	0.3	0.26	0.25
Lead	umol/g	0.056	0.16 J	0.17	0.0055	0.013 J	0.015	0.043 J	0.13	0.1	0.094
Nickel	umol/g	0.33	0.22	0.26	0.026	0.12 J	0.12	0.071 J	0.23	0.18	0.16
Silver	umol/g	0.0029 UJ	0.00036 J	0.00062 J	0.0013 U	0.0014 UJ	0.0014 U	0.0015 U	0.0024 U	0.002 U	0.002 U
Zinc	umol/g	0.92	1.5	1.8	0.12	0.21	0.24	0.24 J	1.5	1.5	1.4
Acid Volatile Sulfide	umol/g	1.2 U	1.2 U	2.3	0.54 UJ	0.58 UJ	0.57 UJ	0.6 UJ	3.3 J	0.8 UJ	0.65 J
Total Organic Carbon	mg/kg	55000	24000	37000	1700	2300	2300	2700	47000	20000	26000
Sum SEM	umol/g	1.5	2.1	2.6	0.16	0.37	0.41	0.39	2.2	2.0	1.9
Sum SEM/AVS	unitless	NC	NC	**1.1**	NC	NC	NC	NC	0.66	NC	**2.9**
Sum SEM-AVS	umol/g	**1.5**	**2.1**	**0.27**	**0.16**	**0.37**	**0.41**	**0.39**	-1.1	**2.0**	**1.3**
[Sum SEM-AVS]/f_{oc}	umol/g_{oc}	26.7	89.3	7.4	96.8	**163**	**180**	**143**	-24.2	102	48.3

Notes:
Non-detect data treated as a zero in calculations.
Sum SEM is the sum of the detected SEM. Silver concentration is divided by 2 in the sum per USEPA (2005).
AVS - Acid Volatile Sulfides.
f_{oc} - Fraction Organic Carbon.
J - Estimated concentration.
mg/kg - milligram/kilogram.
NC - Not calculated due to non-detect AVS value.
SEM - Simultaneously Extracted Metals.
U - Not detected.
umol/g - micromole per gram.
umol/g_{oc} - micromole per gram organic carbon.

Bold text indicates Sum SEM / AVS is greater than 1 or Sum SEM - AVS is greater than 0.

USEPA (2005) guidance on metals bioavailability evaluates possible binding of metals by both AVS and organic matter and provides the following scale to evaluate whether or not the organic carbon binding phase (represented as fraction organic carbon or f_{oc}), in conjunction with the AVS, is affecting the bioavailability of divalent metals in sediments:

If the (∑SEM-AVS)/f_{oc} exceeds 3000 µmol/g_{oc}, the sediments are presumed to be "likely to be toxic";
If the (∑SEM-AVS)/f_{oc} is between 130 and 3,000 µmol/g_{oc}, predictions of effects are uncertain; and
If the (∑SEM-AVS)/f_{oc} is less than 130 µmol/g_{oc}, the sediments are presumed to "not likely" be toxic.

Table 4-2
Evaluation of SEM, AVS, and TOC Data
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Area		Background	Background	Background	Background	Background	Background
Sample Location		SEDBACK6	SEDBACK11	SEDBACK12	SEDBACK12 [duplicate]	SEDBACK13	SEDBACK15
Sample ID		SEDBACK600N	SEDBACK1100N	SEDBACK1200N	SEDBACK1200R	SEDBACK1300N	SEDBACK1500N
Sample Date		11/15/2013	11/15/2013	11/14/2013	11/14/2013	11/14/2013	11/12/2013
Chemical	Unit						
Cadmium	umol/g	0.0072 J	0.0092 J	0.0082 J	0.0081 J	0.0048 J	0.0012 J
Copper	umol/g	0.64 J	0.88 J	0.87 J	0.85 J	1.9 J	0.14
Lead	umol/g	0.24 J	0.38 J	0.34 J	0.34 J	0.31 J	0.17
Nickel	umol/g	0.35 J	0.42 J	0.37 J	0.37 J	0.53 J	0.56
Silver	umol/g	0.00048 J	0.002 J	0.0012 J	0.0016 J	0.005 J	0.0015 UJ
Zinc	umol/g	3.1 J	3.8 J	3.7 J	3.6 J	3.2 J	0.91
Acid Volatile Sulfide	umol/g	2.3 J	3.7 J	1.8 J	1.5 J	0.27 J	2.1
Total Organic Carbon	mg/kg	39000	46000	47000	47000	28000	27000
Sum SEM	umol/g	4.3	5.5	5.3	5.2	5.9	1.8
Sum SEM/AVS	unitless	**1.9**	**1.5**	**2.9**	**3.4**	**22.0**	0.85
Sum SEM-AVS	umol/g	**2.0**	**1.8**	**3.5**	**3.7**	**5.7**	-0.32
[Sum SEM-AVS]/f_{oc}	umol/g_{oc}	52.2	38.9	74.2	78.1	**203**	-11.8

Notes:
Non-detect data treated as a zero in calculations.
Sum SEM is the sum of the detected SEM. Silver concentration is divided by 2 in the sum per USEPA (2005).
AVS - Acid Volatile Sulfides.
f_{oc} - Fraction Organic Carbon.
J - Estimated concentration.
mg/kg - milligram/kilogram.
NC - Not calculated due to non-detect AVS value.
SEM - Simultaneously Extracted Metals.
U - Not detected.
umol/g - micromole per gram.
umol/g_{oc} - micromole per gram organic carbon.

Bold text indicates Sum SEM / AVS is greater than 1 or Sum SEM - AVS is greater than 0.

USEPA (2005) guidance on metals bioavailability evaluates possible binding of metals by both AVS and organic matter and provides the following scale to evaluate whether or not the organic carbon binding phase (represented as fraction organic carbon or f_{oc}), in conjunction with the AVS, is affecting the bioavailability of divalent metals in sediments:

If the (∑SEM-AVS)/f_{oc} exceeds 3000 μmol/g_{oc}, the sediments are presumed to be "likely to be toxic";
If the (∑SEM-AVS)/f_{oc} is between 130 and 3,000 μmol/g_{oc}, predictions of effects are uncertain; and
If the (∑SEM-AVS)/f_{oc} is less than 130 μmol/g_{oc}, the sediments are presumed to "not likely" be toxic.

pepco
A PHI Company

Table 4-3
Ecological Screen of Surface Water Samples in the Waterside Investigation Area
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample Location	SUW1B	SUW2B	SUW3C	SUW4B	SUW5C	SUW6B	SUW7B	SUW8B	SUW9C	SUW10B
Detected Analyte	**Chronic ESV (a)**	**Acute ESV (b)**										
INORGANICS - DISSOLVED												
Barium	4	110	36	34	30	31	33	33	36	28	34	30
PESTICIDES												
4,4'-DDT	0.0010	1.1	0.0016		0.0014			0.0011 J	0.0011 J			0.0011 J
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)												
Anthracene	0.012	13	0.22 U	0.27 U	0.19 U	0.018 J	0.19 U		0.19 U	0.19 U	0.21 U	0.21 U
Pyrene	0.025	NV	0.038 J	0.026 J	0.034 J	0.19 U	0.19 U		0.19 U	0.19 U	0.021 J	0.21 U

Notes:

All values reported in micrograms per liter (ug/L).

Green highlighted cells indicate concentrations that are greater than the chronic ESV.

Blue highlighted cells indicate concentrations that are greater than the acute ESV.

EN - Essential Nutrient.

ESL - Ecological Screening Level.

ESV - Ecological Screening Value.

J = The chemical was positively identified; however, the associated numerical value is an estimated concentration only.

NV - No Value.

U - The chemical was not detected.

SAV - Secondary Acute Value.

(a) Chronic ESVs selected based on a hierarchy of chronic water quality standards and benchmarks from DDOE WQS (DOH, 2010), USEPA Region 3 freshwater surface water screening values (USEPA 2006b), and other literature values (Suter and Tsao 1996, Buchman 2008).

(b) Acute ESVs selected based on freshwater acute criteria available from DDOE (DOH, 2010), Buchman (2008), and Suter and Tsao (1996; SAV).

Table 4-4
Summary of Potential Risks to Wildlife
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

HQs for Potential PCB Exposure					
Maximum EPC					
Great Blue Heron		Belted kingfisher		Raccoon	
NOAEL-based HQ	LOAEL-based HQ	NOAEL-based HQ	LOAEL-based HQ	NOAEL-based HQ	LOAEL-based HQ
0.071	0.0179	0.180	0.045	0.40	0.081

Average EPC					
Great Blue Heron		Belted kingfisher		Raccoon	
NOAEL-based HQ	LOAEL-based HQ	NOAEL-based HQ	LOAEL-based HQ	NOAEL-based HQ	LOAEL-based HQ
0.031	0.0077	0.078	0.0194	0.173	0.035

Notes:
HQs above 1 are bolded and highlighted.

EPC - Exposure Point Concentration.
HQ - Hazard Quotient.
LOAEL - Lowest Observed Adverse Effects Level.
NOAEL - No Observed Adverse Effect Level.
PCBs - Polychlorinated Biphenyls.

pepco
A PHI Company

Table 5-1
Ecological Screening of Sediment Samples in Background
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Detected Analyte	Low Effect ESV (a)	Probable Effect ESV (b)	SEDBACK1	SEDBACK11	SEDBACK12	SEDBACK13	SEDBACK15	SEDBACK2	SEDBACK3	SEDBACK4	SEDBACK5	SEDBACK6
INORGANICS												
Aluminum	NV	NV	270 J	14000	12500	6900	2100	875	870	3800	3150	11000
Antimony	2	3	0.051 J	0.74 J-	0.68 J-	0.88 J-	0.18 J-	0.0385 J	0.13 U	0.19 J-	0.18 J-	0.67 J-
Arsenic	5.9	33	0.25 J-	5.3 J-	4.4 J-	3.6 J-	1.5 J-	0.325 J-	0.34 J-	1.6 J-	2.15 J-	3.6 J-
Barium	0.7	NV	2.5	150	125	88	31	6.6	6.6	37	34.5	100
Beryllium	NV	NV	0.1	2	1.65	0.82	0.27	0.165	0.17	0.45	0.55	1.6
Cadmium	0.583	4.98	0.015 J	1.5	1.3	0.7	0.23	0.0395 J	0.043 J	0.33	0.43	1.1
Chromium	26	111	3.7 J-	62 J	53.5 J	31 J	13 J+	4.9 J	5 J	17	14.5	47 J
Copper	31.6	149	2.7 J-	94 J	85.5 J	160 J	18	3.2	3.5 J	18	21	66 J
Iron	20000	40000	2900	39000 J	33000 J	20000 J	10000	4000	3800 J	10000	12000	31000 J
Lead	31	128	2.1 J-	120	105	170	26	2.85 J	3.1	24	21	75
Manganese	460	1100	33 J-	680	455	280	200 J+	77.5 J	37	180	190	370
Mercury	0.174	1.06	0.015 U	0.36 J+	0.315 J+	0.096 J+	0.053 J	0.019 U	0.02 U	0.059 J+	0.06 J+	0.18 J+
Nickel	16	48.6	5.7 J-	50 J	44 J	33 J	46	7.25 J	10 J	14	13	40 J
Selenium	NV	NV	0.29 U	1.8 J-	1.55 J-	0.84 J-	0.37 J-	0.0625 J	0.32 U	0.98 J-	0.84 J-	1.4 J-
Silver	0.5	4.5	0.0062 J	0.83	0.585	0.43	0.056 J	0.0064 J	0.013 J	0.071 J	0.0915 J-	0.42
Thallium	NV	NV	0.058 U	0.32	0.27	0.17	0.066	0.06 U	0.024 J	0.095 J-	0.073 J-	0.28
Vanadium	NV	NV	1.7 J	52 J	42 J	24 J	15	3.5 J	2.7 J	14	16	36 J
Zinc	98	459	9 J-	340 J	325 J	210 J	67 J	12 J-	17 J	82	99.5	280 J
PESTICIDES												
4,4'-DDD	3.54E-03	2.80E-02	3.40E-05 J		4.95E-03 J		6.80E-03	1.70E-04 J		4.10E-03	1.40E-03 J	4.40E-03 J
4,4'-DDE	3.16E-03	3.13E-02	2.40E-04 U		1.15E-02		9.90E-03	1.65E-04 J		2.80E-03	1.20E-03 J	9.40E-03
4,4'-DDT	1.19E-03	6.29E-02	2.40E-04 U		6.05E-03 J		4.40E-03	1.28E-04 J		5.00E-03	2.60E-03 J	5.60E-03 J
cis-Chlordane	3.00E-05	1.76E-02	1.50E-04 J		1.11E-02 J		4.10E-03 J	1.03E-03		8.30E-03	4.55E-03	1.20E-02 J
Dieldrin	1.90E-03	6.18E-02	5.60E-05 J		1.70E-03 J		6.60E-04 J	2.95E-04 J		1.40E-03 J	1.60E-03	2.20E-03 J
Endosulfan Sulfate	5.40E-03	NV	2.40E-04 U		6.75E-04 J		1.30E-04 J	4.70E-05 J		8.50E-04 U	3.55E-04 J	1.40E-03 J
Endrin	2.22E-03	2.07E-01	2.40E-04 U		2.90E-03 J		5.90E-04 J	5.90E-04		1.00E-03 J	1.25E-03	3.50E-03 J
Endrin ketone	2.22E-03	2.07E-01	2.40E-04 U		3.40E-03 J		9.40E-04	7.20E-05 J		9.80E-04 J	1.01E-03 J	5.90E-03 J
Heptachlor Epoxide	6.00E-04	1.60E-02	2.40E-04 U		6.40E-04 J		2.70E-04 J	1.35E-04 J		4.90E-04 J	7.45E-04 J	1.10E-03 J
Methoxychlor	1.87E-02	NV	4.80E-04 U		1.85E-02 J		2.70E-03 J	5.80E-04		9.20E-03	4.25E-03 J	1.80E-02
trans-Chlordane	3.00E-05	1.76E-02	1.70E-04 J		1.55E-02 J		7.30E-03	1.02E-03		8.30E-03	4.60E-03	1.80E-02
POLYCHLORINATED BIPHENYLS (PCBs)												
Total PCB Aroclors	2.60E-02	6.76E-01	4.80E-03 U	1.90E-01	2.50E-01	1.20E-01	1.80E-02	5.10E-03 U	5.40E-03 U	4.60E-02	7.45E-02	1.40E-01
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)												
2-Methylnaphthalene	2.02E-02	NV	1.90E-02 U		2.00E-02 J		1.70E-01 U	2.05E-02 U		1.80E-01	7.50E-03 J	1.20E-02 J
4-Methylphenol	5.10E-03	NV	9.50E-02 U		4.65E-01 U		8.50E-01 U	1.00E-01 U		3.40E-02 J	4.30E-02 J	4.20E-01 U
Acetophenone	NV	NV	9.50E-02 U		4.65E-01 U		8.50E-01 U	1.00E-01 U		3.40E-01 U	2.80E-01 U	4.40E-02 J
Benzaldehyde	NV	NV	9.50E-02 UJ		R		R	1.00E-01 UJ		9.40E-02 J	5.10E-02 J	1.50E-01 J
bis-(2-Ethylhexyl)phthalate	1.00E-01	7.50E-01	1.90E-01 U		3.05E+00		8.40E-01 J	3.30E-02 J		8.00E-01	1.10E+00	2.80E+00 J
Butylbenzylphthalate	1.00E-01	NV	9.50E-02 U		1.00E-01 J		8.50E-01 U	1.70E-02 J		3.40E-01 U	4.20E-01	4.20E-01 UJ
Caprolactam	NV	NV	4.90E-01 U		2.35E+00 U		4.40E+00 U	5.20E-01 U		1.70E+00 U	1.50E+00 U	2.20E+00 UJ
Carbazole	NV	NV	1.90E-02 U		1.04E-01		1.70E-01 U	1.10E-02 J		4.60E-01	4.95E-02 J	8.60E-02
Di-n-octylphthalate	1.00E-01	NV	9.50E-02 U		4.65E-01 U		8.50E-01 U	1.00E-01 U		3.40E-01 U	2.80E-01 U	4.20E-01 UJ
Total High-molecular-weight PAHs	1.93E-01	6.50E+00	3.50E-03	8.90E+00	7.60E+00	4.90E+00	7.40E+00	4.95E-01	2.10E+00	2.80E+01	4.05E+00	8.00E+00
Total Low-molecular-weight PAHs	7.64E-02	5.30E+00	1.90E-02 U	1.30E+00	7.15E-01	5.00E-01	1.00E+00	4.80E-02	4.90E-01	7.20E+00	3.70E-01	5.90E-01
Total PAHs	2.64E-01	2.28E+01	3.50E-03	1.00E+01	8.30E+00	5.40E+00	8.40E+00	5.45E-01	2.60E+00	3.50E+01	4.45E+00	8.60E+00

pepco
A PHI Company

Table 5-1
Ecological Screening of Sediment Samples in Background
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample Location	SEDBACK1	SEDBACK11	SEDBACK12	SEDBACK13	SEDBACK15	SEDBACK2	SEDBACK3	SEDBACK4	SEDBACK5	SEDBACK6
Detected Analyte	**Low Effect ESV (a)**	**Probable Effect ESV (b)**										
VOLATILE ORGANIC COMPOUNDS (VOCs)												
Acetone	9.90E-03	NV	1.80E-02 U		7.40E-02 U		2.20E-02 U	2.10E-02 U		3.80E-02 U	3.75E-02 U	6.30E-02 U
DIOXIN/FURANS												
1,2,3,4,6,7,8-HpCDD	3.78E-05	NV	8.10E-07 J		4.62E-05		2.30E-05	2.31E-06 J		2.60E-05	2.21E-05 J	1.93E-05
1,2,3,4,6,7,8-HpCDF	3.78E-05	NV	1.54E-07 U		9.02E-06 JN		5.90E-06 JN	5.31E-07 JN		6.56E-06 JN	3.38E-06 JN	3.31E-06 J
1,2,3,4,7,8,9-HpCDF	3.78E-05	NV	1.92E-07 U		6.91E-07 J		6.87E-07 JN	1.90E-07 U		4.10E-07 J	4.71E-07 JN	5.13E-07 JN
1,2,3,4,7,8-HxCDD	3.78E-05	NV	1.48E-07 U		9.78E-07 JN		7.69E-07 JN	1.65E-07 U		4.91E-07 JN	3.30E-07 J	4.23E-07 J
1,2,3,4,7,8-HxCDF	3.78E-05	NV	9.09E-08 U		1.30E-06 JN		7.05E-07 JN	1.02E-07 U		8.71E-07 J	4.99E-07 JN	4.03E-07 JN
1,2,3,6,7,8-HxCDD	3.78E-05	NV	1.51E-07 U		1.92E-06 J		1.61E-06 J	1.67E-07 U		1.24E-06 J	9.83E-07 J	9.89E-07 J
1,2,3,6,7,8-HxCDF	3.78E-05	NV	8.18E-08 U		2.16E-06 JN		1.20E-06 JN	1.03E-07 U		1.41E-06 JN	8.82E-07 JN	9.09E-07 JN
1,2,3,7,8,9-HxCDD	3.78E-05	NV	1.40E-07 U		2.41E-06 J		1.85E-06 J	1.56E-07 U		1.43E-06 JN	9.26E-07 J	8.54E-07 JN
1,2,3,7,8,9-HxCDF	3.78E-05	NV	9.41E-08 U		1.17E-07 JN		1.15E-07 JN	1.19E-07 U		1.54E-07 JN	8.08E-08 JN	7.91E-08 JN
1,2,3,7,8-PeCDD	3.78E-05	NV	1.41E-07 U		7.42E-07 JN		6.08E-07 J	1.59E-07 U		4.25E-07 JN	2.14E-07 JN	3.46E-07 JN
1,2,3,7,8-PeCDF	3.78E-05	NV	1.16E-07 U		3.28E-07 JN		2.87E-07 JN	1.17E-07 U		4.34E-08 U	1.90E-07 JN	2.48E-07 JN
2,3,4,6,7,8-HxCDF	3.78E-05	NV	8.64E-08 U		8.48E-07 JN		6.15E-07 JN	1.10E-07 U		4.59E-07 J	3.36E-07 JN	3.92E-07 J
2,3,4,7,8-PeCDF	3.78E-05	NV	1.03E-07 U		8.59E-07 JN		6.15E-07 JN	1.02E-07 U		4.25E-07 JN	3.81E-07 JN	4.30E-07 JN
2,3,7,8-TCDD	3.78E-05	NV	3.19E-07 U		1.52E-07 JN		6.43E-08 J	2.64E-07 U		2.23E-08 U	5.66E-08 JN	9.37E-08 J
2,3,7,8-TCDF	3.78E-05	NV	1.79E-07 U		6.14E-07 JN		9.80E-07	1.92E-07 U		5.75E-07 JN	3.42E-07 JN	1.57E-07 JN
OCDD	3.78E-05	NV	3.51E-05		1.26E-03		4.60E-04	8.37E-05 J		6.92E-04	6.79E-04 J	5.37E-04
OCDF	3.78E-05	NV	1.33E-07 U		1.57E-05 JN		9.29E-06 JN	6.84E-07 JN		1.02E-05	7.01E-06 JN	5.56E-06 JN

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Green highlighted cells indicate concentrations that are greater than the Low Effect ESV.
Blue highlighted cells indicate concentrations that are greater than the Probable Effect ESV.
ESVs identified on Table 1.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
NOAA - National Oceanic and Atmospheric Administration.
NV - No ESV or Effects-based ESV Available.
OMOE - Ontario Ministry of Environment and Energy.
PAH - Polycyclic Aromatic Hydrocarbon.
PCB - Polychlorinated biphenyls.
SQuiRTs - Screening Quick Reference Tables.
USEPA - United States Environmental Protection Agency.
TCDD TEQ - Tetrachlorodibenzo-p-dioxin Toxicity Equivalency Factor
(a) Low effect ESVs selected based on a hierarchy of freshwater values from NOAA SQuiRT tables (Buchman 2008), USEPA Region 3 freshwater sediment screening values (USEPA 2006), USEPA Region 5 Ecological Screening Levels (USEPA 2003), and values from OMOE (Persaud 1993).
(b) Probable Effect ESVs are based on the Probable Effects Concentrations (MacDonald et al. 2000), or either the Upper Effects Thresholds (UET) or Severe Effect Level (SEL) (Buchman, 2008).

pepco
A PHI Company

Table 5-2
Summary of COPCs in Background Sediment
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

COPC	Are Background Concentrations > ESVs?		Mean Probable Effect HQ		Are Site COPCs Consistent with Background Condition?[a]		
	Low Effect ESV	Probable Effect ESV	Site	Background	Box Plot Analysis[b]	Population Test	BTV Comparison
Inorganics							
Cadmium	Yes	No	0.24	0.11	Yes	No	Yes
Chromium	Yes	No	0.35	0.23	Yes	No	Yes
Copper	Yes	Yes	0.38	0.32	Yes	Yes	Yes
Lead	Yes	Yes	0.61	0.43	Yes	Yes	Yes
Nickel	Yes	Yes	0.79	0.54	Yes	Yes	Yes
Zinc	Yes	No	0.46	0.31	Yes	No	Yes
Organics							
4,4-DDD	Yes	No	0.32	0.11	Yes	NC	No
4,4-DDE	Yes	No	0.36	0.16	Yes	NC	Yes
4,4-DDT	Yes	No	0.91	0.05	Yes	NC	No
Trans-chlordane	Yes	Yes	0.53	0.45	Yes	NC	Yes
tPCBs	Yes	No	0.49	0.13	Yes	No	No
Bis-(2-Ethylhexyl)phthalate	Yes	Yes	1.4	1.7	Yes	NC	Yes
Total HMW PAHs	Yes	Yes	0.87	1.1	Yes	Yes	Yes
1,2,3,4,6,7,8-HpCDD	Yes	Not available	3.2[c]	0.13[c]	Yes	NC	No
1,2,3,4,7,8,9-HpCDF	No	Not available	0.4[c]	0.01[c]	Yes	NC	No
OCDD	Yes	Not available	78[c]	14[c]	Yes	NC	No
OCDF	No	Not available	2.9[c]	0.21[c]	Yes	NC	No

Notes:

BTV = Background Threshold Value.

COPC = Chemical of Potential Concern.

ESV = Ecological Screening Value.

HQ = Hazard Quotient.

NC = Not calculated; Insufficient background data were available to conduct the test (a minimum of 8 samples with at least 6 detected concentrations are required).

Mean Probable Effect HQ = Average of HQs based on probable effect ESVs.

[a] Background Data Evaluation is presented in Appendix V.

[b] Boxplots include site data, site-specific background data, regional conditions data, and regional background data comparisons.

[c] Mean Low Effect HQ (no probable effect HQ is available for dioxin and furan compounds).

Table 5-3
Ecological Screen of Surface Water Samples Collected at Background Locations
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample Location	SUWBACK1	SUWBACK2	SUWBACK3	SUWBACK4	SUWBACK5	SUWBACK6	SUWBACK11
Detected Analyte	**Chronic ESV (a)**	**Acute ESV (b)**							
INORGANICS - DISSOLVED									
Barium	4	110	43	58	39	33	31	31	38
PESTICIDES									
4,4'-DDT	0.001	1.1	0.0013 U	0.0013 U		0.0012	0.00081 J		
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)									
Anthracene	0.012	13	0.21 U	0.2 U	0.19 U	0.19 U	0.19 U	0.19 U	0.2 U
Pyrene	0.025	NV	0.21 U	0.2 U	0.022 J	0.023 J	0.19 U	0.019 J	0.2 U

Notes:

All values reported in micrograms per liter (ug/L).
Green highlighted cells indicate concentrations that are greater than the Chronic ESV.
Blue highlighted cells indicate concentrations that are greater than the Acute ESV.
EN - Essential Nutrient.
ESL - Ecological Screening Level.
ESV - Ecological Screening Value.
J = The chemical was positively identified; however, the associated numerical value is an estimated concentration only.
NV - No Value.
U - The chemical was not detected.
SAV - Secondary Acute Value.
(a) Chronic ESVs selected based on a hierarchy of chronic water quality standards and benchmarks from DDOE WQS (DOH, 2010), USEPA Region 3 freshwater surface water screening values (USEPA 2006b), and other literature values (Suter and Tsao 1996, Buchman 2008).
(b) Acute ESVs selected based on freshwater acute criteria available from DDOE (DOH, 2010), Buchman (2008), and Suter and Tsao (1996; SAV).

pepco
A PHI Company

Table 5-3
Ecological Screen of Surface Water Samples Collected at Background Locations
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

		Sample Location	SUWBACK12		SUWBACK13		SUWBACK15	
Detected Analyte	**Chronic ESV (a)**	**Acute ESV (b)**						
INORGANICS - DISSOLVED								
Barium	4	110	38		40		40	
PESTICIDES								
4,4'-DDT	0.001	1.1	0.0011	J			0.0012	J
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)								
Anthracene	0.012	13	0.21	U	0.19	U	0.22	U
Pyrene	0.025	NV	0.21	U	0.02	J	0.22	U

Notes:

All values reported in micrograms per liter (ug/L).

Green highlighted cells indicate concentrations that are greater than the Chronic ES

Blue highlighted cells indicate concentrations that are greater than the Acute ESV.

EN - Essential Nutrient.

ESL - Ecological Screening Level.

ESV - Ecological Screening Value.

J = The chemical was positively identified; however, the associated numerical value is an estimated concentration only.

NV - No Value.

U - The chemical was not detected.

SAV - Secondary Acute Value.

(a) Chronic ESVs selected based on a hierarchy of chronic water quality standards and benchmarks from DDOE WQS (DOH, 2010), USEPA Region 3 freshwater surface water screening values (USEPA 2006b), and other literature values (Suter and Tsao 1996, Buchman 2008).

(b) Acute ESVs selected based on freshwater acute criteria available from DDOE (DOH, 2010), Buchman (2008), and Suter and Tsao (1996; SAV).

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**
	Location	SED1.5B	SED1.5B	SED10A	SED10B	SED10C	SED10C	SED1A	SED1B	SED1C	SED2.5B	SED2A	SED2B
	Method	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
	Total Organic Carbon (%)	3.7	3.7	5.5	2.4	3.7	3.7	5.1	2.3	2.5	2.3	4.8	3.3
Detected Analyte	**Units**												
Acenaphthene	ug/kg	59 J	56.4	42 U	18 J	24 J	37	270 U	19 J	220 U	240 U	260 U	110 U
Acenaphthylene	ug/kg	60 J	25.3	42 U	61 U	33 J	19.9	270 U	31 J	220 U	240 U	62 J	51 J
Anthracene	ug/kg	220	153	42 U	61	82	114	76 J	69	82 J	120 J	120 J	97 J
Benzo(a)anthracene	ug/kg	1000	830	21 J	380	480	648	360	260	490	610	420	390
Benzo(a)pyrene	ug/kg	1100	1140	28 J	480	580	927	460	300	550	710	370	450
Benzo(b)fluoranthene	ug/kg	1700	1770	43	700	840	1540	920	440	730	1000	820	640
Benzo(g,h,i)perylene	ug/kg	1200	980	29 J	430 J	490 J	813	560	330	470	760	740	520
Benzo(k)fluoranthene	ug/kg	540	846	42 U	290	350	586	250 J	210	400	470	280	240
Chrysene	ug/kg	1500	2060	31 J	580	700	1460	690	400	710	940	760	620
Dibenzo(a,h)anthracene	ug/kg	210	133	42 U	110	140	116	130 J	65	110 J	170 J	170 J	100 J
Fluoranthene	ug/kg	2800	2570	37 J	880	1100	1720	940	580	1000	1400	990	1100
Fluorene	ug/kg	110 J	97.9	42 U	23 J	26 J	50.9	270 U	36	220 U	240 U	260 U	110 U
Indeno(1,2,3-cd)pyrene	ug/kg	1200	812	22 J	380	420	618	440	270	400	610	140 J	410
Naphthalene	ug/kg	210 U	293 U	42 U	61 U	13 J	193 U	270 U	27 J	220 U	240 U	260 U	110 U
Phenanthrene	ug/kg	1000	1170	42 U	290	380	736	290	260	370	550	310	370
Pyrene	ug/kg	1800	2210	36 J	720	830	1430	730	480	960	1200	800	640
Benzo(e)pyrene	ug/kg	NA	939	NA	NA	NA	653	NA	NA	NA	NA	NA	NA
C1-Benzanthracene/chrysenes	ug/kg	NA	774	NA	NA	NA	566	NA	NA	NA	NA	NA	NA
C1-Pyrene/fluoranthenes	ug/kg	NA	982	NA	NA	NA	585	NA	NA	NA	NA	NA	NA
C1-Fluorenes	ug/kg	NA	82.3	NA	NA	NA	28.7	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	ug/kg	NA	65.7	NA	NA	NA	45.9	NA	NA	NA	NA	NA	NA
C1-Phenanthrene/anthracenes	ug/kg	NA	285	NA	NA	NA	137	NA	NA	NA	NA	NA	NA
C2-Benzanthracene/chrysenes	ug/kg	NA	445	NA	NA	NA	304	NA	NA	NA	NA	NA	NA
C2-Fluorenes	ug/kg	NA	177	NA	NA	NA	48.9	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	ug/kg	NA	135	NA	NA	NA	48.5	NA	NA	NA	NA	NA	NA
C2-Phenanthrene/anthracenes	ug/kg	NA	515	NA	NA	NA	186	NA	NA	NA	NA	NA	NA
C3-Benzanthracene/chrysenes	ug/kg	NA	211	NA	NA	NA	144	NA	NA	NA	NA	NA	NA
C3-Fluorenes	ug/kg	NA	214	NA	NA	NA	52.8	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	ug/kg	NA	334	NA	NA	NA	63.8	NA	NA	NA	NA	NA	NA
C3-Phenanthrene/anthracenes	ug/kg	NA	429	NA	NA	NA	139	NA	NA	NA	NA	NA	NA
C4-Benzanthracene/chrysenes	ug/kg	NA	123	NA	NA	NA	93.3	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	ug/kg	NA	345	NA	NA	NA	61.2	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	ug/kg	NA	222	NA	NA	NA	76.6	NA	NA	NA	NA	NA	NA
Perylene	ug/kg	NA	467	NA	NA	NA	306	NA	NA	NA	NA	NA	NA
Total PAH_{34}	ug/kg	14499	21598.6	247	5342	6488	14356	5846	3777	6272	8540	5982	5628
Toxic Unit Calculation	$C_{OC,PAHi,FCVi}$												
Acenaphthene	491000	0.0032 J	0.0031	0.0016 U	0.0015 J	0.0013 J	0.0020	0.0108 U	0.0017 J	0.0179 U	0.0213 U	0.0110 U	0.0068 U
Acenaphthylene	452000	0.0036 J	0.0015	0.0017 U	0.0056 U	0.0020 J	0.0012	0.0117 U	0.0030 J	0.0195 U	0.0231 U	0.0029 J	0.0034 J
Anthracene	594000	0.0100	0.0070	0.0013 U	0.0043	0.0037	0.0052	0.0025 J	0.0051	0.0055 J	0.0088 J	0.0042 J	0.0049 J
Benzo(a)anthracene	841000	0.0321	0.0267	0.0005 J	0.0188	0.0154	0.0208	0.0084	0.0134	0.0233	0.0315	0.0104	0.0141
Benzo(a)pyrene	965000	0.0308	0.0319	0.0005 J	0.0207	0.0162	0.0260	0.0093	0.0135	0.0228	0.0320	0.0080	0.0141
Benzo(b)fluoranthene	979000	0.0469	0.0489	0.0008	0.0298	0.0232	0.0425	0.0184	0.0195	0.0298	0.0444	0.0174	0.0198
Benzo(g,h,i)perylene	648000	0.0501	0.0409	0.0008 J	0.0276 J	0.0204 J	0.0339	0.0169	0.0221	0.0290	0.0510	0.0238	0.0243
Benzo(k)fluoranthene	981000	0.0149	0.0233	0.0008 U	0.0123	0.0096	0.0161	0.0050 J	0.0093	0.0163	0.0208	0.0059	0.0074
Chrysene	826000	0.0491	0.0674	0.0007 J	0.0293	0.0229	0.0478	0.0164	0.0211	0.0344	0.0495	0.0192	0.0227
Dibenzo(a,h)anthracene	1123000	0.0051	0.0032	0.0007 U	0.0041	0.0034	0.0028	0.0023 J	0.0025	0.0039 J	0.0066 J	0.0032 J	0.0027 J
Fluoranthene	707000	0.1070	0.0982	0.0010 J	0.0519	0.0421	0.0658	0.0261	0.0357	0.0566	0.0861	0.0292	0.0471
Fluorene	538000	0.0055 J	0.0049	0.0014 U	0.0018 J	0.0013 J	0.0026	0.0098 U	0.0029	0.0164 U	0.0194 U	0.0101 U	0.0062 U
Indeno(1,2,3-c,d)pyrene	1115000	0.0291	0.0197	0.0004 J	0.0142	0.0102	0.0150	0.0077	0.0105	0.0143	0.0238	0.0026 J	0.0111
Naphthalene	385000	0.0147 U	0.0206 U	0.0020 U	0.0066 U	0.0009 J	0.0135 U	0.0138 U	0.0030 J	0.0229 U	0.0271 U	0.0141 U	0.0087 U
Phenanthrene	596000	0.0453	0.0531	0.0013 U	0.0203	0.0172	0.0334	0.0095	0.0190	0.0248	0.0401	0.0108	0.0188
Pyrene	697000	0.0698	0.0857	0.0009 J	0.0430	0.0322	0.0554	0.0205	0.0299	0.0551	0.0749	0.0239	0.0278

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
	Location	SED1.5B	SED1.5B	SED10A	SED10B	SED10C	SED10C	SED1A	SED1B	SED1C	SED2.5B	SED2A	SED2B
	Method	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
	Total Organic Carbon (%)	3.7	3.7	5.5	2.4	3.7	3.7	5.1	2.3	2.5	2.3	4.8	3.3
Benzo(e)pyrene	967000	NC	0.0262	NC	NC	NC	0.0183	NC	NC	NC	NC	NC	NC
C1-Benzanthracene/chrysenes	929000	NC	0.0225	NC	NC	NC	0.0165	NC	NC	NC	NC	NC	NC
C1-Pyrene/fluoranthenes	770000	NC	0.0345	NC	NC	NC	0.0205	NC	NC	NC	NC	NC	NC
C1-Fluorenes	611000	NC	0.0036	NC	NC	NC	0.0013	NC	NC	NC	NC	NC	NC
C1-Naphthalenes	444000	NC	0.0040	NC	NC	NC	0.0028	NC	NC	NC	NC	NC	NC
C1-Phenanthrene/anthracenes	670000	NC	0.0115	NC	NC	NC	0.0055	NC	NC	NC	NC	NC	NC
C2-Benzanthracene/chrysenes	1008000	NC	0.0119	NC	NC	NC	0.0082	NC	NC	NC	NC	NC	NC
C2-Fluorenes	686000	NC	0.0070	NC	NC	NC	0.0019	NC	NC	NC	NC	NC	NC
C2-Naphthalenes	510000	NC	0.0072	NC	NC	NC	0.0026	NC	NC	NC	NC	NC	NC
C2-Phenanthrene/anthracenes	746000	NC	0.0187	NC	NC	NC	0.0067	NC	NC	NC	NC	NC	NC
C3-Benzanthracene/chrysenes	1112000	NC	0.0051	NC	NC	NC	0.0035	NC	NC	NC	NC	NC	NC
C3-Fluorenes	769000	NC	0.0075	NC	NC	NC	0.0019	NC	NC	NC	NC	NC	NC
C3-Naphthalenes	581000	NC	0.0155	NC	NC	NC	0.0030	NC	NC	NC	NC	NC	NC
C3-Phenanthrene/anthracenes	829000	NC	0.0140	NC	NC	NC	0.0045	NC	NC	NC	NC	NC	NC
C4-Benzanthracene/chrysenes	1214000	NC	0.0027	NC	NC	NC	0.0021	NC	NC	NC	NC	NC	NC
C4-Naphthalenes	657000	NC	0.0142	NC	NC	NC	0.0025	NC	NC	NC	NC	NC	NC
C4-Phenanthrenes/anthracenes	913000	NC	0.0066	NC	NC	NC	0.0023	NC	NC	NC	NC	NC	NC
Perylene	967000	NC	0.0131	NC	NC	NC	0.0086	NC	NC	NC	NC	NC	NC
ΣESBTU (a)		0.78	0.74	0.01	0.43	0.34	0.48	0.22	0.33	0.49	0.73	0.25	0.34

Notes:

% = percent.

ug/kg = micrograms per kilogram.

ΣESBTU = sum of the toxic units within a sample

ESB = Equilibrium Partitioning Sediment Benchmark.

FCV = Sediment Final Chronic Value, in organic carbon normalized units (USEPA, 2003).

f_{OC} = fraction organic carbon.

J = The concentration value is estimated.

NA = Not analyzed.

NC = Not calculated.

OC = organic carbon.

PAH_{34} = Polycyclic Aromatic Hydrocarbons including alkylated PAHs.

TU = OC normalized sediment concentration /OC normalized equilibrium partitioning (EqP) sediment criterion corresponding to pore water FCV for each PAH.

U = The target analyte was not detected above the reporting detection limit. Not included in TU calculation.

$C_{OC,PAHi,FCVi}$ = Sediment Final Chronic Value, in organic carbon normalized units for each PAH (USEPA, 2003).

(a) For 8270 method, ΣESBTU calculated based on sum of PAH16 TUs multiplied by a safety factor of 1.55. For ID-0016 method, ΣESBTU calculated based on the sum of PAH34 TUs.

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Area		Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
Location		SED2C	SED3.5B	SED3A	SED3B	SED3C	SED4.5B	SED4A	SED4A	SED4B	SED4C	SED5.5B
Method		SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
Total Organic Carbon (%)		3.5	0.84	4.6	0.63	4	4.3	4.7	4.7	1.9	5.6	5.8
Detected Analyte	**Units**											
Acenaphthene	ug/kg	270 U	7.7 J	6.7 U	10 J	47.5 J	28 J	16.7	34 J	119.5 J	22 J	33 J
Acenaphthylene	ug/kg	67 J	16 J	6.7 U	23 U	74.5 J	81 U	21.4	73 J	105	80 J	85
Anthracene	ug/kg	130 J	20 J	6.7 U	16 J	135	95	66.3	100	223 J	87 J	110
Benzo(a)anthracene	ug/kg	590	110	6.7 U	110	515	500	394	410	675 J	470	410
Benzo(a)pyrene	ug/kg	670	130	6.7 U	130	595	580	665	530	635 J	550	510
Benzo(b)fluoranthene	ug/kg	730	210	6.7 U	210	855	950	1230	870	655 J	940	780
Benzo(g,h,i)perylene	ug/kg	730	110	6.7 U	140	670	680	704	740	515 J	740	630
Benzo(k)fluoranthene	ug/kg	560	66	6.7 U	90	285	380	470	300	320 J	320	290
Chrysene	ug/kg	900	190	6.7 U	190	790	1000	1080	800	755 J	830	800
Dibenzo(a,h)anthracene	ug/kg	200 J	24 J	6.7 U	32	150	140	98.4	160	119	160	110
Fluoranthene	ug/kg	1300	270	6.7 U	290	1500	1300	1130	990	1570 J	1000	910
Fluorene	ug/kg	270 U	12 J	6.7 U	13 J	81	30 J	37.1	35 J	123.5 J	39 J	54
Indeno(1,2,3-cd)pyrene	ug/kg	580	88	6.7 U	110	520	550	527	530	410 J	590	410
Naphthalene	ug/kg	270 U	4.9 J	6.7 U	23 U	71.5 U	81 U	193 U	24 J	48.5	22 J	36 J
Phenanthrene	ug/kg	380	92	6.7 U	190	500 J	440	412	320	1175 J	320	400
Pyrene	ug/kg	1000	190	6.7 U	270	775	1100	988	760	1225 J	840	870
Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA	NA	624	NA	NA	NA	NA
C1-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	433	NA	NA	NA	NA
C1-Pyrene/fluoranthenes	ug/kg	NA	NA	NA	NA	NA	NA	446	NA	NA	NA	NA
C1-Fluorenes	ug/kg	NA	NA	NA	NA	NA	NA	32.9	NA	NA	NA	NA
C1-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	53	NA	NA	NA	NA
C1-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	122	NA	NA	NA	NA
C2-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	284	NA	NA	NA	NA
C2-Fluorenes	ug/kg	NA	NA	NA	NA	NA	NA	74.5	NA	NA	NA	NA
C2-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	80.2	NA	NA	NA	NA
C2-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	240	NA	NA	NA	NA
C3-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	147	NA	NA	NA	NA
C3-Fluorenes	ug/kg	NA	NA	NA	NA	NA	NA	101	NA	NA	NA	NA
C3-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	103	NA	NA	NA	NA
C3-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	230	NA	NA	NA	NA
C4-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	90.8	NA	NA	NA	NA
C4-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	115	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	128	NA	NA	NA	NA
Perylene	ug/kg	NA	NA	NA	NA	NA	NA	288	NA	NA	NA	NA
Total PAH_{34}	ug/kg	7837	1540.6	0	1801	7493	7773	11432.3	6676	8673.5	7010	6438
Toxic Unit Calculation	$C_{OC,PAHi,FCVi}$											
Acenaphthene	491000	0.0157 U	0.0019 J	0.0003 U	0.0032 J	0.0024 J	0.0013 J	0.0007	0.0015 J	0.0128 J	0.0008 J	0.0012 J
Acenaphthylene	452000	0.0042 J	0.0042 J	0.0003 U	0.0081 U	0.0041 J	0.0042 U	0.0010	0.0034 J	0.0122	0.0032 J	0.0032
Anthracene	594000	0.0063 J	0.0040 J	0.0002 U	0.0043 J	0.0057	0.0037	0.0024	0.0036	0.0198 J	0.0026 J	0.0032
Benzo(a)anthracene	841000	0.0200	0.0156	0.0002 U	0.0208	0.0153	0.0138	0.0100	0.0104	0.0422 J	0.0100	0.0084
Benzo(a)pyrene	965000	0.0198	0.0160	0.0002 U	0.0214	0.0154	0.0140	0.0147	0.0117	0.0346 J	0.0102	0.0091
Benzo(b)fluoranthene	979000	0.0213	0.0255	0.0001 U	0.0340	0.0218	0.0226	0.0267	0.0189	0.0352 J	0.0171	0.0137
Benzo(g,h,i)perylene	648000	0.0322	0.0202	0.0002 U	0.0343	0.0258	0.0244	0.0231	0.0243	0.0418 J	0.0204	0.0168
Benzo(k)fluoranthene	981000	0.0163	0.0080	0.0001 U	0.0146	0.0073	0.0090	0.0102	0.0065	0.0172 J	0.0058	0.0051
Chrysene	826000	0.0311	0.0274	0.0002 U	0.0365	0.0239	0.0282	0.0278	0.0206	0.0481 J	0.0179	0.0167
Dibenzo(a,h)anthracene	1123000	0.0051 J	0.0025 J	0.0001 U	0.0045	0.0033	0.0029	0.0019	0.0030	0.0056	0.0025	0.0017
Fluoranthene	707000	0.0525	0.0455	0.0002 U	0.0651	0.0530	0.0428	0.0340	0.0298	0.1169 J	0.0253	0.0222
Fluorene	538000	0.0143 U	0.0027 J	0.0003 U	0.0038 J	0.0038	0.0013 J	0.0015	0.0014 J	0.0121 J	0.0013 J	0.0017
Indeno(1,2,3-c,d)pyrene	1115000	0.0149	0.0094	0.0001 U	0.0157	0.0117	0.0115	0.0101	0.0101	0.0194 J	0.0094	0.0063
Naphthalene	385000	0.0200 U	0.0015 J	0.0004 U	0.0095 U	0.0046 U	0.0049 U	0.0107 U	0.0013 J	0.0066	0.0010 J	0.0016 J
Phenanthrene	596000	0.0182	0.0184	0.0002 U	0.0506	0.0210 J	0.0172	0.0147	0.0114	0.1038 J	0.0096	0.0116
Pyrene	697000	0.0410	0.0325	0.0002 U	0.0615	0.0278	0.0367	0.0302	0.0232	0.0925 J	0.0215	0.0215

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
	Location	SED2C	SED3.5B	SED3A	SED3B	SED3C	SED4.5B	SED4A	SED4A	SED4B	SED4C	SED5.5B
	Method	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
	Total Organic Carbon (%)	3.5	0.84	4.6	0.63	4	4.3	4.7	4.7	1.9	5.6	5.8
Benzo(e)pyrene	967000	NC	NC	NC	NC	NC	NC	0.0137	NC	NC	NC	NC
C1-Benzanthracene/chrysenes	929000	NC	NC	NC	NC	NC	NC	0.0099	NC	NC	NC	NC
C1-Pyrene/fluoranthenes	770000	NC	NC	NC	NC	NC	NC	0.0123	NC	NC	NC	NC
C1-Fluorenes	611000	NC	NC	NC	NC	NC	NC	0.0011	NC	NC	NC	NC
C1-Naphthalenes	444000	NC	NC	NC	NC	NC	NC	0.0025	NC	NC	NC	NC
C1-Phenanthrene/anthracenes	670000	NC	NC	NC	NC	NC	NC	0.0039	NC	NC	NC	NC
C2-Benzanthracene/chrysenes	1008000	NC	NC	NC	NC	NC	NC	0.0060	NC	NC	NC	NC
C2-Fluorenes	686000	NC	NC	NC	NC	NC	NC	0.0023	NC	NC	NC	NC
C2-Naphthalenes	510000	NC	NC	NC	NC	NC	NC	0.0033	NC	NC	NC	NC
C2-Phenanthrene/anthracenes	746000	NC	NC	NC	NC	NC	NC	0.0068	NC	NC	NC	NC
C3-Benzanthracene/chrysenes	1112000	NC	NC	NC	NC	NC	NC	0.0028	NC	NC	NC	NC
C3-Fluorenes	769000	NC	NC	NC	NC	NC	NC	0.0028	NC	NC	NC	NC
C3-Naphthalenes	581000	NC	NC	NC	NC	NC	NC	0.0038	NC	NC	NC	NC
C3-Phenanthrene/anthracenes	829000	NC	NC	NC	NC	NC	NC	0.0059	NC	NC	NC	NC
C4-Benzanthracene/chrysenes	1214000	NC	NC	NC	NC	NC	NC	0.0016	NC	NC	NC	NC
C4-Naphthalenes	657000	NC	NC	NC	NC	NC	NC	0.0037	NC	NC	NC	NC
C4-Phenanthrenes/anthracenes	913000	NC	NC	NC	NC	NC	NC	0.0030	NC	NC	NC	NC
Perylene	967000	NC	NC	NC	NC	NC	NC	0.0063	NC	NC	NC	NC
ΣESBTU (a)		0.44	0.36	0.00	0.57	0.38	0.36	0.30	0.28	0.96	0.25	0.22

Notes:

% = percent.

ug/kg = micrograms per kilogram.

ΣESBTU = sum of the toxic units within a sample

ESB = Equilibrium Partitioning Sediment Benchmark.

FCV = Sediment Final Chronic Value, in organic carbon normalized units (USEPA, 2003).

f_{OC} = fraction organic carbon.

J = The concentration value is estimated.

NA = Not analyzed.

NC = Not calculated.

OC = organic carbon.

PAH_{34} = Polycyclic Aromatic Hydrocarbons including alkylated PAHs.

TU = OC normalized sediment concentration /OC normalized equilibrium partitioning (EqP) sediment criterion corresponding to pore water FCV for each PAH.

U = The target analyte was not detected above the reporting detection limit. Not included in TU calculation.

$C_{OC,PAHi,FCVi}$ = Sediment Final Chronic Value, in organic carbon normalized units for each PAH (USEPA, 2003).

(a) For 8270 method, ΣESBTU calculated based on sum of PAH16 TUs multiplied by a safety factor of 1.55. For ID-0016 method, ΣESBTU calculated based on the sum of PAH34 TUs.

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**
	Location	SED5A	SED5B	SED5C	SED6.5D	SED6.5E	SED6A	SED6B	SED6C	SED7.5D	SED7.5E	SED7A
	Method	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
	Total Organic Carbon (%)	3.5	3.9	3.1	5	8.6	1.1	2	4.4	4	14	2.8
Detected Analyte	**Units**											
Acenaphthene	ug/kg	31 J	18 J	80	57 J	61 U	84	33.5 J	19 J	35 J	59	20 J
Acenaphthylene	ug/kg	72 U	87 U	170	35 J	48 J	84	61.5 J	61 J	28 J	47 J	37 J
Anthracene	ug/kg	71 J	58 J	210	60 J	89	130	120	61 J	47 J	120	66
Benzo(a)anthracene	ug/kg	370	370	630	190	400	390	500	420 J	160	360	290
Benzo(a)pyrene	ug/kg	450	440	780	190	460	430	630	530 J	160	310	370
Benzo(b)fluoranthene	ug/kg	730	800	1100	320	730	470	880	850 J	290	500	620
Benzo(g,h,i)perylene	ug/kg	640	630	830	190	530	370	620	350 J	170	290	490
Benzo(k)fluoranthene	ug/kg	290	250	390	96 J	250	160	320	330 J	100	140	190
Chrysene	ug/kg	750	720	960	320	740	470	820	850 J	270	490	550
Dibenzo(a,h)anthracene	ug/kg	140	96	170	52 J	140	88	145	89 J	40 J	55	110
Fluoranthene	ug/kg	840	800	1100	370	1000	1000	1400	1100 J	320	800	850
Fluorene	ug/kg	45 J	41 J	70 J	63 J	50 J	70	46 J	44 J	44 J	110	31 J
Indeno(1,2,3-cd)pyrene	ug/kg	500	480	620	140 J	420	290	540	350 J	120	230	410
Naphthalene	ug/kg	72 U	87 U	75 U	52 J	33 J	18 J	17 J	22 J	47 J	94	13 J
Phenanthrene	ug/kg	300	260	560	190	370	610	505	300 J	200	470	250
Pyrene	ug/kg	780	730	1100	410	910	750	895	860 J	340	730	520
Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Pyrene/fluoranthenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PAH_{34}	ug/kg	5937	5693	8770	2735	6170	5414	7533	6236	2371	4805	4817
Toxic Unit Calculation	$C_{OC,PAHi,FCVi}$											
Acenaphthene	491000	0.0018 J	0.0009 J	0.0053	0.0023 J	0.0014 U	0.0156	0.0034 J	0.0009 J	0.0018 J	0.0009	0.0015 J
Acenaphthylene	452000	0.0046 U	0.0049 U	0.0121	0.0015 J	0.0012 J	0.0169	0.0068 J	0.0031 J	0.0015 J	0.0007 J	0.0029 J
Anthracene	594000	0.0034 J	0.0025 J	0.0114	0.0020 J	0.0017	0.0199	0.0101	0.0023 J	0.0020 J	0.0014	0.0040
Benzo(a)anthracene	841000	0.0126	0.0113	0.0242	0.0045	0.0055	0.0422	0.0297	0.0114 J	0.0048	0.0031	0.0123
Benzo(a)pyrene	965000	0.0133	0.0117	0.0261	0.0039	0.0055	0.0405	0.0326	0.0125 J	0.0041	0.0023	0.0137
Benzo(b)fluoranthene	979000	0.0213	0.0210	0.0362	0.0065	0.0087	0.0436	0.0449	0.0197 J	0.0074	0.0036	0.0226
Benzo(g,h,i)perylene	648000	0.0282	0.0249	0.0413	0.0059	0.0095	0.0519	0.0478	0.0123 J	0.0066	0.0032	0.0270
Benzo(k)fluoranthene	981000	0.0084	0.0065	0.0128	0.0020 J	0.0030	0.0148	0.0163	0.0076 J	0.0025	0.0010	0.0069
Chrysene	826000	0.0259	0.0224	0.0375	0.0077	0.0104	0.0517	0.0496	0.0234 J	0.0082	0.0042	0.0238
Dibenzo(a,h)anthracene	1123000	0.0036	0.0022	0.0049	0.0009 J	0.0014	0.0071	0.0065	0.0018 J	0.0009 J	0.0003	0.0035
Fluoranthene	707000	0.0339	0.0290	0.0502	0.0105	0.0164	0.1286	0.0990	0.0354 J	0.0113	0.0081	0.0429
Fluorene	538000	0.0024 J	0.0020 J	0.0042 J	0.0023 J	0.0011 J	0.0118	0.0043 J	0.0019 J	0.0020 J	0.0015	0.0021 J
Indeno(1,2,3-c,d)pyrene	1115000	0.0128	0.0110	0.0179	0.0025 J	0.0044	0.0236	0.0242	0.0071 J	0.0027	0.0015	0.0131
Naphthalene	385000	0.0053 U	0.0058 U	0.0063 U	0.0027 J	0.0010 J	0.0043 J	0.0022 J	0.0013 J	0.0031 J	0.0017	0.0012 J
Phenanthrene	596000	0.0144	0.0112	0.0303	0.0064	0.0072	0.0930	0.0424	0.0114 J	0.0084	0.0056	0.0150
Pyrene	697000	0.0320	0.0269	0.0509	0.0118	0.0152	0.0978	0.0642	0.0280 J	0.0122	0.0075	0.0266

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
	Location	SED5A	SED5B	SED5C	SED6.5D	SED6.5E	SED6A	SED6B	SED6C	SED7.5D	SED7.5E	SED7A
	Method	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
	Total Organic Carbon (%)	3.5	3.9	3.1	5	8.6	1.1	2	4.4	4	14	2.8
Benzo(e)pyrene	967000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C1-Benzanthracene/chrysenes	929000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C1-Pyrene/fluoranthenes	770000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C1-Fluorenes	611000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C1-Naphthalenes	444000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C1-Phenanthrene/anthracenes	670000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C2-Benzanthracene/chrysenes	1008000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C2-Fluorenes	686000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C2-Naphthalenes	510000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C2-Phenanthrene/anthracenes	746000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C3-Benzanthracene/chrysenes	1112000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C3-Fluorenes	769000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C3-Naphthalenes	581000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C3-Phenanthrene/anthracenes	829000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C4-Benzanthracene/chrysenes	1214000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C4-Naphthalenes	657000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C4-Phenanthrenes/anthracenes	913000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Perylene	967000	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
ΣESBTU (a)		0.33	0.28	0.57	0.11	0.14	1.0	0.75	0.28	0.12	0.07	0.34

Notes:
% = percent.
ug/kg = micrograms per kilogram.
ΣESBTU = sum of the toxic units within a sample
ESB = Equilibrium Partitioning Sediment Benchmark.
FCV = Sediment Final Chronic Value, in organic carbon normalized units (USEPA, 2003).
f_{OC} = fraction organic carbon.
J = The concentration value is estimated.
NA = Not analyzed.
NC = Not calculated.
OC = organic carbon.
PAH_{34} = Polycyclic Aromatic Hydrocarbons including alkylated PAHs.
TU = OC normalized sediment concentration /OC normalized equilibrium partitioning (EqP) sediment criterion corresponding to pore water FCV for each PAH.
U = The target analyte was not detected above the reporting detection limit. Not included in TU calculation.
$C_{OC,PAHi,FCVi}$ = Sediment Final Chronic Value, in organic carbon normalized units for each PAH (USEPA, 2003).
(a) For 8270 method, ΣESBTU calculated based on sum of PAH16 TUs multiplied by a safety factor of 1.55. For ID-0016 method, ΣESBTU calculated based on the sum of PAH34 TUs.

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside	Waterside
	Location	SED7B	SED7D	SED7E	SED7E	SED7F	SED7F	SED7G	SED8.5B	SED8A	SED8B	SED8C	SED9.5B
	Method	SW8270D LL	SW8270D LL	SW8270D LL	ID-0016	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
	Total Organic Carbon (%)	2.1	4.9	5.1	5.1	24	24	0.84	3.1	4.1	2.5	3.3	3.9
Detected Analyte	**Units**												
Acenaphthene	ug/kg	34.5 J	35 J	46 J	67.8	64	122	140	32 J	29 J	23 J	8.9 J	17 J
Acenaphthylene	ug/kg	71	70 J	27 J	25.5	43 J	35.9	23 J	52 J	68 J	46 J	47 J	49 J
Anthracene	ug/kg	87.5	110 J	130 J	164	140	330	210	94	110	72	63	87
Benzo(a)anthracene	ug/kg	340	480	490	658	590	1330	950	480	530	330	385	450
Benzo(a)pyrene	ug/kg	370	540	520	910	600	1960	890	500	710	420	510	540
Benzo(b)fluoranthene	ug/kg	545	860	850	1370	860	2870	1200	800	1100	730	580 J	880
Benzo(g,h,i)perylene	ug/kg	325	470	470	818	640	1610	780	650	870	580	535 J	560
Benzo(k)fluoranthene	ug/kg	139	190	270	699	300	1490	430	410	330	280	490	200
Chrysene	ug/kg	465	630	760	1380	890	2560	1200	820	1000	660	640	790
Dibenzo(a,h)anthracene	ug/kg	31 *	86 J	94 J	115	160	166	150	130	170	79	160	120
Fluoranthene	ug/kg	635	870	1200	1750	1300	3220	2600	950	1300	660	820	920
Fluorene	ug/kg	34	53 J	55 J	128	63	180	100	48 J	38 J	22 J	29.5 J	22 J
Indeno(1,2,3-cd)pyrene	ug/kg	250	370	380	584	510	1180	640	530	670	430	445 J	430
Naphthalene	ug/kg	32.5 J	46 J	31 J	117	38 J	204	95	29 J	77 U	17 J	22 J	67 U
Phenanthrene	ug/kg	305	350	500	788	560	1870	2000	480	480	250	265	370
Pyrene	ug/kg	685	950	1000	1570	1100	2940	2100	1000	1100	730	795	920
Benzo(e)pyrene	ug/kg	NA	NA	NA	759	NA	1620	NA	NA	NA	NA	NA	NA
C1-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	763	NA	1420	NA	NA	NA	NA	NA	NA
C1-Pyrene/fluoranthenes	ug/kg	NA	NA	NA	837	NA	1450	NA	NA	NA	NA	NA	NA
C1-Fluorenes	ug/kg	NA	NA	NA	189	NA	226	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	ug/kg	NA	NA	NA	288	NA	578	NA	NA	NA	NA	NA	NA
C1-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	381	NA	643	NA	NA	NA	NA	NA	NA
C2-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	620	NA	1180	NA	NA	NA	NA	NA	NA
C2-Fluorenes	ug/kg	NA	NA	NA	475	NA	419	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	ug/kg	NA	NA	NA	447	NA	696	NA	NA	NA	NA	NA	NA
C2-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	1030	NA	1650	NA	NA	NA	NA	NA	NA
C3-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	427	NA	791	NA	NA	NA	NA	NA	NA
C3-Fluorenes	ug/kg	NA	NA	NA	556	NA	376	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	ug/kg	NA	NA	NA	689	NA	781	NA	NA	NA	NA	NA	NA
C3-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	979	NA	1110	NA	NA	NA	NA	NA	NA
C4-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	275	NA	519	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	ug/kg	NA	NA	NA	793	NA	694	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	ug/kg	NA	NA	NA	526	NA	556	NA	NA	NA	NA	NA	NA
Perylene	ug/kg	NA	NA	NA	257	NA	339	NA	NA	NA	NA	NA	NA
Total PAH_{34}	ug/kg	4349.5	6110	6823	21435.3	7858	37115.9	13508	7005	8505	5329	5795.4	6355
Toxic Unit Calculation	$C_{OC,PAHi,FCVi}$												
Acenaphthene	491000	0.0033 J	0.0015 J	0.0018 J	0.0027	0.0005	0.0010	0.0339	0.0021 J	0.0014 J	0.0019 J	0.0005 J	0.0009 J
Acenaphthylene	452000	0.0075	0.0032 J	0.0012 J	0.0011	0.0004 J	0.0003	0.0061 J	0.0037 J	0.0037 J	0.0041 J	0.0032 J	0.0028 J
Anthracene	594000	0.0070	0.0038 J	0.0043 J	0.0054	0.0010	0.0023	0.0421	0.0051	0.0045	0.0048	0.0032	0.0038
Benzo(a)anthracene	841000	0.0193	0.0116	0.0114	0.0153	0.0029	0.0066	0.1345	0.0184	0.0154	0.0157	0.0139	0.0137
Benzo(a)pyrene	965000	0.0183	0.0114	0.0106	0.0185	0.0026	0.0085	0.1098	0.0167	0.0179	0.0174	0.0160	0.0143
Benzo(b)fluoranthene	979000	0.0265	0.0179	0.0170	0.0274	0.0037	0.0122	0.1459	0.0264	0.0274	0.0298	0.0180 J	0.0230
Benzo(g,h,i)perylene	648000	0.0239	0.0148	0.0142	0.0248	0.0041	0.0104	0.1433	0.0324	0.0327	0.0358	0.0250 J	0.0222
Benzo(k)fluoranthene	981000	0.0067	0.0040	0.0054	0.0140	0.0013	0.0063	0.0522	0.0135	0.0082	0.0114	0.0151	0.0052
Chrysene	826000	0.0268	0.0156	0.0180	0.0328	0.0045	0.0129	0.1730	0.0320	0.0295	0.0320	0.0235	0.0245
Dibenzo(a,h)anthracene	1123000	0.0013 *	0.0016 J	0.0016 J	0.0020	0.0006	0.0006	0.0159	0.0037	0.0037	0.0028	0.0043	0.0027
Fluoranthene	707000	0.0428	0.0251	0.0333	0.0485	0.0077	0.0190	0.4378	0.0433	0.0448	0.0373	0.0351	0.0334
Fluorene	538000	0.0030	0.0020 J	0.0020 J	0.0047	0.0005	0.0014	0.0221	0.0029 J	0.0017 J	0.0016 J	0.0017 J	0.0010 J
Indeno(1,2,3-c,d)pyrene	1115000	0.0107	0.0068	0.0067	0.0103	0.0019	0.0044	0.0683	0.0153	0.0147	0.0154	0.0121 J	0.0099
Naphthalene	385000	0.0040 J	0.0024 J	0.0016 J	0.0060	0.0004 J	0.0022	0.0294	0.0024 J	0.0049 U	0.0018 J	0.0017 J	0.0045 U
Phenanthrene	596000	0.0244	0.0120	0.0164	0.0259	0.0039	0.0131	0.3995	0.0260	0.0196	0.0168	0.0135	0.0159
Pyrene	697000	0.0468	0.0278	0.0281	0.0442	0.0066	0.0176	0.3587	0.0463	0.0385	0.0419	0.0346	0.0338

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**
	Location	SED7B	SED7D	SED7E	SED7E	SED7F	SED7F	SED7G	SED8.5B	SED8A	SED8B	SED8C	SED9.5B
	Method	SW8270D LL	SW8270D LL	SW8270D LL	ID-0016	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
	Total Organic Carbon (%)	2.1	4.9	5.1	5.1	24	24	0.84	3.1	4.1	2.5	3.3	3.9
Benzo(e)pyrene	967000	NC	NC	NC	0.0154	NC	0.0070	NC	NC	NC	NC	NC	NC
C1-Benzanthracene/chrysenes	929000	NC	NC	NC	0.0161	NC	0.0064	NC	NC	NC	NC	NC	NC
C1-Pyrene/fluoranthenes	770000	NC	NC	NC	0.0213	NC	0.0078	NC	NC	NC	NC	NC	NC
C1-Fluorenes	611000	NC	NC	NC	0.0061	NC	0.0015	NC	NC	NC	NC	NC	NC
C1-Naphthalenes	444000	NC	NC	NC	0.0127	NC	0.0054	NC	NC	NC	NC	NC	NC
C1-Phenanthrene/anthracenes	670000	NC	NC	NC	0.0112	NC	0.0040	NC	NC	NC	NC	NC	NC
C2-Benzanthracene/chrysenes	1008000	NC	NC	NC	0.0121	NC	0.0049	NC	NC	NC	NC	NC	NC
C2-Fluorenes	686000	NC	NC	NC	0.0136	NC	0.0025	NC	NC	NC	NC	NC	NC
C2-Naphthalenes	510000	NC	NC	NC	0.0172	NC	0.0057	NC	NC	NC	NC	NC	NC
C2-Phenanthrene/anthracenes	746000	NC	NC	NC	0.0271	NC	0.0092	NC	NC	NC	NC	NC	NC
C3-Benzanthracene/chrysenes	1112000	NC	NC	NC	0.0075	NC	0.0030	NC	NC	NC	NC	NC	NC
C3-Fluorenes	769000	NC	NC	NC	0.0142	NC	0.0020	NC	NC	NC	NC	NC	NC
C3-Naphthalenes	581000	NC	NC	NC	0.0233	NC	0.0056	NC	NC	NC	NC	NC	NC
C3-Phenanthrene/anthracenes	829000	NC	NC	NC	0.0232	NC	0.0056	NC	NC	NC	NC	NC	NC
C4-Benzanthracene/chrysenes	1214000	NC	NC	NC	0.0044	NC	0.0018	NC	NC	NC	NC	NC	NC
C4-Naphthalenes	657000	NC	NC	NC	0.0237	NC	0.0044	NC	NC	NC	NC	NC	NC
C4-Phenanthrenes/anthracenes	913000	NC	NC	NC	0.0113	NC	0.0025	NC	NC	NC	NC	NC	NC
Perylene	967000	NC	NC	NC	0.0052	NC	0.0015	NC	NC	NC	NC	NC	NC
ΣESBTU (a)		0.42	0.25	0.27	0.55	0.07	0.20	**3.37**	0.45	0.41	0.42	0.34	0.32

Notes:
% = percent.
ug/kg = micrograms per kilogram.
ΣESBTU = sum of the toxic units within a sample
ESB = Equilibrium Partitioning Sediment Benchmark.
FCV = Sediment Final Chronic Value, in organic carbon normalized units (USEPA, 2003).
f_{OC} = fraction organic carbon.
J = The concentration value is estimated.
NA = Not analyzed.
NC = Not calculated.
OC = organic carbon.
PAH_{34} = Polycyclic Aromatic Hydrocarbons including alkylated PAHs.
TU = OC normalized sediment concentration /OC normalized equilibrium partitioning (EqP) sediment criterion corresponding to pore water FCV for each PAH.
U = The target analyte was not detected above the reporting detection limit. Not included in TU calculation.
$C_{OC,PAHi,FCVi}$ = Sediment Final Chronic Value, in organic carbon normalized units for each PAH (USEPA, 2003).
(a) For 8270 method, ΣESBTU calculated based on sum of PAH16 TUs multiplied by a safety factor of 1.55. For ID-0016 method, ΣESBTU calculated based on the sum of PAH34 TUs.

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Area		Waterside	Waterside	Waterside	Waterside	Waterside	Background	Background	Background	Background	Background	Background	Background	Background	Background
Location		SED9A	SED9B	SED9C	WSED1	WSED2	SEDBACK1	SEDBACK11	SEDBACK11	SEDBACK12	SEDBACK13	SEDBACK15	SEDBACK2	SEDBACK3	SEDBACK4
Method		SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
Total Organic Carbon (%)		3	3.5	3.3	5	6	0.17	4.6	4.6	4.7	2.8	2.7	0.23	0.27	4.7
Detected Analyte	**Units**														
Acenaphthene	ug/kg	33 J	77 J	16 J	49	110 U	19 U	120	154	35.5 J	25 J	31 J	20.5	22 U	320
Acenaphthylene	ug/kg	110	47 J	56 J	45	64 J	19 U	99 J	56.7	76 J	54 J	50 J	20.5	61	27 J
Anthracene	ug/kg	120	120	95	164.5	120	19 U	130	164	110	75	150 J	8	75	930
Benzo(a)anthracene	ug/kg	480	400	480	630	690	19 U	700	742	595	390	770	37.5	200	2700
Benzo(a)pyrene	ug/kg	590	470	620	675	790	19 U	800 J	789	760	470	720	43	190	2600
Benzo(b)fluoranthene	ug/kg	830	760	990	1115	1500	19 U	1400 J	1130	1300	710	850	63	210	2800
Benzo(g,h,i)perylene	ug/kg	670	500	740	260	360	19 U	440 J	541	455	430	530 J	43.5	160	1800
Benzo(k)fluoranthene	ug/kg	330	250	290	294.5	500	19 U	450 J	428	390 J	250	380	29	100	1400
Chrysene	ug/kg	770	700	880	900	1300	19 U	1400	1110	1100	620	910	59.5	220	3300
Dibenzo(a,h)anthracene	ug/kg	140	89	140	85.5	150	19 U	140 J	93.2	125	92	190	17.5	42	400
Fluoranthene	ug/kg	1000	950	950	1695	1800	3.5 J	1700	1710	1300	810	1200	114	490	6200
Fluorene	ug/kg	43 J	50 J	32 J	76	52 J	19 U	120	121	42.5 J	33 J	45 J	20.5	36	280
Indeno(1,2,3-cd)pyrene	ug/kg	550	410	570	280	380	19 U	460 J	387	435	380	420	37	150	1500
Naphthalene	ug/kg	73 U	81 U	66 U	22.5	110 U	19 U	38 J	76.8	94 U	21 J	170 U	20.5	22 U	76
Phenanthrene	ug/kg	420	470	390	730	630	19 U	770	1290	450	290	740	40	320	5600
Pyrene	ug/kg	840	810	1100	1070	1300	19 U	1400	1810	1150	750	1400	64	330	5200
Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA	NA	NA	593	NA	NA	NA	NA	NA	NA
C1-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	593	NA	NA	NA	NA	NA	NA
C1-Pyrene/fluoranthenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	990	NA	NA	NA	NA	NA	NA
C1-Fluorenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	187	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	102	NA	NA	NA	NA	NA	NA
C1-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	439	NA	NA	NA	NA	NA	NA
C2-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	404	NA	NA	NA	NA	NA	NA
C2-Fluorenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	381	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	340	NA	NA	NA	NA	NA	NA
C2-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	869	NA	NA	NA	NA	NA	NA
C3-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	210	NA	NA	NA	NA	NA	NA
C3-Fluorenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	413	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	917	NA	NA	NA	NA	NA	NA
C3-Phenanthrene/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	850	NA	NA	NA	NA	NA	NA
C4-Benzanthracene/chrysenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	122	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	902	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	446	NA	NA	NA	NA	NA	NA
Perylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	365	NA	NA	NA	NA	NA	NA
Total PAH_{34}	ug/kg	6926	6103	7349	8092	9636	3.5	10167	19725.3	8324	5400	8386	638	2584	35133
Toxic Unit Calculation	$C_{OC,PAHi,FCVi}$														
Acenaphthene	491000	0.0022 J	0.0045 J	0.0010 J	0.0020	0.0037 U	0.0228 U	0.0053	0.0068	0.0015 J	0.0018 J	0.0023 J	0.0182	0.0166 U	0.0139
Acenaphthylene	452000	0.0081	0.0030 J	0.0038 J	0.0020	0.0024 J	0.0247 U	0.0048 J	0.0027	0.0036 J	0.0043 J	0.0041 J	0.0197	0.0500	0.0013 J
Anthracene	594000	0.0067	0.0058	0.0048	0.0055	0.0034	0.0188 U	0.0048	0.0060	0.0039	0.0045	0.0094 J	0.0059	0.0468	0.0333
Benzo(a)anthracene	841000	0.0190	0.0136	0.0173	0.0150	0.0137	0.0133 U	0.0181	0.0192	0.0151	0.0166	0.0339	0.0194	0.0881	0.0683
Benzo(a)pyrene	965000	0.0204	0.0139	0.0195	0.0140	0.0136	0.0116 U	0.0180 J	0.0178	0.0168	0.0174	0.0276	0.0194	0.0729	0.0573
Benzo(b)fluoranthene	979000	0.0283	0.0222	0.0306	0.0228	0.0255	0.0114 U	0.0311 J	0.0251	0.0283	0.0259	0.0322	0.0280	0.0794	0.0609
Benzo(g,h,i)perylene	648000	0.0345	0.0220	0.0346	0.0080	0.0093	0.0172 U	0.0148 J	0.0181	0.0149	0.0237	0.0303 J	0.0292	0.0914	0.0591
Benzo(k)fluoranthene	981000	0.0112	0.0073	0.0090	0.0060	0.0085	0.0114 U	0.0100 J	0.0095	0.0085 J	0.0091	0.0143	0.0129	0.0378	0.0304
Chrysene	826000	0.0311	0.0242	0.0323	0.0218	0.0262	0.0135 U	0.0368	0.0292	0.0283	0.0268	0.0408	0.0313	0.0986	0.0850
Dibenzo(a,h)anthracene	1123000	0.0042	0.0023	0.0038	0.0015	0.0022	0.0100 U	0.0027 J	0.0018	0.0024	0.0029	0.0063	0.0068	0.0139	0.0076
Fluoranthene	707000	0.0471	0.0384	0.0407	0.0479	0.0424	0.0029 J	0.0523	0.0526	0.0391	0.0409	0.0629	0.0701	0.2567	0.1866
Fluorene	538000	0.0027 J	0.0027 J	0.0018 J	0.0028	0.0016 J	0.0208 U	0.0048	0.0049	0.0017 J	0.0022 J	0.0031 J	0.0166	0.0248	0.0111
Indeno(1,2,3-c,d)pyrene	1115000	0.0164	0.0105	0.0155	0.0050	0.0057	0.0100 U	0.0090 J	0.0075	0.0083	0.0122	0.0140	0.0144	0.0498	0.0286
Naphthalene	385000	0.0063 U	0.0060 U	0.0052 U	0.0012	0.0048 U	0.0290 U	0.0021 J	0.0043	0.0052 U	0.0019 J	0.0164 U	0.0232	0.0212 U	0.0042
Phenanthrene	596000	0.0235	0.0225	0.0198	0.0245	0.0176	0.0188 U	0.0281	0.0471	0.0161	0.0174	0.0460	0.0292	0.1989	0.1999
Pyrene	697000	0.0402	0.0332	0.0478	0.0307	0.0311	0.0160 U	0.0437	0.0565	0.0351	0.0384	0.0744	0.0399	0.1754	0.1587

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Waterside**	**Background**	**Background**	**Background**	**Background**	**Background**	**Background**	**Background**	**Background**	**Background**
	Location	SED9A	SED9B	SED9C	WSED1	WSED2	SEDBACK1	SEDBACK11	SEDBACK11	SEDBACK12	SEDBACK13	SEDBACK15	SEDBACK2	SEDBACK3	SEDBACK4
	Method	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	ID-0016	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL	SW8270D LL
Total Organic Carbon (%)		3	3.5	3.3	5	6	0.17	4.6	4.6	4.7	2.8	2.7	0.23	0.27	4.7
Benzo(e)pyrene	967000	NC	NC	NC	NC	NC	NC	NC	0.0133	NC	NC	NC	NC	NC	NC
C1-Benzanthracene/chrysenes	929000	NC	NC	NC	NC	NC	NC	NC	0.0139	NC	NC	NC	NC	NC	NC
C1-Pyrene/fluoranthenes	770000	NC	NC	NC	NC	NC	NC	NC	0.0280	NC	NC	NC	NC	NC	NC
C1-Fluorenes	611000	NC	NC	NC	NC	NC	NC	NC	0.0067	NC	NC	NC	NC	NC	NC
C1-Naphthalenes	444000	NC	NC	NC	NC	NC	NC	NC	0.0050	NC	NC	NC	NC	NC	NC
C1-Phenanthrene/anthracenes	670000	NC	NC	NC	NC	NC	NC	NC	0.0142	NC	NC	NC	NC	NC	NC
C2-Benzanthracene/chrysenes	1008000	NC	NC	NC	NC	NC	NC	NC	0.0087	NC	NC	NC	NC	NC	NC
C2-Fluorenes	686000	NC	NC	NC	NC	NC	NC	NC	0.0121	NC	NC	NC	NC	NC	NC
C2-Naphthalenes	510000	NC	NC	NC	NC	NC	NC	NC	0.0145	NC	NC	NC	NC	NC	NC
C2-Phenanthrene/anthracenes	746000	NC	NC	NC	NC	NC	NC	NC	0.0253	NC	NC	NC	NC	NC	NC
C3-Benzanthracene/chrysenes	1112000	NC	NC	NC	NC	NC	NC	NC	0.0041	NC	NC	NC	NC	NC	NC
C3-Fluorenes	769000	NC	NC	NC	NC	NC	NC	NC	0.0117	NC	NC	NC	NC	NC	NC
C3-Naphthalenes	581000	NC	NC	NC	NC	NC	NC	NC	0.0343	NC	NC	NC	NC	NC	NC
C3-Phenanthrene/anthracenes	829000	NC	NC	NC	NC	NC	NC	NC	0.0223	NC	NC	NC	NC	NC	NC
C4-Benzanthracene/chrysenes	1214000	NC	NC	NC	NC	NC	NC	NC	0.0022	NC	NC	NC	NC	NC	NC
C4-Naphthalenes	657000	NC	NC	NC	NC	NC	NC	NC	0.0298	NC	NC	NC	NC	NC	NC
C4-Phenanthrenes/anthracenes	913000	NC	NC	NC	NC	NC	NC	NC	0.0106	NC	NC	NC	NC	NC	NC
Perylene	967000	NC	NC	NC	NC	NC	NC	NC	0.0082	NC	NC	NC	NC	NC	NC
ΣESBTU (a)		0.46	0.35	0.44	0.33	0.31	0.00	0.44	0.57	0.35	0.38	0.62	0.60	**1.99**	**1.56**

Notes:
% = percent.
ug/kg = micrograms per kilogram.
ΣESBTU = sum of the toxic units within a sample
ESB = Equilibrium Partitioning Sediment Benchmark.
FCV = Sediment Final Chronic Value, in organic carbon normalized units (USEPA, 2003).
f_{OC} = fraction organic carbon.
J = The concentration value is estimated.
NA = Not analyzed.
NC = Not calculated.
OC = organic carbon.
PAH_{34} = Polycyclic Aromatic Hydrocarbons including alkylated PAHs.
TU = OC normalized sediment concentration /OC normalized equilibrium partitioning (EqP) sediment criterion corresponding to pore water FCV for each PAH.
U = The target analyte was not detected above the reporting detection limit. Not included in TU calculation.
$C_{OC,PAHi,FCVi}$ = Sediment Final Chronic Value, in organic carbon normalized units for each PAH (USEPA, 2003).
(a) For 8270 method, ΣESBTU calculated based on sum of PAH16 TUs multiplied by a safety factor of 1.55. For ID-0016 method, ΣESBTU calculated based on the sum of PAH34 TUs.

pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	Background		Background		Background		Background	
	Location	SEDBACK4		SEDBACK5		SEDBACK6		SEDBACK6	
	Method	ID-0016		SW8270D LL		SW8270D LL		ID-0016	
	Total Organic Carbon (%)	4.7		2		3.9		3.9	
Detected Analyte	**Units**								
Acenaphthene	ug/kg	45.6		16.5	J	18	J	27.7	
Acenaphthylene	ug/kg	11.1		17.5	J	64	J	24.6	
Anthracene	ug/kg	132		45	J	100		86.2	
Benzo(a)anthracene	ug/kg	505		295		570		604	
Benzo(a)pyrene	ug/kg	817		345		730		1040	
Benzo(b)fluoranthene	ug/kg	1030		575		1200		1710	
Benzo(g,h,i)perylene	ug/kg	631		320		880		953	
Benzo(k)fluoranthene	ug/kg	545		220		440		648	
Chrysene	ug/kg	1050		550		1100		1450	
Dibenzo(a,h)anthracene	ug/kg	99		71		85	U	122	
Fluoranthene	ug/kg	1520		765		1100		1570	
Fluorene	ug/kg	71		24	J	85	U	42.8	
Indeno(1,2,3-cd)pyrene	ug/kg	483		285		800		727	
Naphthalene	ug/kg	199	U	57	U	85	U	200	U
Phenanthrene	ug/kg	768		270		410		551	
Pyrene	ug/kg	1030		625		1200		1350	
Benzo(e)pyrene	ug/kg	655		NA		NA		911	
C1-Benzanthracene/chrysenes	ug/kg	379		NA		NA		568	
C1-Pyrene/fluoranthenes	ug/kg	404		NA		NA		602	
C1-Fluorenes	ug/kg	32.5		NA		NA		31.6	
C1-Naphthalenes	ug/kg	49.8	U	NA		NA		53.8	
C1-Phenanthrene/anthracenes	ug/kg	131		NA		NA		141	
C2-Benzanthracene/chrysenes	ug/kg	198		NA		NA		339	
C2-Fluorenes	ug/kg	54.6		NA		NA		63.8	
C2-Naphthalenes	ug/kg	46.7		NA		NA		54.9	
C2-Phenanthrene/anthracenes	ug/kg	182		NA		NA		244	
C3-Benzanthracene/chrysenes	ug/kg	90.7		NA		NA		170	
C3-Fluorenes	ug/kg	59.3		NA		NA		86.2	
C3-Naphthalenes	ug/kg	81.7		NA		NA		64	
C3-Phenanthrene/anthracenes	ug/kg	114		NA		NA		212	
C4-Benzanthracene/chrysenes	ug/kg	54.3		NA		NA		125	
C4-Naphthalenes	ug/kg	71.4		NA		NA		67.8	
C4-Phenanthrenes/anthracenes	ug/kg	66.7		NA		NA		127	
Perylene	ug/kg	231		NA		NA		360	
Total PAH_{34}	ug/kg	11589.6		4424		8612		15127.4	
Toxic Unit Calculation	$C_{OC,PAHi,FCVi}$								
Acenaphthene	491000	0.0020		0.0017	J	0.0009	J	0.0014	
Acenaphthylene	452000	0.0005		0.0019	J	0.0036	J	0.0014	
Anthracene	594000	0.0047		0.0038	J	0.0043		0.0037	
Benzo(a)anthracene	841000	0.0128		0.0175		0.0174		0.0184	
Benzo(a)pyrene	965000	0.0180		0.0179		0.0194		0.0276	
Benzo(b)fluoranthene	979000	0.0224		0.0294		0.0314		0.0448	
Benzo(g,h,i)perylene	648000	0.0207		0.0247		0.0348		0.0377	
Benzo(k)fluoranthene	981000	0.0118		0.0112		0.0115		0.0169	
Chrysene	826000	0.0270		0.0333		0.0341		0.0450	
Dibenzo(a,h)anthracene	1123000	0.0019		0.0032		0.0019	U	0.0028	
Fluoranthene	707000	0.0457		0.0541		0.0399		0.0569	
Fluorene	538000	0.0028		0.0022	J	0.0041	U	0.0020	
Indeno(1,2,3-c,d)pyrene	1115000	0.0092		0.0128		0.0184		0.0167	
Naphthalene	385000	0.0110	U	0.0074	U	0.0057	U	0.0133	U
Phenanthrene	596000	0.0274		0.0227		0.0176		0.0237	
Pyrene	697000	0.0314		0.0448		0.0441		0.0497	

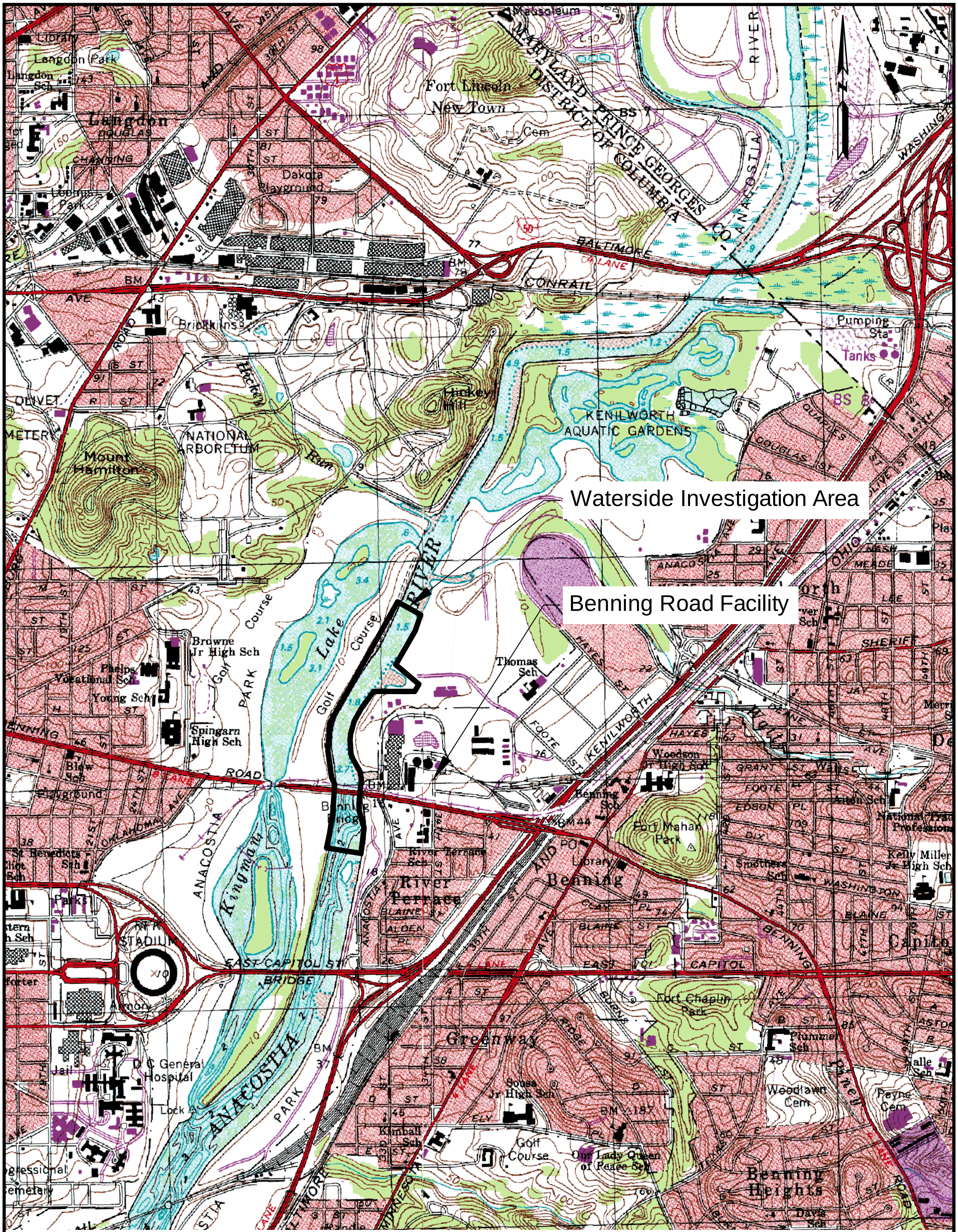
pepco
A PHI Company

Table 5-4
Evaluation of Parent and Alkylated PAHs Using the Equilibrium Partitioning Sediment Benchmarks
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Area	**Background**		**Background**		**Background**		**Background**	
	Location	SEDBACK4		SEDBACK5		SEDBACK6		SEDBACK6	
	Method	ID-0016		SW8270D LL		SW8270D LL		ID-0016	
Total Organic Carbon (%)		4.7		2		3.9		3.9	
Benzo(e)pyrene	967000	0.0144		NC		NC		0.0242	
C1-Benzanthracene/chrysenes	929000	0.0087		NC		NC		0.0157	
C1-Pyrene/fluoranthenes	770000	0.0112		NC		NC		0.0200	
C1-Fluorenes	611000	0.0011		NC		NC		0.0013	
C1-Naphthalenes	444000	0.0024	U	NC		NC		0.0031	
C1-Phenanthrene/anthracenes	670000	0.0042		NC		NC		0.0054	
C2-Benzanthracene/chrysenes	1008000	0.0042		NC		NC		0.0086	
C2-Fluorenes	686000	0.0017		NC		NC		0.0024	
C2-Naphthalenes	510000	0.0019		NC		NC		0.0028	
C2-Phenanthrene/anthracenes	746000	0.0052		NC		NC		0.0084	
C3-Benzanthracene/chrysenes	1112000	0.0017		NC		NC		0.0039	
C3-Fluorenes	769000	0.0016		NC		NC		0.0029	
C3-Naphthalenes	581000	0.0030		NC		NC		0.0028	
C3-Phenanthrene/anthracenes	829000	0.0029		NC		NC		0.0066	
C4-Benzanthracene/chrysenes	1214000	0.0010		NC		NC		0.0026	
C4-Naphthalenes	657000	0.0023		NC		NC		0.0026	
C4-Phenanthrenes/anthracenes	913000	0.0016		NC		NC		0.0036	
Perylene	967000	0.0051		NC		NC		0.0095	
ΣESBTU (a)		0.31		0.44		0.43		0.48	

Notes:
% = percent.
ug/kg = micrograms per kilogram.
ΣESBTU = sum of the toxic units within a sample
ESB = Equilibrium Partitioning Sediment Benchmark.
FCV = Sediment Final Chronic Value, in organic carbon normalized units (USEPA, 2003).
f_{OC} = fraction organic carbon.
J = The concentration value is estimated.
NA = Not analyzed.
NC = Not calculated.
OC = organic carbon.
PAH_{34} = Polycyclic Aromatic Hydrocarbons including alkylated PAHs.
TU = OC normalized sediment concentration /OC normalized equilibrium partitioning (EqP) sediment criterion corresponding to pore water FCV for each PAH.
U = The target analyte was not detected above the reporting detection limit. Not included in TU calculation.
$C_{OC,PAHi,FCVi}$ = Sediment Final Chronic Value, in organic carbon normalized units for each PAH (USEPA, 2003).
(a) For 8270 method, ΣESBTU calculated based on sum of PAH16 TUs multiplied by a safety factor of 1.55. For ID-0016 method, ΣESBTU calculated based on the sum of PAH34 TUs.

Figures



Source:
USGS 7.5 Minute Topographic Map
Washington East Quadrangle

0 1000 2000 4000
SCALE IN FEET

Benning Road Facility RI/FS Project 3400 Benning Rd., NE Washington, DC 20019	Site Location Map
DATE: 03/11/2015 | DRAWN BY: LAD | CHECKED BY: RD	FIGURE 1

File: \\USGNA2FP002\Data\Projects\Environment Projects\60249055 - PEPCO - Benning Rd Facility\RI Report 2015\Site Plan.dwg Layout: Site plan User: DeskinsL Plotted: Mar 04, 2015 - 10:35am Xref's:

LEGEND:
- PROPOSED INVESTIGATION AREA
- BENNING ROAD FACILITY PROPERTY BOUNDARY
- PROPERTY BOUNDARY
- EMERGENT WETLANDS

0 100 200 400
SCALE IN FEET

AECOM

Benning Road Facility RI/FS Project 3400 Benning Rd., NE Washington, DC 20019			Site Plan And Investigation Areas
DATE: 03/04/2015	DRAWN: LAD	CHECKED BY: RD	FIGURE 2

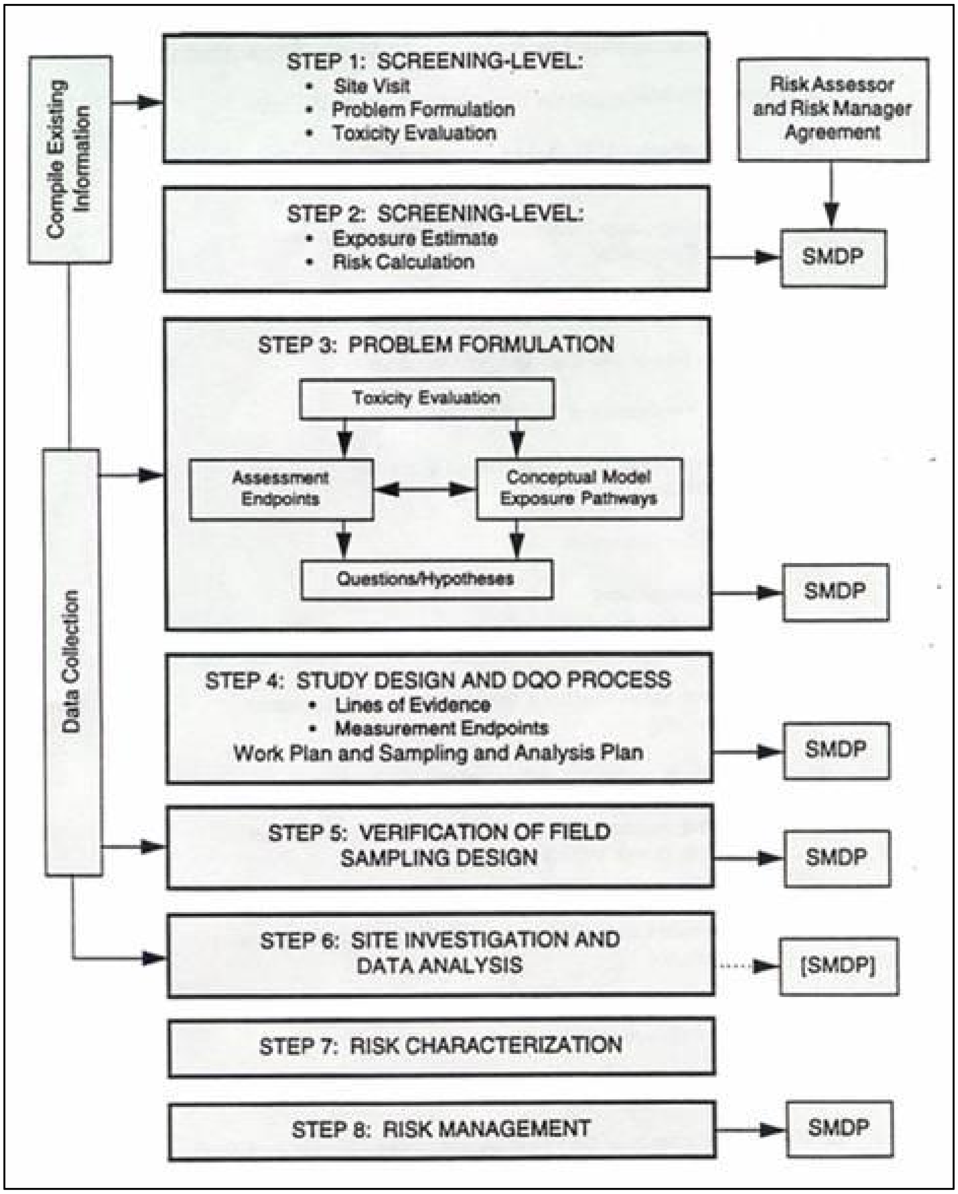


Figure 3. Eight Step Process for Ecological Risk Assessment
Source: USEPA, 1997

J:\Indl_Service\Project Files\Pepco Benning Road RI_FS\GIS\MXD\2015\Aerial View of the Anacostia River_031715.mxd

N W E S

Aerial View of the Anacostia River
Pepco – Benning Road Facility
Washington, DC

0 0.5 1 2 Miles

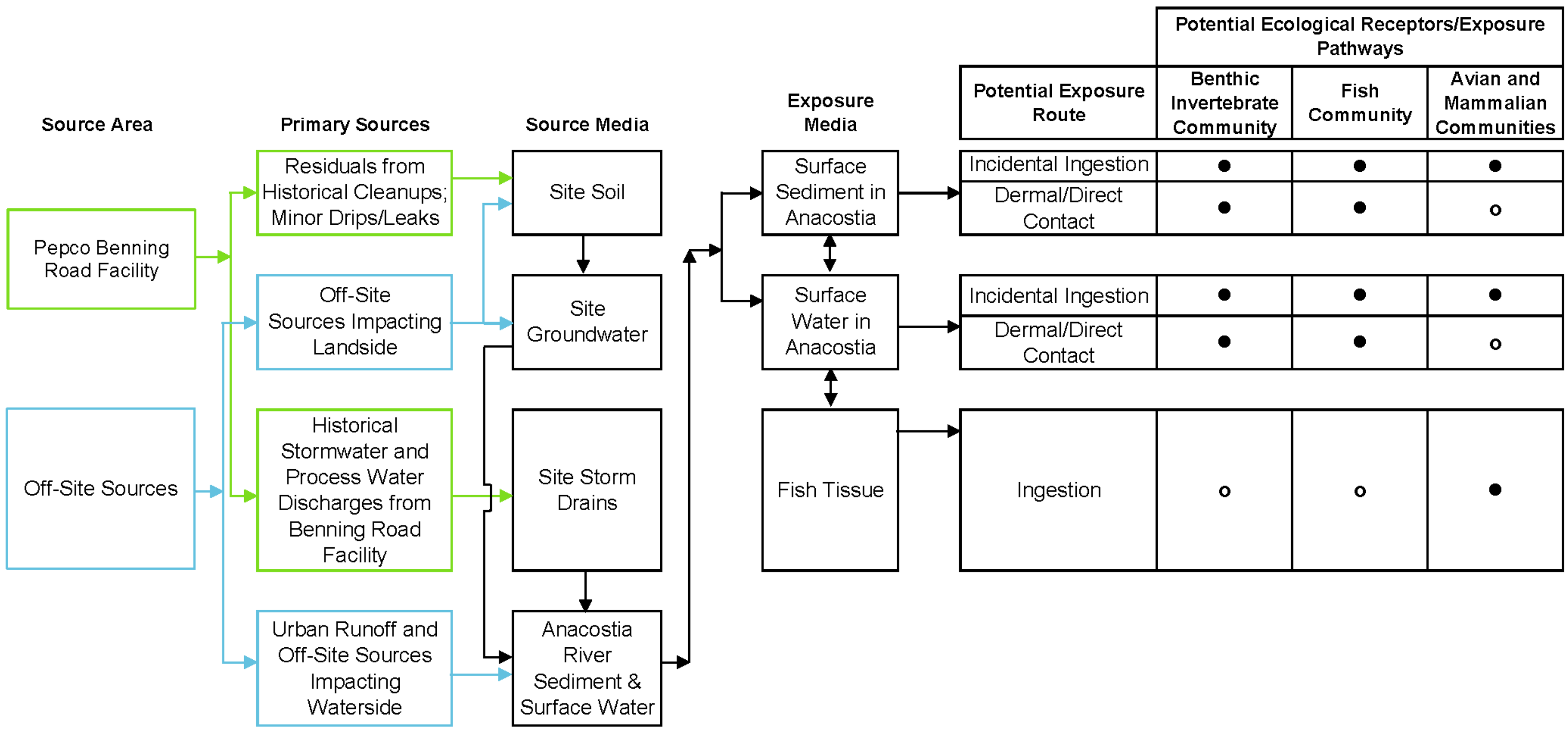
Property Boundaries

Waterside Investigation Area

Benning Road Facility

AECOM

Figure 4



Notes
● Potentially complete pathway.
o Pathway considered to be incomplete or insignificant.
→ Potential release mechanism.

AECOM

Benning Road Facility RI/FS Project
3400 Benning Rd., NE
Washington, DC 20019

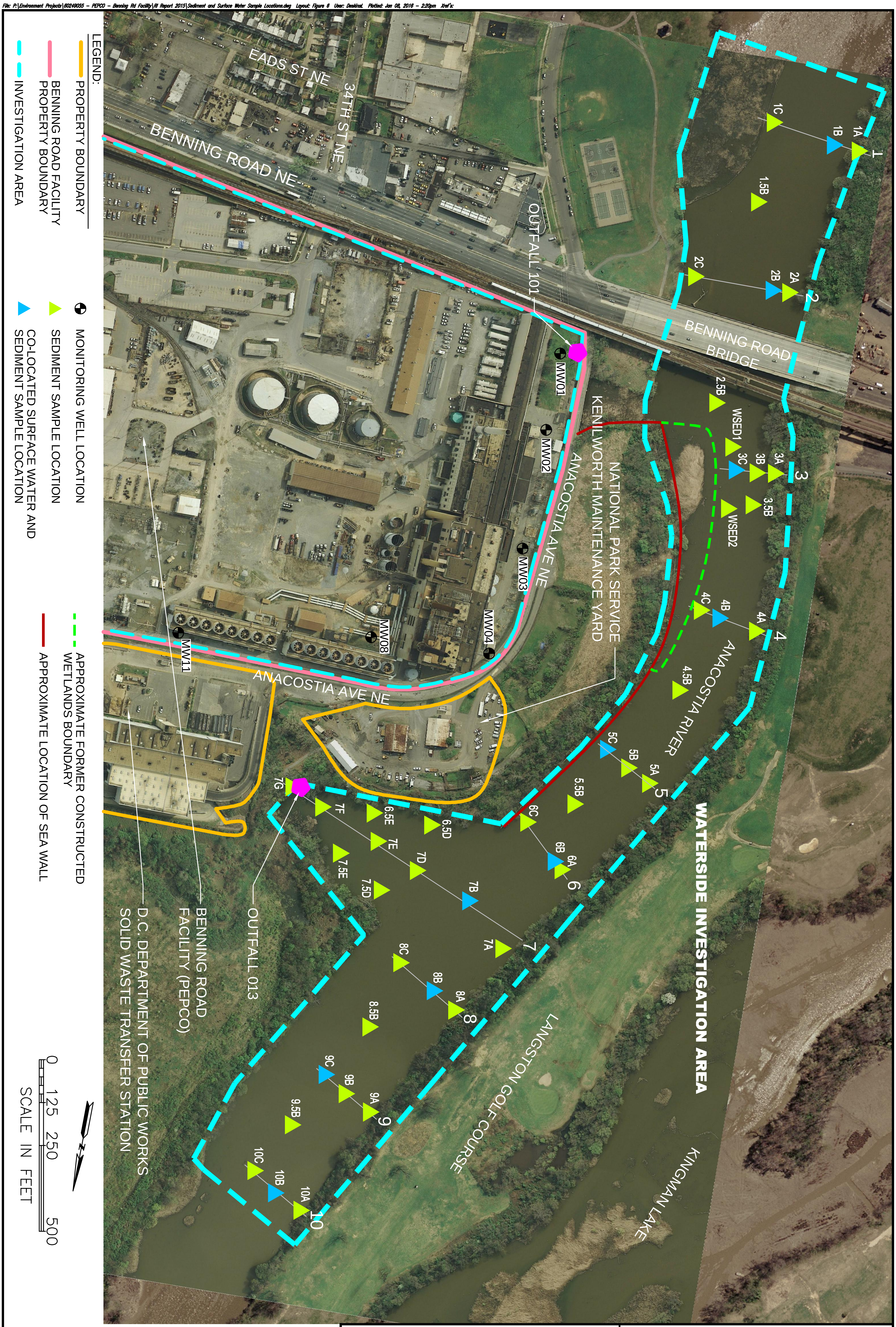
Conceptual Site Model of
Waterside Investigation Area
Ecological Risk Assessment

DATE: 4/27/2015
DRAWN BY: LDB
CHECKED BY: MW

FIGURE 5

M15002-a

File: P:\Environment Projects\60249055 - PEPCO - Benning Rd Facility\RI Report 2015\Sediment and Surface Water Sample Locations.dwg Layout: Figure 6 User: Deskinsl Plotted: Jan 08, 2016 - 2:20pm Xref's:



AECOM

Benning Road Facility RI/FS Project 3400 Benning Rd., NE Washington, DC 20019	Sediment, Surface Water, and Groundwater Sampling Locations in Waterside Investigation Area
DATE: 01/08/2016 DRAWN BY: LAD CHECKED BY: RD	FIGURE 6

J:\Indl_Service\Project Files\Pepco Benning Road RI_FS\GIS\MXD\2015\Background Sample Locations_031715.mxd

N
W E
S

Background Sample Locations
Pepco – Benning Road Facility
Washington, DC

0 0.5 1 2 Miles

Property Boundaries

Waterside Investigation Area

Benning Road Facility

Background Co-located Sediment and Surface Water Sample Location

AECOM

Figure 7

Summary of Upstream Maryland Area Fish Tissue Samples

Collection dates	Fish Species	Number of Composite Samples Per Species	Number of Individuals Per Composite Sample
Mainstem Anacostia River (ARBR)			
Sept 2007	Brown Bullhead	1	5
	Pumpkinseed Sunfish	1	5
May 2010	Blue Catfish	2	4
	Channel Catfish	1	5
	Carp	1	5
Northeast Branch Anacostia River (NEBAR)			
Sept 2003	Channel Catfish	3	4 - 5
	Redbreast Sunfish	2	5
Oct 2008	American Eel	1	3
	Redbreast Sunfish	1	5
	White Sucker	1	4
Northwest Branch Anacostia River (NWBAR)			
Sept 2003	American Eel	1	3
	Brown Bullhead	1	5
	Redbreast Sunfish	3	5
	White Sucker	1	4
	Yellow Bullhead	1	1

Summary of Upper Anacostia Sampling Area

Collection Date	Species	Number of Composite Samples Per Species	Number of Individuals Per Composite Sample
2013	Brown Bullhead	1	7
	Blue catfish	1	4
	Carp	1	3
	Channel Catfish	1	4
	Largemouth Bass	1	3
	Northern Snakehead	1	3
	Sunfish	1	8

Summary of Lower Anacostia Sampling Area

Collection Date	Species	Number of Composite Samples Per Species	Number of Individuals Per Composite Sample
2013	American Eel	1	4
	Blue catfish	1	4
	Carp	1	4
	Channel Catfish	1	4
	Largemouth Bass	1	4
	Sunfish	1	9

Fish Tissue Sampling Locations on the Anacostia River
Pepco – Benning Road Facility
Washington, DC

0 0.5 1 2 Miles

ARBR--Anacostia River, Mainstem
NEBAR--Anacostia River, Northeast Branch
NWBAR--Anacostia River, Northwest Branch

- Property Boundaries
- Waterside Investigation Area
- Benning Road Facility
- Upstream Locations (Maryland Department of Environment)
- Upper Anacostia River Sampling Area (US Fish and Wildlife Service)
- Lower Anacostia River Sampling Area (US Fish and Wildlife Service)

AECOM

Figure 8

N W E S

Lead Concentrations Detected in Surface Sediment in the Waterside Investigation Area
Pepco – Benning Road Facility
Washington, DC

0 250 500 1,000 Feet

Outfall

Waterside Investigation Area

Benning Road Facility

Lead (0-0.5 ft)

No exceedance

> Low Effect ESV (31 ppm)

> Probable Effect ESV (128 ppm)

AECOM

Figure 9

J:\Indl_Service\Project Files\Pepco Benning Road RI_FS\GIS\MXD\2015\anacostia_Pb_Surf_3122015.mxdd

N
W E
S

Nickel Concentrations Detected in Surface Sediment in the Waterside Investigation Area
Pepco – Benning Road Facility
Washington, DC

0 250 500 1,000 Feet

Outfall

Waterside Investigation Area

Benning Road Facility

Nickel (0-0.5 ft)

No exceedance

> Low Effect ESV (16 ppm)

> Probable Effect ESV (48.6 ppm)

AECOM

Figure 10

J:\Indl_Service\Project Files\Pepco Benning Road RI_FS\GIS\MXD\2015\anacostia_Ni_Surf_3122015.mxdd

Total PCB Aroclor Concentrations Detected in Surface Sediment in the Waterside Investigation Area
Pepco – Benning Road Facility
Washington, DC

0 250 500 1,000 Feet

Outfall
Waterside Investigation Area
Benning Road Facility

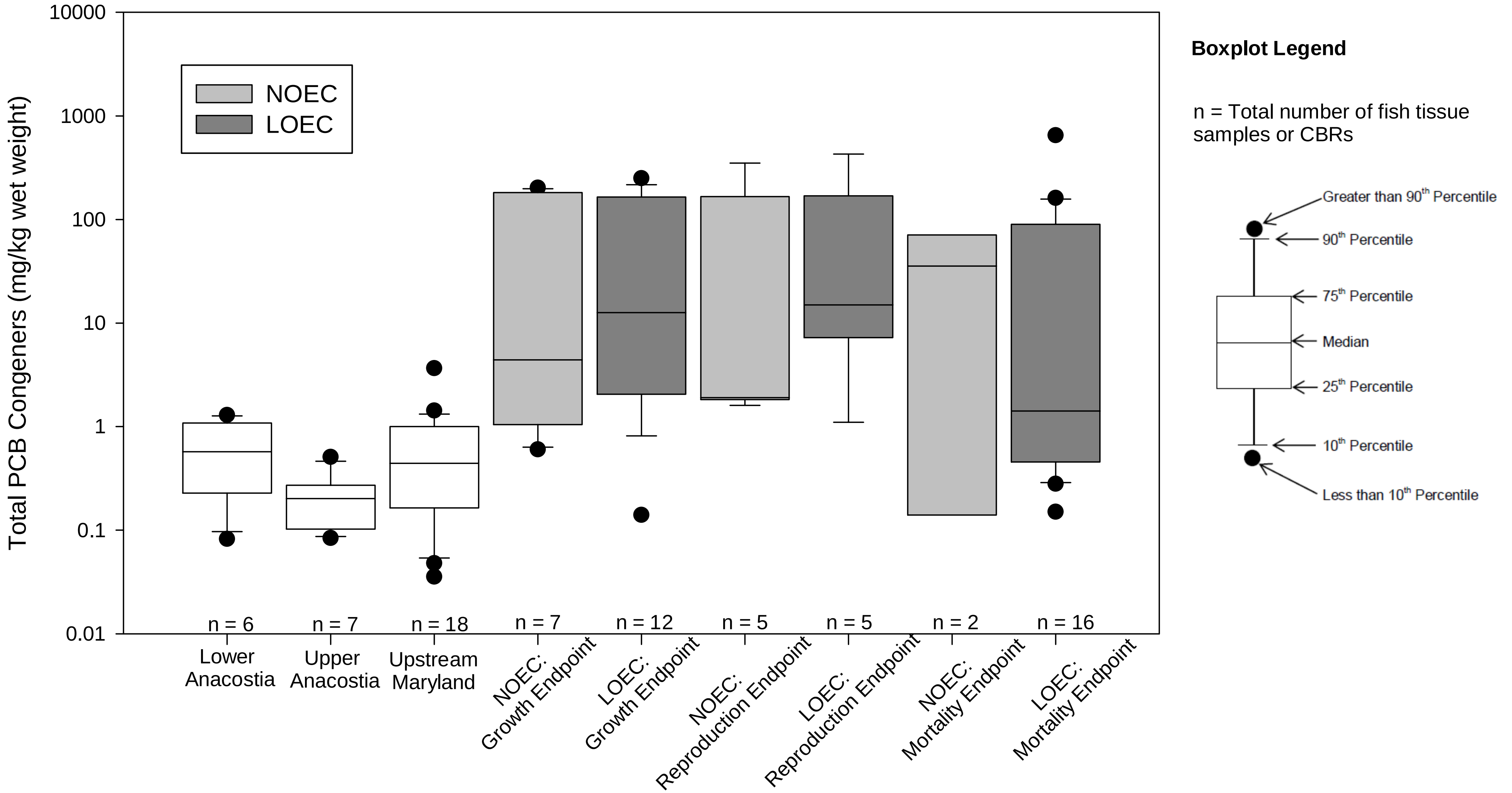
PCBs (0-0.5 ft)
No exceedance
> Low Effect ESV (0.031 ppm)
> Probable Effect ESV (0.676 ppm)

AECOM

Figure 11

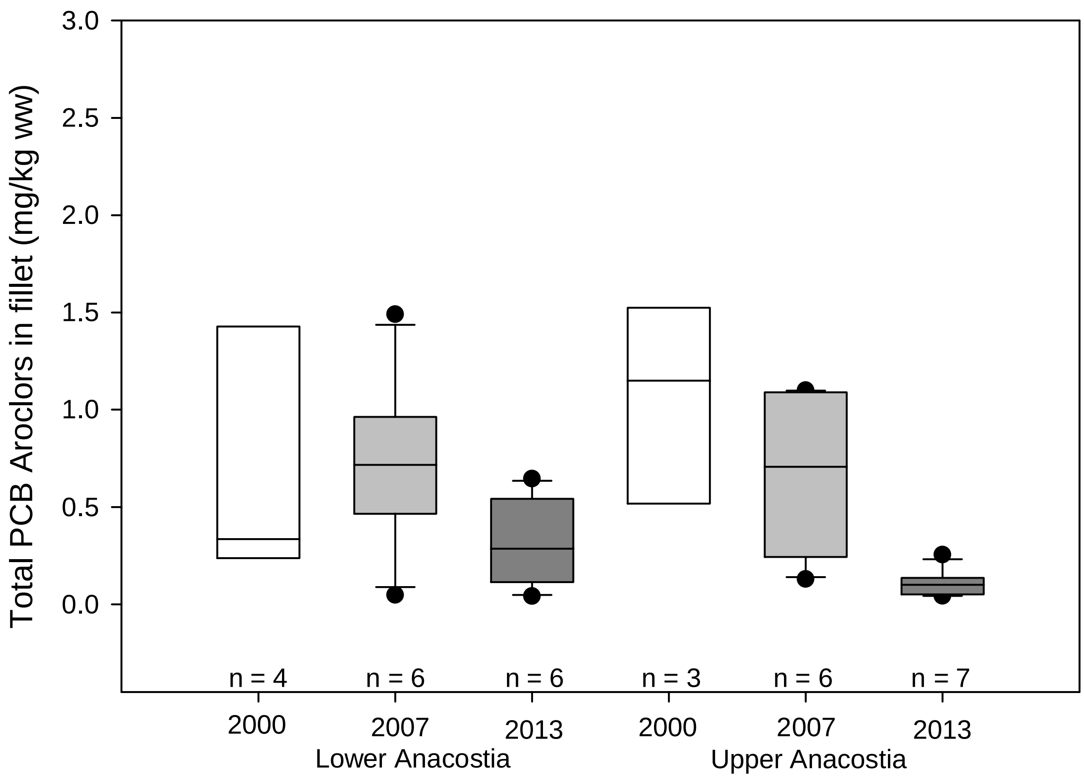
J:\Indl_Service\Project Files\Pepco Benning Road RI_FS\GIS\MXD\2015\anacostia_PCB_Surf_3122015.mxdd

Figure 12
Upper Anacostia, Lower Anacostia, and Upstream Total PCB Fish Tissue Concentrations Compared Against NOEC and LOEC CBRs
Benning Road Facility RI/FS Project
3400 Benning Rd, NE, Washington DC 20019



Notes:
All concentrations are whole body. No observed effect concentration (NOEC) and lowest observed effect concentration (LOEC) values for mortality/survival, growth, and reproduction based on whole body critical body residues (CBRs) presented in Attachment E. Estimated whole body fish tissue concentrations are presented in Tables 3-6 and 3-7.

Figure 13. Total PCBs Aroclors in Fish Tissue in the Upper and Lower Anacostia River Sampling Areas



Sources: Pinkney et al., 2001; Pinkney, 2009; Pinkney, 2014

A PHI Company

Attachment A

Documentation from December 2014 Ecological Site Assessment of the Waterside Investigation Area

Checklist for Ecological Assessment/Sampling

I. SITE DESCRIPTION

1. Site Name: Benning Road Facility

   Location: 3400 Benning Road, NE

   Washington, DC 20019

   County:__________ City:__________ State:__________

2. Latitude: 38 degrees 53'54.97" N Longitude: 76 degrees 57'43.23" W

3. What is the approximate area of the site? The Waterside Investigation Area is approximately 38 acres.

4. Is this the first site visit? ☐ yes ☒ no If no, attach trip report of previous site visit(s), if available.

   Date(s) of previous site visit(s): November 5-8 and November 11-15, 2013.

   A summary of wildlife observations made on the dates above are presented in Attachment 1.

5. Please attach to the checklist USGS topographic map(s) of the site, if available.

   See Figure 1 for a USGS topographic map of the site.

6. Are aerial or other site photographs available? ☒ yes ☐ no If yes, please attach any available photo(s) to the site map at the conclusion of this section.

   Aerial photos of the Waterside Investigation Area are presented on Figure 2. The Landside Investigation Area is also depicted on this figure; however, the focus of this Ecological Site Assessment is on the Waterside Area.

7. The land use on the site is:
(i.e., the Landside Investigation Area)

_____% Urban

_____% Rural

_____% Residential

_100_% Industrial (☒ light ☐ heavy)

_____% Agricultural

(Crops:______________________________)

_____% Recreational

(Describe; note if it is a park, etc.)

____

____

_____% Undisturbed

_____% Other

The area surrounding the site is:*
__1__ mile radius (of the Waterside Investigation Area.)

_50_% Urban

_____% Rural

_____% Residential

_35_% Industrial (☒ light ☐ heavy)

_____% Agricultural

(Crops:______________________________)

_15_% Recreational

(Describe; note if it is a park, etc.)

National Arboretum,
River Terrace National Park, Anacostia Park,
Kingman Island, Langston Golf Course

_____% Undisturbed

_____% Other

*Note that the percentages were estimated from Google Earth aerial photographs.

8. Has any movement of soil taken place at the site? ☒ yes ☐ no. If yes, please identify the most likely cause of this disturbance:

_____ Agricultural Use _X_ Heavy Equipment _____ Mining

_____ Natural Events _____ Erosion _____ Other

Please describe:

The power plant of the Benning Road Facility is currently being demolished. Therefore, the site is under construction and some soil has likely been disturbed related to this activity.
All activities have been issued permits by DDOE and DCRA (Dept of Consumer Regulatory Affairs).

9. Do any potentially sensitive environmental areas exist adjacent to or in proximity to the site, e.g., Federal and State parks, National and State monuments, wetlands, prairie potholes? *Remember, flood plains and wetlands are not always obvious; do not answer "no" without confirming information.*

Two patches of Anacostia River Restored Fringe Wetlands are present on the eastern shoreline (on right looking upstream): one at the southern end of the Site and one just north of the Benning Road Bridge. Anacostia Park, operated by the National Park Service, is located just north of the Site. The Anacostia Riverwalk Trail borders the southern end of the Site along the eastern shoreline.

Please provide the source(s) of information used to identify these sensitive areas, and indicate their general location on the site map.

The two wetland areas (labeled "Emergent Wetlands") and parks and trails are illustrated on Figure 2 .

10. What type of facility is located at the site?

☐ Chemical ☐ Manufacturing ☐ Mixing ☐ Waste disposal

☒ Other (specify) The Benning Service Center involves activities related to construction, operation and maintenance of Pepco's electric power transmission and distribution system serving the Washington, DC area.

11. What are the suspected contaminants of concern at the site? If known, what are the maximum concentration levels?

The suspected contaminants of concern at the Site include polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and metals. The Remedial Investigation will identify contaminants of concern at the site and the concentrations at which they are present.

12. Check any potential routes of off-site migration of contaminants observed at the site: Routes of migration to the Waterside Investigation Area.

☐ Swales ☐ Depressions ☐ Drainage ditches

☒ Runoff ☐ Windblown particulates ☐ Vehicular traffic

☒ Other (specify) Outfalls 101 and 013

13. If known, what is the approximate depth to the water table? The depth to the water table varies with tidal fluctuations but on average is approximately 15 ft.

14. Is the direction of surface runoff apparent from site observations? ☒ yes ☐ no If yes, to which of the following does the surface runoff discharge? Indicate all that apply.

☐ Surface water ☐ Groundwater ☒ Sewer ☐ Collection impoundment

Outfalls 101 and 013

15. Is there a navigable waterbody or tributary to a navigable waterbody? ☒ yes ☐ no

The Waterside Investigation Area is on the Anacostia River.

16. Is there a waterbody anywhere on or in the vicinity of the site? If yes, also complete Section III: Aquatic Habitat Checklist -- Non-Flowing Systems and/or Section IV: Aquatic Habitat Checklist -- Flowing Systems.

☒ yes (approx. distance 200-400 ft) ☐ no

This is the approximate distance from the Landside Investigation Area to the Waterside Investigation Area on the Anacostia River.

17. Is there evidence of flooding? ☒ yes ☐ no *Wetlands and flood plains are not always obvious; do not answer "no" without confirming information.* If yes, complete Section V: Wetland Habitat Checklist.

There is some evidence of minor flooding along the shoreline of the Waterside Investigation Area, including watermarks and debris in shoreline vegetation.

18. If a field guide was used to aid any of the identifications, please provide a reference. Also, estimate the time spent identifying fauna. [Use a blank sheet if additional space is needed for text.]

The Cornell Lab of Ornithology online bird guide (http://www.allaboutbirds.org/guide) was consulted for the identification of scientific names for birds observed.
The site visit was conducted in about 2 hours. Birds were observed during this time and identified upon observation.

19. Are any threatened and/or endangered species (plant or animal) known to inhabit the area of the site? ☐ yes ☐ no *If yes, you are required to verify this information with the U.S. Fish and Wildlife Service.* If species' identities are known, please list them next.

Letters requesting information on the presence of threatened and/or endangered species present at the Site were submitted to the DC Department of Environment, US Fish and Wildlife Service, and NOAA NMFS.

20. Record weather conditions at the time this checklist was prepared:

DATE: December 17, 2014

50 F Temperature (°C/°F) 45 F Normal daily high temperature

SE 14 mph Wind (direction/speed) None Precipitation (rain, snow)

None Cloud cover

IA. SUMMARY OF OBSERVATIONS AND SITE SETTING

The Waterside Investigation Area was viewed from several locations along the eastern shoreline (on right side looking upstream). The western shoreline is located within a golf course and the river shoreline did not appear to be easily accessible. Several photos of both shorelines were taken during the site visit. The majority of photos were taken on at the southern end of the site where the Benning Bridge provided a viewpoint of both shorelines looking upstream and downstream.

Starting at the southern end of the Waterside Investigation Area, two patches of emergent wetland vegetation (approximately 2,000 and 10,000 square feet in area) were observed along the eastern shoreline. A sign on the shoreline indicated that these patches are part of the Anacostia River Fringe Wetlands Restoration. The dominant vegetation of these patches are *Phragmites australis* and *Typha* sp. Both wetlands had sheet pile bulkhead surrounding the areas with some opening for surface water movement between the wetlands and the river. This site visit occurred during low tide and several mudflat areas were exposed throughout the river and long the eastern shoreline. Wetland areas and mudflats are presented in attached photos.

Most of the eastern shoreline were stabilized with either sheet pile or rockwall. Riparian vegetation consisted of large trees and shrubs, which occurred dense in some areas and sparse in other areas. Tree species included maple, oak, and sycamore. The bank slope ranged from gradual to shallow slope to the river edge. The western shoreline was observed to be uniformly stabilized with a continous rock wall with dense tree cover throughout. The bank appeared steeply sloped in some areas.

A view of the river near Outfall 013 was obtained from the Solid Waste Transfer Station. Mudflats were exposed in this area along the eastern shoreline and some small patches of *Phragmites*. The shoreline was gradual in slope with little bank stabilization. The western shoreline was densely forested with a more steep shoreline.

Because the ecological risk assessment is only evaluating risks within the Waterside Investigation Area, this site assessment focused on this area. Therefore, the Terrestrial Checklist was not completed.

Completed by Maryann Welsch Affiliation AECOM

Additional Preparers ____________

Site Manager Ravi Damera, AECOM

Date Dec. 17, 2014

IV. AQUATIC HABITAT CHECKLIST -- FLOWING SYSTEMS

Note: *Aquatic systems are often associated with wetland habitats. Please refer to Section V, Wetland Habitat Checklist.*

1. What type(s) of flowing water system(s) is (are) present at the site?

☒ River	☐ Stream	☐ Creek
☐ Dry wash	☐ Arroyo	☐ Brook
☐ Artificially created (ditch, etc.)	☐ Intermittent Stream	☐ Channeling
	☐ Other (specify)____________________	

2. If known, what is the name of the waterbody? Anacostia River

3. For natural systems, are there any indicators of physical alteration (e.g., channeling, debris, etc.)?
☒ yes ☐ no If yes, please describe indicators that were observed.

There is evidence of bank stabilization, channelization, and there is trash and debris in the river.

4. What is the general composition of the substrate? Check all that apply.

☐ Bedrock	☒ Sand (coarse)	☒ Muck (fine/black)
☐ Boulder (>10 in.)	☐ Silt (fine)	☒ Debris
☒ Cobble (2.5-10 in.)	☐ Marl (shells)	☒ Detritus
☐ Gravel (0.1-2.5 in.)	☒ Clay (slick)	☒ Concrete
☐ Other (specify)____________________		

5. What is the condition of the bank (e.g., height, slope, extent of vegetative cover)?
On the east shoreline (looking upriver), the bank is stabilized with stone walls or sheet pile in many areas. However, there are some sections of the shoreline that are not stabilized, but shallow sloping to the river. The height of the bank above the river is approximately 5 feet on average. Trees and shrubs cover much of the shoreline, densely in some areas and sparsely in others. Overhanging vegetation is present. On the west shoreline, the bank was uniformly stabilized with a stone wall of approximately 4 feet in height, with dense tree cover and overhanging vegetation.

6. Is the system influenced by tides? ☒ yes ☐ no What information was used to make this determination?

The Lower Anacostia River is tidally influenced and has an exchange of approximately two to four feet. On Dec 17, 2014, the water level was at 0.4 ft relative to mean low low water (MLLW) and it was noted that it was low tide.

7. Is the flow intermittent? ☐ yes ☒ no If yes, please note the information that was used in making this determination.

8. Is there a discharge from the site to the waterbody? ☒ yes ☐ no If yes, please describe the discharge and its path.

There are two outfalls that discharge to the Anacostia River: outfalls 101 and 013 (Figure 2).

9. Is there a discharge from the waterbody? ☒ yes ☐ no If yes, and the information is available, please identify what the waterbody discharges to and whether the discharge is on site or off site.

No discharges from the waterbody were apparent on Dec. 17, 2014; however, evidence of flooding were apparent along the shoreline, including debris in shoreline vegetation and watermarks.

Because the Anacostia is tidally influenced, it appears groundwater can discharge to the site from the river during periods of low tides, based on data collected from monitoring wells in the Landside Investigation Area.

10. Identify any field measurements and observations of water quality that were made. For those parameters for which data were collected, provide the measurement and the units of measure in the appropriate space below:

_____ Width (ft.)

_____ Depth (ft.)

_____ Velocity (specify units):________________________

_____ Temperature (depth of the water at which the reading was taken________________)

_____ pH

_____ Dissolved oxygen

_____ Salinity

_____ Turbidity (clear, slightly turbid, turbid, opaque)
(Secchi disk depth _______________)

_____ Other (specify)_______________________________________

The above water quality parameters were measured *in situ* at the ten locations where surface water samples for chemical analyses were collected. Please see Table 1 for a summary of these water quality observations.

11. Describe observed color and area of coloration.

The surface water of the Anacostia River appeared blue-brown and slightly turbid in areas. Some standing water within the wetland areas was observed, likely stranded during the low tide, and appeared to be brownish with a metallic sheen on the top in some areas.

12. Is any aquatic vegetation present? ☒ yes ☐ no If yes, please identify the type of vegetation present, if known.

☒ Emergent ☐ Submergent ☐ Floating

13. Mark the flowing water system on the attached site map.

The Anacostia River is labeled on Figures 1 and 2.

14. What observations were made at the waterbody regarding the presence and/or absence of benthic macroinvertebrates, fish, birds, mammals, etc.?

Several bird species were observed on the water and on mudflats in the river including:
- Mallards (*Anas platyrhynchos*)
- Species of gulls (*Laridae* family)
- Canada Geese (*Branta canadensis*)
- Belted kingfisher (*Megaceryle alcyon*)

The kingfisher was observed on a nest platform adjacent to one of the wetland areas.

It was noted that a full list of birds present in the District of Columbia is published by Maryland / District of Columbia Records Committee of the Maryland Ornithological Society, which is available at: http://www.mdbirds.org/mddcrc/pdf/dclist.pdf.

V. WETLAND HABITAT CHECKLIST

1. Based on observations and/or available information, are designated or known wetlands definitely present at the site?
   ☒ yes ☐ no

   Please note the sources of observations and information used (e.g., USGS Topographic Maps, National Wetland Inventory, Federal or State Agency, etc.) to make this determination.

   Two large patches of emergent vegetation were observed along the eastern shoreline of the Waterside Investigation Area. See attached photos for examples of this vegetation. The areas are part of the Anacostia River Fringe Wetlands that were restored along the shoreline of this section of the river by the USACE and DDOE on land owned by NPS (DDOE 2009 [see citation at foot of this page]).

2. Based on the location of the site (e.g., along a waterbody, in a floodplain) and site conditions (e.g., standing water; dark, wet soils; mud cracks; debris line; water marks), are wetland habitats suspected?
   ☒ yes ☐ no If yes, proceed with the remainder of the wetland habitat identification checklist.

3. What type(s) of vegetation are present in the wetland?

   ☐ Submergent ☒ Emergent
   ☐ Scrub/Shrub ☐ Wooded

   ☐ Other (specify)____________________

4. Provide a general description of the vegetation present in and around the wetland (height, color, etc.). Provide a photograph of the known or suspected wetlands, if available.

   The dominant species of emergent wetland vegetation present are *Phragmites australis* and *Typha* sp.

5. Is standing water present? ☐ yes ☒ no If yes, is this water: ☐ Fresh ☐ Brackish
   What is the approximate area of the water (sq. ft.)?____________________
   Please complete questions 4, 11, 12 in Checklist III - Aquatic Habitat -- Non-Flowing Systems.
   Standing water was observed near the shoreline within the emergent wetlands and is likely river water that is stranded at low tide. The area of standing water varied with location and likely varies with tidal height. The area of standing water observed for this assessment ranged from 10 to 25 square feet. It was noted that the water would not be standing in these areas during high tide. Therefore, these areas are not considered to be true non-flowing systems.

6. Is there evidence of flooding at the site? What observations were noted?

   ☐ Buttressing ☒ Water marks ☐ Mud cracks

   ☒ Debris line ☐ Other (describe below)

   In the restored wetland areas, watermarks and debris lines were apparent on the vegetation present.

District Department of the Environment (DDOE). 2009. Anacostia River Fringe Wetlands Restoration Project. Washington, DC. January 2009.

7. If known, what is the source of the water in the wetland?

☒ Stream/River/Creek/Lake/Pond ☐ Groundwater

☐ Flooding ☐ Surface Runoff

The Anacostia River is the source of water to the wetlands.

8. Is there a discharge from the site to a known or suspected wetland? ☐ yes ☒ no If yes, please describe.

9. Is there a discharge from the wetland? ☒ yes ☐ no. If yes, to what waterbody is discharge released?

☒ Surface Stream/River ☐ Groundwater ☐ Lake/Pond ☐ Marine

Surface water moves between the Anacostia River and the wetlands and the direction of water movement depends on the tidal height.

10. If a soil sample was collected, describe the appearance of the soil in the wetland area. Circle or write in the best response. A soil sample was not collected in the wetland area.

Color (blue/gray, brown, black, mottled) ____

Water content (dry, wet, saturated/unsaturated) __________________________

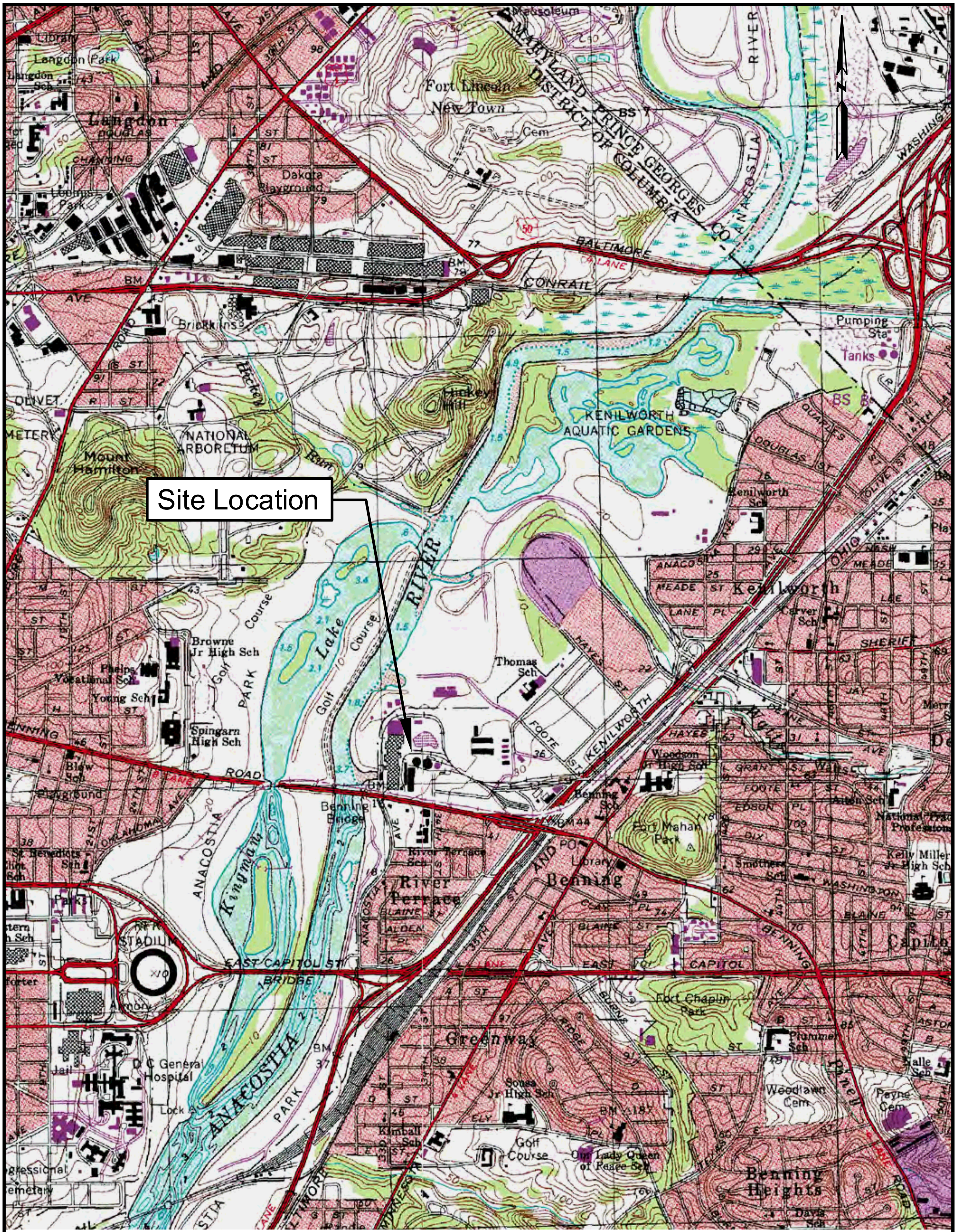
11. Mark the observed wetland area(s) on the attached site map.

The approximate boundaries of the wetland areas are presented on Figure 2.

Table 1
Surface Water Quality Field Parameter Summary
Ecological Risk Assessment
Benning Road Remedial Investigation

Field Parameter	Units	Minimum	Mean	Maximum
CONDUCTIVITY	ms/cm	0.198	0.23	0.263
DISSOLVED OXYGEN	mg/l	3.35	3.656	3.97
OXIDATION-REDUCTION POTENTIAL	mV	7.6	55.05	98.6
pH	--	6.52	6.728	6.93
SALINITY	ppt	0.09	0.11	0.13
TEMPERATURE	deg F	65.62	67.233	68.2
TURBIDITY	NTU	0	10.97	24.9

Notes:
deg F - Degrees Fahrenheit.
mg/L - Milligrams per liter.
mS/cm - Microsiemens per centimeter.
mV - Millivolts.
NTU - Nephelometric Turbidity Units.
ppt - Parts per trillion.
Field parameters were measured at the ten sample locations in the Waterside Investigation Area where surface water was collected for chemical analyses.



AECOM

Source:
USGS 7.5 Minute Topographic Map
Washington East Quadrangle

0 1000 2000 4000
SCALE IN FEET

Benning Road Facility RI/FS Project 3400 Benning Rd., NE Washington, DC 20019	Site Location Map

DATE: 07/09/2012	DRAWN BY: LAD	CHECKED BY: RD	FIGURE 1

LEGEND:
- PROPOSED INVESTIGATION AREA
- BENNING ROAD FACILITY PROPERTY BOUNDARY
- PROPERTY BOUNDARY
- EMERGENT WETLANDS

0 100 200 400
SCALE IN FEET

AECOM

Benning Road Facility RI/FS Project
3400 Benning Rd., NE
Washington, DC 20019

Site Plan
And Investigation Areas

DATE: 12/27/2014	DRAWN: LAD	CHECKED BY: RD		FIGURE 2

Photo 1. The Anacostia River Fringe Wetland Restoration sign on the Anacostia Riverwalk Trail.

Photo 2. Emergent wetland vegetation in the restored Fringe wetland on the eastern shoreline.

Photo 3. The shoreline along the Anacostia Riverwalk Trail.

Photo 4. Sheet pile surrounding the Fringe wetland on the eastern shoreline.

Photo 5. Standing water observed in the emergent wetland vegetation on eastern shoreline.

Photo 6. A view of the river from the Benning Bridge looking south (downstream). A large mudflat is in the foreground and the restored Fringe Wetland is in the background.

Photo 7. Several aquatic birds were observed including gulls, ducks, and geese.

Photo 8. A large mudflat under the Benning Bridge, looking north (upstream).

Photo 9. A smaller patch of restored Fringe Wetland on the eastern shoreline looking north from the Benning Bridge.

Photo 10. The steep western shoreline with dense tree cover viewed from the Benning Bridge.

Photo 11. The mudflat at Outfall 013.

Attachment 1

Wildlife Observations

Pepco – Benning Road
Waterside Investigation Area
November 5-8, 11-15, 2013

Bird species observed:

- Throughout entire investigation at multiple locations
    - Canada geese (*Branta canadensis*)
    - Mallard ducks (*Anas platyrhynchos*)
    - Seagulls (*Laridae* sp.)
    - Blue herons (*Ardea herodias*)
    - Cormorants (*Phalacrocorax auritus)*
- Only during first week
    - Single bald eagle (*Haliaeetus leucocephalus*) (near National Arboretum)
    - Bufflehead ducks (*Bucephala albeola*) (northern half of area between landing and dock)
    - Single white heron or egret (*Ardea* sp.) (near bridge by field base)

Aquatic species found in Ponar grabs:

- Freshwater bivalves (multiple locations throughout both weeks)
- Freshwater eel (elver), approximately 7" (first week, single location)

Deer:
Observed throughout both weeks. Three or four mature male sightings. Observed one instance of mating along mudflats, approximately halfway between marina and field base.

pepco
A PHI Company

Attachment B

Agency Responses on Presence of Listed or Sensitive Species

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

JAN -7 2015

Maryann Welsch
AECOM
250 Apollo Drive
Chelmsford, MA 01824-3627

Re: Request for Information at Potomac Electric Power Company's Benning Road Facility

…ceived your letter on December 30, 2014, regarding a Remedial Investigation and Feasibility Study at Potomac Electric Power Company's Benning Road facility, on the Anacostia River in Washington, D.C. In your letter, you requested information on the presence of threatened and endangered species and critical habitat listed under the jurisdiction of NOAA's National Marine Fisheries Service (NMFS).

After reviewing the study area, we have concluded that no federally listed or proposed threatened or endangered species under our jurisdiction exist in the vicinity of your proposed project, and thus no direct or indirect effects will occur. Should project plans change or new information become available that changes the basis for this determination, further coordination should be pursued. If you have any questions regarding these comments, please contact Ainsley Smith (978-281-9291; Ainsley.Smith@noaa.gov).

NMFS' Habitat Conservation Division (HCD) is responsible for overseeing issues related to Essential Fish Habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act and other NOAA trust resources under the Fish and Wildlife Coordination Act. If you have any questions regarding EFH, please contact Kristy Beard (410-573-4542; Kristy.Beard@noaa.gov).

Sincerely,

for Kim Damon-Randall
Assistant Regional Administrator for
Protected Resources

EC: Smith, PRD, Beard, HCD
File Code: FERC\ Tech Assistance\Pepco_BenningRoad

GOVERNMENT OF THE DISTRICT OF COLUMBIA

District Department of the Environment

January 12, 2015

AECOM
Attn. Maryann Welsch
250 Apollo Drive
Chelmsford, MA 01824

Re: Pepco Remedial Investigation and Feasibility Study

Dear Ms. Welsch:

The District Department of the Environment (DDOE or the Agency) has reviewed AECOM's request for information regarding the presence of rare, threatened, and endangered species that may be adversely affected by its Pepco Remedial Investigation and Feasibility Study. The response to this request is written below. Please be advised that this response is not an assessment of potential impacts.

In response to AECOM's request DDOE finds that according to current observations, surveys, and data derived from the District's *Wildlife Action Plan*, a 335 page document written by DDOE biologists that is accepted by the United States Fish and Wildlife Service as the District's blueprint for species conservation, the proposed project area does not harbor any species listed by the federal Endangered Species Act (ESA), any species classified by NatureServe as G1 (critically imperiled), any species classified by NatureServe as G2 (imperiled), nor any ecologically sensitive communities. However, the site should be monitored for the entirety of the project. Should any of the aforementioned parameters regarding the presence of rare, threatened, or endangered species change, please notify DDOE immediately. Additionally, unless otherwise permitted by law, all District of Columbia and federal laws pertaining to fish and wildlife shall remain in effect for the duration of the project.

Finally, this correspondence in no way circumvents or nullifies any other permits or processes that may be required in connection with this project.

For more information please contact me by phone at (202) 997-9607 or via email at bryan.king@dc.gov.

Sincerely,

Bryan D. King
Associate Director

DISTRICT DEPARTMENT OF THE ENVIRONMENT green forward

1200 First St. NE, 5th Floor, Washington, DC 20002 | tel: 202.535.2600 | web:ddoe.dc.gov

A PHI Company

Attachment C

Analytical Data Considered in the ERA

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg	8.1E-07	J			4.21E-05		5.02E-05			
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg	1.54E-07	U			8.83E-06	JN	9.21E-06	JN		
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg	1.92E-07	U			7.05E-07	J	6.76E-07	J		
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg	1.48E-07	U			8.96E-07	JN	1.06E-06	J		
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg	9.09E-08	U			1.25E-06	JN	1.34E-06	J		
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg	1.51E-07	U			1.95E-06	J	1.88E-06	J		
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg	8.18E-08	U			2.14E-06	JN	2.18E-06	JN		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg	1.4E-07	U			2.2E-06	J	2.62E-06	J		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg	9.41E-08	U			1.01E-07	JN	1.33E-07	JN		
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg	1.41E-07	U			5.12E-07	J	9.71E-07	JN		
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg	1.16E-07	U			3.75E-07	JN	2.81E-07	JN		
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg	8.64E-08	U			6.26E-07	JN	1.07E-06	J		
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg	1.03E-07	U			8.71E-07	J	8.47E-07	JN		
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg	3.19E-07	U			1.28E-07	JN	1.76E-07	JN		
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg	1.79E-07	U			6.47E-07	JN	5.81E-07	J		
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg	3.51E-05				0.0012		0.00132			
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg	1.33E-07	U			1.51E-05	JN	1.62E-05			
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg	4.32E-09				3.15E-06		3.69E-06			
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg	4.32E-09				2.29E-06		2.94E-06			
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg	1.86E-08				2.77E-06		3.5E-06			
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg	1.63E-06	J			9.27E-05		0.000116			
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg	1.72E-07	U			2.21E-05	JN	2.37E-05	JN		
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg	1.46E-07	U			1.96E-05	JN	2.15E-05	JN		
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg	8.79E-08	U			3.27E-05	JN	3.9E-05	JN		
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg	1.41E-07	U			3.5E-05	JN	7.49E-06	JN		
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg	1.09E-07	U			5.21E-05	JN	5.33E-05	JN		
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg	3.19E-07	U			4.1E-06	JN	3.92E-06	JN		
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg	1.79E-07	U			7.69E-05	JN	8.71E-05	JN		
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg	1.86E-08				2.77E-06		3.5E-06			
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	270	J	14000		13000		12000		6900	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.051	J	0.74	J-	0.7	J-	0.66	J-	0.88	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	0.25	J-	5.3	J-	4.6	J-	4.2	J-	3.6	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	2.5		150		130		120		88	
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	0.1		2		1.7		1.6		0.82	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.015	J	1.5		1.4		1.2		0.7	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	600	J	3300	J	3300	J	3100	J	7000	J
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	3.7	J-	62	J	56	J	51	J	31	J
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	1.4		27		24		22		17	
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	2.7	J-	94	J	88	J	83	J	160	J
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	2900		39000	J	34000	J	32000	J	20000	J
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	2.1	J-	120		110		100		170	

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	440	J	3900		4000		3700		3600	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	33	J-	680		470		440		280	
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.015	U	0.36	J+	0.32	J+	0.31	J+	0.096	J+
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	5.7	J-	50	J	46	J	42	J	33	J
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	32		1400		1400		1300		760	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	0.29	U	1.8	J-	1.6	J-	1.5	J-	0.84	J-
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.0062	J	0.83		0.61		0.56		0.43	
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	24		190		180		170		140	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.058	U	0.32		0.28		0.26		0.17	
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	1.7	J	52	J	43	J	41	J	24	J
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	9	J-	340	J	340	J	310	J	210	J
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.002	J	0.013	J	0.012	J	0.012	J	0.0085	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	6.7E-05	J	0.0092	J	0.0082	J	0.0081	J	0.0048	J
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.026		0.52	J	0.42	J	0.44	J	0.26	J
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.013		0.88	J	0.87	J	0.85	J	1.9	J
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.0055		0.38	J	0.34	J	0.34	J	0.31	J
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	7.2E-05	U	0.00016	J	0.00013	J	0.00013	J	3.5E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.026		0.42	J	0.37	J	0.37	J	0.53	J
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.0013	U	0.002	J	0.0012	J	0.0016	J	0.005	J
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	0.54	UJ	3.7	J	1.8	J	1.5	J	0.27	J
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	1700		46000		47000		47000		28000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	0.12		3.8	J	3.7	J	3.6	J	3.2	J
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg	3.4E-05	J			0.0051	J	0.0048	J		
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg	0.00024	U			0.012		0.011			
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg	0.00024	U			0.0063	J	0.0058	J		
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg	0.00024	U			0.0005	J	0.00041	J		
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg	0.00024	U			0.0012	U	0.0012	U		
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.0048	U	0.013	U	0.011	U	0.012	U	0.008	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.0048	U	0.013	U	0.011	U	0.012	U	0.008	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.0048	U	0.013	U	0.011	U	0.012	U	0.008	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.0048	U	0.013	U	0.011	U	0.012	U	0.008	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.0048	U	0.12	J	0.16	J	0.19	J	0.078	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.0048	U	0.013	U	0.011	U	0.012	U	0.008	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.0048	U	0.067	J	0.082	J	0.071	J	0.039	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.0048	U	0.013	U	0.011	U	0.012	U	0.008	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.0048	U	0.013	U	0.011	U	0.012	U	0.008	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg	0.00024	U			0.0012	U	0.00087	J		
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg	0.00015	J			0.0091	J	0.013			
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg			0.00225							
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg	0.00024	U			0.0006	J	0.00057	J		
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg			0.0106	JN						
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg	5.6E-05	J			0.0018	J	0.0016	J		
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg	0.00024	U			0.0012	U	0.0012	U		

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg	0.00024	U			0.0008	J	0.00078	J		
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg	0.00024	U			0.0012	J	0.00015	J		
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg	0.00024	U			0.0031	J	0.0027	J		
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg	0.00024	U			0.0014		0.0011	J		
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg	0.00024	U			0.0034	J	0.0034	J		
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg	0.00024	U			0.00028	J	0.0012	U		
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg	0.00024	U			0.0019	J	0.0014	J		
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg	0.00024	U			0.00066	J	0.00062	J		
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg			0.159	JN						
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg			0.269	JN						
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg	0.00048	U			0.018	J	0.019	J		
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg			0.00117							
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg			0.00475							
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg			0.0421	JN						
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg			0.000129							
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg			2.58E-05							
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg			1							
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.0048	U	0.19		0.24		0.26		0.12	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.0048	U	0.19		0.24		0.26		0.12	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg			0.000513							
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg			0.000157	J						
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg			0.000276	JN						
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg			0.0384							
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg			0.00104	JN						
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg			0.000362							
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg			2.27E-05	U						
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg			0.00846							
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg			2.51E-05	U						
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg			0.00264							
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg			0.00142							
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg			0.0222							
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg			0.000336	JN						
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg			0.0394							
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg			4.92E-05	JN						
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg			2.32E-05	U						
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg			0.0384							
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg			0.000836							
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg			0.0394							
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg			0.00584							
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg			0.00584							
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg			0.0333							
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg			0.0222							
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg			0.000527	JN						

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg			0.000104	JN						
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg			2.21E-05	U						
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg			0.000555	JN						
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg			0.000738							
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg			0.00142							
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg			0.0222							
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg			0.000166	J						
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg			4.62E-05	J						
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg			0.00663							
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg			0.0594							
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg			0.000527	JN						
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg			0.00303							
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg			0.000768							
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg			0.0185							
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg			0.000909							
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg			0.00297							
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg			0.0221							
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg			0.00742							
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg			0.00182							
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg			0.0594							
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg			0.000781							
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg			1.34E-05	JN						
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg			0.000781							
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg			0.013							
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg			5.47E-05	U						
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg			0.00297							
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg			0.00316							
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg			2.82E-05	U						
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg			0.00837							
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg			0.0487							
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg			3.94E-05	U						
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg			0.0487							
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg			0.00356							
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg			8.58E-05	J						
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg			0.0221							
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg			2.8E-05	U						
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg			0.0537							
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg			0.000461							
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg			2.67E-05	U						
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg			0.00521							
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg			0.00521							
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg			0.00542							
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg			0.000748							

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg			0.00445							
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg			0.0594							
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg			3.62E-05	U						
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg			0.000107	JN						
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg			0.0594							
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg			0.00401							
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg			4.17E-05	JN						
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg			0.00663							
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg			0.0018							
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg			0.0537							
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg			0.000247	JN						
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg			0.00516							
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg			0.019							
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg			0.00569							
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg			0.00335							
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg			0.00569							
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg			0.0196							
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg			0.000832							
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg			0.00246							
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg			0.0107							
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg			0.00376							
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg			0.00869							
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg			0.0111							
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg			0.0419							
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg			0.000141	JN						
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg			0.000111	J						
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg			0.014							
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg			2.99E-05	U						
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg			0.014							
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg			2.9E-05	U						
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg			0.0231							
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg			2.48E-05	U						
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg			0.000771							
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg			0.00134							
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg			0.00358							
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg			0.000831							
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg			3.08E-05	U						
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg			0.0419							
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg			0.0107							
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg			0.00443							
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg			0.00496							
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg			0.000362	JN						
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg			0.0105							

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg			0.0105							
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg			0.000141	J						
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg			0.0242							
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg			0.00124							
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg			0.00127							
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg			0.00185							
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg			0.00619							
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg			1.94E-05	U						
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg			0.00055							
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg			0.00338							
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg			0.000471							
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg			0.000901							
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg			0.00746							
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg			0.00527							
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg			2E-05	U						
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg			0.000218	J						
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg			0.00137							
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg			0.00313							
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg			0.000924							
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg			0.0242							
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg			0.00313							
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg			0.000519							
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg			0.0111							
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg			0.0172							
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg			0.00458							
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg			0.00746							
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg			0.000122	JN						
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg			0.000268							
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg			1.95E-05	U						
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg			0.00649							
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg			3.32E-05	JN						
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg			0.000189	J						
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg			0.00143							
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg			0.0119							
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg			0.0119							
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg			0.00579							
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg			0.000906							
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg			0.0226							
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg			0.00408							
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg			0.00151							
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg			0.0226							
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg			0.00479							
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg			0.014							

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg			5.71E-05	JN						
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg			0.00316							
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg			0.00408							
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg			0.0287							
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg			0.00316							
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg			2.61E-05	U						
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg			0.000422	JN						
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg			0.00946							
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg			0.000137	J						
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg			7.36E-05	JN						
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg			0.00219							
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg			0.000719	JN						
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg			0.00201							
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg			0.0387							
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg			0.00219							
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg			0.000912	JN						
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg			0.00956							
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg			0.0226							
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg			0.0242							
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg			0.00067							
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg			0.000155	JN						
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg			0.014							
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg			0.00021	JN						
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg			0.0387							
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg			0.0119							
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg			0.000254	J						
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg			0.000906							
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg			0.0387							
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg			0.00219							
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg			0.0387							
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg			0.00199							
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg			3.86E-05	J						
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg			0.000285	JN						
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg			0.00337							
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg			1.66E-05	U						
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg			0.000109	J						
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg			0.00451							
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg			0.0184							
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg			0.00839							
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg			0.00584							
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg			0.0222							
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg			0.0222							
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg			0.00446							

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg			0.000431	JN						
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg			0.000235	JN						
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg			0.0384							
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg			0.00446							
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg			0.00636							
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg			0.000276	JN						
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg			0.000197	J						
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg			0.03							
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg			0.000227	J						
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg			0.0222							
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg			0.00104	JN						
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg			0.0184							
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg			0.229	JN						
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg			0.189	JN						
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg	0.0095	U			0.046	U	0.047	U		
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg	0.00017	J			0.016		0.015	J		
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg			0.0935	JN						
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg	0.095	U			0.46	UJ	0.47	UJ		
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg	0.019	U			0.093	U	0.095	U		
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg	0.019	U			0.093	U	0.095	U		
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg	0.49	U			2.3	UJ	2.4	UJ		
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg	0.019	U			0.093	U	0.095	U		
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg	0.019	U			0.02	J	0.095	U		
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg	0.49	U			2.3	U	2.4	U		
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg	0.49	U			2.3	U	2.4	U		
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg	0.49	U			2.3	UJ	2.4	UJ		
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg	0.49	U			2.3	U	2.4	U		

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg	0.49	U			2.3	UJ	2.4	UJ		
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.019	U	0.12		0.031	J	0.04	J	0.025	J
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.019	U	0.099	J	0.076	J	0.076	J	0.054	J
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.019	U	0.13		0.1		0.12		0.075	
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg	0.095	UJ				R		R		
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.019	U	0.7		0.55		0.64		0.39	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.019	U	0.8	J	0.74		0.78		0.47	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.019	U	1.4	J	1.3		1.3		0.71	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.019	U	0.44	J	0.42		0.49		0.43	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.019	U	0.45	J	0.27	J	0.51	J	0.25	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg	0.019	U			0.093	U	0.095	U		
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg	0.19	U			3		3.1			
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg	0.095	U			0.1	J	0.47	UJ		
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg	0.49	U			2.3	U	2.4	U		
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg	0.019	U			0.11		0.098			
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.019	U	1.4		1.1		1.1		0.62	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.019	U	0.14	J	0.1		0.15		0.092	
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg	0.029	J			0.054	J	0.099	J		
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	0.0035	J	1.7		1.2		1.4		0.81	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.019	U	0.12		0.044	J	0.041	J	0.033	J
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg	0.019	U			0.093	U	0.095	U		
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg	0.019	U			0.093	UJ	0.095	UJ		
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg	0.095	U			0.46	UJ	0.47	UJ		
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.019	U	0.46	J	0.44		0.43		0.38	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.019	U	0.038	J	0.093	U	0.095	U	0.021	J
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg	0.19	U			0.92	U	0.94	U		
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg	0.019	U			0.093	U	0.095	U		
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg	0.095	U			0.46	U	0.47	U		
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.019	U	0.77		0.44		0.46		0.29	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg	0.019	U			0.093	U	0.095	U		
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.019	U	1.4		1.1		1.2		0.75	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	0.0035		8.9		7.2		8		4.9	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.019	U	1.3		0.69		0.74		0.5	

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	0.0035		10		7.9		8.7		5.4	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg	0.9	U			3.9	U	3.5	U		
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg	0.018	U			0.078	U	0.07	U		
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg	0.009	U			0.039	U	0.035	U		
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK1		SEDBACK11		SEDBACK12		SEDBACK12		SEDBACK13	
					sys_sample_code	SEDBACK100N		SEDBACK1100N		SEDBACK1200N		SEDBACK1200R		SEDBACK1300N	
					sample_date	12/3/2013		11/15/2013		11/14/2013		11/14/2013		11/14/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg	0.0046	U			0.02	U	0.018	U		
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg	0.0045	U			0.02	U	0.018	U		
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg	0.009	U			0.039	U	0.035	U		

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg	2.3E-05		2.37E-06	J	2.25E-06	J			2.6E-05	
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg	5.9E-06	JN	4.85E-07	JN	5.76E-07	JN			6.56E-06	JN
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg	6.87E-07	JN	1.62E-07	U	2.18E-07	U			4.1E-07	J
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg	7.69E-07	JN	1.19E-07	U	2.11E-07	U			4.91E-07	JN
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg	7.05E-07	JN	8.99E-08	U	1.14E-07	U			8.71E-07	J
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg	1.61E-06	J	1.2E-07	U	2.13E-07	U			1.24E-06	J
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg	1.2E-06	JN	8.19E-08	U	1.25E-07	U			1.41E-06	JN
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg	1.85E-06	J	1.12E-07	U	1.99E-07	U			1.43E-06	JN
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg	1.15E-07	JN	1.02E-07	U	1.36E-07	U			1.54E-07	JN
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg	6.08E-07	J	1.17E-07	U	2.01E-07	U			4.25E-07	JN
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg	2.87E-07	JN	9.66E-08	U	1.38E-07	U			4.34E-08	U
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg	6.15E-07	JN	8.95E-08	U	1.31E-07	U			4.59E-07	J
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg	6.15E-07	JN	8.33E-08	U	1.21E-07	U			4.25E-07	JN
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg	6.43E-08	J	2.23E-07	U	3.04E-07	U			2.23E-08	U
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg	9.8E-07		1.63E-07	U	2.2E-07	U			5.75E-07	JN
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg	0.00046		8.49E-05	J	8.24E-05				0.000692	
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg	9.29E-06	JN	6.2E-07	J	7.48E-07	JN			1.02E-05	
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg	2.93E-06		1.58E-08		1.63E-08				2.06E-06	
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg	1.86E-06		1.58E-08		1.63E-08				1.39E-06	
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg	2.09E-06		5.42E-08		5.32E-08				1.76E-06	
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg	5.29E-05		4.89E-06	J	4.8E-06	J			6.29E-05	
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg	1.42E-05	JN	9.22E-07	JN	1.1E-06	JN			1.59E-05	JN
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg	1.58E-05	JN	7.92E-07	J	8.79E-07	JN			1.25E-05	JN
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg	2.12E-05	JN	1.4E-06	JN	1.22E-06	J			2.22E-05	JN
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg	4.13E-05	JN	1.17E-07	U	2.01E-07	U			2.25E-05	JN
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg	3.57E-05	JN	2.08E-06	JN	1.23E-06	JN			2.79E-05	JN
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg	5.51E-06	JN	2.23E-07	U	4.69E-07	J			2.85E-06	JN
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg	7.11E-05	JN	1.45E-06	JN	1.01E-06	JN			4.24E-05	JN
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg	2.09E-06		5.42E-08		5.32E-08				1.76E-06	
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	2100		750		1000		870		3800	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.18	J-	0.042	J	0.035	J	0.13	U	0.19	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	1.5	J-	0.42	J-	0.23	J-	0.34	J-	1.6	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	31		5.3		7.9		6.6		37	
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	0.27		0.14		0.19		0.17		0.45	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.23		0.035	J	0.044	J	0.043	J	0.33	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	63000		260	J	1600	J	260	J	1700	J-
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	13	J+	4.3	J	5.5	J	5	J	17	
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	8.6		1.7	J	2.7	J	2.2		7.8	
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	18		2.7		3.7		3.5	J	18	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	10000		4500		3500		3800	J	10000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	26		3	J	2.7	J	3.1		24	

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	6100		620	J	1300	J	980		1300	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	200	J+	68	J	87	J	37		180	
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.053	J	0.019	U	0.019	U	0.02	U	0.059	J+
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	46		6.6	J	7.9	J	10	J	14	
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	290		190		250		210		640	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	0.37	J-	0.048	J	0.077	J	0.32	U	0.98	J-
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.056	J	0.0055	J	0.0073	J	0.013	J	0.071	J
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	84		21		38		31		110	J-
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.066		0.06	U	0.06	U	0.024	J	0.095	J-
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	15		4.5	J	2.5	J	2.7	J	14	
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	67	J	11	J-	13	J-	17	J	82	
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.011	J	0.0028	J	0.0023	J	0.0021	J	0.007	
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0012	J	8.8E-05	J	0.00022	J	0.00023	J	0.0027	
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.39		0.059		0.061		0.081	J	0.25	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.14		0.031		0.039		0.031	J	0.3	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.17		0.013	J	0.015		0.043	J	0.13	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	3E-05	J	7.7E-05	U	1.1E-05	J	8.8E-06	J	3.3E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.56		0.12	J	0.12		0.071	J	0.23	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.0015	UJ	0.0014	UJ	0.0014	U	0.0015	U	0.0024	U
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	2.1		0.58	UJ	0.57	UJ	0.6	UJ	3.3	J
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	27000		2300		2300		2700		47000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	0.91		0.21		0.24		0.24	J	1.5	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg	0.0068		0.00019	J	0.00015	J			0.0041	
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg	0.0099		0.00017	J	0.00016	J			0.0028	
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg	0.0044		6.5E-05	J	0.00019	J			0.005	
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg	0.0002	J	0.00026	U	0.00025	U			0.00061	J
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg	0.00027	U	0.00026	U	0.00025	U			0.00085	U
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.0054	U	0.0051	U	0.0051	U	0.0054	U	0.0085	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.0054	U	0.0051	U	0.0051	U	0.0054	U	0.0085	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.0054	U	0.0051	U	0.0051	U	0.0054	U	0.0085	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.0054	U	0.0051	U	0.0051	U	0.0054	U	0.0085	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.0054	U	0.0051	U	0.0051	U	0.0054	U	0.028	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.0054	U	0.0051	U	0.0051	U	0.0054	U	0.0085	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.018		0.0051	U	0.0051	U	0.0054	U	0.018	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.0054	U	0.0051	U	0.0051	U	0.0054	U	0.0085	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.0054	U	0.0051	U	0.0051	U	0.0054	U	0.0085	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg	0.00036	J	0.00026	U	0.00025	U			0.00085	U
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg	0.0041	J	0.00095		0.0011				0.0083	
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg	0.00027	U	0.00026	U	0.00025	U			0.00028	J
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg	0.00066	J	0.00025	J	0.00034				0.0014	J
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg	0.00027	U	0.00026	U	0.00025	U			0.00085	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg	8.7E-05	J	0.00026	U	0.00025	U			0.00015	J
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg	0.00013	J	0.00026	U	4.7E-05	J			0.00085	U
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg	0.00059	J	0.00026	U	0.00059				0.001	J
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg	0.00023	J	0.00026	U	0.00025	U			0.00085	U
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg	0.00094		0.00026	U	7.2E-05	J			0.00098	J
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg	0.0001	J	0.00026	U	0.00025	U			0.00016	J
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg	0.00092		7.8E-05	J	9.6E-05	J			0.0016	
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg	0.00027	J	0.00013	J	0.00014	J			0.00049	J
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg	0.0027	J	0.00051	U	0.00058				0.0092	
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.018		0.0051	U	0.0051	U	0.0054	U	0.046	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.018		0.0051	U	0.0051	U	0.0054	U	0.045	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg										

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg										

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg										

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg										

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg										

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg	0.011	U	0.01	U	0.01	U			0.034	U
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg	0.0073		0.00094		0.0011				0.0083	
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg										
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U			0.069	U
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U			0.069	U
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg	4.4	U	0.52	U	0.52	U			1.7	U
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U			0.069	U
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U			0.18	
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg	4.4	U	0.52	U	0.52	U			1.7	U
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg	4.4	U	0.52	U	0.52	U			1.7	U
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg	4.4	U	0.52	U	0.52	U			1.7	U
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.034	J
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg	4.4	U	0.52	U	0.52	U			1.7	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg	4.4	U	0.52	U	0.52	U			1.7	U
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.031	J	0.021	U	0.02	U	0.022	U	0.32	
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.05	J	0.021	U	0.02	U	0.061		0.027	J
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.15	J	0.011	J	0.005	J	0.075		0.93	
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg		R	0.1	UJ	0.1	UJ			0.094	J
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.77		0.057		0.018	J	0.2		2.7	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.72		0.067		0.019	J	0.19		2.6	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.85		0.1		0.026		0.21		2.8	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.53	J	0.068		0.019	J	0.16		1.8	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.38		0.045		0.013	J	0.1		1.4	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U			0.069	U
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg	0.84	J	0.035	J	0.031	J			0.8	
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg	0.85	U	0.017	J	0.1	U			0.34	U
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg	4.4	U	0.52	U	0.52	U			1.7	U
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg	0.17	U	0.011	J	0.02	U			0.46	
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.91		0.093		0.026		0.22		3.3	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.19		0.015	J	0.02	U	0.042		0.4	
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.083	J
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg	0.85	U	0.052	J	0.042	J			0.061	J
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	1.2		0.18	J	0.048	J	0.49		6.2	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.045	J	0.021	U	0.02	U	0.036		0.28	
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U			0.069	U
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U			0.069	U
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.42		0.058		0.016	J	0.15		1.5	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U	0.022	U	0.076	
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg	1.7	U	0.21	U	0.2	U			0.68	U
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U			0.069	U
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg	0.85	U	0.1	U	0.1	U			0.34	U
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.74		0.058		0.022		0.32		5.6	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg	0.17	U	0.021	U	0.02	U			0.069	U
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	1.4		0.1		0.028		0.33		5.2	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	7.4		0.78		0.21		2.1		28	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	1		0.069		0.027		0.49		7.2	

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	8.4		0.85		0.24		2.6		35	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg	1.1	U	1.1	U	0.99	U			1.9	U
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg	0.022	U	0.022	U	0.02	U			0.038	U
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg	0.011	U	0.011	U	0.0099	U			0.019	U
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SEDBACK15		SEDBACK2		SEDBACK2		SEDBACK3		SEDBACK4	
					sys_sample_code	SEDBACK1500N		SEDBACK200N		SEDBACK200R		SEDBACK300N		SEDBACK400N	
					sample_date	11/12/2013		12/3/2013		12/3/2013		11/15/2013		11/14/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg	0.0056	U	0.0054	U	0.0049	U			0.0095	U
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg	0.011	U	0.011	U	0.0099	U			0.019	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg	1.3E-05	J	3.11E-05	J	1.93E-05					
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg	1.86E-06	JN	4.9E-06		3.31E-06	J				
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg	3.7E-07	JN	5.72E-07	JN	5.13E-07	JN				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg	2.85E-07	J	3.75E-07	JN	4.23E-07	J				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg	3.33E-07	JN	6.65E-07	JN	4.03E-07	JN				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg	6.66E-07	J	1.3E-06	JN	9.89E-07	J				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg	8.63E-07	JN	9E-07	JN	9.09E-07	JN				
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg	6.62E-07	J	1.19E-06	J	8.54E-07	JN				
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg	5.66E-08	JN	1.05E-07	JN	7.91E-08	JN				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg	2.19E-07	JN	2.08E-07	JN	3.46E-07	JN				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg	1.37E-07	JN	2.42E-07	JN	2.48E-07	JN				
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg	2.75E-07	JN	3.97E-07	JN	3.92E-07	J				
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg	2.79E-07	JN	4.83E-07	JN	4.3E-07	JN				
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg	1.24E-08	U	5.66E-08	JN	9.37E-08	J				
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg	1.78E-07	JN	5.06E-07	J	1.57E-07	JN				
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg	0.000359	J	0.000999	J	0.000537					
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg	4.67E-06	JN	9.34E-06	J	5.56E-06	JN				
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg	1E-06		1.82E-06		1.46E-06					
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg	7.54E-07		1.15E-06		1.19E-06					
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg	9E-07		1.63E-06		1.39E-06					
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg	2.93E-05	J	6.9E-05	J	4.48E-05					
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg	5.99E-06	JN	1.22E-05	JN	8.55E-06	JN				
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg	7.22E-06	JN	1.35E-05	JN	9.5E-06	JN				
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg	1.44E-05	JN	1.63E-05	JN	1.51E-05	JN				
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg	1.74E-05	JN	3.07E-05	JN	2.45E-05	JN				
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg	2.46E-05	JN	2.19E-05	JN	2.17E-05	JN				
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg	1.55E-06	JN	2.53E-06	JN	2.14E-06	JN				
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg	3.24E-05	JN	3.48E-05	JN	3.28E-05	JN				
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg	9E-07		1.63E-06		1.39E-06					
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	3300		3000		11000		10000		6900	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.19	J-	0.17	J-	0.67	J-	0.48	J-	0.05	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	2.1	J-	2.2	J-	3.6	J-	4.1		2.8	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	37		32		100		98		79	J+
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	0.57		0.53		1.6		1.3		1.2	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.44		0.42		1.1		1.4		0.33	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	1500	J-	1400	J-	2800	J	3500		1300	J-
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	15		14		47	J	47	J+	13	J+
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	7.8		7.2		22		20		13	J
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	22		20		66	J	53	J+	9.8	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	13000		11000		31000	J	27000		17000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	21		21		75		99		11	J

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	1100		980		3400		3600		1400	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	200		180		370		470		480	
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.056	J+	0.064	J+	0.18	J+	0.17		0.075	
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	14		12		40	J	38		16	
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	480		440		1300		1200		560	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	0.75	J-	0.93	J-	1.4	J-	1.3		0.3	J
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.1		0.083	J	0.42		0.48		0.061	J
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	60	J-	47	J-	180		120		100	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.077	J-	0.069	J-	0.28		0.22		0.11	J
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	16		16		36	J	39		23	J+
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	100		99		280	J	250		46	J+
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.0062		0.0072		0.011	J	0.0086	J	0.017	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0035		0.0028		0.0072	J	0.0071		0.0014	J
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.18		0.16		0.37	J	0.22		0.14	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.26		0.25		0.64	J	0.37		0.16	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.1		0.094		0.24	J	0.26		0.056	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	1.6E-05	J	3.4E-05	J	9.2E-05	J	0.00013	U	0.00016	U
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.18		0.16		0.35	J	0.22		0.33	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.002	U	0.002	U	0.00048	J	0.0024	UJ	0.0029	UJ
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	0.8	UJ	0.65	J	2.3	J	2.5	J	1.2	U
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	20000		26000		39000		37000		55000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	1.5		1.4		3.1	J	2.5		0.92	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg	0.0015		0.0013	J	0.0044	J				
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg	0.0013		0.0011	J	0.0094					
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg	0.002	J	0.0032		0.0056	J				
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg	0.00035	J	0.0011	J	0.0018					
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg	0.00071	U	0.00071	U	0.0011	U				
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.0071	U	0.0071	U	0.011	U	0.0043	U	0.01	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.0071	U	0.0071	U	0.011	U	0.0043	U	0.01	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.0071	U	0.0071	U	0.011	U	0.0043	U	0.01	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.0071	U	0.0071	U	0.011	U	0.0043	U	0.01	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.05	J	0.052	J	0.1	J	0.15	J	0.01	U
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.0071	U	0.0071	U	0.011	U	0.0043	U	0.01	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.028	J	0.019	J	0.043	J	0.084	J	0.0031	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.0071	U	0.0071	U	0.011	U	0.0043	U	0.01	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.0071	U	0.0071	U	0.011	U	0.0043	U	0.01	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg	0.00034	J	0.00071	U	0.0011	U				
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg	0.0037		0.0054		0.012	J				
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg	0.000179				0.000567					
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg	0.00046	J	0.0003	J	0.00088	J				
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg	0.00405	JN			0.00498	JN				
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg	0.0013		0.0019		0.0022	J				
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg	0.00071	U	0.00071	U	0.0011	U				

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg	0.00071	U	0.00016	J	0.00056	J				
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg	0.00027	J	0.00044	J	0.0014	J				
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg	0.001		0.0015		0.0035	J				
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg	0.00071	U	0.00032	J	0.0005	J				
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg	0.00071	J	0.0013	J	0.0059	J				
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg	0.00071	U	0.00019	J	0.00097	J				
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg	0.0002	J	0.00037	J	0.00035	J				
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg	0.00055	J	0.00094	J	0.0011	J				
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg	0.00855	JN			0.0186	JN				
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg	0.0215	JN			0.055	JN				
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg	0.0035	J	0.005	J	0.018					
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg	0.000171				0.000494	JN				
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg	0.000514	JN			0.00143					
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg	0.00259	JN			0.00635					
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg	2.18E-05				3.32E-05					
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg	6.19E-06				1.17E-05					
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg	0.127				0.219					
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.078		0.071		0.14		0.23		0.0031	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.07		0.071		0.14		0.23		0.0031	J
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg	9.87E-05				0.000319					
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg	5.18E-05				4.68E-05	JN				
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg	4.53E-05	JN			9.34E-05	JN				
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg	0.00368				0.00621					
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg	0.000217				0.000307					
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg	3.8E-05	JN			7.67E-05					
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg	5.43E-06	J			4.2E-06	U				
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg	0.00221				0.0033					
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg	4.91E-06	U			7.9E-06	U				
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg	0.000338				0.00066	JN				
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg	0.000202				0.000318	JN				
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg	0.00281				0.00417					
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg	0.000241				0.000321					
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg	0.00508				0.00721					
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg	8.34E-06	JN			6.18E-06	JN				
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg	3.79E-06	U			4.29E-06	U				
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg	0.00368				0.00621					
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg	0.000129				0.000205					
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg	0.00508				0.00721					
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg	0.00101				0.00122					
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg	0.00101				0.00122					
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg	0.00429				0.00798					
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg	0.00281				0.00417					
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg	0.000131				0.000181					

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg	3.59E-06	U			4.06E-06	U				
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg	3.62E-06	U			4.09E-06	U				
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg	0.000111				0.000154					
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg	0.000141				8.08E-05	JN				
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg	0.000202				0.000318	JN				
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg	0.00281				0.00417					
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg	4.55E-05	J			3.96E-05	JN				
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg	1.38E-05	JN			1.33E-05	JN				
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg	0.000807				0.00168					
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg	0.00524				0.0125					
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg	0.000131				0.000181					
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg	0.000321				0.000694					
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg	7.27E-05				0.000157	JN				
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg	0.00162				0.00417					
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg	7.69E-05				0.000222					
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg	0.000294				0.000792					
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg	0.00126				0.00279					
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg	0.00046				0.00101					
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg	0.00022				0.000458					
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg	0.00524				0.0125					
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg	8.96E-05				0.000269					
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg	3.32E-06	U			5.08E-06	JN				
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg	8.96E-05				0.000269					
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg	0.000929				0.00232					
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg	1.25E-05	U			1.79E-05	U				
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg	0.000294				0.000792					
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg	0.00016				0.000342					
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg	4.9E-06	U			4.23E-06	U				
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg	0.000685				0.00187					
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg	0.00367				0.0113					
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg	6.85E-06	U			5.91E-06	U				
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg	0.00367				0.0113					
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg	0.000826				0.00121					
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg	4.77E-06	U			1.41E-05	JN				
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg	0.00126				0.00279					
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg	7.41E-06	JN			6.25E-06	J				
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg	0.00383				0.0106					
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg	3.16E-05	JN			7.18E-05	JN				
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg	4.64E-06	U			4.01E-06	U				
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg	0.000541				0.000995					
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg	0.000541				0.000995					
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg	0.000531				0.00113					
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg	4.26E-05	JN			0.000177					

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg	0.00113				0.000948					
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg	0.00524				0.0125					
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg	8.26E-06	U			1.18E-05	U				
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg	2.47E-05	JN			3.46E-05	JN				
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg	0.00524				0.0125					
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg	0.000349				0.000823					
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg	9.08E-06	U			1.3E-05	U				
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg	0.000807				0.00168					
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg	0.000193				0.000358					
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg	0.00383				0.0106					
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg	4.59E-05	JN			0.000244	JN				
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg	0.00158				0.0016					
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg	0.00113				0.00249					
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg	0.000339				0.000655					
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg	0.00018				0.000329					
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg	0.000339				0.000655					
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg	0.00106				0.00229					
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg	5.63E-05				0.000103					
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg	0.00014				0.000293					
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg	0.000545				0.00134					
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg	0.00025				0.000507					
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg	0.000523				0.00119					
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg	0.00261				0.00237					
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg	0.00202				0.0043					
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg	7.32E-06	U			8.98E-06	U				
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg	7.12E-06	U			2.04E-05	JN				
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg	0.000703				0.00157					
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg	6.04E-06	U			7.41E-06	U				
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg	0.000703				0.00157					
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg	5.87E-06	U			7.2E-06	U				
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg	0.00133				0.00296					
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg	4.78E-06	U			5.74E-06	U				
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg	4.87E-05	J			0.000125					
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg	0.000545				0.000502					
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg	0.000189				0.000377					
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg	3.81E-05	JN			8.31E-05					
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg	6.23E-06	U			7.64E-06	U				
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg	0.00202				0.0043					
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg	0.000717				0.00171					
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg	0.000301	JN			0.000727					
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg	0.000256				0.00065					
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg	1.69E-05	JN			5.33E-05					
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg	0.000621				0.00154					

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg	0.000621				0.00154					
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg	1.37E-05	J			6.02E-05	JN				
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg	0.00515				0.00643					
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg	7.25E-05	JN			0.00018					
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg	7.73E-05				0.00017					
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg	0.000131				0.000333					
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg	0.000358				0.000889					
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg	5.53E-06	U			7.2E-06	U				
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg	4.31E-05	JN			9.72E-05					
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg	0.000403				0.00104					
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg	3.09E-05	J			0.000105					
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg	8.04E-05	JN			0.000284					
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg	0.0022				0.00213					
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg	0.00145				0.00165					
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg	3.73E-06	U			3.84E-06	U				
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg	4.8E-05	JN			3.44E-05	JN				
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg	0.000542				0.000624					
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg	0.000941				0.00109					
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg	0.000376				0.000419					
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg	0.00515				0.00643					
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg	0.000941				0.00109					
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg	5.87E-05				0.000114					
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg	0.00261				0.00237					
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg	0.00404				0.00469					
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg	0.00128				0.00127					
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg	0.0022				0.00213					
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg	2.83E-05	J			4.33E-05	J				
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg	5E-05				9.56E-05					
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg	3.65E-06	U			3.76E-06	U				
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg	0.00105				0.0016					
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg	8.06E-06	JN			9.72E-06	JN				
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg	3.34E-05	J			3.62E-05	JN				
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg	0.000878				0.000896					
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg	0.00262				0.00419					
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg	0.00262				0.00419					
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg	0.00125				0.00193					
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg	0.0002				0.000294					
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg	0.00526				0.00832					
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg	0.0012				0.00164					
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg	0.000374				0.000511					
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg	0.00526				0.00832					
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg	0.000886				0.00136					
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg	0.00321				0.00517					

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg	2.14E-05	JN			2.25E-05	JN				
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg	0.000943				0.0014					
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg	0.0012				0.00164					
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg	0.00549				0.00923					
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg	0.000943				0.0014					
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg	4.48E-05	J			4.96E-05					
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg	0.000132				0.000213					
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg	0.00152				0.00255					
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg	3.26E-05	J			6.03E-05					
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg	1.03E-05	JN			2.59E-05	JN				
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg	0.000423				0.000694					
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg	0.000315				0.000334					
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg	0.000831				0.00121					
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg	0.00563				0.01					
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg	0.000423				0.000694					
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg	0.000163				0.000284					
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg	0.00197				0.00327					
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg	0.00526				0.00832					
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg	0.00373				0.00654					
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg	0.000111				0.000177					
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg	2.88E-05	JN			7.11E-05					
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg	0.00321				0.00517					
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg	6.37E-05	JN			0.000105					
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg	0.00563				0.01					
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg	0.00262				0.00419					
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg	4.65E-05	J			9.06E-05					
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg	0.0002				0.000294					
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg	0.00563				0.01					
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg	0.000423				0.000694					
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg	0.00563				0.01					
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg	0.0003				0.000513					
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg	4.07E-06	JN			4.39E-06	U				
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg	3.15E-05	JN			7.03E-05	JN				
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg	0.00144				0.00177					
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg	3.98E-06	U			3.76E-06	U				
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg	1.87E-05	J			2.85E-05	JN				
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg	0.00073				0.000825					
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg	0.0025				0.0038					
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg	0.00113				0.00169					
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg	0.00101				0.00122					
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg	0.00281				0.00417					
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg	0.00281				0.00417					
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg	0.000838				0.00115					

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg	0.0001				0.000111					
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg	8.66E-05	JN			9.45E-05					
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg	0.00368				0.00621					
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg	0.000838				0.00115					
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg	0.000719				0.00119					
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg	4.53E-05	JN			9.34E-05	JN				
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg	5.72E-05	JN			8.83E-05					
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg	0.0032				0.00547					
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg	6.4E-05	JN			9.47E-05					
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg	0.00281				0.00417					
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg	0.000217				0.000307					
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg	0.0025				0.0038					
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg	0.0297	JN			0.0465	JN				
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg	0.0365	JN			0.0599	JN				
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg	0.029	U	0.029	U	0.042	U				
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg	0.0037		0.0055		0.018					
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg	0.0231	JN			0.0255	JN				
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	UJ				
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg	0.057	U	0.057	U	0.085	U				
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	UJ				
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg	0.057	U	0.057	U	0.085	U				
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg	1.5	U	1.5	U	2.2	UJ				
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg	0.057	U	0.057	U	0.085	U				
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg	0.057	U	0.0075	J	0.012	J				
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg	1.5	U	1.5	U	2.2	U				
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg	1.5	U	1.5	U	2.2	U				
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg	1.5	U	1.5	U	2.2	U				
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	UJ				
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg	0.28	U	0.043	J	0.42	U				
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg	1.5	U	1.5	U	2.2	U				

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg	1.5	U	1.5	U	2.2	U				
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.017	J	0.016	J	0.018	J	0.059	J	0.042	U
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.02	J	0.015	J	0.064	J	0.06	J	0.042	U
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.044	J				
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.053	J	0.037	J	0.1		0.22		0.042	U
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg	0.057	J	0.045	J	0.15	J				
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.32		0.27		0.57		1		0.021	J
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.37		0.32		0.73		1.1		0.028	J
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.6		0.55		1.2		1.7		0.043	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.33		0.31		0.88		1.2		0.029	J
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.23		0.21		0.44		0.54		0.042	U
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg	0.057	U	0.057	U	0.085	U				
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg	1		1.2		2.8	J				
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg	0.42		0.28	U	0.42	UJ				
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg	1.5	U	1.5	U	2.2	UJ				
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg	0.056	J	0.043	J	0.086					
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.58		0.52		1.1		1.5		0.031	J
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.067		0.075		0.085	U	0.21		0.042	U
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg	0.031	J	0.28	U	0.42	U				
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	UJ				
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	0.82		0.71		1.1		2.8		0.037	J
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.024	J	0.024	J	0.085	U	0.11	J	0.042	U
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg	0.057	U	0.057	U	0.085	U				
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg	0.057	U	0.057	U	0.085	UJ				
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	UJ				
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.3		0.27		0.8		1.2		0.022	J
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.057	U	0.057	U	0.085	U	0.21	U	0.042	U
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg	0.57	U	0.57	U	0.85	U				
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg	0.057	U	0.057	U	0.085	U				
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	U				
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg	0.28	U	0.28	U	0.42	UJ				
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.29		0.25		0.41		1		0.042	U
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg	0.057	U	0.057	U	0.085	U				
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.66		0.59		1.2		1.8		0.036	J
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	4.3		3.8		8		13		0.25	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.4		0.34		0.59		1.4		0.042	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	4.7		4.2		8.6		14		0.25	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg	1.8	U	1.9	U	3.2	U				
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg	0.037	U	0.038	U	0.063	U				
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg	0.018	U	0.019	U	0.032	U				
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				

					loc_group	RA_Background		RA_Background		RA_Background		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SEDBACK5		SEDBACK5		SEDBACK6		SED1.5B		SED10A	
					sys_sample_code	SEDBACK500N		SEDBACK500R		SEDBACK600N		SED1.5B00N		SED10A00N	
					sample_date	11/14/2013		11/14/2013		11/15/2013		11/6/2013		11/11/2013	
					sample_type_code	N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg	0.0091	U	0.0095	U	0.016	U				
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg	0.018	U	0.019	U	0.032	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg	2.49E-05						8.42E-06			
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg	4.33E-06	J					2.37E-07	J		
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg	5.92E-07	J					8E-08	JN		
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg	4.79E-07	JN					1.58E-07	JN		
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg	5.74E-07	JN					9.02E-08	JN		
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg	1.18E-06	J					2.65E-07	J		
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg	1.13E-06	JN					1.05E-07	JN		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg	1.33E-06	J					2.09E-07	JN		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg	6.05E-08	JN					1.48E-08	U		
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg	4.8E-07	JN					4.26E-08	JN		
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg	1.93E-07	JN					1.77E-08	U		
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg	5.2E-07	J					7.37E-08	JN		
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg	4.8E-07	J					1.56E-08	U		
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg	5.93E-08	JN					1.31E-08	U		
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg	2.88E-07	JN					1.18E-08	U		
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg	0.000683	J					0.000343			
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg	9.87E-06	J					5.14E-07	JN		
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg	1.87E-06						1.47E-07			
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg	1.44E-06						1.99E-07			
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg	1.75E-06						3.23E-07			
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg	5.86E-05						1.75E-05			
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg	1.19E-05	JN					6.26E-07	JN		
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg	1.19E-05	JN					2.86E-06	JN		
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg	1.93E-05	JN					1.29E-06	JN		
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg	4.57E-06	JN					4.51E-07	JN		
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg	2.97E-05	JN					1.16E-06	JN		
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg	2.6E-06	JN					7.11E-07	JN		
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg	4.22E-05	JN					1.39E-06	JN		
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg	1.75E-06						3.23E-07			
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	3300		5300		11000		18000		5200	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.2	J-	0.31	J-	0.62	J-	0.29		0.39	
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	1.3	J-	2.1	J-	4		3.9		2	
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	38		63		110		140		53	
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	0.53		0.85		1.5		1.5		0.63	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.37		0.6		1		0.62		0.58	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	1700		2700		3600		2500		1900	
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	16	J+	24	J+	49	J+	37		24	
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	8.9		16		21		15		11	
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	22		40		65	J+	50		28	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	12000		17000		31000		30000		14000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	31		44		73		50		37	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	1600		2500		3800		3200		2600	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	190	J+	210	J+	460		470		160	
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.099	J	0.1	J	0.23		0.23		0.11	
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	16		26		39		23		19	
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	580		1000		1300		1300		1000	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	0.42	J-	0.76	J-	1.4		1.4		0.53	
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.1		0.18		0.36		0.25		0.15	
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	63		100		160		130		110	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.1		0.17		0.25		0.29		0.15	
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	14		23		44		38		21	
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	99	J	160	J	240		150		140	
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.011	J	0.012	J	0.012	J	0.011	J	0.0053	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0022		0.0029		0.0055		0.0043	U	0.0036	
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.17	J	0.2		0.24		0.14		0.12	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.26	J	0.34		0.72		0.36		0.23	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.16	J	0.17		0.24		0.12		0.14	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	4.9E-05	J	5.2E-05	J	3.4E-05	J	0.00012	U	1.9E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.22		0.26		0.26		0.1		0.13	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.00036	J	0.00062	J	0.0031	UJ	0.0045	UJ	0.0019	UJ
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	1.2	U	2.3		2	J	1.9	J	1.7	J
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	24000		37000		51000		23000		25000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	1.5		1.8		2.9		1.2		1.7	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg	0.0022	J					0.00076	J		
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg	0.0038	J					0.0014			
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg	0.0017	J					0.00037	J		
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg	0.00035	J					7.4E-05	J		
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg	0.00038	U					0.0004	U		
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.0076	U	0.0078	U	0.011	U	0.0081	U	0.0069	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.0076	U	0.0078	U	0.011	U	0.0081	U	0.0069	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.0076	U	0.0078	U	0.011	U	0.0081	U	0.0069	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.0076	U	0.0078	U	0.011	U	0.0081	U	0.0069	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.035	J	0.046	J	0.095	J	0.05	J	0.071	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.0076	U	0.0078	U	0.011	U	0.0081	U	0.0069	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.031	J	0.031	J	0.051	J	0.028	J	0.038	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.0076	U	0.0078	U	0.011	U	0.0081	U	0.0069	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.0076	U	0.0078	U	0.011	U	0.0081	U	0.0069	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg	0.00029	J					0.0004	U		
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg	0.0036	J					0.0014	J		
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg	0.00038	UJ					0.0004	U		
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg	0.00081	J					0.00026	J		
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg	0.00038	U					0.0004	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg	0.00019	J					0.00021	J		
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg	0.0006	J					0.00017	J		
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg	0.0019	J					0.00031	J		
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg	0.00016	J					0.0004	U		
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg	0.0015	J					0.00052			
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg	0.00028	J					7.7E-05	J		
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg	0.0005	J					0.00022	J		
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg	0.00045	J					0.00012	J		
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg	0.0057						0.0017	J		
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.066		0.077		0.15		0.078		0.11	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.066		0.077		0.14		0.073		0.11	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg	0.015	U					0.016	U		
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg	0.0056	J					0.0021			
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg										
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg	0.061	U					0.033	U		
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg	0.061	U					0.033	U		
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg	1.6	U					0.83	U		
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg	0.061	U					0.033	U		
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg	0.011	J					0.021	J		
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg	1.6	U					0.83	U		
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg	1.6	U					0.83	U		
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg	1.6	U					0.83	U		
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg	1.6	U					0.83	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg	1.6	U					0.83	U		
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.018	J	0.024	J	0.27	U	0.019	J	0.22	U
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.061	U	0.033	J	0.27	U	0.031	J	0.22	U
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg	0.3	U					0.015	J		
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.061		0.082		0.076	J	0.069		0.082	J
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg	0.25	J					0.15	J		
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.38		0.48		0.36		0.26		0.49	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.48		0.58		0.46		0.3		0.55	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.7		0.84		0.92		0.44		0.73	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.43	J	0.49	J	0.56		0.33		0.47	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.29		0.35		0.25	J	0.21		0.4	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg	0.061	U					0.033	U		
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg	1.1						0.52			
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg	0.11	J					0.16	U		
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg	1.6	U					0.83	U		
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg	0.058	J					0.023	J		
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.58		0.7		0.69		0.4		0.71	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.11		0.14		0.13	J	0.065		0.11	J
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg	0.3	U					0.027	J		
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	0.88		1.1		0.94		0.58		1	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.023	J	0.026	J	0.27	U	0.036		0.22	U
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg	0.061	U					0.033	U		
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg	0.061	U					0.033	U		
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.38		0.42		0.44		0.27		0.4	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.061	U	0.013	J	0.27	U	0.027	J	0.22	U
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg	0.61	U					0.32	U		
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg	0.061	U					0.033	U		
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg	0.3	U					0.16	U		
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.29		0.38		0.29		0.26		0.37	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg	0.061	U					0.033	U		
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.72		0.83		0.73		0.48		0.96	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	5		5.9		5.5		3.3		5.8	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.39		0.56		0.37		0.44		0.45	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	5.3		6.5		5.8		3.8		6.3	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg	2.3	U					2.4	U		
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg	0.047	U					0.047	U		
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg	0.023	U					0.024	U		
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg	0.012	U					0.012	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED10B		SED10C		SED1A		SED1B		SED1C	
					sys_sample_code	SED10B00N		SED10C00N		SED1A00N		SED1B00N		SED1C00N	
					sample_date	11/11/2013		11/11/2013		11/6/2013		11/6/2013		11/7/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg	0.012	U					0.012	U		
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg	0.023	U					0.024	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg							0.000181			
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg							0.000155			
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg							4.83E-06	JN		
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg							1.28E-05			
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg							0.000128	J		
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg							1.79E-05			
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg							3.58E-05	JN		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg							3.32E-05	J		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg							7.98E-07	JN		
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg							1.05E-05			
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg							1.71E-05			
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg							2.66E-05	JN		
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg							2.83E-05			
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg							2.08E-06	JN		
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg							9.98E-06			
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg							0.00318			
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg							3.9E-05			
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg							7.79E-05			
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg							5.62E-05			
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg							5.25E-05			
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg							0.000373			
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg							0.000211	JN		
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg							0.000203			
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg							0.000472	JN		
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg							0.00031	JN		
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg							0.000591	JN		
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg							7.13E-05	JN		
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg							0.000593	JN		
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg							5.25E-05			
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	6500		8300		7600		6200		2000	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.39		0.53	J-	0.48	J-	0.5	J-	0.15	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	1.9		3.6		2.9		2.6		0.96	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	60		86		76		61		30	
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	0.8		1.1		0.89		0.82		0.36	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.52		0.99		0.81		0.92		0.36	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	2300		5100		2500		2500		1100	
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	30		37	J+	38	J+	29	J+	11	J+
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	12		18		16		18		6.7	
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	33		54	J+	45	J+	40	J+	17	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	17000		25000		22000		19000		8300	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	44		72		63		61		19	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	2800		3400		2600		2800		840	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	210		420		310		200		120	J+
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.086		0.16		0.13		0.15		0.067	J
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	22		37		30		29		11	
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	1100		1000		1000		1000		410	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	0.62		1.2		0.95		0.84		0.31	J-
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.16		0.3		0.34		0.27		0.064	J
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	120		180		110		140		47	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.16		0.19		0.18		0.19		0.065	J
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	22		32		29		27		9.6	
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	130		190		180		200		68	J
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.0066	J	0.017	J	0.008	J	0.0065	J	0.0087	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0028		0.0048		0.0027		0.0068		0.0018	
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.14		0.25		0.11		0.19		0.12	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.23		0.47		0.19		0.33		0.15	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.14		0.2		0.12		0.37		0.094	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	1.2E-05	J	4.2E-05	J	0.00013	U	1.3E-05	J	7.9E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.14		0.25		0.16		0.24		0.12	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.002	UJ	0.003	UJ	0.0025	UJ	0.0023	UJ	0.0017	UJ
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	1.9	J	1.6	J	2.1	J	7.3	J	0.7	U
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	23000		48000		33000		35000		8400	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	1.5		2.3		1.6	J	2.8		1	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg							0.0041	J		
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg							0.0065	J		
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg							0.0028	J		
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg							0.00046	J		
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg							0.00083	U		
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.0074	U	0.0054	U	0.0045	U	0.0042	U	0.0061	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.0074	U	0.0054	U	0.0045	U	0.0042	U	0.0061	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.0074	U	0.0054	U	0.0045	U	0.0042	U	0.0061	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.0074	U	0.0054	U	0.0045	U	0.0042	U	0.0061	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.053	J	0.15	J	0.076	J	0.13	J	0.033	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.0074	U	0.0054	U	0.0045	U	0.0042	U	0.0061	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.023	J	0.081	J	0.033	J	0.097	J	0.017	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.0074	U	0.0054	U	0.0045	U	0.0042	U	0.0061	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.0074	U	0.0054	U	0.0045	U	0.0042	U	0.0061	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg							0.00058	J		
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg							0.0064	J		
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg			0.000527							
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg							0.00083	U		
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg			0.00863	JN						
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg							0.0015	J		
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg							0.00083	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg							0.0012			
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg							0.0015			
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg							0.0053			
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg							0.0006	J		
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg							0.0024	J		
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg							0.0002	J		
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg							0.0013	J		
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg							0.00072	J		
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg			0.0413	JN						
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg			0.0673	JN						
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg							0.013	J		
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg			0.000421	JN						
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg			0.0016							
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg			0.0118	JN						
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg			4.34E-05							
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg			1E-05							
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg			0.294							
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.076		0.23		0.11		0.23		0.05	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.076		0.23		0.11		0.23		0.05	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg			0.000233							
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg			4.47E-05	JN						
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg			5.94E-05	JN						
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg			0.00766							
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg			0.000282	JN						
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg			0.000128							
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg			1.13E-05	JN						
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg			0.00327							
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg			7.53E-06	U						
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg			0.000629							
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg			0.00034	JN						
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg			0.0044							
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg			0.000366							
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg			0.00797							
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg			4.54E-06	U						
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg			4.93E-06	U						
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg			0.00766							
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg			0.000192							
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg			0.00797							
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg			0.0013							
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg			0.0013							
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg			0.00774							
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg			0.0044							
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg			0.000363							

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg			3.07E-05	JN						
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg			4.71E-06	U						
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg			0.000137	JN						
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg			9.85E-05	JN						
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg			0.00034	JN						
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg			0.0044							
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg			4.56E-05	JN						
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg			3.02E-05	J						
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg			0.00175							
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg			0.0151							
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg			0.000363							
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg			0.000802							
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg			0.000174							
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg			0.00454							
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg			0.000206	JN						
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg			0.00081							
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg			0.00418							
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg			0.0014							
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg			0.000404							
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg			0.0151							
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg			0.000206							
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg			8.77E-06	JN						
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg			0.000206							
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg			0.00328							
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg			1.89E-05	U						
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg			0.00081							
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg			0.000554	JN						
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg			6.4E-06	U						
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg			0.00233							
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg			0.0127							
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg			8.94E-06	U						
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg			0.0127							
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg			0.00247							
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg			2.86E-05	JN						
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg			0.00418							
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg			1.5E-05	J						
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg			0.014							
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg			0.000108	JN						
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg			6.06E-06	U						
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg			0.00125							
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg			0.00125							
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg			0.00135							
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg			0.000238							

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg			0.00152							
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg			0.0151							
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg			1.25E-05	U						
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg			4.26E-05	JN						
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg			0.0151							
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg			0.00104							
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg			2.65E-05	JN						
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg			0.00175							
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg			0.00054							
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg			0.014							
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg			0.000166	JN						
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg			0.00256							
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg			0.00556							
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg			0.00133							
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg			0.000911							
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg			0.00133							
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg			0.00505							
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg			0.000205							
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg			0.000606							
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg			0.00279							
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg			0.00108							
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg			0.00223							
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg			0.00389							
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg			0.0106							
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg			2.61E-05	JN						
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg			3.53E-05	JN						
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg			0.00346							
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg			7.44E-06	U						
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg			0.00346							
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg			7.22E-06	U						
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg			0.00612							
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg			5.95E-06	U						
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg			0.000234							
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg			0.000719							
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg			0.000863							
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg			0.000176	JN						
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg			7.66E-06	U						
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg			0.0106							
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg			0.00322							
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg			0.00114	JN						
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg			0.00132							
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg			9.21E-05	JN						
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg			0.003							

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg			0.003							
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg			4.05E-05	JN						
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg			0.0107							
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg			0.000337							
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg			0.000338							
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg			0.000532							
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg			0.00172							
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg			5.89E-06	U						
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg			0.000127	JN						
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg			0.00115							
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg			0.00014							
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg			0.000313							
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg			0.00365							
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg			0.00273							
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg			9.7E-06	JN						
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg			6.92E-05							
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg			0.00118							
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg			0.00201							
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg			0.000568							
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg			0.0107							
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg			0.00201							
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg			0.000148							
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg			0.00389							
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg			0.00771							
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg			0.00196							
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg			0.00365							
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg			4.04E-05	JN						
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg			0.000174							
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg			4.79E-06	U						
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg			0.00347							
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg			1.59E-05	JN						
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg			5.67E-05							
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg			0.00132							
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg			0.00471							
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg			0.00471							
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg			0.00217							
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg			0.000316							
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg			0.00948							
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg			0.00248							
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg			0.000584							
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg			0.00948							
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg			0.0015							
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg			0.00584							

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg			3.5E-05	J						
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg			0.00177							
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg			0.00248							
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg			0.0105							
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg			0.00177							
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg			9.6E-05							
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg			0.000213	JN						
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg			0.00297							
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg			6.97E-05							
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg			1.98E-05	JN						
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg			0.000756							
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg			0.000788							
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg			0.00154							
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg			0.0116							
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg			0.000756							
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg			0.000291							
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg			0.00338							
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg			0.00948							
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg			0.00718							
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg			0.000257							
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg			5.78E-05	JN						
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg			0.00584							
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg			0.000131	JN						
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg			0.0116							
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg			0.00471							
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg			9.28E-05							
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg			0.000316							
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg			0.0116							
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg			0.000756							
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg			0.0116							
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg			0.000716							
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg			5.19E-06	JN						
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg			9.53E-05							
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg			0.00293							
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg			5.82E-06	U						
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg			2.27E-05	JN						
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg			0.000861							
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg			0.00399							
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg			0.00175							
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg			0.0013							
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg			0.0044							
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg			0.0044							
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg			0.00136							

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg			0.000106	JN						
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg			0.000169	JN						
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg			0.00766							
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg			0.00136							
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg			0.00145							
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg			5.94E-05	JN						
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg			0.00017							
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg			0.00661							
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg			0.000115	JN						
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg			0.0044							
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg			0.000282	JN						
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg			0.00399							
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg			0.0507	JN						
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg			0.0687	JN						
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg							0.033	U		
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg							0.011			
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg			0.0431	JN						
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg							0.27	U		
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg							0.27	U		
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg							6.8	U		
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg							0.27	U		
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg							0.27	U		
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg							6.8	U		
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg							6.8	U		
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg							6.8	U		
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg							6.8	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg							6.8	U		
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.24	U	0.26	U	0.11	U	0.27	U	0.0077	J
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.24	U	0.062	J	0.051	J	0.067	J	0.016	J
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.12	J	0.12	J	0.097	J	0.13	J	0.02	J
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg							1.3	UJ		
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.61		0.42		0.39		0.59		0.11	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.71		0.37		0.45		0.67		0.13	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	1		0.82		0.64		0.73		0.21	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.76		0.74		0.52		0.73		0.11	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.47		0.28		0.24		0.56		0.066	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg							0.27	U		
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg							1.5	J		
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg							6.8	U		
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg							0.067	J		
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.94		0.76		0.62		0.9		0.19	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.17	J	0.17	J	0.1	J	0.2	J	0.024	J
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	1.4		0.99		1.1		1.3		0.27	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.24	U	0.26	U	0.11	U	0.27	U	0.012	J
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg							0.27	U		
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg							0.27	U		
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.61		0.14	J	0.41		0.58		0.088	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.24	U	0.26	U	0.11	U	0.27	U	0.0049	J
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg							2.7	U		
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg							0.27	U		
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg							1.3	U		
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.55		0.31		0.37		0.38		0.092	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg							0.27	U		
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	1.2		0.8		0.64		1		0.19	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	7.9		5.5		5.1		7.3		1.4	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.67		0.49		0.52		0.58		0.15	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	8.5		6		5.6		7.8		1.5	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg							1.6	U		
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg							0.012			
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg							0.055			
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg							0.016	U		
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg							0.0082	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED2.5B		SED2A		SED2B		SED2C		SED3.5B	
					sys_sample_code	SED2.5B00N		SED2A00N		SED2B00N		SED2C00N		SED3.5B00N	
					sample_date	11/7/2013		11/6/2013		11/5/2013		11/6/2013		11/12/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg							0.0082	U		
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg							0.016	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg					3.21E-05	J	5.78E-05	J		
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg					6.61E-06	JN	1.37E-05	JN		
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg					7.05E-07	JN	1.27E-06	JN		
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg					6.63E-07	J	1.16E-06	J		
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg					1.32E-06	JN	2.07E-06	JN		
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg					1.31E-06	JN	2.8E-06	J		
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg					1.61E-06	JN	2.05E-06	JN		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg					1.58E-06	JN	3.09E-06	J		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg					7.05E-08	JN	1.21E-07	JN		
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg					4E-07	JN	1.23E-06	JN		
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg					4.5E-07	JN	7.36E-07	JN		
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg					6.1E-07	J	1.19E-06	JN		
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg					9.98E-07	JN	1.65E-06	JN		
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg					2.41E-08	U	3.34E-07	JN		
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg					4.68E-07	JN	8.25E-07	JN		
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg					0.000617	J	0.00142	J		
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg					1.38E-05		2.17E-05			
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg					2.64E-06		5.4E-06			
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg					1.83E-06		4E-06			
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg					2.06E-06		4.57E-06			
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg					7.7E-05	J	0.00013	J		
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg					1.95E-05	JN	3.35E-05	JN		
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg					1.51E-05	JN	2.97E-05	JN		
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg					2.45E-05	JN	4.11E-05	JN		
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg					5.81E-06	JN	9.73E-05	JN		
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg					3.8E-05	JN	6.21E-05	JN		
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg					3.84E-06	JN	7.53E-06	JN		
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg					6.34E-05	JN	0.000102	JN		
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg					2.06E-06		4.57E-06			
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	14000		1900		5900		5300		13000	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.2	U	0.17		0.52		0.4		0.87	
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	1.8		0.79		2.3		2.6		4.1	
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	180		29		61		55		120	
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	1.9		0.32		0.76		0.69		1.6	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.59		0.24		0.55		0.5		1	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	1100		7700	J-	2400		2200		4300	J-
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	24		11	J+	25		23		54	J+
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	16		4.8		13		12		23	
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	17		9.6		29		28		68	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	16000		8300		16000		14000		32000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	16		20		36		33		80	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	2600		870		2600		2300		4500	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	300		120	J-	200		190		560	J-
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.064		0.033		0.091		0.16		0.2	
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	26		8		23		21		40	
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	880		500		1100		960		1500	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	1.2		0.23	J	0.65		0.66		1.3	
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.097	J	0.044	J	0.14		0.16		0.41	
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	65		75		110		110		150	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.18		0.057	J	0.18		0.15		0.28	
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	26		8.5	J+	26		30		42	J+
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	73		60		130		120		280	
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.01	J	0.004	J	0.0052	J	0.0069	J	0.011	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0045	U	0.0017		0.0031		0.0032		0.0058	
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.061		0.1		0.13		0.11		0.24	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.14		0.086		0.19		0.21		0.58	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.042		0.085		0.12		0.12		0.25	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	0.00013	U	8.5E-05	U	0.00013	U	0.00014	U	2.4E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.12		0.06		0.16		0.15		0.27	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.0047	UJ	0.0016	UJ	0.0024	UJ	0.0025	UJ	0.0028	UJ
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	0.95	UJ	0.64	UJ	3	J	3.7	J	1.1	UJ
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	46000		6300		37000		43000		43000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	0.77		0.81		1.4		1.4		2.9	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg					0.0023	J	0.0033	J		
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg					0.0028	J	0.0034	J		
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg					0.0007	J	0.0048	J		
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg					0.00037	J	0.00048			
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg					0.00044	U	0.00045	U		
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.0084	U	0.0057	U	0.0087	U	0.0091	U	0.01	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.0084	U	0.0057	U	0.0087	U	0.0091	U	0.01	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.0084	U	0.0057	U	0.0087	U	0.0091	U	0.01	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.0084	U	0.0057	U	0.0087	U	0.0091	U	0.01	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.0084	U	0.032	J	0.13	J	0.11	J	0.13	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.0084	U	0.0057	U	0.0087	U	0.0091	U	0.01	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.0084	U	0.01	J	0.059	J	0.051	J	0.06	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.0084	U	0.0057	U	0.0087	U	0.0091	U	0.01	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.0084	U	0.0057	U	0.0087	U	0.0091	U	0.01	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg					0.00044	U	0.00045	U		
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg					0.0043	J	0.0055	J		
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg					0.00044	U	0.00045	U		
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg					0.00062	J	0.00082	J		
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg					0.00044	U	0.00045	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg					0.00013	J	0.00052	J		
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg					0.00022	J	0.00084	J		
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg					0.0013	J	0.0015	J		
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg					0.00044	U	0.00056			
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg					0.0023		0.0023			
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg					0.00021	J	0.00023	J		
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg					0.0012		0.0014			
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg					0.00042	J	0.00047	J		
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg					0.0078		0.0085			
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.0084	U	0.042		0.19		0.16		0.19	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.0084	U	0.041		0.27		0.16		0.18	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg					0.017	U	0.018	U		
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg					0.0071		0.0083			
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg										
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg					0.07	U	0.073	U		
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg					0.07	U	0.073	U		
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg					1.8	U	1.9	U		
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg					0.07	U	0.073	U		
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg					0.015	J	0.073	U		
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg					1.8	U	1.9	U		
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg					1.8	U	1.9	U		
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg					1.8	U	1.9	U		
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg					0.071	J	0.36	U		
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg					1.8	U	1.9	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg					1.8	U	1.9	U		
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.0067	U	0.01	J	0.061	J	0.034	J	0.028	J
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.0067	U	0.023	U	0.084		0.065	J	0.081	U
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg					0.03	J	0.36	U		
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.0067	U	0.016	J	0.17		0.1		0.095	
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg					0.32	J	0.32	J		
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.0067	U	0.11		0.62		0.41		0.5	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.0067	U	0.13		0.7		0.49		0.58	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.0067	U	0.21		1		0.71		0.95	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.0067	U	0.14		0.76		0.58		0.68	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.0067	U	0.09		0.32		0.25		0.38	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg					0.07	U	0.073	U		
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg					0.84		0.64	J		
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg					0.078	J	0.36	U		
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg					1.8	U	1.9	U		
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg					0.095		0.063	J		
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.0067	U	0.19		0.93		0.65		1	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.0067	U	0.032		0.17		0.13		0.14	
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg					0.042	J	0.36	U		
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	0.0067	U	0.29		1.8		1.2		1.3	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.0067	U	0.013	J	0.081		0.073	U	0.03	J
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg					0.07	U	0.073	U		
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg					0.07	U	0.073	U		
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.0067	U	0.11		0.6		0.44		0.55	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.0067	U	0.023	U	0.07	U	0.073	U	0.081	U
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg					0.7	U	0.73	U		
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg					0.07	U	0.073	U		
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg					0.34	U	0.36	U		
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.0067	U	0.19		0.64	J	0.36	J	0.44	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg					0.07	U	0.073	U		
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.0067	U	0.27		0.91		0.64		1.1	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	0.0067	U	1.6		7.8		5.5		7.2	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.0067	U	0.23		1		0.56		0.59	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	0.0067	U	1.8		8.8		6.1		7.8	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg					3.4	U	2.1	U		
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg					0.067	U	0.041	U		
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg					0.034	U	0.021	U		
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg					0.017	U	0.01	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED3A		SED3B		SED3C		SED3C		SED4.5B	
					sys_sample_code	SED3A00N		SED3B00N		SED3C00N		SED3C00R		SED4.5B00N	
					sample_date	11/7/2013		11/8/2013		11/7/2013		11/7/2013		11/8/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg					0.017	U	0.01	U		
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg					0.034	U	0.021	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg			0.000149	J	5.03E-05	J				
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg			3.44E-05	J	1.1E-05	J				
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg			2.74E-06	J	1.05E-06	J				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg			2.38E-06	J	9.3E-07	J				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg			7.26E-06	JN	2.29E-06	JN				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg			6.81E-06		3.06E-06	J				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg			1.14E-05	JN	5.05E-06	JN				
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg			5.99E-06		2.59E-06	J				
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg			2.95E-07	J	2.12E-07	JN				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg			3.91E-06	JN	7.86E-07	JN				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg			1.95E-06	J	7.47E-07	JN				
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg			4.78E-06		1.81E-06	JN				
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg			5.61E-06	JN	2.05E-06	JN				
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg			2.71E-06	JN	7.39E-07	J				
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg			6.38E-06	JN	1.84E-06	JN				
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg			0.006	J	0.00181	J				
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg			5.08E-05	J	1.85E-05	J				
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg			2.31E-05		7.12E-06					
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg			1.47E-05		4.49E-06					
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg			1.66E-05		5.11E-06					
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg			0.00032	J	0.000109	J				
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg			9.09E-05	J	3.13E-05	JN				
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg			7.37E-05	JN	2.82E-05	JN				
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg			0.000245	JN	9.86E-05	JN				
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg			0.000387	JN	0.000124	JN				
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg			0.00054	JN	0.00023	JN				
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg			2.51E-05	JN	8.17E-06	JN				
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg			0.000965	JN	0.000402	JN				
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg			1.66E-05		5.11E-06					
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	9400		4800		6000		10000		11000	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.47	J-	0.15	J-	0.15	J-	0.64	J-	0.56	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	3.6	J-	2.7	J-	3	J-	3.4	J-	4.2	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	120		76		98		110		130	
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	1.5		0.73		0.85		1.4		1.5	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.97		0.77		1.2		1.1		1.4	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	8400		1300		1600		3500		3300	
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	45	J+	44	J+	73	J+	45		140	
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	23		10		11		19		22	
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	66		27		38		66		65	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	29000		14000		16000		27000		29000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	72		100		140		80		90	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	3300		1300		1700		3600		3100	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	570	J+	160	J+	170	J+	390		530	
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.25	J	0.12	J	0.25	J	0.24		0.28	
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	39		16		20		37		33	
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	1200		790		900		1200		1200	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	1.4	J-	0.58	J-	0.77	J-	1.3	J-	1.4	J-
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.38		0.4		0.63		0.43		1.4	
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	260		54		63		160		140	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.25		0.15		0.19		0.25		0.27	
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	38		23		27		41		43	
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	250	J	140	J	200	J	260	J-	250	J-
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.023	J	0.014	J	0.0098	J	0.016	J	0.015	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0044		0.0058		0.0057		0.0073	J	0.0094	
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.32		0.51		0.62		0.49	J	1.3	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.54		0.27		0.19		0.75		0.75	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.26		0.47		0.31		0.29	J	0.31	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	0.00013	J	9.3E-05	U	9E-05	U	0.00018	J	0.0002	
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.36		0.18		0.14		0.43		0.36	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.00067	J	0.00058	J	0.0035	J	0.00065	J	0.0065	J
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	1.4	U	1.8		4.7		2.7	J	5.1	J
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	47000		17000		20000		56000		58000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	2.6		1.8		1.5		3.5		3.3	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg			0.068	J	0.036	J				
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg			0.024	J	0.026	J				
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg			1.5	J	0.0014	J				
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg			0.0016	U	0.00034	J				
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg			0.0016	U	0.00024	J				
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.011	U	0.0062	U	0.006	U	0.011	U	0.011	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.011	U	0.0062	U	0.006	U	0.011	U	0.011	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.011	U	0.0062	U	0.006	U	0.011	U	0.011	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.011	U	0.0062	U	0.006	U	0.011	U	0.011	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.1	J	0.21	J	0.57	J	0.28	J	0.011	U
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.011	U	0.0062	U	0.006	U	0.011	U	0.011	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.048	J	0.097	J	0.3	J	0.11	J	0.16	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.011	U	0.0062	U	0.006	U	0.011	U	0.011	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.011	U	0.0062	U	0.006	U	0.011	U	0.011	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg			0.0011	J	0.0011	J				
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg			0.0061	J	0.0044	J				
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg			0.0016	U	0.0015	J				
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg			0.0012	J	0.0019	J				
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg			0.0016	U	0.0015	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg			0.00099	J	0.0015					
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg			0.00079	J	0.0027					
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg			0.0031	J	0.0044	J				
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg			0.00083	J	0.0015	U				
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg			0.00091	J	0.0019	J				
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg			0.0016	U	0.00051	J				
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg			0.0033		0.003					
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg			0.0015	J	0.0013	J				
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg			0.011	J	0.012	J				
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.15		0.31		0.87		0.39		0.16	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.15		0.31		0.87		0.39		0.16	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg			0.062	U	0.06	U				
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg			0.01		0.008					
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg										
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg			0.12	U	0.018	J				
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg			0.025	U	0.024	U				
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg			0.025	U	0.024	U				
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg			0.12	U	0.027	J				
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg			0.63	U	0.61	U				
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg			0.025	U	0.024	U				
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg			0.041		0.082					
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg			0.63	U	0.61	U				
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg			0.63	U	0.61	U				
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg			0.63	U	0.61	U				
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg			0.015	J	0.027	J				
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg			0.63	U	0.61	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg			0.63	U	0.61	U				
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.034	J	0.049	J	0.19	J	0.022	J	0.033	J
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.073	J	0.09		0.12		0.08	J	0.085	
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.1		0.096	J	0.35	J	0.087	J	0.11	
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg				R		R				
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.41		0.35	J	1	J	0.47		0.41	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.53		0.34	J	0.93	J	0.55		0.51	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.87		0.4	J	0.91	J	0.94		0.78	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.74		0.29	J	0.74	J	0.74		0.63	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.3		0.15	J	0.49	J	0.32		0.29	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg			0.025	U	0.024	U				
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg			0.19	J	0.21	J				
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg			0.63	U	0.61	U				
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg			0.029		0.11					
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.8		0.41	J	1.1	J	0.83		0.8	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.16		0.068		0.17		0.16		0.11	
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg			0.12	U	0.07	J				
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg			0.12	U	0.12	UJ				
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	0.99		0.64	J	2.5	J	1		0.91	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.035	J	0.057	J	0.19	J	0.039	J	0.054	
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg			0.025	U	0.024	U				
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg			0.025	U	0.024	U				
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.53		0.22	J	0.6	J	0.59		0.41	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.024	J	0.036		0.061		0.022	J	0.036	J
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg			0.25	U	0.24	U				
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg			0.025	U	0.024	U				
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg			0.12	U	0.12	U				
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.32		0.45	J	1.9	J	0.32		0.4	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg			0.025	U	0.024	U				
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.76		0.65	J	1.8	J	0.84		0.87	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	6.1		3.5		10		6.4		5.7	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.59		0.78		2.8		0.57		0.72	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	6.7		4.3		13		7		6.4	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg			1.5	U	1.4	U				
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg			0.03	U	0.027	U				
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg			0.015	U	0.014	U				
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg			0.0074	U	0.0068	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED4A		SED4B		SED4B		SED4C		SED5.5B	
					sys_sample_code	SED4A00N		SED4B00N		SED4B00R		SED4C00N		SED5.5B00N	
					sample_date	11/12/2013		11/12/2013		11/12/2013		11/12/2013		11/12/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg			0.0074	U	0.0068	U				
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg			0.015	U	0.014	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg									0.00108	
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg									0.000307	
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg									4.16E-05	
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg									8.35E-05	
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg									0.000158	JN
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg									0.000131	
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg									8.54E-05	
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg									0.000196	
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg									6.56E-06	
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg									7.6E-05	
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg									4.59E-05	
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg									8.13E-05	JN
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg									6.65E-05	
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg									1.37E-05	
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg									2.56E-05	JN
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg									0.00861	J
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg									0.000289	
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg									0.00025	
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg									0.00021	
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg									0.000205	
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg									0.00204	
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg									0.000597	
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg									0.0015	
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg									0.000885	JN
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg									0.00216	JN
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg									0.00097	JN
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg									0.000512	JN
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg									0.000849	JN
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg									0.000205	
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	11000		15000		8000		13000		6000	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.59		0.8		0.27	J-	0.77	J-	1.4	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	3.5		4.6		5.3	J-	14	J-	5.9	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	97		130		87	J+	120	J-	79	
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	1.3		1.7		0.89		1.8		0.73	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.81		1.1		1		2.8	J-	3.8	J-
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	3200	J-	4000	J-	1800	J-	1400	J-	3000	
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	44	J+	57	J+	57	J+	47	J-	31	
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	18		23		12	J	17	J-	16	
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	51		70		40		130		96	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	27000		33000		23000		17000		16000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	63		84		120	J	140		130	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	3700		4600		1800		1800		2400	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	430	J-	560	J-	300		130	J-	150	
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.14		0.2		0.38		0.27	J	0.23	J
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	33		41		20		91	J-	65	J-
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	1300		1500		850		590		610	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	1.1		1.4		0.56		1.5	J-	0.78	J-
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.32		0.43		0.9		0.8		1.5	J-
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	120		170		71		140		140	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.23		0.28		0.27		0.53		0.16	J-
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	36	J+	49	J+	61	J+	250	J+	120	
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	220		290		160	J+	300	J-	420	
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.022	J	0.026	J	0.031	J	0.057		0.024	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0036		0.0048		0.0084		0.033		0.033	J
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.3		0.36		0.74	J	0.51		0.28	J
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.47		0.64		0.67		1.5		1.3	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.23		0.3		0.58		0.62		0.65	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	0.0001	J	0.0001	J	3E-05	J	1.3E-05	J	7.2E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.32		0.42		0.57	J	1		0.67	J
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.00092	J	0.0012	J	0.0044	J	0.0016	J	0.0051	J
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	1.8	J	2.1	J	3.4		4.6	J	4.1	J
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	35000		39000		31000		50000		86000	J
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	2.3		3.1		3.3		6.1		8.6	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg									0.0024	J
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg									0.0035	J
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg									0.0019	J
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg									0.00025	J
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg									0.00076	U
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.009	U	0.011	U	0.0093	U	0.008	U	0.0076	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.009	U	0.011	U	0.0093	U	0.008	U	0.0076	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.009	U	0.011	U	0.0093	U	0.008	U	0.0076	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.009	U	0.011	U	0.0093	U	0.008	U	0.0076	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.082	J	0.13	J	0.51	J	0.77	J	0.24	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.009	U	0.011	U	0.0093	U	0.008	U	0.0076	UJ
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.043	J	0.095	J	0.24	J	1	J	0.16	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.009	U	0.011	U	0.0093	U	0.008	U	0.0076	UJ
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.009	U	0.011	U	0.0093	U	0.008	U	0.0076	UJ
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg									0.00094	J
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg									0.0058	
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg									0.0017	J
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg									0.0013	J
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg									0.00076	U

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg									0.0015	J
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg									0.0029	
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg									0.0055	J
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg									0.00049	J
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg									0.0027	J
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg									0.0004	J
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg									0.0008	J
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg									0.0021	J
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg									0.007	J
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.13		0.23		0.75		1.8		0.4	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.17		0.23		0.75		1.8		0.4	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg									0.031	U
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg									0.0077	
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg										
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg									0.061	U
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg									0.061	U
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg									1.6	U
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg									0.061	U
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg									0.074	
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg									1.6	U
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg									1.6	U
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg									1.6	U
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg									0.055	J
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg									1.6	U

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg									1.6	U
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.031	J	0.018	J	0.08		0.057	J	0.061	U
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.072	U	0.087	U	0.17		0.035	J	0.048	J
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg									0.044	J
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.071	J	0.058	J	0.21		0.06	J	0.089	
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg									0.064	J
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.37		0.37		0.63		0.19		0.4	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.45		0.44		0.78		0.19		0.46	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.73		0.8		1.1		0.32		0.73	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.64		0.63		0.83		0.19		0.53	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.29		0.25		0.39		0.096	J	0.25	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg									0.061	U
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg									1.3	
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg									1.6	U
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg									0.06	J
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.75		0.72		0.96		0.32		0.74	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.14		0.096		0.17		0.052	J	0.14	
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg									0.041	J
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	0.84		0.8		1.1		0.37		1	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.045	J	0.041	J	0.07	J	0.063	J	0.05	J
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg									0.061	U
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg									0.061	U
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.5		0.48		0.62		0.14	J	0.42	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.072	U	0.087	U	0.075	U	0.052	J	0.033	J
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg									0.61	U
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg									0.061	U
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg									0.3	U
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.3		0.26		0.56		0.19		0.37	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg									0.061	U
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.78		0.73		1.1		0.41		0.91	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	5.5		5.3		7.7		2.3		5.6	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.45		0.38		1.1		0.46		0.59	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	5.9		5.7		8.8		2.7		6.2	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg									2.1	U
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg									0.043	U
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg									0.021	U
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg									0.011	U

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED5A		SED5B		SED5C		SED6.5D		SED6.5E	
					sys_sample_code	SED5A00N		SED5B00N		SED5C00N		SED6.5D00N		SED6.5E00N	
					sample_date	11/8/2013		11/8/2013		11/11/2013		11/25/2013		11/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg									0.011	U
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg									0.021	U

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg			4.72E-05	J	0.000105	J				
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg			1.63E-05	JN	2.1E-05	JN				
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg			8.09E-07	J	1.64E-06	JN				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg			8.61E-07	J	1.19E-06	JN				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg			1.57E-06	J	1.67E-06	J				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg			2.08E-06	JN	3.42E-06	J				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg			1.93E-06	JN	2.75E-06	JN				
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg			2.42E-06	JN	2.53E-06	J				
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg			1.09E-07	JN	1.41E-07	JN				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg			8.59E-07	JN	9.97E-07	JN				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg			3.7E-07	JN	3.6E-07	JN				
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg			8.88E-07	JN	9E-07	J				
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg			9.88E-07	JN	1.01E-06	JN				
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg			2.64E-07	JN	2.56E-07	JN				
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg			9.6E-07	J	1.22E-06					
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg			0.00144		0.00206					
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg			1.87E-05	J	4.64E-05	JN				
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg			4.23E-06		4.95E-06					
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg			2.97E-06		3.58E-06					
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg			3.59E-06		4.86E-06					
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg			0.000111	J	0.00021	J				
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg			3.09E-05	JN	5.76E-05	JN				
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg			2.34E-05	JN	2.8E-05	JN				
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg			3.76E-05	JN	6.04E-05	JN				
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg			0.000189	JN	6.53E-05	JN				
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg			6.28E-05	JN	6.48E-05	JN				
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg			5.06E-06	JN	5.03E-06	JN				
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg			8.77E-05	JN	0.0001	JN				
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg			3.59E-06		4.86E-06					
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	2000		5500		5600		9800		13000	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.13	J-	0.35	J-	0.35	J-	0.49	J-	0.43	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	1.2	J-	1.8	J-	2	J-	3.6	J-	11	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	29		60		74		89		97	J-
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	0.37		0.77		0.86		1.3		1.7	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.33		0.5		0.54		1.2		1.3	J-
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	870		2100		2500		2800	J-	1400	J-
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	14		25		25		45		80	J-
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	5.3		12		14		19		15	J-
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	13		34		35		65		160	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	8200		18000		18000		26000		19000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	51		47		40		71		150	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	640		2200		2300		2500		1800	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	100		260		300		390		180	J-
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.045	J-	0.095	J-	0.096	J-	0.23	J+	0.28	J
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	7.7		22		24		36		59	J-
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	380		950		950		1100		650	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	0.33	J-	0.7	J-	0.74	J-	1.3	J-	1	J-
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.12		0.17		0.17		0.58		0.89	
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	25		80		93		120	J-	110	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.07		0.13		0.16		0.23	J-	0.35	
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	11		20		22		37		180	J+
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	57	J-	140	J-	150	J-	260		280	J-
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.0099	J	0.0082	UJ	0.0094	J	0.012		0.055	
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0042		0.0031		0.0034		0.0078		0.0097	
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.42		0.27		0.28		0.44		1.4	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.25		0.35		0.36		0.74		2.9	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.31		0.15		0.15		0.28		0.69	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	4.4E-05	J	9.4E-05	J	9.3E-05	J	7.6E-05	J	5E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.16		0.24		0.25		0.39		0.71	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.00071	J	0.0012	J	0.0021	UJ	0.0011	J	0.0013	J
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	1.9	J	1	UJ	1	UJ	0.92	J	5.3	J
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	11000		20000		28000		44000		40000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	1.6		1.8		1.9		3.2		5.1	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg			0.0037		0.0049					
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg			0.0043		0.005					
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg			0.0037	J	0.0051	J				
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg			0.00072		0.001	J				
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg			0.00072	U	0.00076	U				
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.0055	U	0.0072	U	0.0076	U	0.011	U	0.0077	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.0055	U	0.0072	U	0.0076	U	0.011	U	0.0077	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.0055	U	0.0072	U	0.0076	U	0.011	U	0.0077	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.0055	U	0.0072	U	0.0076	U	0.011	U	0.0077	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.11	J	0.063	J	0.063	J	0.13	J	0.39	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.0055	U	0.0072	U	0.0076	U	0.011	U	0.0077	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.033	J	0.059	J	0.027	J	0.11	J	0.48	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.0055	U	0.0072	U	0.0076	U	0.011	U	0.0077	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.0055	U	0.0072	U	0.0076	U	0.011	U	0.0077	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg			0.00072	U	0.00076	U				
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg			0.0051	J	0.0087	J				
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg			0.00027	J	0.00076	J				
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg			0.0014	J	0.0014	J				
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg			0.00072	U	0.00064	J				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg			0.00023	J	0.00017	J				
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg			0.00093		0.00044	J				
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg			0.0013	J	0.0029	J				
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg			0.00023	J	0.00076	U				
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg			0.0023	J	0.0022	J				
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg			0.0011		0.00083	J				
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg			0.00067	J	0.00072	J				
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg			0.00055	J	0.0014	J				
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg			0.012	J	0.0076					
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.14		0.12		0.09		0.24		0.87	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.14		0.12		0.09		0.32		0.87	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg			0.029	U	0.03	U				
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg			0.0078		0.0094					
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg										
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg			0.058	U	0.061	U				
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg			0.058	U	0.061	U				
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg			1.5	U	1.6	U				
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg			0.058	U	0.061	U				
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg			0.019	J	0.019	J				
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg			1.5	U	1.6	U				
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg			1.5	U	1.6	U				
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg			1.5	U	1.6	U				
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg			1.5	U	1.6	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg			1.5	U	1.6	U				
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.084		0.035	J	0.032	J	0.019	J	0.035	J
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.084		0.064		0.059	J	0.061	J	0.028	J
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.13		0.12		0.12		0.061	J	0.047	J
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg			0.25	J	0.25	J				
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.39		0.48		0.52		0.42	J	0.16	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.43		0.61		0.65		0.53	J	0.16	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.47		0.85		0.91		0.85	J	0.29	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.37		0.62		0.62		0.35	J	0.17	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.16		0.31		0.33		0.33	J	0.1	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg			0.058	U	0.061	U				
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg			1.1		1.2					
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg			0.061	J	0.068	J				
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg			1.5	U	1.6	U				
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg			0.081		0.078					
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.47		0.8		0.84		0.85	J	0.27	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.088		0.14		0.15		0.089	J	0.04	J
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg			0.2	J	0.3	U				
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg			0.1	J	0.043	J				
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	1		1.4		1.4		1.1	J	0.32	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.07		0.041	J	0.051	J	0.044	J	0.044	J
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg			0.058	U	0.061	U				
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg			0.058	U	0.061	U				
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.29		0.53		0.55		0.35	J	0.12	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.018	J	0.017	J	0.017	J	0.022	J	0.047	J
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg			0.58	U	0.61	U				
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg			0.058	U	0.061	U				
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg			0.29	U	0.3	U				
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.61		0.53		0.48		0.3	J	0.2	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg			0.058	U	0.061	U				
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.75		0.9		0.89		0.86	J	0.34	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	4.4		6.6		6.9		5.7		2	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	1		0.81		0.76		0.51		0.4	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	5.4		7.4		7.6		6.2		2.4	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg			1.8	U	1.7	U				
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg			0.036	U	0.02	J				
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg			0.0011	J	0.0083	U				
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg			0.018	U	0.017	U				
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg			0.0089	U	0.0083	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED6A		SED6B		SED6B		SED6C		SED7.5D	
					sys_sample_code	SED6A00N		SED6B00N		SED6B00R		SED6C00N		SED7.5D00N	
					sample_date	11/13/2013		11/13/2013		11/13/2013		11/14/2013		11/25/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg			0.0089	U	0.0083	U				
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg			0.018	U	0.017	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg					2.09E-05		3.65E-05	J		
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg					3.84E-06	J	6.8E-06			
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg					5.35E-07	JN	7.67E-07	JN		
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg					3.05E-07	JN	5.35E-07	J		
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg					7.5E-07	JN	9.2E-07	JN		
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg					8.91E-07	JN	1.52E-06	JN		
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg					1.46E-06	JN	2.56E-06	JN		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg					7.83E-07	J	1.25E-06	J		
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg					5.9E-08	J	8.71E-08	JN		
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg					4.23E-07	JN	4.62E-07	JN		
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg					2.33E-07	JN	2.78E-07	JN		
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg					5.09E-07	JN	8.06E-07	J		
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg					4.9E-07	JN	5.82E-07	JN		
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg					1.94E-08	U	2.27E-08	U		
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg					5.27E-07	JN	6.19E-07	JN		
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg					0.000628		0.000927			
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg					7.01E-06	J	1.62E-05			
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg					1.97E-06		2.5E-06			
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg					1.28E-06		1.74E-06			
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg					1.55E-06		2.2E-06			
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg					4.47E-05		7.88E-05	J		
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg					1.17E-05	JN	2.01E-05	JN		
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg					9.9E-06	JN	1.36E-05	JN		
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg					3.31E-05	JN	4.52E-05	JN		
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg					3.96E-05	JN	5.33E-05	JN		
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg					6.25E-05	JN	9.83E-05	JN		
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg					1.8E-06	JN	2.22E-06	JN		
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg					0.000114	JN	0.000163	JN		
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg					1.55E-06		2.2E-06			
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	15000		5900		8900		9300		7300	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	1	J-	0.43	J-	0.28	J-	0.23	J-	0.69	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	17	J-	2.2	J-	4.2	J-	3.8	J-	4.3	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	150	J-	62		92		92		110	J-
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	2.2		0.83		1.2		1.3		1	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	5.2	J-	0.52		1.3		1.2		4.7	J-
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	2500	J-	2500		1700		1600		2000	J-
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	76	J-	25		61		62		36	J-
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	32	J-	12		13		13		16	J-
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	240		38		44		43		64	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	25000		16000		22000		23000		17000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	230		40		110		110		170	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	3100		2100		1900		1800		2700	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	230	J-	270		260		270		180	J-
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.69	J	0.11	J-	0.4	J-	0.34	J-	0.24	J
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	150	J-	21		22		22		50	J-
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	760		710		950		960		1100	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	1.8	J-	0.73	J-	1.1	J-	1.1	J-	0.72	J-
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	3.3		0.19		1.2		1		1.3	
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	220		110		120		86		100	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.63		0.13		0.27		0.27		0.25	
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	360	J+	22		38		37		110	J+
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	580	J-	140	J-	170	J-	160	J-	380	J-
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.081		0.0082	UJ	0.014	J	0.013	J	0.019	
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.046		0.0025		0.0071		0.0068		0.042	
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.88		0.22		0.64		0.6		0.38	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	3.1		0.35		0.46		0.48		0.79	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	1		0.11		0.35		0.33		0.84	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	5.2E-05	J	0.00012		5.4E-05	J	6.6E-05	J	3.2E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	1.5		0.19		0.22		0.23		0.66	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.0088		0.0019	UJ	0.0034	J	0.003	J	0.0048	
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	7.6	J	1.6	UJ	4.5	J	1.6	UJ	4.4	J
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	140000		28000		21000		20000		49000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	9.7		1.6		2.1		2.1		6.5	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg					0.0089	J	0.0052	J		
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg					0.056		0.036			
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg					0.00071	UJ	0.0036	J		
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg					0.0003	J	0.00018	J		
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg					0.00071	U	0.00071	U		
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.012	U	0.007	U	0.0072	U	0.0071	U	0.0074	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.012	U	0.007	U	0.0072	U	0.0071	U	0.0074	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.012	U	0.007	U	0.0072	U	0.0071	U	0.0074	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.012	U	0.007	U	0.0072	U	0.0071	U	0.0074	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.89	J	0.007	U	0.34	J	0.32	J	0.4	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.012	U	0.007	U	0.0072	U	0.0071	U	0.0074	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.97	J	0.023		0.16	J	0.16	J	0.22	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.012	U	0.007	U	0.0072	U	0.0071	U	0.0074	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.012	U	0.007	U	0.0072	U	0.0071	U	0.0074	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg					0.0011	J	0.00074	J		
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg					0.0032	J	0.0012	J		
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg	0.00274									
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg					0.00025	J	0.001	J		
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg	0.197	JN								
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg					0.0032	J	0.002	J		
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg					0.00071	U	0.00071	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg					0.0013	J	0.00075	J		
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg					0.0036	J	0.0021	J		
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg					0.0085	J	0.0049	J		
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg					0.0011	J	0.0021	J		
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg					0.00071	U	0.00071	U		
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg					0.00071	U	0.00017	J		
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg					0.0048	J	0.0018	J		
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg					0.0018	J	0.00089	J		
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg	2.08	JN								
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg	3.27	JN								
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg					0.014	J	0.0093	J		
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg	0.0183									
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg	0.036									
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg	0.559									
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg	0.00358									
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg	0.00241									
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg	11.8									
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	1.9		0.023		0.5		0.48		0.62	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	1.9		0.023		0.5		0.48		0.62	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg	0.0104									
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg	0.00128									
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg	0.00106	JN								
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg	0.359									
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg	0.00827									
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg	0.00213									
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg	7.45E-05	U								
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg	0.126									
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg	9.96E-05	U								
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg	0.0247									
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg	0.014									
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg	0.196									
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg	0.000672	J								
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg	0.346									
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg	0.000181	JN								
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg	7.6E-05	U								
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg	0.359									
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg	0.00722									
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg	0.346									
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg	0.0474									
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg	0.0474									
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg	0.314									
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg	0.196									
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg	0.00686									

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg	0.00119									
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg	7.26E-05	U								
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg	0.00476									
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg	0.00613									
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg	0.014									
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg	0.196									
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg	0.021	JN								
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg	0.00075	JN								
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg	0.077									
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg	0.682									
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg	0.00686									
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg	0.0341									
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg	0.0077									
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg	0.22									
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg	0.00974									
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg	0.0338									
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg	0.277									
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg	0.0911									
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg	0.0175									
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg	0.682									
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg	0.00765	JN								
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg	6.88E-05	JN								
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg	0.00765	JN								
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg	0.176									
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg	0.000199	U								
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg	0.0338									
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg	0.0431									
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg	0.000102	JN								
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg	0.109									
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg	0.608									
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg	0.00015	U								
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg	0.608									
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg	0.0608									
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg	0.000592									
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg	0.277									
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg	0.000314	J								
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg	0.642									
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg	0.00408									
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg	0.000102	U								
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg	0.0608									
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg	0.0608									
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg	0.0665									
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg	0.0129									

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg	0.0699									
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg	0.682									
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg	0.000132	U								
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg	0.00273									
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg	0.682									
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg	0.0501									
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg	0.000265	J								
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg	0.077									
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg	0.025									
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg	0.642									
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg	0.00975	JN								
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg	0.0736									
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg	0.237									
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg	0.0714									
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg	0.0443									
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg	0.0714									
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg	0.286									
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg	0.0106									
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg	0.0335									
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg	0.148									
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg	0.0542									
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg	0.121									
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg	0.156									
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg	0.541									
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg	0.00105	JN								
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg	0.00107									
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg	0.175									
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg	0.00021	J								
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg	0.175									
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg	0.0001	U								
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg	0.296									
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg	0.00025	JN								
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg	0.00891									
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg	0.0132									
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg	0.0452									
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg	0.00912									
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg	0.000106	U								
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg	0.541									
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg	0.142									
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg	0.0569									
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg	0.0683									
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg	0.0049									
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg	0.143									

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg	0.143									
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg	0.0012									
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg	0.318									
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg	0.0171									
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg	0.0157									
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg	0.0226									
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg	0.0817									
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg	8.98E-05	U								
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg	0.00728									
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg	0.0265									
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg	0.00364									
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg	0.00583									
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg	0.153									
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg	0.108									
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg	0.000385	J								
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg	0.00252	JN								
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg	0.024									
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg	0.0494									
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg	0.0116									
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg	0.318									
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg	0.0494									
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg	0.0067									
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg	0.156									
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg	0.247									
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg	0.0538									
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg	0.153									
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg	0.0014									
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg	0.00508									
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg	3.93E-05	JN								
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg	0.109									
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg	0.000308	JN								
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg	0.0017									
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg	0.0211									
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg	0.146									
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg	0.146									
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg	0.0651									
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg	0.00914									
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg	0.242									
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg	0.0469									
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg	0.0168									
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg	0.242									
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg	0.0567									
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg	0.148									

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg	0.00119									
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg	0.0323									
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg	0.0469									
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg	0.318									
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg	0.0323									
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg	0.000401	J								
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg	0.00649	JN								
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg	0.117									
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg	0.00151									
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg	0.00026	J								
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg	0.0224									
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg	0.0173									
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg	0.0571									
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg	0.44									
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg	0.0224									
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg	0.00907									
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg	0.104									
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg	0.242									
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg	0.239									
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg	0.00923									
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg	0.000771									
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg	0.148									
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg	0.00319									
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg	0.44									
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg	0.146									
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg	0.00197									
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg	0.00914									
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg	0.44									
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg	0.0224									
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg	0.44									
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg	0.0264									
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg	6.5E-05	U								
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg	0.00393									
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg	0.0797									
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg	5.57E-05	U								
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg	0.00124									
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg	0.0357									
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg	0.152									
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg	0.0774									
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg	0.0474									
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg	0.196									
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg	0.196									
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg	0.0378									

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg	0.00376									
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg	0.00487									
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg	0.359									
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg	0.0378									
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg	0.058									
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg	0.00106	JN								
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg	0.00123									
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg	0.289									
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg	0.00216	JN								
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg	0.196									
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg	0.00827									
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg	0.152									
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg	2.14	JN								
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg	2.12	JN								
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg					0.029	U	0.028	U		
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg					0.0035	J	0.0031			
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg	1.4	JN								
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg					0.029	U	0.057	U		
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg					0.029	U	0.057	U		
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg					0.027	J	0.28	U		
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg					0.72	U	1.5	U		
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg					0.029	U	0.057	U		
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg					0.029		0.03	J		
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg					0.72	U	1.5	U		
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg					0.72	U	1.5	U		
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg					0.72	U	1.5	U		
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg					0.082	J	0.28	U		
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg					0.14	U	0.065	J		
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg					0.72	U	1.5	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg					0.72	U	1.5	U		
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.059		0.02	J	0.034		0.034	J	0.035	J
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.047	J	0.037	J	0.072		0.086		0.07	J
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.12		0.066		0.065		0.087		0.11	J
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg					0.024	J		R		
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.36		0.29		0.2		0.24		0.48	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.31		0.37		0.2	*	0.24		0.54	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.5		0.62		0.23	*	0.36		0.86	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.29		0.49		0.18	*	0.24		0.47	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.14		0.19		0.088	*	0.096		0.19	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg					0.029	U	0.057	U		
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg					0.8		0.86			
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg					0.72	U	1.5	U		
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg					0.024	J	0.057	U		
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.49		0.55		0.3		0.36		0.63	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.055		0.11		0.031	*	0.057	U	0.086	J
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg					0.024	J	0.28	U		
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg					0.14	U*	0.28	U		
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	0.8		0.85		0.4		0.41		0.87	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.11		0.031	J	0.034		0.057	U	0.053	J
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg					0.029	U	0.057	U		
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg					0.029	U	0.057	U		
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.23		0.41		0.13	*	0.18		0.37	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.094		0.013	J	0.019	J	0.024	J	0.046	J
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg					0.28	U	0.57	U		
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg					0.029	U	0.057	U		
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg					0.14	U	0.28	U		
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.47		0.25		0.26		0.29		0.35	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg					0.029	U	0.057	U		
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.73		0.52		0.42		0.5		0.95	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	3.9		4.4		2.2		2.6		5.4	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.9		0.42		0.48		0.52		0.66	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	4.8		4.8		2.7		3.1		6.1	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg					1.7	U	2	U		
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg					0.034	U	0.039	U		
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg					0.0012	J	0.0014	J		
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg					0.017	U	0.02	U		
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg					0.0085	U	0.0098	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7.5E		SED7A		SED7B		SED7B		SED7D	
					sys_sample_code	SED7.5E00N		SED7A00N		SED7B00N		SED7B00R		SED7D00N	
					sample_date	11/25/2013		11/13/2013		11/13/2013		11/13/2013		11/25/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg					0.0085	U	0.0098	U		
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg					0.017	U	0.02	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg			0.0041	J	4.89E-05					
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg			0.00108		1.83E-05	JN				
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg			0.000151	JN	1.77E-06	J				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg			0.000289		2.47E-06	J				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg			0.00047	JN	2.39E-06	J				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg			0.000548		4.11E-06	J				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg			0.000272	JN	3.65E-06	JN				
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg			0.000705	J	6.05E-06					
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg			2.43E-05	J	2.97E-07	U				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg			0.000277	JN	6.9E-06	JN				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg			0.000124		9.72E-07	J				
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg			0.000285		3.05E-06	J				
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg			0.000217		2.18E-06	J				
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg			3.82E-05		5.2E-07	U				
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg			5.67E-05		9E-07	J				
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg			0.0147		0.000341					
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg			0.001	JN	2.18E-05					
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg			0.000815		1.2E-05					
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg			0.000713		1.06E-05					
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg			0.000707		1.06E-05					
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg			0.00785	J	0.000101					
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg			0.00217	JN	3.69E-05	JN				
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg			0.00593	JN	4.92E-05	JN				
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg			0.00289	JN	6.18E-05	JN				
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg			0.00644	JN	0.000553	JN				
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg			0.00269	JN	9.83E-05	JN				
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg			0.00165	JN	9.21E-06	JN				
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg			0.00224	JN	0.000122	JN				
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg			0.000707		1.06E-05					
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	4500		7300		2400		7700		9700	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	1.2	J-	2.8	J-	0.38		0.45	J-	0.55	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	4.6	J-	11	J-	2.5		2.6	J-	2.9	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	72	J-	100		17		84		99	
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	0.71		0.95		0.15		1.1		1.4	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	3.7	J-	4.4	J-	0.74		0.73		0.87	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	4200	J-	2300		17000		2800		3100	
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	29	J-	46		33		32		40	
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	13	J-	13		7.1		16		19	
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	110		190		54		45		55	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	14000		21000		12000		22000		25000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	130		320		48		55		66	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	3200		2800		12000		3000		3500	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	120	J-	200		120		370		360	
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.27	J	0.46	J	0.041		0.13	J-	0.2	J-
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	120	J-	160	J-	84		29		34	
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	450		580		230		1100		1300	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	0.54	J-	1.1	J-	0.034	J	0.98	J-	1.2	J-
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.92		3.5	J-	0.083		0.24		0.31	
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	110		160		420		120		140	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.15		0.13	J-	0.037	J	0.19		0.24	
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	150	J+	440		56		28		35	
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	430	J-	630		260		190	J-	220	J-
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.024	J	0.066	J	0.026	J	0.01	J	0.012	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.022		0.035	J	0.0031		0.0042		0.005	
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.3		0.48		0.19	J	0.35		0.41	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	1.3		2.6		0.56		0.49		0.59	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.75		1.5		0.19	J	0.19		0.21	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	2.6E-05	J	0.00049		2.1E-05	J	0.00015		0.00014	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.92	J	1.8		0.51	J	0.31		0.36	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.0034	J	0.016	J	0.00026	J	0.00038	J	0.0027	UJ
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	1.8	J	0.46	J	1.6		1.4	UJ	2.2	UJ
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	51000		240000	J	8400		31000		41000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	6.7		11		2.2		2.4		2.7	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg			0.012	J	0.009					
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg			0.0059	J	0.0013	U				
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg			0.011	J	0.00091	J				
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg			0.00075	J	0.0013	U				
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg			0.0019	U	0.0013	U				
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.0072	U	0.0075	U	0.005	U	0.0088	U	0.0096	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.0072	U	0.0075	U	0.005	U	0.0088	U	0.0096	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.0072	U	0.0075	U	0.005	U	0.0088	U	0.0096	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.0072	U	0.0075	U	0.005	U	0.0088	U	0.0096	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.55	J	0.39	J	0.1	J	0.076	J	0.11	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.0072	UJ	0.0075	U	0.005	U	0.0088	U	0.0096	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.41	J	0.38	J	0.13	J	0.035	J	0.046	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.0072	UJ	0.0075	U	0.005	U	0.0088	U	0.0096	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.0072	UJ	0.0075	U	0.005	U	0.0088	U	0.0096	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg			0.002	J	0.0013	U				
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg			0.01		0.0017	J				
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg			0.0055	J	0.0024	J				
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg			0.0049	J	0.0023	J				
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg			0.0012	J	0.0015	J				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg			0.005	J	0.0013	U				
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg			0.01		0.0036					
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg			0.022	J	0.0023	J				
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg			0.0014	J	0.001	J				
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg			0.008	J	0.0013	U				
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg			0.00077	J	0.0016	J				
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg			0.001	J	0.00065	J				
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg			0.0062	J	0.00062	J				
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg			0.023	J	0.019	J				
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.96		0.77		0.23		0.11		0.16	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.96		0.77		0.23		0.11		0.16	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg			0.075	U	0.05	U				
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg			0.0082	J	0.0019					
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg										
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg			0.06	U	0.041	U				
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg			0.06	U	0.041	U				
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg			1.5	U	1	U				
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg			0.06	U	0.041	U				
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg			0.067		0.068					
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg			1.5	U	1	U				
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg			1.5	U	1	U				
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg			1.5	U	1	U				
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg			0.3	U	0.11	J				
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg			1.5	U	1	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg			1.5	U	1	U				
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.046	J	0.064		0.14		0.032	J	0.029	J
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.027	J	0.043	J	0.023	J	0.052	J	0.068	J
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg			0.03	J	0.027	J				
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.13	J	0.14		0.21		0.094		0.11	
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg			0.3	UJ	0.19	J				
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.49		0.59		0.95		0.48		0.53	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.52		0.6		0.89		0.5		0.71	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.85		0.86		1.2		0.8		1.1	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.47		0.64		0.78		0.65		0.87	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.27		0.3		0.43		0.41		0.33	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg			0.06	U	0.041	U				
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg			0.59	J	0.55					
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg			0.12	J	0.18	J				
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg			1.5	U	1	U				
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg			0.1		0.25					
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.76		0.89		1.2		0.82		1	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.094	J	0.16		0.15		0.13		0.17	
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg			0.042	J	0.11	J				
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg			0.3	U	0.15	J				
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	1.2		1.3		2.6		0.95		1.3	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.055	J	0.063		0.1		0.048	J	0.038	J
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg			0.06	U	0.041	U				
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg			0.06	U	0.041	U				
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.38		0.51		0.64		0.53		0.67	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.031	J	0.038	J	0.095		0.029	J	0.077	U
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg			0.6	U	0.4	U				
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg			0.06	U	0.041	U				
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg			0.3	U	0.2	U				
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.5		0.56		2		0.48		0.48	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg			0.06	U	0.041	U				
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	1		1.1		2.1		1		1.1	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	6		7		11		6.3		7.8	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.79		0.91		2.6		0.74		0.73	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	6.8		7.9		14		7		8.5	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg			2.9	U	1.2	U				
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg			0.057	U	0.023	U				
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg			0.029	U	0.012	U				
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg			0.014	U	0.0058	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED7E		SED7F		SED7G		SED8.5B		SED8A	
					sys_sample_code	SED7E00N		SED7F00N		SED7G00N		SED8.5B00N		SED8A00N	
					sample_date	11/25/2013		11/25/2013		1/30/2014		11/13/2013		11/13/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg			0.014	U	0.0058	U				
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg			0.029	U	0.012	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg			3.68E-05	J	6.46E-05	J				
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg			7.04E-06	JN	1.39E-05	JN				
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg			1.03E-06	JN	1.31E-06	JN				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg			7.47E-07	J	1.43E-06	J				
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg			1.4E-06	JN	2.47E-06	JN				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg			2.09E-06	J	3.56E-06	J				
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg			2.65E-06	JN	4.43E-06	JN				
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg			1.92E-06	J	3.77E-06	J				
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg			1.25E-07	J	1.31E-07	JN				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg			9.24E-07	JN	1.55E-06	JN				
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg			5.33E-07	JN	6.99E-07	JN				
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg			9.04E-07	JN	1.46E-06	J				
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg			1E-06	JN	1.95E-06	JN				
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg			5.02E-08	JN	5.78E-07	J				
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg			7.66E-07	JN	1.56E-06					
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg			0.000973	J	0.00181	J				
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg			1.3E-05	JN	1.92E-05					
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg			3.77E-06		7.44E-06					
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg			2.68E-06		5.25E-06					
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg			3.09E-06		5.96E-06					
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg			8.12E-05	J	0.000144	J				
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg			1.95E-05	JN	3.36E-05	JN				
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg			1.98E-05	JN	3.53E-05	JN				
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg			4.1E-05	JN	6.52E-05	JN				
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg			6.93E-05	JN	9.62E-05	JN				
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg			7.45E-05	JN	0.000122	JN				
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg			5.15E-06	JN	1.05E-05	JN				
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg			0.000122	JN	0.0002	JN				
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg			3.09E-06		5.96E-06					
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	5500		6600		7700		4500		8800	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.38	J-	0.35	J-	0.31	J-	0.27	J-	0.43	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	2	J-	3	J-	3.6	J-	2.1	J-	3.2	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	68		63		71		44	J+	88	J+
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	0.82		0.85		1		0.67		1.1	
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.61		0.8		0.89		0.35		0.88	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	2200		2200	J-	2400	J-	1500	J-	2000	J-
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	25		37		41		18	J+	68	J+
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	12		14		16		9.1	J	12	J
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	38		44		52		21		38	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	17000		19000		21000		12000		21000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	46		56		62		36	J	61	J

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	2100		2000		2300		1900		2400	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	290		280		330		140		310	
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.12	J-	0.16	J+	0.17	J+	0.2		0.29	
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	21		25		28		15		19	
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	750		870		980		670		920	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	0.74	J-	1	J-	1.2	J-	0.19	J	0.76	
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.26		0.29		0.43		0.15		0.69	
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	90		89	J-	89	J-	74		120	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.14		0.16	J-	0.18	J-	0.12		0.2	
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	23		29		36		25	J+	35	J+
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	140	J-	180		210		97	J+	150	J+
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.0093	UJ	0.0084		0.01		0.016	J	0.021	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0037		0.0053		0.0063		0.0034		0.0044	
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.28		0.36		0.41		0.25		0.58	
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.39		0.5		0.59		0.4		0.48	
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.16		0.21		0.24		0.19		0.24	
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	0.00012		5.2E-05	J	3.1E-05	J	8.3E-05	J	9.1E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.25		0.26		0.3		0.3		0.29	
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.00047	J	0.00039	J	0.00027	J	0.0004	J	0.0025	J
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	1.2	UJ	0.87	J	0.36	J	2		1.6	
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	25000		29000		36000		39000		30000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	1.9		2.3	J	5.9	J	2.1		2.2	
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg			0.0093	J	0.0039	J				
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg			0.03	J	0.011	J				
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg			0.0055	J	0.00084	UJ				
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg			0.00023	J	0.00076	J				
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg			0.00078	U	0.00084	U				
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.0081	U	0.0078	U	0.0084	U	0.0084	U	0.009	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.0081	U	0.0078	U	0.0084	U	0.0084	U	0.009	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.0081	U	0.0078	U	0.0084	U	0.0084	U	0.009	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.0081	U	0.0078	U	0.0084	U	0.0084	U	0.009	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.069	J	0.38	J	0.29	J	0.3	J	0.009	U
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.0081	U	0.0078	U	0.0084	U	0.0084	U	0.009	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.034	J	0.21	J	0.12	J	0.084	J	0.074	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.0081	U	0.0078	U	0.0084	U	0.0084	U	0.009	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.0081	U	0.0078	U	0.0084	U	0.0084	U	0.009	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg			0.00079	J	0.00054	J				
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg			0.0056	J	0.0049	J				
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg							0.000393	JN		
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg			0.0015	J	0.00032	J				
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg							0.0035	JN		
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg			0.00078	U	0.0023					
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg			0.00078	U	0.00084	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg			0.0012	J	0.00055	J				
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg			0.0027		0.0012					
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg			0.0054	J	0.0025	J				
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg			0.0013	J	0.00061	J				
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg			0.00078	U	0.0018	J				
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg			0.0003	J	0.00084	U				
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg			0.0022	J	0.0013	J				
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg			0.0019	J	0.00084	J				
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg							0.0172	JN		
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg							0.0434	JN		
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg			0.012	J	0.011	J				
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg							0.000143	JN		
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg							0.000936	JN		
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg							0.00493	JN		
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg							3.05E-05			
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg							1.2E-05			
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg							0.17			
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.1		0.59		0.41		0.38		0.074	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.1		0.59		0.41		0.38		0.074	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg							7.07E-05			
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg							3.4E-05	JN		
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg							2.33E-05			
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg							0.00565			
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg							0.000228			
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg							6.89E-05			
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg							4.28E-06	U		
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg							0.00248			
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg							6.21E-06	U		
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg							0.000465			
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg							0.000269			
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg							0.00361			
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg							0.000278			
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg							0.00674			
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg							6.62E-06	JN		
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg							4.37E-06	U		
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg							0.00565			
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg							0.000154			
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg							0.00674			
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg							0.00109			
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg							0.00109			
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg							0.00583			
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg							0.00361			
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg							0.000121			

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg							1.49E-05	J		
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg							4.17E-06	U		
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg							0.000122			
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg							0.00013	JN		
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg							0.000269			
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg							0.00361			
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg							8.38E-05			
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg							2.13E-05	J		
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg							0.00142			
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg							0.0103			
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg							0.000121			
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg							0.000595			
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg							0.00014			
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg							0.00329			
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg							0.000159	JN		
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg							0.000548			
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg							0.0022			
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg							0.0008			
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg							0.000403			
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg							0.0103			
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg							0.000181			
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg							5.41E-06	JN		
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg							0.000181			
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg							0.00189			
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg							1.68E-05	U		
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg							0.000548			
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg							0.000318			
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg							5.07E-06	U		
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg							0.00143			
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg							0.00819			
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg							7.09E-06	U		
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg							0.00819			
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg							0.000856			
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg							4.94E-06	U		
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg							0.0022			
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg							5.04E-06	U		
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg							0.00826			
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg							7.31E-05			
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg							4.8E-06	U		
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg							0.00086			
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg							0.00086			
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg							0.000965			
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg							0.000127			

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg							0.000822			
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg							0.0103			
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg							1.11E-05	U		
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg							2.52E-05	JN		
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg							0.0103			
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg							0.000691			
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg							1.22E-05	U		
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg							0.00142			
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg							0.000348			
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg							0.00826			
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg							0.000109	JN		
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg							0.00124			
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg							0.00228			
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg							0.000617			
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg							0.000356			
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg							0.000617			
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg							0.00222			
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg							8.39E-05			
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg							0.000274			
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg							0.00119			
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg							0.000465			
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg							0.00103			
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg							0.00209			
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg							0.00407			
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg							2.63E-05	J		
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg							1.1E-05	JN		
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg							0.00144			
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg							5.34E-06	U		
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg							0.00144			
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg							5.18E-06	U		
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg							0.00256			
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg							4.01E-06	U		
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg							8.63E-05			
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg							0.000404			
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg							0.000362			
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg							8.06E-05			
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg							5.5E-06	U		
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg							0.00407			
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg							0.00126			
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg							0.000559			
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg							0.000523			
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg							3.04E-05	JN		
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg							0.00121			

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg							0.00121			
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg							2.24E-05	JN		
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg							0.00485			
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg							0.00014			
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg							0.000127			
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg							0.000281			
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg							0.000727			
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg							5.61E-06	U		
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg							7.28E-05			
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg							0.000681			
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg							8.04E-05	JN		
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg							0.000175			
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg							0.00175			
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg							0.00127			
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg							6.91E-06	JN		
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg							4.27E-05	J		
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg							0.000473			
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg							0.000824			
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg							0.000308			
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg							0.00485			
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg							0.000824			
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg							4.98E-05	J		
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg							0.00209			
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg							0.00363			
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg							0.00106			
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg							0.00175			
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg							2.24E-05	JN		
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg							6.55E-05	JN		
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg							3.57E-06	U		
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg							0.00116			
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg							6.75E-06	JN		
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg							2.77E-05	JN		
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg							0.000679			
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg							0.00281			
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg							0.00281			
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg							0.00128			
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg							0.000233			
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg							0.00562			
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg							0.00108			
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg							0.000336			
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg							0.00562			
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg							0.000923			
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg							0.00347			

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg							1.6E-05	JN		
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg							0.000922			
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg							0.00108			
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg							0.00633			
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg							0.000922			
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg							3.38E-05	J		
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg							6.3E-05	JN		
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg							0.00169			
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg							3.83E-05	J		
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg							1.38E-05	JN		
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg							0.000472			
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg							0.000246			
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg							0.000828			
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg							0.00701			
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg							0.000472			
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg							0.00019			
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg							0.00221			
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg							0.00562			
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg							0.00438			
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg							0.000111	JN		
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg							2.99E-05	JN		
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg							0.00347			
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg							5.68E-05	JN		
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg							0.00701			
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg							0.00281			
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg							5.86E-05			
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg							0.000233			
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg							0.00701			
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg							0.000472			
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg							0.00701			
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg							0.000399			
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg							6.67E-06	JN		
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg							6.28E-05			
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg							0.00114			
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg							3.57E-06	U		
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg							1.6E-05	J		
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg							0.000753			
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg							0.00322			
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg							0.00148			
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg							0.00109			
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg							0.00361			
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg							0.00361			
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg							0.000941			

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg							0.000116			
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg							6.81E-05	JN		
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg							0.00565			
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg							0.000941			
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg							0.00105			
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg							2.33E-05			
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg							4.67E-05	JN		
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg							0.00479			
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg							6.41E-05			
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg							0.00361			
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg							0.000228			
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg							0.00322			
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg							0.0395	JN		
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg							0.0406	JN		
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg			0.031	U	0.034	U				
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg			0.0095		0.0077					
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg							0.0201	JN		
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg			0.031	U	0.067	U				
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg			0.031	U	0.067	U				
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg			0.79	U	1.7	U				
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg			0.031	U	0.067	U				
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg			0.033		0.023	J				
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg			0.79	U	1.7	U				
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg			0.79	U	1.7	U				
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg			0.79	U	1.7	U				
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg			0.79	U	1.7	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg			0.79	U	1.7	U				
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.023	J	0.0089	J	0.067	U	0.017	J	0.033	J
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.046	J	0.034		0.06	J	0.049	J	0.11	
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.072		0.049		0.077		0.087		0.12	
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg			0.057	J		R				
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.33		0.32		0.45		0.45		0.48	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.42		0.39		0.63		0.54		0.59	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.73		0.24	J	0.92	J	0.88		0.83	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.58		0.3	J	0.77	J	0.56		0.67	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.28		0.57		0.41		0.2		0.33	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg			0.031	U	0.067	U				
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg			1.3		1.8					
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg			0.041	J	0.084	J				
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg			0.39	J	1.7	U				
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg			0.03	J	0.075					
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.66		0.53		0.75		0.79		0.77	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.079		0.031	U	0.16		0.12		0.14	
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg			0.035	J	0.12	J				
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg			0.023	J	0.33	U				
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	0.66		0.67		0.97		0.92		1	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.022	J	0.026	J	0.033	J	0.022	J	0.043	J
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg			0.031	U	0.067	U				
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg			0.031	U	0.067	U				
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.43		0.27	J	0.62	J	0.43		0.55	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.017	J	0.022	J	0.067	U	0.067	U	0.073	U
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg			0.31	U	0.67	U				
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg			0.031	U	0.067	U				
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg			0.15	U	0.33	U				
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.25		0.22		0.31		0.37		0.42	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg			0.031	U	0.067	U				
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.73		0.66		0.93		0.92		0.84	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	4.9		4		6.6		5.8		6.2	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.43		0.36		0.48		0.55		0.73	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	5.3		4.3		7.1		6.4		6.9	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg			2.2	U	2.9	U				
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg			0.045	U	0.057	U				
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg			0.022	U	0.029	U				
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg			0.011	U	0.014	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED8B		SED8C		SED8C		SED9.5B		SED9A	
					sys_sample_code	SED8B00N		SED8C00N		SED8C00R		SED9.5B00N		SED9A00N	
					sample_date	11/13/2013		11/14/2013		11/14/2013		11/11/2013		11/11/2013	
					sample_type_code	N		N		FD		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg			0.011	U	0.014	U				
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg			0.022	U	0.029	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	mg/kg			1.38E-05		0.000136	J	4E-05	J	7.52E-05	
RA_SE_DioxinsFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	mg/kg			2.73E-06	J	2.9E-05	J	1.16E-05	JN	1.87E-05	JN
RA_SE_DioxinsFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	mg/kg			3.25E-07	JN	2.82E-06	J	7.25E-07	JN	1.58E-06	JN
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	mg/kg			3.93E-07	JN	3.67E-06	J	9.59E-07	JN	1.97E-06	JN
RA_SE_DioxinsFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	mg/kg			3.51E-07	JN	7.4E-06	J	1.34E-06	JN	2.54E-06	JN
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	mg/kg			6.53E-07	JN	8.47E-06	J	2.09E-06	J	3.64E-06	J
RA_SE_DioxinsFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	mg/kg			5.55E-07	JN	6.2E-06	JN	1.81E-06	JN	3.55E-06	JN
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	mg/kg			8.78E-07	JN	1.02E-05	J	2.47E-06	J	3.96E-06	J
RA_SE_DioxinsFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	mg/kg			2.1E-08	U	5.01E-07	J	8.49E-08	JN	3.01E-07	JN
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	mg/kg			5.09E-07	JN	4.53E-06	JN	7.58E-07	J	1.65E-06	JN
RA_SE_DioxinsFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	mg/kg			1.13E-07	JN	2.26E-06	JN	5.23E-07	JN	1.25E-06	JN
RA_SE_DioxinsFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	mg/kg			3.39E-07	JN	4.02E-06	J	9.24E-07	JN	1.89E-06	J
RA_SE_DioxinsFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	mg/kg			3.45E-07	J	4.93E-06	J	9.66E-07	J	2.33E-06	JN
RA_SE_DioxinsFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	mg/kg			1.5E-08	U	1.05E-06	JN	2.75E-07	JN	4.15E-08	U
RA_SE_DioxinsFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	mg/kg			1.27E-07	JN	3.07E-06	J	6.99E-07	J	1.96E-06	JN
RA_SE_DioxinsFurans	OCDD	3268-87-9	SW8290A	N	mg/kg			0.000338		0.00382	J	0.000902	J	0.0018	
RA_SE_DioxinsFurans	OCDF	39001-02-0	SW8290A	N	mg/kg			4.21E-06	J	3.96E-05	JN	1.46E-05	JN	2.36E-05	
RA_SE_DioxinsFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	mg/kg			1.31E-06		1.77E-05		3.74E-06		7.88E-06	
RA_SE_DioxinsFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	mg/kg			1.11E-06		1.3E-05		2.77E-06		5.32E-06	
RA_SE_DioxinsFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	mg/kg			1.22E-06		1.43E-05		3.17E-06		5.87E-06	
RA_SE_DioxinsFurans	Total HpCDD	37871-00-4	SW8290A	N	mg/kg			3.24E-05	JN	0.000278	J	9.42E-05	J	0.000175	
RA_SE_DioxinsFurans	Total HpCDF	38998-75-3	SW8290A	N	mg/kg			7.2E-06	JN	6.8E-05	J	2.32E-05	JN	4.17E-05	JN
RA_SE_DioxinsFurans	Total HxCDD	34465-46-8	SW8290A	N	mg/kg			7.04E-06	JN	8.82E-05	JN	2.15E-05	JN	3.88E-05	JN
RA_SE_DioxinsFurans	Total HxCDF	55684-94-1	SW8290A	N	mg/kg			9.97E-06	JN	9.44E-05	JN	3.2E-05	JN	5.86E-05	JN
RA_SE_DioxinsFurans	Total PeCDD	36088-22-9	SW8290A	N	mg/kg			1.49E-05	JN	0.000279	JN	5.41E-05	JN	9.59E-05	JN
RA_SE_DioxinsFurans	Total PeCDF	30402-15-4	SW8290A	N	mg/kg			1.37E-05	JN	0.000125	JN	4.41E-05	JN	9.35E-05	JN
RA_SE_DioxinsFurans	Total TCDD	41903-57-5	SW8290A	N	mg/kg			1.4E-06	JN	3.53E-05	JN	4.99E-06	JN	1.04E-05	JN
RA_SE_DioxinsFurans	Total TCDF	55722-27-5	SW8290A	N	mg/kg			2.13E-05	JN	0.000167	JN	7.69E-05	JN	0.000158	JN
RA_SE_DioxinsFurans	Total TEQ	TTEQ	SW8290A	N	mg/kg			1.22E-06		1.43E-05		3.17E-06		5.87E-06	
RA_SE_Metals	Aluminum	7429-90-5	SW6020A	T	mg/kg	5600		6300		7900		6100		8700	
RA_SE_Metals	Antimony	7440-36-0	SW6020A	T	mg/kg	0.31	J-	0.48	J-	0.44	J-	0.59	J-	0.74	J-
RA_SE_Metals	Arsenic	7440-38-2	SW6020A	T	mg/kg	3.3	J-	2.5	J-	3		2.4		4	J-
RA_SE_Metals	Barium	7440-39-3	SW6020A	T	mg/kg	57	J+	66	J+	89		71		97	
RA_SE_Metals	Beryllium	7440-41-7	SW6020A	T	mg/kg	0.83		0.91		1		0.94		1.3	J
RA_SE_Metals	Cadmium	7440-43-9	SW6020A	T	mg/kg	0.43		0.59		1.5		0.64		0.95	
RA_SE_Metals	Calcium	7440-70-2	SW6020A	T	mg/kg	1600	J-	1900	J-	1700	J	2200	J	3500	
RA_SE_Metals	Chromium	7440-47-3	SW6020A	T	mg/kg	20	J+	24	J+	34	J+	29	J+	42	
RA_SE_Metals	Cobalt	7440-48-4	SW6020A	T	mg/kg	8.4	J	12	J	14		16		22	
RA_SE_Metals	Copper	7440-50-8	SW6020A	T	mg/kg	27		30		41		41		59	
RA_SE_Metals	Iron	7439-89-6	SW6020A	T	mg/kg	14000		17000		19000		19000		25000	
RA_SE_Metals	Lead	7439-92-1	SW6020A	T	mg/kg	44	J	49	J	160	J	47	J	70	J

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_Metals	Magnesium	7439-95-4	SW6020A	T	mg/kg	1900		2500		2600		2600		3300	
RA_SE_Metals	Manganese	7439-96-5	SW6020A	T	mg/kg	240		230		260		240		310	
RA_SE_Metals	Mercury	7439-97-6	SW7471B	T	mg/kg	0.18		0.15		0.19		0.34		0.15	
RA_SE_Metals	Nickel	7440-02-0	SW6020A	T	mg/kg	16		20		32		29		39	J-
RA_SE_Metals	Potassium	7440-09-7	SW6020A	T	mg/kg	580		880		1200		1200		1400	
RA_SE_Metals	Selenium	7782-49-2	SW6020A	T	mg/kg	0.16	J	0.53		0.93	J-	0.91	J-	1.5	J-
RA_SE_Metals	Silver	7440-22-4	SW6020A	T	mg/kg	0.17		0.18		0.72	J	0.19	J	0.51	J
RA_SE_Metals	Sodium	7440-23-5	SW6020A	T	mg/kg	87		97		130		120		170	
RA_SE_Metals	Thallium	7440-28-0	SW6020A	T	mg/kg	0.12		0.16		0.17		0.18		0.26	
RA_SE_Metals	Vanadium	7440-62-2	SW6020A	T	mg/kg	35	J+	29	J+	36		25		37	
RA_SE_Metals	Zinc	7440-66-6	SW6020A	T	mg/kg	100	J+	130	J+	220	J	170	J	250	
RA_SE_Other	Arsenic	7440-38-2	SW6010	SEM	umol/g	0.02	J	0.016	J	0.0068	J	0.008	J	0.011	J
RA_SE_Other	Cadmium	7440-43-9	SW6010	SEM	umol/g	0.0039		0.0035		0.013	J	0.004	J	0.005	J
RA_SE_Other	Chromium	7440-47-3	SW6010	SEM	umol/g	0.3		0.24		0.34	J	0.22	J	0.27	J
RA_SE_Other	Copper	7440-50-8	SW6010	SEM	umol/g	0.55		0.4		0.55	J	0.39	J	0.48	J
RA_SE_Other	Lead	7439-92-1	SW6010	SEM	umol/g	0.24		0.21		0.72	J	0.15	J	0.2	J
RA_SE_Other	Mercury	7439-97-6	SW7470A	SEM	umol/g	0.00013	J	6E-05	J	9E-05	J	3.2E-05	J	2.8E-05	J
RA_SE_Other	Nickel	7440-02-0	SW6010	SEM	umol/g	0.34		0.31		0.35	J	0.24	J	0.31	J
RA_SE_Other	Silver	7440-22-4	SW6010	SEM	umol/g	0.00096	J	0.00045	J	0.0022	J	0.0023	UJ	0.0037	UJ
RA_SE_Other	Sulfide	18496-25-8	SW9034	SEM	umol/g	1.1	U	1.2	U	3.3	J	3.4	J	12	J
RA_SE_Other	Total Organic Carbon	7440-44-0	LKTOC	T	mg/kg	35000		33000		40000	J	54000	J	60000	
RA_SE_Other	Zinc	7440-66-6	SW6010	SEM	umol/g	2.5		2.2		3.8	J	1.9	J	2.6	J
RA_SE_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	mg/kg			0.003	J	0.0064	J	0.0065	J	0.012	J
RA_SE_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	mg/kg			0.0071		0.008	J	0.0073	J	0.013	J
RA_SE_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	mg/kg			0.0025	J	0.004	J	0.0048	J	0.0072	J
RA_SE_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	mg/kg			0.0006	J	0.003	J	0.0008	J	0.0017	J
RA_SE_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	mg/kg			0.00082	U	0.00063	U	0.00083	U	0.0013	U
RA_SE_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	mg/kg	0.01	U	0.0082	U	0.0062	U	0.0083	U	0.013	U
RA_SE_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	mg/kg	0.01	U	0.0082	U	0.0062	U	0.0083	U	0.013	U
RA_SE_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	mg/kg	0.01	U	0.0082	U	0.0062	U	0.0083	U	0.013	U
RA_SE_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	mg/kg	0.01	U	0.0082	U	0.0062	U	0.0083	U	0.013	U
RA_SE_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	mg/kg	0.12	J	0.12	J	0.25	J	0.086	J	0.11	J
RA_SE_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	mg/kg	0.01	U	0.0082	U	0.0062	U	0.0083	U	0.013	U
RA_SE_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	mg/kg	0.057	J	0.054	J	0.077	J	0.036	J	0.063	J
RA_SE_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	mg/kg	0.01	U	0.0082	U	0.0062	U	0.0083	U	0.013	U
RA_SE_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	mg/kg	0.01	U	0.0082	U	0.0062	U	0.0083	U	0.013	U
RA_SE_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	mg/kg			0.00082	U	0.00063	U	0.00083	U	0.0013	U
RA_SE_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	mg/kg			0.0066	J	0.018	J	0.009	J	0.015	J
RA_SE_PestPCBs	Decachlorobiphenyl (PCB-209)	2051-24-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	mg/kg			0.00082	U	0.002	J	0.00032	J	0.001	J
RA_SE_PestPCBs	Dichlorobiphenyl	25512-42-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	mg/kg			0.0014	J	0.00063	U	0.0017	J	0.0027	J
RA_SE_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	mg/kg			0.00082	U	0.00063	U	0.00083	U	0.0013	U

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	mg/kg			0.00023	J	0.0006	J	0.00038	J	0.00089	J
RA_SE_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	mg/kg			0.00028	J	0.0015		0.00083	J	0.00032	J
RA_SE_PestPCBs	Endrin	72-20-8	SW8081B LL	N	mg/kg			0.0029		0.0067	J	0.0018	J	0.0032	J
RA_SE_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	mg/kg			0.00068	J	0.0014		0.0018	J	0.0011	J
RA_SE_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	mg/kg			0.0031		0.00063	U	0.0038	J	0.0061	J
RA_SE_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	mg/kg			0.00023	J	0.00015	J	0.0003	J	0.0014	J
RA_SE_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	mg/kg			0.0015		0.0071	J	0.0016	J	0.0038	J
RA_SE_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	mg/kg			0.00065	J	0.0012	J	0.00099	J	0.0013	J
RA_SE_PestPCBs	Heptachlorobiphenyl	28655-71-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Hexachlorobiphenyl	26601-64-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	mg/kg			0.013		0.0083	J	0.012	J	0.027	J
RA_SE_PestPCBs	Monochlorobiphenyl	27323-18-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	Nonachlorobiphenyl	53742-07-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Octachlorobiphenyl	55722-26-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ Bird	PCBTEQ-Bird	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB TEQ HH	PCBTEQ-HH	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, TOTAL	PCB	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	mg/kg	0.18		0.17		0.33		0.12		0.17	
RA_SE_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	mg/kg	0.18		0.17		0.33		0.12		0.27	
RA_SE_PestPCBs	PCB-1	2051-60-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-10	33146-45-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-100	39485-83-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-101	37680-73-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-102	68194-06-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-103	60145-21-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-104	56558-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-105	32598-14-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-106	70424-69-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-107	70424-68-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-108	70362-41-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-109	74472-35-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-11	2050-67-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-110	38380-03-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-111	39635-32-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-112	74472-36-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-113	68194-10-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-114	74472-37-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-115	74472-38-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-116	18259-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-117	68194-11-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-118	31508-00-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-119	56558-17-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-12	2974-92-7	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-120	68194-12-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-121	56558-18-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-122	76842-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-123	65510-44-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-124	70424-70-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-125	74472-39-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-126	57465-28-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-127	39635-33-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-128	38380-07-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-129	55215-18-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-13	2974-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-130	52663-66-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-131	61798-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-132	38380-05-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-133	35694-04-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-134	52704-70-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-135	52744-13-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-136	38411-22-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-137	35694-06-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-138	35065-28-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-139	56030-56-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-14	34883-41-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-140	59291-64-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-141	52712-04-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-142	41411-61-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-143	68194-15-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-144	68194-14-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-145	74472-40-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-146	51908-16-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-147	68194-13-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-148	74472-41-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-149	38380-04-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-15	2050-68-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-150	68194-08-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-151	52663-63-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-152	68194-09-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-153	35065-27-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-154	60145-22-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-155	33979-03-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-156	38380-08-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-157	69782-90-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-158	74472-42-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-159	39635-35-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-16	38444-78-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-160	41411-62-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-161	74472-43-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-162	39635-34-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-163	74472-44-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-164	74472-45-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-165	74472-46-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-166	41411-63-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-167	52663-72-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-168	59291-65-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-169	32774-16-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-17	37680-66-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-170	35065-30-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-171	52663-71-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-172	52663-74-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-173	68194-16-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-174	38411-25-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-175	40186-70-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-176	52663-65-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-177	52663-70-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-178	52663-67-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-179	52663-64-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-18	37680-65-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-180	35065-29-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-181	74472-47-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-182	60145-23-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-183	52663-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-184	74472-48-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-185	52712-05-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-186	74472-49-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-187	52663-68-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-188	74487-85-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-189	39635-31-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-19	38444-73-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-190	41411-64-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-191	74472-50-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-192	74472-51-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-193	69782-91-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-194	35694-08-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-195	52663-78-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-196	42740-50-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-197	33091-17-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-198	68194-17-2	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-199	52663-75-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-2	2051-61-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-20	38444-84-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-200	52663-73-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-201	40186-71-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-202	2136-99-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-203	52663-76-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-204	74472-52-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-205	74472-53-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-206	40186-72-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-207	52663-79-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-208	52663-77-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-21	55702-46-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-22	38444-85-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-23	55720-44-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-24	55702-45-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-25	55712-37-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-26	38444-81-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-27	38444-76-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-28	7012-37-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-29	15862-07-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-3	2051-62-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-30	35693-92-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-31	16606-02-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-32	38444-77-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-33	38444-86-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-34	37680-68-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-35	37680-69-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-36	38444-87-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-37	38444-90-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-38	53555-66-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-39	38444-88-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-4	13029-08-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-40	38444-93-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-41	52663-59-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-42	36559-22-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-43	70362-46-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-44	41464-39-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-45	70362-45-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-46	41464-47-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-47	2437-79-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-48	70362-47-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-49	41464-40-8	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-5	16605-91-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-50	62796-65-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-51	68194-04-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-52	35693-99-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-53	41464-41-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-54	15968-05-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-55	74338-24-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-56	41464-43-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-57	70424-67-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-58	41464-49-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-59	74472-33-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-6	25569-80-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-60	33025-41-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-61	33284-53-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-62	54230-22-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-63	74472-34-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-64	52663-58-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-65	33284-54-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-66	32598-10-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-67	73575-53-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-68	73575-52-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-69	60233-24-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-7	33284-50-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-70	32598-11-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-71	41464-46-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-72	41464-42-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-73	74338-23-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-74	32690-93-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-75	32598-12-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-76	70362-48-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-77	32598-13-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-78	70362-49-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-79	41464-48-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-8	34883-43-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-80	33284-52-5	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-81	70362-50-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-82	52663-62-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-83	60145-20-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-84	52663-60-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-85	65510-45-4	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-86	55312-69-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-87	38380-02-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-88	55215-17-3	E1668C	N	mg/kg										

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_PestPCBs	PCB-89	73575-57-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-9	34883-39-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-90	68194-07-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-91	68194-05-8	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-92	52663-61-3	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-93	73575-56-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-94	73575-55-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-95	38379-99-6	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-96	73575-54-9	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-97	41464-51-1	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-98	60233-25-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	PCB-99	38380-01-7	E1668C	N	mg/kg										
RA_SE_PestPCBs	Pentachlorobiphenyl	25429-29-2	E1668C	N	mg/kg										
RA_SE_PestPCBs	Tetrachlorobiphenyl	26914-33-0	E1668C	N	mg/kg										
RA_SE_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	mg/kg			0.033	U	0.025	U	0.033	U	0.053	U
RA_SE_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	mg/kg			0.011		0.031	J	0.013	J	0.024	J
RA_SE_PestPCBs	Trichlorobiphenyl	25323-68-6	E1668C	N	mg/kg										
RA_SE_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	mg/kg			0.066	U	0.051	UJ	0.067	UJ	0.11	UJ
RA_SE_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	mg/kg			0.066	U	0.051	U	0.067	U	0.11	U
RA_SE_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	mg/kg			1.7	U	1.3	UJ	1.7	UJ	2.7	UJ
RA_SE_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	mg/kg			0.066	U	0.051	U	0.067	U	0.11	U
RA_SE_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	mg/kg			0.0092	J	0.054		0.021	J	0.022	J
RA_SE_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	mg/kg			1.7	U	1.3	U	1.7	U	2.7	U
RA_SE_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	mg/kg			1.7	U	1.3	U	1.7	U	2.7	U
RA_SE_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	mg/kg			1.7	U	1.3	U	1.7	U	2.7	U
RA_SE_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	mg/kg			0.32	U	0.057	J	0.33	U	0.52	U
RA_SE_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	mg/kg			0.32	U	0.11	J	0.33	U	0.52	U
RA_SE_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	mg/kg			1.7	U	1.3	U	1.7	U	2.7	U

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	mg/kg			1.7	U	1.3	U	1.7	U	2.7	U
RA_SE_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	mg/kg	0.077	J	0.016	J	0.037	J	0.061	J	0.11	U
RA_SE_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	mg/kg	0.047	J	0.056	J	0.035	J	0.055	J	0.064	J
RA_SE_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	mg/kg			0.32	U	0.03	J	0.035	J	0.52	U
RA_SE_SVOCs	Anthracene	120-12-7	SW8270D LL	N	mg/kg	0.12		0.095		0.049	J	0.28	J	0.12	
RA_SE_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	mg/kg			0.063	J	0.25	UJ	0.087	J	0.14	J
RA_SE_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	mg/kg	0.4		0.48		0.26	J	1	J	0.69	
RA_SE_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	mg/kg	0.47		0.62		0.25	J	1.1	J	0.79	
RA_SE_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	mg/kg	0.76		0.99		0.43	J	1.8	J	1.5	
RA_SE_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	mg/kg	0.5		0.74		0.12	J	0.4	J	0.36	
RA_SE_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	mg/kg	0.25		0.29		0.089	J	0.5	J	0.5	
RA_SE_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	mg/kg			0.066	U	0.051	U	0.067	U	0.11	U
RA_SE_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	mg/kg			1.5		1.6		1.3		1.5	
RA_SE_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	mg/kg			0.32	U	0.062	J	0.11	J	0.52	U
RA_SE_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	mg/kg			1.7	U	1.3	U	1.7	U	2.7	U
RA_SE_SVOCs	Carbazole	86-74-8	SW8270D LL	N	mg/kg			0.09		0.051	U	0.17		0.096	J
RA_SE_SVOCs	Chrysene	218-01-9	SW8270D LL	N	mg/kg	0.7		0.88		0.4	J	1.4	J	1.3	
RA_SE_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	mg/kg	0.089		0.14		0.051	U	0.12		0.15	
RA_SE_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.24	J	0.52	U
RA_SE_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	mg/kg	0.95		0.95		0.69	J	2.7	J	1.8	
RA_SE_SVOCs	Fluorene	86-73-7	SW8270D LL	N	mg/kg	0.05	J	0.032	J	0.061		0.091		0.052	J
RA_SE_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	mg/kg			0.066	U	0.051	U	0.067	U	0.11	U
RA_SE_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	mg/kg			0.066	U	0.051	U	0.067	U	0.11	U
RA_SE_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	mg/kg	0.41		0.57		0.12	J	0.44	J	0.38	
RA_SE_SVOCs	Isophorone	78-59-1	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	mg/kg	0.081	U	0.066	U	0.022	J	0.023	J	0.11	U
RA_SE_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	mg/kg			0.66	U	0.5	U	0.67	U	1.1	U
RA_SE_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	mg/kg			0.066	U	0.051	U	0.067	U	0.11	U
RA_SE_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	mg/kg			0.32	U	0.25	U	0.33	U	0.52	U
RA_SE_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	mg/kg			0.32	U	0.25	UJ	0.33	UJ	0.52	UJ
RA_SE_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	mg/kg	0.47		0.39		0.36	J	1.1	J	0.63	
RA_SE_SVOCs	Phenol	108-95-2	SW8270D LL	N	mg/kg			0.066	U	0.051	U	0.067	U	0.11	U
RA_SE_SVOCs	Pyrene	129-00-0	SW8270D LL	N	mg/kg	0.81		1.1		0.54	J	1.6	J	1.3	
RA_SE_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	mg/kg	5.3		6.8		2.9		11		8.8	
RA_SE_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	mg/kg	0.76		0.59		0.56		1.6		0.87	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	mg/kg	6.1		7.3		3.5		13		9.6	
RA_SE_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	mg/kg			2.3	U	1.6	U	2.8	U	3.8	U
RA_SE_VOCs	2-Butanone	78-93-3	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	2-Hexanone	591-78-6	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Acetone	67-64-1	SW8260B	N	mg/kg			0.045	U	0.032	U	0.057	U	0.076	U
RA_SE_VOCs	Benzene	71-43-2	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Bromochloromethane	74-97-5	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Bromoform	75-25-2	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Bromomethane	74-83-9	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Chlorobenzene	108-90-7	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Chloroethane	75-00-3	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Chloroform	67-66-3	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Chloromethane	74-87-3	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Cyclohexane	110-82-7	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Ethylbenzene	100-41-4	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	m, p-Xylene	XYLMP	SW8260B	N	mg/kg			0.023	U	0.016	U	0.028	U	0.038	U
RA_SE_VOCs	Methyl Acetate	79-20-9	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SED9B		SED9C		WSED1		WSED1		WSED2	
					sys_sample_code	SED9B00N		SED9C00N		WSED100N		WSED100R		WSED200N	
					sample_date	11/11/2013		11/11/2013		11/15/2013		11/15/2013		11/15/2013	
					sample_type_code	N		N		N		FD		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0		0		0		0		0	
					end_depth	0.5		0.5		0.5		0.5		0.5	
					depth_unit	ft		ft		ft		ft		ft	
					validated_yn	Y		Y		Y		Y		Y	
RA_SE_VOCs	Methylene Chloride	75-09-2	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	o-Xylene	95-47-6	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Styrene	100-42-5	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Toluene	108-88-3	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Trichloroethene	79-01-6	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	mg/kg			0.011	U	0.0079	U	0.014	U	0.019	U
RA_SE_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	mg/kg			0.023	U	0.016	U	0.028	U	0.038	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK1		SUWBACK11		SUWBACK12		SUWBACK13		SUWBACK15	
					sys_sample_code	SUWBACK1N		SUWBACK11N		SUWBACK12N		SUWBACK13N		SUWBACK15N	
					sample_date	10/3/2013		9/25/2013		9/25/2013		9/25/2013		9/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		6.1		1.8		11.9		5.15	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_DioxinFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	ug/l	7.84E-07	U			6.46E-06	J			6.97E-06	J
RA_SW_DioxinFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	ug/l	6.68E-07	J			1.09E-06	J			1.06E-06	J
RA_SW_DioxinFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	ug/l	6.86E-08	U			7.79E-08	U			8.68E-08	U
RA_SW_DioxinFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	ug/l	4.87E-08	U			7.07E-08	U			1.07E-07	U
RA_SW_DioxinFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	ug/l	3E-07	J			8.16E-08	U			8.15E-08	U
RA_SW_DioxinFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	ug/l	5.28E-08	U			7.44E-08	U			1.1E-07	U
RA_SW_DioxinFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	ug/l	6.57E-08	U			8.86E-08	U			4.98E-07	J
RA_SW_DioxinFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	ug/l	3.46E-07	J			6.57E-08	U			9.81E-08	U
RA_SW_DioxinFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	ug/l	7.52E-08	U			9.96E-08	U			9.33E-08	U
RA_SW_DioxinFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	ug/l	3.5E-08	U			5.73E-08	U			5.12E-08	U
RA_SW_DioxinFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	ug/l	6.55E-08	U			9.26E-08	U			9.13E-08	U
RA_SW_DioxinFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	ug/l	5.37E-08	U			7.79E-08	U			7.35E-08	U
RA_SW_DioxinFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	ug/l	7.21E-07	J			8.65E-08	U			6.35E-07	J
RA_SW_DioxinFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	ug/l	2.21E-07	J			7.43E-08	U			5.28E-08	U
RA_SW_DioxinFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	ug/l	2.49E-08	U			1.13E-07	U			7.85E-08	U
RA_SW_DioxinFurans	OCDD	3268-87-9	SW8290A	N	ug/l	1.4E-05	U			0.000194				0.000202	
RA_SW_DioxinFurans	OCDF	39001-02-0	SW8290A	N	ug/l	1.35E-06	J			2.43E-06	J			1.41E-06	J
RA_SW_DioxinFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	ug/l	1.01E-06				3.7E-08				7.23E-07	
RA_SW_DioxinFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	ug/l	6.22E-07				3.7E-08				4.05E-07	
RA_SW_DioxinFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	ug/l	5.09E-07				1.34E-07				3.82E-07	
RA_SW_DioxinFurans	Total HpCDD	37871-00-4	SW8290A	N	ug/l	1.97E-06	J			1.43E-05	J			1.64E-05	J
RA_SW_DioxinFurans	Total HpCDF	38998-75-3	SW8290A	N	ug/l	6.68E-07	J			2.88E-06	J			2.39E-06	J
RA_SW_DioxinFurans	Total HxCDD	34465-46-8	SW8290A	N	ug/l	3.46E-07	U			1.93E-06	J			3.55E-06	J
RA_SW_DioxinFurans	Total HxCDF	55684-94-1	SW8290A	N	ug/l	4.79E-07	U			5.56E-06	J			6.45E-06	J
RA_SW_DioxinFurans	Total PeCDD	36088-22-9	SW8290A	N	ug/l	6.91E-07	J			5.73E-08	U			4.25E-07	J
RA_SW_DioxinFurans	Total PeCDF	30402-15-4	SW8290A	N	ug/l	1.21E-06	U			7.47E-06	J			1.11E-05	J
RA_SW_DioxinFurans	Total TCDD	41903-57-5	SW8290A	N	ug/l	3.12E-07	J			4.6E-07	J			5.28E-08	U
RA_SW_DioxinFurans	Total TCDF	55722-27-5	SW8290A	N	ug/l	2.45E-07	J			1.23E-05	J			1.42E-05	J
RA_SW_DioxinFurans	Total TEQ	TTEQ	SW8290A	N	ug/l	5.09E-07				1.34E-07				3.82E-07	
RA_SW_Field	Conductivity	Cond	FIELD	T	ms/cm	0.376		0.255		0.287		0.289		0.299	
RA_SW_Field	DO	DO	FIELD	T	mg/l	8.23		4.44		3.71		3.62		3.58	
RA_SW_Field	OXIDATION-REDUCTION POTENTIAL	ORP	FIELD	T	mV	4.9		83.8		53		72.6		104.9	
RA_SW_Field	PH	PH	FIELD	T	ph units	7.43		6.44		6.7		6.66		6.8	
RA_SW_Field	SALINITY	SAL	FIELD	T	ppt	0.18		0.12		0.14		0.14		0.14	
RA_SW_Field	TEMPERATURE	TEMP	FIELD	T	deg F	64.72		66.18		68.13		68.07		67.41	
RA_SW_Field	TURBIDITY	TURB	FIELD	T	ntu	1.3		11.2		0		5.5		3.6	
RA_SW_Metals	Aluminum	7429-90-5	SW6020A	D	ug/l	30	U	30	U	30	U	30	U	30	U
RA_SW_Metals	Aluminum	7429-90-5	SW6020A	T	ug/l	26	J	610		350		390		320	
RA_SW_Metals	Antimony	7440-36-0	SW6020A	D	ug/l	0.19	J	1.1	J	1.1	J	0.76	J	0.75	J
RA_SW_Metals	Antimony	7440-36-0	SW6020A	T	ug/l	0.17	J	0.56	J	0.55	J	0.55	J	0.53	J
RA_SW_Metals	Arsenic	7440-38-2	SW6020A	D	ug/l	1	U	0.48	J	0.55	J	0.65	J	1	U
RA_SW_Metals	Arsenic	7440-38-2	SW6020A	T	ug/l	2.1		0.95	J	0.77	J	0.92	J	1.1	J
RA_SW_Metals	Barium	7440-39-3	SW6020A	D	ug/l	43		38		38		40		40	

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK1		SUWBACK11		SUWBACK12		SUWBACK13		SUWBACK15	
					sys_sample_code	SUWBACK1N		SUWBACK11N		SUWBACK12N		SUWBACK13N		SUWBACK15N	
					sample_date	10/3/2013		9/25/2013		9/25/2013		9/25/2013		9/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		6.1		1.8		11.9		5.15	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_Metals	Barium	7440-39-3	SW6020A	T	ug/l	45		46		44		43		44	
RA_SW_Metals	Beryllium	7440-41-7	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Beryllium	7440-41-7	SW6020A	T	ug/l	0.05	J	0.099	J	0.044	J	0.077	J	0.057	J
RA_SW_Metals	Cadmium	7440-43-9	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Cadmium	7440-43-9	SW6020A	T	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Calcium	7440-70-2	SW6020A	D	ug/l	19000		18000		20000		21000		22000	
RA_SW_Metals	Calcium	7440-70-2	SW6020A	T	ug/l	21000		18000		21000		20000		21000	
RA_SW_Metals	Chromium	7440-47-3	SW6020A	D	ug/l	1.9	J	1.9	J	2.2		1.9	J	1.7	J
RA_SW_Metals	Chromium	7440-47-3	SW6020A	T	ug/l	1.1	J	3.3		2.6		2.8		2.5	
RA_SW_Metals	Cobalt	7440-48-4	SW6020A	D	ug/l	0.16	J	0.21	J	0.13	J	0.14	J	0.15	J
RA_SW_Metals	Cobalt	7440-48-4	SW6020A	T	ug/l	0.52		1.3		0.88		0.93		0.8	
RA_SW_Metals	Copper	7440-50-8	SW6020A	D	ug/l	1.7	J	2.7		1.7	J	2		1.8	J
RA_SW_Metals	Copper	7440-50-8	SW6020A	T	ug/l	5		4.1		3.2		3.5		3.1	
RA_SW_Metals	Iron	7439-89-6	SW6020A	D	ug/l	14	J	24	J	50	U	50	U	38	J
RA_SW_Metals	Iron	7439-89-6	SW6020A	T	ug/l	310		1600		930		1000		830	
RA_SW_Metals	Lead	7439-92-1	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Lead	7439-92-1	SW6020A	T	ug/l	0.19	J	3.8		2.4		2.7		2.6	
RA_SW_Metals	Magnesium	7439-95-4	SW6020A	D	ug/l	7500		5400		6500		6800		7100	
RA_SW_Metals	Magnesium	7439-95-4	SW6020A	T	ug/l	6500		5600		6700		6600		6900	
RA_SW_Metals	Manganese	7439-96-5	SW6020A	D	ug/l	5	U	5	U	5	U	5	U	6.2	
RA_SW_Metals	Manganese	7439-96-5	SW6020A	T	ug/l	26		210		150		150		130	
RA_SW_Metals	Mercury	7439-97-6	SW7470A	D	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
RA_SW_Metals	Mercury	7439-97-6	SW7470A	T	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
RA_SW_Metals	Nickel	7440-02-0	SW6020A	D	ug/l	1.6		1.6		1.5		1.6		1.8	
RA_SW_Metals	Nickel	7440-02-0	SW6020A	T	ug/l	2.7	U	3.2		2.6		2.5		2.7	
RA_SW_Metals	Potassium	7440-09-7	SW6020A	D	ug/l	3600		3700		3800		3900		3900	
RA_SW_Metals	Potassium	7440-09-7	SW6020A	T	ug/l	3600		3700		3800		3800		3900	
RA_SW_Metals	Selenium	7782-49-2	SW6020A	D	ug/l	5	U	0.44	J	0.49	J	5	U	5	U
RA_SW_Metals	Selenium	7782-49-2	SW6020A	T	ug/l	5	U	5	U	5	U	0.86	J	5	U
RA_SW_Metals	Silver	7440-22-4	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Silver	7440-22-4	SW6020A	T	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Sodium	7440-23-5	SW6020A	D	ug/l	37000		19000		21000		21000		21000	
RA_SW_Metals	Sodium	7440-23-5	SW6020A	T	ug/l	38000		19000		21000		20000		21000	
RA_SW_Metals	Thallium	7440-28-0	SW6020A	D	ug/l	0.02	J	0.051	J	0.11	J	0.07	J	0.027	J
RA_SW_Metals	Thallium	7440-28-0	SW6020A	T	ug/l	1	U	0.024	J	0.02	J	0.028	J	0.025	J
RA_SW_Metals	Vanadium	7440-62-2	SW6020A	D	ug/l	1	U	1	U	1	U	0.18	J	1	U
RA_SW_Metals	Vanadium	7440-62-2	SW6020A	T	ug/l	1	U	2.5		1.6		2		1.7	
RA_SW_Metals	Zinc	7440-66-6	SW6020A	D	ug/l	4.7	J	9.1	J	5	J	4.4	J	4.5	J
RA_SW_Metals	Zinc	7440-66-6	SW6020A	T	ug/l	5.5	U	12		7.3		8.8		8.2	
RA_SW_Other	Hardness (as CaCO3)	HARD	A2340C	D	ug/l	80000		76000		78000		78000		82000	
RA_SW_Other	Hardness (as CaCO3)	HARD	A2340C	T	ug/l	80000		70000		80000		80000		84000	
RA_SW_Other	HEM (Oil and Grease)	348	E1664B	N	ug/l	2000	J			4800	U			48000	U
RA_SW_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK1		SUWBACK11		SUWBACK12		SUWBACK13		SUWBACK15	
					sys_sample_code	SUWBACK1N		SUWBACK11N		SUWBACK12N		SUWBACK13N		SUWBACK15N	
					sample_date	10/3/2013		9/25/2013		9/25/2013		9/25/2013		9/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		6.1		1.8		11.9		5.15	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	ug/l	0.0013	U			0.0011	J			0.0012	J
RA_SW_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Endrin	72-20-8	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0013	UJ
RA_SW_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	ug/l	0.0026	U			0.0026	U			0.0026	UJ
RA_SW_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	ug/l	0.01	U	0.0094	U	0.01	U	0.01	U	0.01	U
RA_SW_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	ug/l	0.1	U			0.1	U			0.1	UJ
RA_SW_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	ug/l	0.0013	U			0.0013	U			0.0012	J
RA_SW_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U
RA_SW_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U
RA_SW_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	ug/l	5.2	U			5.3	U			5.4	U
RA_SW_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK1		SUWBACK11		SUWBACK12		SUWBACK13		SUWBACK15	
					sys_sample_code	SUWBACK1N		SUWBACK11N		SUWBACK12N		SUWBACK13N		SUWBACK15N	
					sample_date	10/3/2013		9/25/2013		9/25/2013		9/25/2013		9/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		6.1		1.8		11.9		5.15	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U
RA_SW_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	ug/l	5.2	U			5.3	U			5.4	U
RA_SW_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	ug/l	5.2	U			5.3	U			5.4	U
RA_SW_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	ug/l	5.2	U			5.3	U			5.4	U
RA_SW_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	ug/l	5.2	U			5.3	U			5.4	U
RA_SW_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	ug/l	5.2	U			5.3	U			5.4	U
RA_SW_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Anthracene	120-12-7	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U
RA_SW_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	ug/l	2.1	U			3.6				2.2	U
RA_SW_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	ug/l	5.2	U			5.3	U			5.4	U
RA_SW_SVOCs	Carbazole	86-74-8	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U
RA_SW_SVOCs	Chrysene	218-01-9	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	ug/l	0.21	U	0.028	J	0.21	U	0.018	J	0.22	U
RA_SW_SVOCs	Fluorene	86-73-7	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U
RA_SW_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK1		SUWBACK11		SUWBACK12		SUWBACK13		SUWBACK15	
					sys_sample_code	SUWBACK1N		SUWBACK11N		SUWBACK12N		SUWBACK13N		SUWBACK15N	
					sample_date	10/3/2013		9/25/2013		9/25/2013		9/25/2013		9/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		6.1		1.8		11.9		5.15	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Isophorone	78-59-1	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	ug/l	2.1	U			2.1	U			2.2	U
RA_SW_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U
RA_SW_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	ug/l	1	U			1.1	U			1.1	U
RA_SW_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Phenol	108-95-2	SW8270D LL	N	ug/l	0.21	U			0.21	U			0.22	U
RA_SW_SVOCs	Pyrene	129-00-0	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.02	J	0.22	U
RA_SW_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	ug/l	0.21	U	0.028		0.21	U	0.038		0.22	U
RA_SW_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	ug/l	0.21	U	0.2	U	0.21	U	0.19	U	0.22	U
RA_SW_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	ug/l	0.21	U	0.028		0.21	U	0.038		0.22	U
RA_SW_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	ug/l	200	U			200	U			200	U
RA_SW_VOCs	2-Butanone	78-93-3	SW8260B	N	ug/l	5	U			5	U			5	U
RA_SW_VOCs	2-Hexanone	591-78-6	SW8260B	N	ug/l	5	U			5	U			5	U
RA_SW_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	ug/l	5	U			5	U			5	U
RA_SW_VOCs	Acetone	67-64-1	SW8260B	N	ug/l	3.7	J			5	U			5	U
RA_SW_VOCs	Benzene	71-43-2	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Bromochloromethane	74-97-5	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Bromoform	75-25-2	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Bromomethane	74-83-9	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Chlorobenzene	108-90-7	SW8260B	N	ug/l	1	U			1	U			1	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK1		SUWBACK11		SUWBACK12		SUWBACK13		SUWBACK15	
					sys_sample_code	SUWBACK1N		SUWBACK11N		SUWBACK12N		SUWBACK13N		SUWBACK15N	
					sample_date	10/3/2013		9/25/2013		9/25/2013		9/25/2013		9/25/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		6.1		1.8		11.9		5.15	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_VOCs	Chloroethane	75-00-3	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Chloroform	67-66-3	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Chloromethane	74-87-3	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Cyclohexane	110-82-7	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Ethylbenzene	100-41-4	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	m, p-Xylene	XYLMP	SW8260B	N	ug/l	2	U			2	U			2	U
RA_SW_VOCs	Methyl Acetate	79-20-9	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Methylene Chloride	75-09-2	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	o-Xylene	95-47-6	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Styrene	100-42-5	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Toluene	108-88-3	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	ug/l	1	UJ			1	U			1	U
RA_SW_VOCs	Trichloroethene	79-01-6	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	ug/l	1	U			1	U			1	U
RA_SW_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	ug/l	2	U			2	U			2	U

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK2		SUWBACK3		SUWBACK4		SUWBACK5		SUWBACK6	
					sys_sample_code	SUWBACK2N		SUWBACK3N		SUWBACK4N		SUWBACK5N		SUWBACK6N	
					sample_date	10/3/2013		9/26/2013		9/26/2013		9/26/2013		9/26/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		1.5		7.6		5.1		1.8	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_DioxinFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	ug/l	5.21E-07	U			8.86E-06	J	4.87E-06	J		
RA_SW_DioxinFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	ug/l	4.12E-08	U			8.66E-07	J	6.57E-07	J		
RA_SW_DioxinFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	ug/l	5.64E-08	U			1.1E-07	U	1.13E-07	U		
RA_SW_DioxinFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	ug/l	4.46E-07	J			8.47E-08	U	8.31E-08	U		
RA_SW_DioxinFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	ug/l	3.19E-08	U			1.13E-07	U	4.54E-07	J		
RA_SW_DioxinFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	ug/l	4.28E-08	U			8.19E-08	U	8.57E-08	U		
RA_SW_DioxinFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	ug/l	2.97E-08	U			1.09E-07	U	1.02E-06	J		
RA_SW_DioxinFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	ug/l	3.81E-08	U			5.41E-07	J	7.64E-08	U		
RA_SW_DioxinFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	ug/l	3.36E-08	U			1.33E-07	U	1.03E-07	U		
RA_SW_DioxinFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	ug/l	2E-08	U			4.59E-08	U	5.77E-08	U		
RA_SW_DioxinFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	ug/l	1.2E-07	J			2.1E-07	J	1.04E-07	U		
RA_SW_DioxinFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	ug/l	1.15E-07	J			5.97E-07	J	8.49E-08	U		
RA_SW_DioxinFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	ug/l	3.41E-08	U			7.5E-08	U	9.55E-08	U		
RA_SW_DioxinFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	ug/l	4.01E-08	U			4.08E-08	U	6.93E-08	U		
RA_SW_DioxinFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	ug/l	2.21E-08	U			5.01E-08	U	9.97E-08	U		
RA_SW_DioxinFurans	OCDD	3268-87-9	SW8290A	N	ug/l	9.34E-06	U			0.000228		0.000183			
RA_SW_DioxinFurans	OCDF	39001-02-0	SW8290A	N	ug/l	3.73E-07	U			8.27E-07	J	1.41E-06	J		
RA_SW_DioxinFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	ug/l	4.58E-08				1.75E-07		1.77E-07			
RA_SW_DioxinFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	ug/l	2.41E-07				1.16E-07		1.77E-07			
RA_SW_DioxinFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	ug/l	5.97E-08				2.86E-07		2.58E-07			
RA_SW_DioxinFurans	Total HpCDD	37871-00-4	SW8290A	N	ug/l	1.97E-06	J			1.66E-05	J	1.08E-05	J		
RA_SW_DioxinFurans	Total HpCDF	38998-75-3	SW8290A	N	ug/l	4.78E-08	U			2.15E-06	J	6.57E-07	J		
RA_SW_DioxinFurans	Total HxCDD	34465-46-8	SW8290A	N	ug/l	1.05E-06	U			5.41E-07	J	1.68E-06	J		
RA_SW_DioxinFurans	Total HxCDF	55684-94-1	SW8290A	N	ug/l	1.15E-07	U			4.79E-06	J	5.57E-06	J		
RA_SW_DioxinFurans	Total PeCDD	36088-22-9	SW8290A	N	ug/l	2E-08	U			4.59E-08	U	5.77E-08	U		
RA_SW_DioxinFurans	Total PeCDF	30402-15-4	SW8290A	N	ug/l	1.2E-07	U			4.22E-06	J	6.4E-06	J		
RA_SW_DioxinFurans	Total TCDD	41903-57-5	SW8290A	N	ug/l	4.01E-08	U			4.08E-08	U	6.93E-08	U		
RA_SW_DioxinFurans	Total TCDF	55722-27-5	SW8290A	N	ug/l	2.21E-08	U			4.06E-06	J	1.06E-05	J		
RA_SW_DioxinFurans	Total TEQ	TTEQ	SW8290A	N	ug/l	5.97E-08				2.86E-07		2.58E-07			
RA_SW_Field	Conductivity	Cond	FIELD	T	ms/cm	0.47		0.316		0.266		0.24		0.228	
RA_SW_Field	DO	DO	FIELD	T	mg/l	10.24		7.55		5.11		5.13		4.13	
RA_SW_Field	OXIDATION-REDUCTION POTENTIAL	ORP	FIELD	T	mV	31.7		45.2		20.1		23.2		53.6	
RA_SW_Field	PH	PH	FIELD	T	ph units	7.11		6.91		7		7.03		6.65	
RA_SW_Field	SALINITY	SAL	FIELD	T	ppt	0.23		0.15		0.13		0.11		0.11	
RA_SW_Field	TEMPERATURE	TEMP	FIELD	T	deg F	68.3		66.02		64.32		64.85		68.13	
RA_SW_Field	TURBIDITY	TURB	FIELD	T	ntu	1.4		2.5		21.3		17.2		7.2	
RA_SW_Metals	Aluminum	7429-90-5	SW6020A	D	ug/l	6.1	J	30	U	30	U	30	U	30	U
RA_SW_Metals	Aluminum	7429-90-5	SW6020A	T	ug/l	35		150		300		270		310	
RA_SW_Metals	Antimony	7440-36-0	SW6020A	D	ug/l	0.25	J	0.54	J	0.66	J	0.75	J	0.73	J
RA_SW_Metals	Antimony	7440-36-0	SW6020A	T	ug/l	0.23	J	0.37	J	0.47	J	0.51	J	0.53	J
RA_SW_Metals	Arsenic	7440-38-2	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	0.49	J
RA_SW_Metals	Arsenic	7440-38-2	SW6020A	T	ug/l	2.4		0.34	J	0.68	J	0.97	J	0.69	J
RA_SW_Metals	Barium	7440-39-3	SW6020A	D	ug/l	58		39		33		31		31	

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK2		SUWBACK3		SUWBACK4		SUWBACK5		SUWBACK6	
					sys_sample_code	SUWBACK2N		SUWBACK3N		SUWBACK4N		SUWBACK5N		SUWBACK6N	
					sample_date	10/3/2013		9/26/2013		9/26/2013		9/26/2013		9/26/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		1.5		7.6		5.1		1.8	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_Metals	Barium	7440-39-3	SW6020A	T	ug/l	60		44		40		36		36	
RA_SW_Metals	Beryllium	7440-41-7	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Beryllium	7440-41-7	SW6020A	T	ug/l	0.21	J	0.037	J	0.086	J	0.063	J	0.058	J
RA_SW_Metals	Cadmium	7440-43-9	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Cadmium	7440-43-9	SW6020A	T	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Calcium	7440-70-2	SW6020A	D	ug/l	32000		21000		18000		16000		16000	
RA_SW_Metals	Calcium	7440-70-2	SW6020A	T	ug/l	36000		20000		18000		16000		16000	
RA_SW_Metals	Chromium	7440-47-3	SW6020A	D	ug/l	2		1.6	J	1.5	J	1.6	J	1.4	J
RA_SW_Metals	Chromium	7440-47-3	SW6020A	T	ug/l	0.85	J	2.2		2.6		2.4		2.4	
RA_SW_Metals	Cobalt	7440-48-4	SW6020A	D	ug/l	0.09	J	0.16	J	0.12	J	0.12	J	0.11	J
RA_SW_Metals	Cobalt	7440-48-4	SW6020A	T	ug/l	0.49	J	1.4		1.3		1.1		1	
RA_SW_Metals	Copper	7440-50-8	SW6020A	D	ug/l	1.7	J	1.7	J	1.7	J	1.7	J	1.7	J
RA_SW_Metals	Copper	7440-50-8	SW6020A	T	ug/l	4.4		2.7		3.3		3.1		3.1	
RA_SW_Metals	Iron	7439-89-6	SW6020A	D	ug/l	50	U	50	U	50	U	6.3	J	7	J
RA_SW_Metals	Iron	7439-89-6	SW6020A	T	ug/l	440		1100		1300		1100		1100	
RA_SW_Metals	Lead	7439-92-1	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Lead	7439-92-1	SW6020A	T	ug/l	0.19	J	1.2		2		2.2		2.2	
RA_SW_Metals	Magnesium	7439-95-4	SW6020A	D	ug/l	10000		6400		5300		4600		4500	
RA_SW_Metals	Magnesium	7439-95-4	SW6020A	T	ug/l	9200		6300		5300		4600		4400	
RA_SW_Metals	Manganese	7439-96-5	SW6020A	D	ug/l	5	U	5	U	5	U	5	U	5	U
RA_SW_Metals	Manganese	7439-96-5	SW6020A	T	ug/l	60		260		260		190		170	
RA_SW_Metals	Mercury	7439-97-6	SW7470A	D	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
RA_SW_Metals	Mercury	7439-97-6	SW7470A	T	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
RA_SW_Metals	Nickel	7440-02-0	SW6020A	D	ug/l	2.7		1.8		1.8		1.6		1.5	
RA_SW_Metals	Nickel	7440-02-0	SW6020A	T	ug/l	4	U	3		3.2		2.6		2.7	
RA_SW_Metals	Potassium	7440-09-7	SW6020A	D	ug/l	4900		3800		3600		3300		3400	
RA_SW_Metals	Potassium	7440-09-7	SW6020A	T	ug/l	4900		3700		3600		3300		3300	
RA_SW_Metals	Selenium	7782-49-2	SW6020A	D	ug/l	5	U	5	U	5	U	5	U	5	U
RA_SW_Metals	Selenium	7782-49-2	SW6020A	T	ug/l	5	U	5	U	5	U	5	U	5	U
RA_SW_Metals	Silver	7440-22-4	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Silver	7440-22-4	SW6020A	T	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Sodium	7440-23-5	SW6020A	D	ug/l	38000		27000		21000		18000		18000	
RA_SW_Metals	Sodium	7440-23-5	SW6020A	T	ug/l	39000		26000		20000		18000		17000	
RA_SW_Metals	Thallium	7440-28-0	SW6020A	D	ug/l	0.027	J	0.021	J	1	U	0.023	J	1	U
RA_SW_Metals	Thallium	7440-28-0	SW6020A	T	ug/l	1	U	0.025	J	0.034	J	0.029	J	0.022	J
RA_SW_Metals	Vanadium	7440-62-2	SW6020A	D	ug/l	0.11	J	1	U	1	U	0.16	J	1	U
RA_SW_Metals	Vanadium	7440-62-2	SW6020A	T	ug/l	1	U	1.5		1.8		1.7		2.4	
RA_SW_Metals	Zinc	7440-66-6	SW6020A	D	ug/l	8.9		3.3	J	4.2	J	3.3	J	7.9	J
RA_SW_Metals	Zinc	7440-66-6	SW6020A	T	ug/l	10	U	5.5		8.5		7.6		7.4	
RA_SW_Other	Hardness (as CaCO3)	HARD	A2340C	D	ug/l	130000		76000		66000		58000		56000	
RA_SW_Other	Hardness (as CaCO3)	HARD	A2340C	T	ug/l	130000		80000		68000		60000		60000	
RA_SW_Other	HEM (Oil and Grease)	348	E1664B	N	ug/l	2200	J			4800	U	2300	J		
RA_SW_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK2		SUWBACK3		SUWBACK4		SUWBACK5		SUWBACK6	
					sys_sample_code	SUWBACK2N		SUWBACK3N		SUWBACK4N		SUWBACK5N		SUWBACK6N	
					sample_date	10/3/2013		9/26/2013		9/26/2013		9/26/2013		9/26/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		1.5		7.6		5.1		1.8	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	ug/l	0.0013	U			0.0012		0.00081	J		
RA_SW_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	ug/l	0.0011	J			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Endrin	72-20-8	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	ug/l	0.0025	U			0.0024	U	0.0024	U		
RA_SW_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	ug/l	0.01	U	0.0095	U	0.0095	U	0.0095	U	0.0094	U
RA_SW_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	ug/l	0.1	U			0.095	U	0.095	U		
RA_SW_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	ug/l	0.0013	U			0.0012	U	0.0012	U		
RA_SW_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		
RA_SW_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		
RA_SW_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	ug/l	5	U			4.8	U	4.9	U		
RA_SW_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK2		SUWBACK3		SUWBACK4		SUWBACK5		SUWBACK6	
					sys_sample_code	SUWBACK2N		SUWBACK3N		SUWBACK4N		SUWBACK5N		SUWBACK6N	
					sample_date	10/3/2013		9/26/2013		9/26/2013		9/26/2013		9/26/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		1.5		7.6		5.1		1.8	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		
RA_SW_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	ug/l	5	U			4.8	U	4.9	U		
RA_SW_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	ug/l	5	U			4.8	U	4.9	U		
RA_SW_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	ug/l	5	U			4.8	U	4.9	U		
RA_SW_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	ug/l	5	U			4.8	U	4.9	U		
RA_SW_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	ug/l	5	U			4.8	U	4.9	U		
RA_SW_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Anthracene	120-12-7	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		
RA_SW_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	ug/l	2	U			2.8		2.4			
RA_SW_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	ug/l	0.99	U			0.16	J	0.97	U		
RA_SW_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	ug/l	5	U			4.8	U	4.9	U		
RA_SW_SVOCs	Carbazole	86-74-8	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		
RA_SW_SVOCs	Chrysene	218-01-9	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.12	J		
RA_SW_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	ug/l	0.2	U	0.024	J	0.031	J	0.19	U	0.19	U
RA_SW_SVOCs	Fluorene	86-73-7	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		
RA_SW_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK2		SUWBACK3		SUWBACK4		SUWBACK5		SUWBACK6	
					sys_sample_code	SUWBACK2N		SUWBACK3N		SUWBACK4N		SUWBACK5N		SUWBACK6N	
					sample_date	10/3/2013		9/26/2013		9/26/2013		9/26/2013		9/26/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		1.5		7.6		5.1		1.8	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Isophorone	78-59-1	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	ug/l	0.2	U	0.19	U	0.025	J	0.19	U	0.19	U
RA_SW_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	ug/l	2	U			1.9	U	1.9	U		
RA_SW_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		
RA_SW_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	ug/l	0.99	U			0.96	U	0.97	U		
RA_SW_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	ug/l	0.2	U	0.048	J	0.19	U	0.19	U	0.19	U
RA_SW_SVOCs	Phenol	108-95-2	SW8270D LL	N	ug/l	0.2	U			0.19	U	0.19	U		
RA_SW_SVOCs	Pyrene	129-00-0	SW8270D LL	N	ug/l	0.2	U	0.022	J	0.023	J	0.19	U	0.019	J
RA_SW_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	ug/l	0.2	U	0.046		0.054		0.19	U	0.019	
RA_SW_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	ug/l	0.2	U	0.048		0.025		0.19	U	0.19	U
RA_SW_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	ug/l	0.2	U	0.094		0.079		0.19	U	0.019	
RA_SW_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	ug/l	200	U			200	U	200	U		
RA_SW_VOCs	2-Butanone	78-93-3	SW8260B	N	ug/l	5	U			5	U	5	U		
RA_SW_VOCs	2-Hexanone	591-78-6	SW8260B	N	ug/l	5	U			5	U	5	U		
RA_SW_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	ug/l	5	U			5	U	5	U		
RA_SW_VOCs	Acetone	67-64-1	SW8260B	N	ug/l	3	J			5	U	5	U		
RA_SW_VOCs	Benzene	71-43-2	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Bromochloromethane	74-97-5	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Bromoform	75-25-2	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Bromomethane	74-83-9	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Chlorobenzene	108-90-7	SW8260B	N	ug/l	1	U			1	U	1	U		

					loc_group	RA_Background		RA_Background		RA_Background		RA_Background		RA_Background	
					sys_loc_code	SUWBACK2		SUWBACK3		SUWBACK4		SUWBACK5		SUWBACK6	
					sys_sample_code	SUWBACK2N		SUWBACK3N		SUWBACK4N		SUWBACK5N		SUWBACK6N	
					sample_date	10/3/2013		9/26/2013		9/26/2013		9/26/2013		9/26/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	0.5		1.5		7.6		5.1		1.8	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_VOCs	Chloroethane	75-00-3	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Chloroform	67-66-3	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Chloromethane	74-87-3	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Cyclohexane	110-82-7	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Ethylbenzene	100-41-4	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	m, p-Xylene	XYLMP	SW8260B	N	ug/l	2	U			0.43	J	2	U		
RA_SW_VOCs	Methyl Acetate	79-20-9	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Methylene Chloride	75-09-2	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	o-Xylene	95-47-6	SW8260B	N	ug/l	1	U			0.17	J	0.12	J		
RA_SW_VOCs	Styrene	100-42-5	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Toluene	108-88-3	SW8260B	N	ug/l	1	U			0.3	J	1	U		
RA_SW_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	ug/l	1	UJ			1	U	1	U		
RA_SW_VOCs	Trichloroethene	79-01-6	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	ug/l	1	U			1	U	1	U		
RA_SW_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	ug/l	2	U			0.6		0.12			

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW10B		SUW1B		SUW2B		SUW3C		SUW4B	
					sys_sample_code	SUW10BN		SUW1BN		SUW2BN		SUW3CN		SUW4BN	
					sample_date	9/26/2013		9/23/2013		9/23/2013		9/23/2013		9/24/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	7.3		12.8		5.3		5.8		5.7	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_DioxinFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	ug/l	7.71E-06	J	6.59E-06	J			7E-06	J		
RA_SW_DioxinFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	ug/l	1.47E-06	J	1.41E-06	J			1.41E-06	J		
RA_SW_DioxinFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	ug/l	1.44E-07	U	6.01E-07	J			5.52E-07	J		
RA_SW_DioxinFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	ug/l	8.18E-08	U	8.87E-08	U			8.98E-08	U		
RA_SW_DioxinFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	ug/l	1.03E-07	U	9.35E-08	U			6.8E-07	J		
RA_SW_DioxinFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	ug/l	8.08E-08	U	4.2E-07	J			2.88E-07	U		
RA_SW_DioxinFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	ug/l	1.08E-07	U	9.46E-08	U			7.96E-07	J		
RA_SW_DioxinFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	ug/l	7.36E-08	U	4.43E-07	J			7.36E-07	J		
RA_SW_DioxinFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	ug/l	9.04E-07	J	1.98E-07	J			3.62E-07	J		
RA_SW_DioxinFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	ug/l	4.21E-08	U	5.09E-08	U			5.39E-08	U		
RA_SW_DioxinFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	ug/l	8.73E-08	U	1.84E-07	U			1.01E-07	U		
RA_SW_DioxinFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	ug/l	9.11E-08	U	2.75E-07	U			8.43E-08	U		
RA_SW_DioxinFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	ug/l	8.37E-08	U	8.5E-08	U			8.38E-08	U		
RA_SW_DioxinFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	ug/l	7.21E-08	U	6.23E-08	U			1.48E-07	J		
RA_SW_DioxinFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	ug/l	8E-08	U	7.75E-08	U			4.19E-07	J		
RA_SW_DioxinFurans	OCDD	3268-87-9	SW8290A	N	ug/l	0.000191		0.00019				0.000248			
RA_SW_DioxinFurans	OCDF	39001-02-0	SW8290A	N	ug/l	1.96E-06	J	2.95E-06	J			3.35E-06	J		
RA_SW_DioxinFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	ug/l	1.32E-07		1.14E-07				8.76E-07			
RA_SW_DioxinFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	ug/l	1.32E-07		7.44E-08				4.12E-07			
RA_SW_DioxinFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	ug/l	2.4E-07		2.5E-07				6.12E-07			
RA_SW_DioxinFurans	Total HpCDD	37871-00-4	SW8290A	N	ug/l	1.68E-05	J	1.59E-05	J			1.71E-05	J		
RA_SW_DioxinFurans	Total HpCDF	38998-75-3	SW8290A	N	ug/l	1.47E-06	J	2.88E-06	J			1.96E-06	J		
RA_SW_DioxinFurans	Total HxCDD	34465-46-8	SW8290A	N	ug/l	8.07E-07	J	3.42E-06	J			3.77E-06	J		
RA_SW_DioxinFurans	Total HxCDF	55684-94-1	SW8290A	N	ug/l	5E-06	J	5.67E-06	J			9.11E-06	J		
RA_SW_DioxinFurans	Total PeCDD	36088-22-9	SW8290A	N	ug/l	4.21E-08	U	3.08E-06	J			5.39E-08	U		
RA_SW_DioxinFurans	Total PeCDF	30402-15-4	SW8290A	N	ug/l	6.82E-06	J	1.02E-05	J			1.33E-05	J		
RA_SW_DioxinFurans	Total TCDD	41903-57-5	SW8290A	N	ug/l	7.21E-08	U	1.1E-07	U			1.48E-07	U		
RA_SW_DioxinFurans	Total TCDF	55722-27-5	SW8290A	N	ug/l	1.05E-05	J	1.6E-05	J			2.12E-05	J		
RA_SW_DioxinFurans	Total TEQ	TTEQ	SW8290A	N	ug/l	2.4E-07		2.5E-07				6.12E-07			
RA_SW_Field	Conductivity	Cond	FIELD	T	ms/cm	0.228		0.263		0.231		0.198		0.215	
RA_SW_Field	DO	DO	FIELD	T	mg/l	3.94		3.41		3.79		3.94		3.35	
RA_SW_Field	OXIDATION-REDUCTION POTENTIAL	ORP	FIELD	T	mV	79.8		29.6		48.1		41.1		98.6	
RA_SW_Field	PH	PH	FIELD	T	ph units	6.81		6.81		6.82		6.67		6.67	
RA_SW_Field	SALINITY	SAL	FIELD	T	ppt	0.11		0.13		0.11		0.09		0.1	
RA_SW_Field	TEMPERATURE	TEMP	FIELD	T	deg F	65.62		67.87		67.8		68.2		66.48	
RA_SW_Field	TURBIDITY	TURB	FIELD	T	ntu	24.9		0		15		4.3		6.5	
RA_SW_Metals	Aluminum	7429-90-5	SW6020A	D	ug/l	30	U	30	U	30	U	30	U	30	U
RA_SW_Metals	Aluminum	7429-90-5	SW6020A	T	ug/l	310		460		330		570		380	
RA_SW_Metals	Antimony	7440-36-0	SW6020A	D	ug/l	0.74	J	0.92	J	0.84	J	1.8	J	0.78	J
RA_SW_Metals	Antimony	7440-36-0	SW6020A	T	ug/l	0.56	J	0.62	J	0.63	J	0.62	J	0.57	J
RA_SW_Metals	Arsenic	7440-38-2	SW6020A	D	ug/l	0.32	J	1	U	0.41	J	1	U	0.56	J
RA_SW_Metals	Arsenic	7440-38-2	SW6020A	T	ug/l	0.62	J	0.73	J	0.59	J	0.7	J	1.2	J
RA_SW_Metals	Barium	7440-39-3	SW6020A	D	ug/l	30		36		34		30		31	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW10B		SUW1B		SUW2B		SUW3C		SUW4B	
					sys_sample_code	SUW10BN		SUW1BN		SUW2BN		SUW3CN		SUW4BN	
					sample_date	9/26/2013		9/23/2013		9/23/2013		9/23/2013		9/24/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	7.3		12.8		5.3		5.8		5.7	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_Metals	Barium	7440-39-3	SW6020A	T	ug/l	35		41		36		33		36	
RA_SW_Metals	Beryllium	7440-41-7	SW6020A	D	ug/l	1	U	0.045	J	1	U	0.079	J	1	U
RA_SW_Metals	Beryllium	7440-41-7	SW6020A	T	ug/l	0.048	J	0.038	J	0.093	J	0.1	J	0.079	J
RA_SW_Metals	Cadmium	7440-43-9	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Cadmium	7440-43-9	SW6020A	T	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Calcium	7440-70-2	SW6020A	D	ug/l	15000		19000		17000		14000		15000	
RA_SW_Metals	Calcium	7440-70-2	SW6020A	T	ug/l	15000		19000		16000		14000		15000	
RA_SW_Metals	Chromium	7440-47-3	SW6020A	D	ug/l	1.7	J	2.3		2.1		2.2		2	
RA_SW_Metals	Chromium	7440-47-3	SW6020A	T	ug/l	2.7		3.3		2.9		3.5		2.9	
RA_SW_Metals	Cobalt	7440-48-4	SW6020A	D	ug/l	0.093	J	0.31	J	0.23	J	0.71		0.24	J
RA_SW_Metals	Cobalt	7440-48-4	SW6020A	T	ug/l	1.1		0.96		0.93		1.1		1	
RA_SW_Metals	Copper	7440-50-8	SW6020A	D	ug/l	1.8	J	2.7		3.3		3.9		2.7	
RA_SW_Metals	Copper	7440-50-8	SW6020A	T	ug/l	3.3		3.9		4.1		4.8		5.8	
RA_SW_Metals	Iron	7439-89-6	SW6020A	D	ug/l	9.1	J	50	U	18	J	11	J	11	J
RA_SW_Metals	Iron	7439-89-6	SW6020A	T	ug/l	1100		1200		1000		1400		1100	
RA_SW_Metals	Lead	7439-92-1	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Lead	7439-92-1	SW6020A	T	ug/l	2.4		2.8		2.7		3.1		3.2	
RA_SW_Metals	Magnesium	7439-95-4	SW6020A	D	ug/l	4300		5800		5000		4000		4400	
RA_SW_Metals	Magnesium	7439-95-4	SW6020A	T	ug/l	4400		5700		4600		3800		4500	
RA_SW_Metals	Manganese	7439-96-5	SW6020A	D	ug/l	5	U	42		36		29		51	
RA_SW_Metals	Manganese	7439-96-5	SW6020A	T	ug/l	170		140		130		120		140	
RA_SW_Metals	Mercury	7439-97-6	SW7470A	D	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
RA_SW_Metals	Mercury	7439-97-6	SW7470A	T	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
RA_SW_Metals	Nickel	7440-02-0	SW6020A	D	ug/l	1.5		2.4		2.4		2.5		2.1	
RA_SW_Metals	Nickel	7440-02-0	SW6020A	T	ug/l	2.7		2.9		2.8		3.2		3.2	
RA_SW_Metals	Potassium	7440-09-7	SW6020A	D	ug/l	3300		3800		3600		3300		3400	
RA_SW_Metals	Potassium	7440-09-7	SW6020A	T	ug/l	3300		3800		3400		3100		3400	
RA_SW_Metals	Selenium	7782-49-2	SW6020A	D	ug/l	5	U	5	U	5	U	5	U	5	U
RA_SW_Metals	Selenium	7782-49-2	SW6020A	T	ug/l	5	U	5	U	0.86	J	5	U	0.5	J
RA_SW_Metals	Silver	7440-22-4	SW6020A	D	ug/l	1	U	1	U	1	U	0.062	J	1	U
RA_SW_Metals	Silver	7440-22-4	SW6020A	T	ug/l	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Sodium	7440-23-5	SW6020A	D	ug/l	17000		20000		19000		16000		17000	
RA_SW_Metals	Sodium	7440-23-5	SW6020A	T	ug/l	17000		19000		17000		15000		17000	
RA_SW_Metals	Thallium	7440-28-0	SW6020A	D	ug/l	0.034	J	0.19	J	0.12	J	0.21	J	0.068	J
RA_SW_Metals	Thallium	7440-28-0	SW6020A	T	ug/l	0.05	J	0.1	J	0.073	J	0.035	J	0.018	J
RA_SW_Metals	Vanadium	7440-62-2	SW6020A	D	ug/l	1	U	0.14	J	0.28	J	1		0.21	J
RA_SW_Metals	Vanadium	7440-62-2	SW6020A	T	ug/l	1.4		2.4		1.9		2.6		2.5	
RA_SW_Metals	Zinc	7440-66-6	SW6020A	D	ug/l	4.7	J	7.6	J	6.8	J	7.7	J	7.9	J
RA_SW_Metals	Zinc	7440-66-6	SW6020A	T	ug/l	8.2		31		9.5		12		12	
RA_SW_Other	Hardness (as CaCO3)	HARD	A2340C	D	ug/l	56000		68000		60000		50000		54000	
RA_SW_Other	Hardness (as CaCO3)	HARD	A2340C	T	ug/l	58000		72000		58000		50000		56000	
RA_SW_Other	HEM (Oil and Grease)	348	E1664B	N	ug/l	2100	J	1800	J			2200	J		
RA_SW_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW10B		SUW1B		SUW2B		SUW3C		SUW4B	
					sys_sample_code	SUW10BN		SUW1BN		SUW2BN		SUW3CN		SUW4BN	
					sample_date	9/26/2013		9/23/2013		9/23/2013		9/23/2013		9/24/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	7.3		12.8		5.3		5.8		5.7	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	ug/l	0.0011	J	0.0016				0.0014			
RA_SW_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Endrin	72-20-8	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	ug/l	0.0026	UJ	0.0025	U			0.0024	U		
RA_SW_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	ug/l	0.01	U	0.01	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	ug/l	0.1	UJ	0.1	U			0.095	U		
RA_SW_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	ug/l	0.0013	UJ	0.0013	U			0.0012	U		
RA_SW_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.19	U		
RA_SW_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.19	U		
RA_SW_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	ug/l	5.3	U	5.6	U			4.8	U		
RA_SW_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.19	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW10B		SUW1B		SUW2B		SUW3C		SUW4B	
					sys_sample_code	SUW10BN		SUW1BN		SUW2BN		SUW3CN		SUW4BN	
					sample_date	9/26/2013		9/23/2013		9/23/2013		9/23/2013		9/24/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	7.3		12.8		5.3		5.8		5.7	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.016	J		
RA_SW_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	ug/l	5.3	U	5.6	U			4.8	U		
RA_SW_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	ug/l	5.3	U	5.6	U			4.8	U		
RA_SW_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	ug/l	5.3	U	5.6	U			4.8	U		
RA_SW_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	ug/l	5.3	U	5.6	U			4.8	U		
RA_SW_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	ug/l	5.3	U	5.6	U			4.8	U		
RA_SW_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Anthracene	120-12-7	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.018	J
RA_SW_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	ug/l	1.1	U	1.1	UJ			0.96	UJ		
RA_SW_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.19	U		
RA_SW_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	ug/l	2.2		1.4	J			1.9	U		
RA_SW_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	ug/l	5.3	U	5.6	U			4.8	U		
RA_SW_SVOCs	Carbazole	86-74-8	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.037	J		
RA_SW_SVOCs	Chrysene	218-01-9	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	ug/l	0.21	U	0.032	J	0.031	J	0.036	J	0.035	J
RA_SW_SVOCs	Fluorene	86-73-7	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.19	U		
RA_SW_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.19	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW10B		SUW1B		SUW2B		SUW3C		SUW4B	
					sys_sample_code	SUW10BN		SUW1BN		SUW2BN		SUW3CN		SUW4BN	
					sample_date	9/26/2013		9/23/2013		9/23/2013		9/23/2013		9/24/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	7.3		12.8		5.3		5.8		5.7	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Isophorone	78-59-1	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	ug/l	2.1	U	2.2	U			1.9	U		
RA_SW_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.19	U		
RA_SW_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	ug/l	1.1	U	1.1	U			0.96	U		
RA_SW_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.19	U
RA_SW_SVOCs	Phenol	108-95-2	SW8270D LL	N	ug/l	0.21	U	0.22	U			0.19	U		
RA_SW_SVOCs	Pyrene	129-00-0	SW8270D LL	N	ug/l	0.21	U	0.038	J	0.026	J	0.034	J	0.19	U
RA_SW_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	ug/l	0.21	U	0.07		0.057		0.07		0.035	
RA_SW_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	ug/l	0.21	U	0.22	U	0.27	U	0.19	U	0.018	
RA_SW_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	ug/l	0.21	U	0.07		0.057		0.07		0.053	
RA_SW_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	ug/l	200	U	200	U			200	U		
RA_SW_VOCs	2-Butanone	78-93-3	SW8260B	N	ug/l	5	U	5	U			5	U		
RA_SW_VOCs	2-Hexanone	591-78-6	SW8260B	N	ug/l	5	U	5	U			5	U		
RA_SW_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	ug/l	5	U	5	U			5	U		
RA_SW_VOCs	Acetone	67-64-1	SW8260B	N	ug/l	5	U	5	U			5	U		
RA_SW_VOCs	Benzene	71-43-2	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Bromochloromethane	74-97-5	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Bromoform	75-25-2	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Bromomethane	74-83-9	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Chlorobenzene	108-90-7	SW8260B	N	ug/l	1	U	1	U			1	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW10B		SUW1B		SUW2B		SUW3C		SUW4B	
					sys_sample_code	SUW10BN		SUW1BN		SUW2BN		SUW3CN		SUW4BN	
					sample_date	9/26/2013		9/23/2013		9/23/2013		9/23/2013		9/24/2013	
					sample_type_code	N		N		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	7.3		12.8		5.3		5.8		5.7	
					depth_unit	ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_VOCs	Chloroethane	75-00-3	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Chloroform	67-66-3	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Chloromethane	74-87-3	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Cyclohexane	110-82-7	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Ethylbenzene	100-41-4	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	m, p-Xylene	XYLMP	SW8260B	N	ug/l	2	U	2	U			2	U		
RA_SW_VOCs	Methyl Acetate	79-20-9	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Methylene Chloride	75-09-2	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	o-Xylene	95-47-6	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Styrene	100-42-5	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Toluene	108-88-3	SW8260B	N	ug/l	0.15	J	1	U			1	U		
RA_SW_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Trichloroethene	79-01-6	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	ug/l	1	U	1	U			1	U		
RA_SW_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	ug/l	2	U	2	U			2	U		

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW5C		SUW6B		SUW6B		SUW7B		SUW8B		SUW9C	
					sys_sample_code	SUW5CN		SUW6BN		SUW6BR		SUW7BN		SUW8BN		SUW9CN	
					sample_date	9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/25/2013	
					sample_type_code	N		N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	3.6		9.8		9.8		5.6		7.9		1.8	
					depth_unit	ft		ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_DioxinFurans	1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290A	N	ug/l			7.77E-06	J	7.51E-06	J	6.85E-06	J				
RA_SW_DioxinFurans	1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290A	N	ug/l			2.28E-06	J	1.16E-06	J	1.11E-06	J				
RA_SW_DioxinFurans	1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290A	N	ug/l			1.01E-07	U	5.64E-08	U	6.9E-08	U				
RA_SW_DioxinFurans	1,2,3,4,7,8-HxCDD	39227-28-6	SW8290A	N	ug/l			8.37E-08	U	5.59E-07	J	7.97E-08	U				
RA_SW_DioxinFurans	1,2,3,4,7,8-HxCDF	70648-26-9	SW8290A	N	ug/l			9.88E-08	U	2.58E-07	U	6.46E-08	U				
RA_SW_DioxinFurans	1,2,3,6,7,8-HxCDD	57653-85-7	SW8290A	N	ug/l			4.29E-07	J	7.18E-08	U	4.55E-07	J				
RA_SW_DioxinFurans	1,2,3,6,7,8-HxCDF	57117-44-9	SW8290A	N	ug/l			1.19E-06	J	5.86E-08	U	6.48E-08	U				
RA_SW_DioxinFurans	1,2,3,7,8,9-HxCDD	19408-74-3	SW8290A	N	ug/l			2.13E-07	J	4.98E-07	J	2.24E-07	J				
RA_SW_DioxinFurans	1,2,3,7,8,9-HxCDF	72918-21-9	SW8290A	N	ug/l			1.07E-07	U	6.69E-08	U	7.33E-08	U				
RA_SW_DioxinFurans	1,2,3,7,8-PeCDD	40321-76-4	SW8290A	N	ug/l			4.57E-08	U	4.26E-08	U	5.06E-08	U				
RA_SW_DioxinFurans	1,2,3,7,8-PeCDF	57117-41-6	SW8290A	N	ug/l			7.85E-08	U	6.52E-08	U	6.09E-08	U				
RA_SW_DioxinFurans	2,3,4,6,7,8-HxCDF	60851-34-5	SW8290A	N	ug/l			9.94E-08	U	5.21E-08	U	4.18E-07	J				
RA_SW_DioxinFurans	2,3,4,7,8-PeCDF	57117-31-4	SW8290A	N	ug/l			6.92E-07	J	5.85E-08	U	4.44E-07	J				
RA_SW_DioxinFurans	2,3,7,8-TCDD	1746-01-6	SW8290A	N	ug/l			5.2E-08	U	4.06E-08	U	7.09E-08	U				
RA_SW_DioxinFurans	2,3,7,8-TCDF	51207-31-9	SW8290A	N	ug/l			7.6E-08	U	6.38E-08	U	7.24E-08	U				
RA_SW_DioxinFurans	OCDD	3268-87-9	SW8290A	N	ug/l			0.000219		0.000218		0.000182	J				
RA_SW_DioxinFurans	OCDF	39001-02-0	SW8290A	N	ug/l			1.88E-06	J	1.49E-06	J	1.67E-06	J				
RA_SW_DioxinFurans	TCDD TEQ Bird	DFTEQ-Bird	SW8290A	N	ug/l			8.89E-07		1.19E-07		5.49E-07					
RA_SW_DioxinFurans	TCDD TEQ Fish	DFTEQ-Fish	SW8290A	N	ug/l			5.24E-07		3.26E-07		3.07E-07					
RA_SW_DioxinFurans	TCDD TEQ HH	DFTEQ-HH	SW8290A	N	ug/l			5.58E-07		2.58E-07		3.78E-07					
RA_SW_DioxinFurans	Total HpCDD	37871-00-4	SW8290A	N	ug/l			1.68E-05	J	1.56E-05	J	1.39E-05	J				
RA_SW_DioxinFurans	Total HpCDF	38998-75-3	SW8290A	N	ug/l			3.71E-06	J	2.41E-06	J	1.84E-06	J				
RA_SW_DioxinFurans	Total HxCDD	34465-46-8	SW8290A	N	ug/l			1.9E-06	J	3.75E-06	J	1.34E-06	J				
RA_SW_DioxinFurans	Total HxCDF	55684-94-1	SW8290A	N	ug/l			8.09E-06	J	5.36E-06	J	5.46E-06	J				
RA_SW_DioxinFurans	Total PeCDD	36088-22-9	SW8290A	N	ug/l			3.33E-07	J	7.3E-07	J	5.06E-08	U				
RA_SW_DioxinFurans	Total PeCDF	30402-15-4	SW8290A	N	ug/l			9.7E-06	J	8.67E-06	J	6.92E-06	J				
RA_SW_DioxinFurans	Total TCDD	41903-57-5	SW8290A	N	ug/l			5.2E-08	U	1.02E-07	U	5.38E-07	J				
RA_SW_DioxinFurans	Total TCDF	55722-27-5	SW8290A	N	ug/l			1.57E-05	J	1.13E-05	J	1.45E-05	J				
RA_SW_DioxinFurans	Total TEQ	TTEQ	SW8290A	N	ug/l			5.58E-07		2.58E-07		3.78E-07					
RA_SW_Field	Conductivity	Cond	FIELD	T	ms/cm	0.231		0.242				0.247		0.202		0.243	
RA_SW_Field	DO	DO	FIELD	T	mg/l	3.45		3.46				3.41		3.84		3.97	
RA_SW_Field	OXIDATION-REDUCTION POTENTIAL	ORP	FIELD	T	mV	54.3		63.9				7.6		68.7		58.8	
RA_SW_Field	PH	PH	FIELD	T	ph units	6.86		6.58				6.93		6.61		6.52	
RA_SW_Field	SALINITY	SAL	FIELD	T	ppt	0.11		0.11				0.12		0.1		0.12	
RA_SW_Field	TEMPERATURE	TEMP	FIELD	T	deg F	65.71		67.42				67.2		67.93		68.1	
RA_SW_Field	TURBIDITY	TURB	FIELD	T	ntu	19.4		17.2				3.3		8.4		10.7	
RA_SW_Metals	Aluminum	7429-90-5	SW6020A	D	ug/l	30	U	30	U	30	U	30	U	30	U	30	U
RA_SW_Metals	Aluminum	7429-90-5	SW6020A	T	ug/l	490		430		550		230		290		250	
RA_SW_Metals	Antimony	7440-36-0	SW6020A	D	ug/l	0.79	J	0.87	J	0.88	J	0.94	J	0.79	J	0.77	J
RA_SW_Metals	Antimony	7440-36-0	SW6020A	T	ug/l	0.6	J	0.59	J	0.81	J	0.58	J	0.62	J	0.54	J
RA_SW_Metals	Arsenic	7440-38-2	SW6020A	D	ug/l	1	U	0.67	J	0.49	J	0.64	J	0.48	J	0.44	J
RA_SW_Metals	Arsenic	7440-38-2	SW6020A	T	ug/l	0.83	J	0.48	J	1.2	J	0.48	J	0.82	J	0.62	J
RA_SW_Metals	Barium	7440-39-3	SW6020A	D	ug/l	33		33		32		36		28		34	

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW5C		SUW6B		SUW6B		SUW7B		SUW8B		SUW9C	
					sys_sample_code	SUW5CN		SUW6BN		SUW6BR		SUW7BN		SUW8BN		SUW9CN	
					sample_date	9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/25/2013	
					sample_type_code	N		N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	3.6		9.8		9.8		5.6		7.9		1.8	
					depth_unit	ft		ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_Metals	Barium	7440-39-3	SW6020A	T	ug/l	38		36		37		39		33		38	
RA_SW_Metals	Beryllium	7440-41-7	SW6020A	D	ug/l	0.037	J	1	U	1	U	1	U	0.042	J	0.048	J
RA_SW_Metals	Beryllium	7440-41-7	SW6020A	T	ug/l	0.064	J	0.054	J	0.056	J	0.041	J	0.043	J	0.083	J
RA_SW_Metals	Cadmium	7440-43-9	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Cadmium	7440-43-9	SW6020A	T	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Calcium	7440-70-2	SW6020A	D	ug/l	16000		16000		16000		18000		14000		17000	
RA_SW_Metals	Calcium	7440-70-2	SW6020A	T	ug/l	16000		16000		15000		18000		14000		17000	
RA_SW_Metals	Chromium	7440-47-3	SW6020A	D	ug/l	1.9	J	1.7	J	1.8	J	1.8	J	1.9	J	1.6	J
RA_SW_Metals	Chromium	7440-47-3	SW6020A	T	ug/l	3.2		2.9		3.6		2.4		2.8		2.3	
RA_SW_Metals	Cobalt	7440-48-4	SW6020A	D	ug/l	0.23	J	0.31	J	0.34	J	0.31	J	0.29	J	0.1	J
RA_SW_Metals	Cobalt	7440-48-4	SW6020A	T	ug/l	0.97		1		1.1		0.8		0.98		0.89	
RA_SW_Metals	Copper	7440-50-8	SW6020A	D	ug/l	2.5		2.2		1.9	J	1.7	J	2.2		1.7	J
RA_SW_Metals	Copper	7440-50-8	SW6020A	T	ug/l	4		4.2		4.2		2.9		4.2		2.9	
RA_SW_Metals	Iron	7439-89-6	SW6020A	D	ug/l	50	U	8.9	J	50	U	50	U	50	U	50	U
RA_SW_Metals	Iron	7439-89-6	SW6020A	T	ug/l	1200		1200		1300		740		950		800	
RA_SW_Metals	Lead	7439-92-1	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Lead	7439-92-1	SW6020A	T	ug/l	2.9		2.9		2.9		2.1		2.6		2.2	
RA_SW_Metals	Magnesium	7439-95-4	SW6020A	D	ug/l	4800		4500		4500		5500		3700		5100	
RA_SW_Metals	Magnesium	7439-95-4	SW6020A	T	ug/l	4900		4500		4500		5400		3900		5100	
RA_SW_Metals	Manganese	7439-96-5	SW6020A	D	ug/l	59		70		75		77		64		5	U
RA_SW_Metals	Manganese	7439-96-5	SW6020A	T	ug/l	140		140		140		140		130		150	
RA_SW_Metals	Mercury	7439-97-6	SW7470A	D	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
RA_SW_Metals	Mercury	7439-97-6	SW7470A	T	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
RA_SW_Metals	Nickel	7440-02-0	SW6020A	D	ug/l	2.2		2.1		2		2.1		2.1		1.7	
RA_SW_Metals	Nickel	7440-02-0	SW6020A	T	ug/l	2.8		2.8		3		2.4		2.8		2.4	
RA_SW_Metals	Potassium	7440-09-7	SW6020A	D	ug/l	3500		3400		3500		3700		3100		3500	
RA_SW_Metals	Potassium	7440-09-7	SW6020A	T	ug/l	3500		3400		3300		3600		3200		3500	
RA_SW_Metals	Selenium	7782-49-2	SW6020A	D	ug/l	5	U	5	U	5	U	0.55	J	5	U	5	U
RA_SW_Metals	Selenium	7782-49-2	SW6020A	T	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
RA_SW_Metals	Silver	7440-22-4	SW6020A	D	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Silver	7440-22-4	SW6020A	T	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
RA_SW_Metals	Sodium	7440-23-5	SW6020A	D	ug/l	18000		17000		17000		19000		15000		19000	
RA_SW_Metals	Sodium	7440-23-5	SW6020A	T	ug/l	18000		17000		17000		19000		16000		18000	
RA_SW_Metals	Thallium	7440-28-0	SW6020A	D	ug/l	0.051	J	0.047	J	0.029	J	0.077	J	0.028	J	0.031	J
RA_SW_Metals	Thallium	7440-28-0	SW6020A	T	ug/l	0.02	J	0.018	J	0.11	J	0.015	J	0.053	J	0.017	J
RA_SW_Metals	Vanadium	7440-62-2	SW6020A	D	ug/l	0.29	J	0.61	J	0.11	J	0.29	J	1	U	1	U
RA_SW_Metals	Vanadium	7440-62-2	SW6020A	T	ug/l	2.3		2.7		2.7		2		1.6		2.1	
RA_SW_Metals	Zinc	7440-66-6	SW6020A	D	ug/l	6.7	J	12	J	5.4	J	8.3	J	12	J	4	J
RA_SW_Metals	Zinc	7440-66-6	SW6020A	T	ug/l	9.7		9.8		11		8.4		10		6.9	
RA_SW_Other	Hardness (as CaCO3)	HARD	A2340C	D	ug/l	58000		56000		56000		64000		48000		62000	
RA_SW_Other	Hardness (as CaCO3)	HARD	A2340C	T	ug/l	62000		58000		58000		68000		52000		64000	
RA_SW_Other	HEM (Oil and Grease)	348	E1664B	N	ug/l			1800	J	1500	J	1700	J				
RA_SW_PestPCBs	4,4'-DDD	72-54-8	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW5C		SUW6B		SUW6B		SUW7B		SUW8B		SUW9C	
					sys_sample_code	SUW5CN		SUW6BN		SUW6BR		SUW7BN		SUW8BN		SUW9CN	
					sample_date	9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/25/2013	
					sample_type_code	N		N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	3.6		9.8		9.8		5.6		7.9		1.8	
					depth_unit	ft		ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_PestPCBs	4,4'-DDE	72-55-9	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	4,4'-DDT	50-29-3	SW8081B LL	N	ug/l			0.0011	J	0.0011	J	0.0011	J				
RA_SW_PestPCBs	Aldrin	309-00-2	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	alpha-BHC	319-84-6	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Aroclor-1016	12674-11-2	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1221	11104-28-2	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1232	11141-16-5	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1242	53469-21-9	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1248	12672-29-6	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1254	11097-69-1	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1260	11096-82-5	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1262	37324-23-5	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Aroclor-1268	11100-14-4	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	beta-BHC	319-85-7	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	cis-Chlordane	5103-71-9	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	delta-BHC	319-86-8	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Dieldrin	60-57-1	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Endosulfan I	959-98-8	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Endosulfan II	33213-65-9	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Endosulfan Sulfate	1031-07-8	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Endrin	72-20-8	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Endrin aldehyde	7421-93-4	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	UJ				
RA_SW_PestPCBs	Endrin ketone	53494-70-5	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	gamma-BHC (Lindane)	58-89-9	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Heptachlor	76-44-8	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Heptachlor Epoxide	1024-57-3	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_PestPCBs	Methoxychlor	72-43-5	SW8081B LL	N	ug/l			0.0026	UJ	0.0024	U	0.0024	U				
RA_SW_PestPCBs	PCB, Total Aroclors (AECOM Calc)	TOT-PCB-ARO-C	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	PCB, Total Aroclors (Lab provided)	TOT-PCB-ARO	SW8082A LL	N	ug/l	0.0094	U	0.01	U	0.0095	U	0.0094	U	0.0095	U	0.0095	U
RA_SW_PestPCBs	Toxaphene	8001-35-2	SW8081B LL	N	ug/l			0.1	UJ	0.095	U	0.094	U				
RA_SW_PestPCBs	trans-Chlordane	5103-74-2	SW8081B LL	N	ug/l			0.0013	UJ	0.0012	U	0.0012	U				
RA_SW_SVOCs	1,1'-Biphenyl	92-52-4	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	2,2'-oxybis(1-Chloropropane)	108-60-1	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	UJ				
RA_SW_SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	2,4,5-Trichlorophenol	95-95-4	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	2,4,6-Trichlorophenol	88-06-2	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	2,4-Dichlorophenol	120-83-2	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	U				
RA_SW_SVOCs	2,4-Dimethylphenol	105-67-9	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	2,4-Dinitrophenol	51-28-5	SW8270D LL	N	ug/l			4.9	U	4.8	U	4.8	U				
RA_SW_SVOCs	2,4-Dinitrotoluene	121-14-2	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	2,6-Dinitrotoluene	606-20-2	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	2-Chloronaphthalene	91-58-7	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW5C		SUW6B		SUW6B		SUW7B		SUW8B		SUW9C	
					sys_sample_code	SUW5CN		SUW6BN		SUW6BR		SUW7BN		SUW8BN		SUW9CN	
					sample_date	9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/25/2013	
					sample_type_code	N		N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	3.6		9.8		9.8		5.6		7.9		1.8	
					depth_unit	ft		ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_SVOCs	2-Chlorophenol	95-57-8	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	2-Methylnaphthalene	91-57-6	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	U				
RA_SW_SVOCs	2-Methylphenol	95-48-7	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	2-Nitroaniline	88-74-4	SW8270D LL	N	ug/l			4.9	U	4.8	U	4.8	U				
RA_SW_SVOCs	2-Nitrophenol	88-75-5	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	3,3'-Dichlorobenzidine	91-94-1	SW8270D LL	N	ug/l			0.97	U	0.96	U		R				
RA_SW_SVOCs	3-Nitroaniline	99-09-2	SW8270D LL	N	ug/l			4.9	U	4.8	U	4.8	U				
RA_SW_SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	SW8270D LL	N	ug/l			4.9	U	4.8	U	4.8	U				
RA_SW_SVOCs	4-Bromophenyl-phenylether	101-55-3	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	4-Chloro-3-methylphenol	59-50-7	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	4-Chloroaniline	106-47-8	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	4-Chlorophenyl-phenylether	7005-72-3	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	4-Methylphenol	106-44-5	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	4-Nitroaniline	100-01-6	SW8270D LL	N	ug/l			4.9	U	4.8	U	4.8	U				
RA_SW_SVOCs	4-Nitrophenol	100-02-7	SW8270D LL	N	ug/l			4.9	U	4.8	U	4.8	U				
RA_SW_SVOCs	Acenaphthene	83-32-9	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Acenaphthylene	208-96-8	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Acetophenone	98-86-2	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Anthracene	120-12-7	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Atrazine	1912-24-9	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Benzaldehyde	100-52-7	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Benzo(a)anthracene	56-55-3	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Benzo(a)pyrene	50-32-8	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Benzo(b)fluoranthene	205-99-2	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Benzo(g,h,i)perylene	191-24-2	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Benzo(k)fluoranthene	207-08-9	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	bis-(2-chloroethoxy)methane	111-91-1	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	bis-(2-Chloroethyl)ether	111-44-4	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	U				
RA_SW_SVOCs	bis-(2-Ethylhexyl)phthalate	117-81-7	SW8270D LL	N	ug/l			2.2		1.9	U	1.9	U				
RA_SW_SVOCs	Butylbenzylphthalate	85-68-7	SW8270D LL	N	ug/l			0.86	J	0.86	J	0.96	U				
RA_SW_SVOCs	Caprolactam	105-60-2	SW8270D LL	N	ug/l			4.9	U	4.8	U	4.8	U				
RA_SW_SVOCs	Carbazole	86-74-8	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	U				
RA_SW_SVOCs	Chrysene	218-01-9	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Dibenzo(a,h)anthracene	53-70-3	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Dibenzofuran	132-64-9	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Diethylphthalate	84-66-2	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Dimethylphthalate	131-11-3	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Di-n-butylphthalate	84-74-2	SW8270D LL	N	ug/l			0.47	J	0.51	J	0.96	U				
RA_SW_SVOCs	Di-n-octylphthalate	117-84-0	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Fluoranthene	206-44-0	SW8270D LL	N	ug/l	0.19	U	0.017	J	0.025	J	0.19	U	0.019	J	0.21	U
RA_SW_SVOCs	Fluorene	86-73-7	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Hexachlorobenzene	118-74-1	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	U				
RA_SW_SVOCs	Hexachlorobutadiene	87-68-3	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW5C		SUW6B		SUW6B		SUW7B		SUW8B		SUW9C	
					sys_sample_code	SUW5CN		SUW6BN		SUW6BR		SUW7BN		SUW8BN		SUW9CN	
					sample_date	9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/25/2013	
					sample_type_code	N		N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	3.6		9.8		9.8		5.6		7.9		1.8	
					depth_unit	ft		ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_SVOCs	Hexachlorocyclo-pentadiene	77-47-4	SW8270D LL	N	ug/l			0.97	UJ	0.96	UJ	0.96	UJ				
RA_SW_SVOCs	Hexachloroethane	67-72-1	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	UJ				
RA_SW_SVOCs	Indeno(1,2,3-cd)pyrene	193-39-5	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Isophorone	78-59-1	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Naphthalene	91-20-3	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Nitrobenzene	98-95-3	SW8270D LL	N	ug/l			1.9	U	1.9	U	1.9	U				
RA_SW_SVOCs	N-Nitroso-di-n-propylamine	621-64-7	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	U				
RA_SW_SVOCs	N-Nitrosodiphenylamine	86-30-6	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Pentachlorophenol	87-86-5	SW8270D LL	N	ug/l			0.97	U	0.96	U	0.96	U				
RA_SW_SVOCs	Phenanthrene	85-01-8	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Phenol	108-95-2	SW8270D LL	N	ug/l			0.19	U	0.19	U	0.19	U				
RA_SW_SVOCs	Pyrene	129-00-0	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.021	J
RA_SW_SVOCs	Total High-molecular-weight PAHs	TOT-PAH-HMW	SW8270D LL	N	ug/l	0.19	U	0.017		0.025		0.19	U	0.019		0.021	
RA_SW_SVOCs	Total Low-molecular-weight PAHs	TOT-PAH-LMW	SW8270D LL	N	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.21	U
RA_SW_SVOCs	Total PAHs (sum 16)	TOT-PAH	SW8270D LL	N	ug/l	0.19	U	0.017		0.025		0.19	U	0.019		0.021	
RA_SW_VOCs	1,1,1-Trichloroethane	71-55-6	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,1,2,2-Tetrachloroethane	79-34-5	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,1,2-Trichloroethane	79-00-5	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,1-Dichloroethane	75-34-3	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,1-Dichloroethene	75-35-4	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,2,3-Trichlorobenzene	87-61-6	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,2,4-Trichlorobenzene	120-82-1	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,2-Dibromo-3-chloropropane	96-12-8	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,2-Dibromoethane	106-93-4	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,2-Dichlorobenzene	95-50-1	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,2-Dichloroethane	107-06-2	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,2-Dichloropropane	78-87-5	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,3-Dichlorobenzene	541-73-1	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,4-Dichlorobenzene	106-46-7	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	1,4-Dioxane	123-91-1	SW8260B	N	ug/l			200	U	200	U	200	U				
RA_SW_VOCs	2-Butanone	78-93-3	SW8260B	N	ug/l			5	U	5	U	5	U				
RA_SW_VOCs	2-Hexanone	591-78-6	SW8260B	N	ug/l			5	U	5	U	5	U				
RA_SW_VOCs	4-Methyl-2-pentanone	108-10-1	SW8260B	N	ug/l			5	U	5	U	5	U				
RA_SW_VOCs	Acetone	67-64-1	SW8260B	N	ug/l			5	U	5	U	5	U				
RA_SW_VOCs	Benzene	71-43-2	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Bromochloromethane	74-97-5	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Bromodichloromethane	75-27-4	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Bromoform	75-25-2	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Bromomethane	74-83-9	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Carbon Disulfide	75-15-0	SW8260B	N	ug/l			0.4	J	1	U	1	U				
RA_SW_VOCs	Carbon Tetrachloride	56-23-5	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Chlorobenzene	108-90-7	SW8260B	N	ug/l			1	U	1	U	1	U				

					loc_group	RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area		RA_Waterside_Area	
					sys_loc_code	SUW5C		SUW6B		SUW6B		SUW7B		SUW8B		SUW9C	
					sys_sample_code	SUW5CN		SUW6BN		SUW6BR		SUW7BN		SUW8BN		SUW9CN	
					sample_date	9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/24/2013		9/25/2013	
					sample_type_code	N		N		FD		N		N		N	
					task_code	Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013		Phase2-2013	
					start_depth	3.6		9.8		9.8		5.6		7.9		1.8	
					depth_unit	ft		ft		ft		ft		ft		ft	
method_analyte_group	chemical_name	cas_rn	analytic_method	fraction	report_result_unit	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers	report_result_value	interpreted_qualifiers
RA_SW_VOCs	Chloroethane	75-00-3	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Chloroform	67-66-3	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Chloromethane	74-87-3	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	cis-1,2-Dichloroethylene	156-59-2	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	cis-1,3-Dichloropropene	10061-01-5	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Cyclohexane	110-82-7	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Dibromochloromethane	124-48-1	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Dichlorodifluoromethane	75-71-8	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Ethylbenzene	100-41-4	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Isopropylbenzene	98-82-8	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	m, p-Xylene	XYLMP	SW8260B	N	ug/l			2	U	2	U	2	U				
RA_SW_VOCs	Methyl Acetate	79-20-9	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Methylcyclohexane	108-87-2	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Methylene Chloride	75-09-2	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	o-Xylene	95-47-6	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Styrene	100-42-5	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Tetrachloroethylene	127-18-4	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Toluene	108-88-3	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	trans-1,2-Dichloroethene	156-60-5	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	trans-1,3-Dichloropropene	10061-02-6	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Trichloroethene	79-01-6	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Trichlorofluoromethane	75-69-4	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Vinyl Chloride	75-01-4	SW8260B	N	ug/l			1	U	1	U	1	U				
RA_SW_VOCs	Xylenes (total)	1330-20-7	SW8260B	N	ug/l			2	U	2	U	2	U				

Attachment D

Summary Statistics of Analytical Data

SEDIMENT

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	2/12/2015 11:35:05 AM
From File	Eco_Sed_ProUCL_Input.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

RA_SE_DioxinsFurans|TCDD TEQ Bird

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	1.4700E-7	Mean	8.6312E-5
Maximum	8.1500E-4	Median	6.7450E-6
SD	2.1999E-4	Std. Error of Mean	5.8794E-5
Coefficient of Variation	N/A	Skewness	3.25

Normal GOF Test

Shapiro Wilk Test Statistic	0.451	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.413	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.9043E-4	95% Adjusted-CLT UCL (Chen-1995)	2.3759E-4
		95% Modified-t UCL (Johnson-1978)	1.9894E-4

Gamma GOF Test

A-D Test Statistic	1.364	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.831	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.334	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.248	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.303	k star (bias corrected MLE)	0.286
Theta hat (MLE)	2.8457E-4	Theta star (bias corrected MLE)	3.0187E-4
nu hat (MLE)	8.492	nu star (bias corrected)	8.006
MLE Mean (bias corrected)	8.6312E-5	MLE Sd (bias corrected)	1.6141E-4
		Approximate Chi Square Value (0.05)	2.738
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.347

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2.5233E-4	95% Adjusted Gamma UCL (use when n<50)	2.9448E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.953	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.191	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-15.73	Mean of logged Data	-11.63
Maximum of Logged Data	-7.112	SD of logged Data	2.198

Assuming Lognormal Distribution

95% H-UCL	0.0022	90% Chebyshev (MVUE) UCL	1.9381E-4
95% Chebyshev (MVUE) UCL	2.5206E-4	97.5% Chebyshev (MVUE) UCL	3.3291E-4
99% Chebyshev (MVUE) UCL	4.9172E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.8302E-4	95% Jackknife UCL	1.9043E-4
95% Standard Bootstrap UCL	1.8307E-4	95% Bootstrap-t UCL	9.2555E-4
95% Hall's Bootstrap UCL	9.5295E-4	95% Percentile Bootstrap UCL	1.9652E-4
95% BCA Bootstrap UCL	2.5902E-4		
90% Chebyshev(Mean, Sd) UCL	2.6269E-4	95% Chebyshev(Mean, Sd) UCL	3.4259E-4
97.5% Chebyshev(Mean, Sd) UCL	4.5348E-4	99% Chebyshev(Mean, Sd) UCL	6.7130E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 6.7130E-4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|TCDD TEQ Fish

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	1.9900E-7	Mean	7.3359E-5
Maximum	7.1300E-4	Median	4.6450E-6
SD	1.9228E-4	Std. Error of Mean	5.1388E-5
Coefficient of Variation	N/A	Skewness	3.29

Normal GOF Test

Shapiro Wilk Test Statistic	0.44	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.414	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.6436E-4	95% Adjusted-CLT UCL (Chen-1995)	2.0617E-4
		95% Modified-t UCL (Johnson-1978)	1.7190E-4

Gamma GOF Test

A-D Test Statistic	1.541	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.835	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.35	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.248	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.294	k star (bias corrected MLE)	0.279
Theta hat (MLE)	2.4940E-4	Theta star (bias corrected MLE)	2.6319E-4
nu hat (MLE)	8.236	nu star (bias corrected)	7.804
MLE Mean (bias corrected)	7.3359E-5	MLE Sd (bias corrected)	1.3895E-4
		Approximate Chi Square Value (0.05)	2.622
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.241

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2.1833E-4	95% Adjusted Gamma UCL (use when n<50)	2.5550E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.209	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-15.43	Mean of logged Data	-11.87
Maximum of Logged Data	-7.246	SD of logged Data	2.152

Assuming Lognormal Distribution

95% H-UCL	0.00139	90% Chebyshev (MVUE) UCL	1.3928E-4
95% Chebyshev (MVUE) UCL	1.8089E-4	97.5% Chebyshev (MVUE) UCL	2.3863E-4
99% Chebyshev (MVUE) UCL	3.5206E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.5789E-4	95% Jackknife UCL	1.6436E-4
95% Standard Bootstrap UCL	1.5426E-4	95% Bootstrap-t UCL	9.6042E-4
95% Hall's Bootstrap UCL	9.7571E-4	95% Percentile Bootstrap UCL	1.6540E-4
95% BCA Bootstrap UCL	2.2598E-4		
90% Chebyshev(Mean, Sd) UCL	2.2752E-4	95% Chebyshev(Mean, Sd) UCL	2.9736E-4
97.5% Chebyshev(Mean, Sd) UCL	3.9428E-4	99% Chebyshev(Mean, Sd) UCL	5.8467E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 5.8467E-4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|TCDD TEQ Mammal

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	3.2300E-7	Mean	7.2704E-5
Maximum	7.0700E-4	Median	5.2000E-6
SD	1.9035E-4	Std. Error of Mean	5.0873E-5
Coefficient of Variation	N/A	Skewness	3.306

Normal GOF Test

Shapiro Wilk Test Statistic	0.438	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.413	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.6280E-4	95% Adjusted-CLT UCL (Chen-1995)	2.0441E-4
		95% Modified-t UCL (Johnson-1978)	1.7029E-4

Gamma GOF Test

A-D Test Statistic	1.596	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.83	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.359	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.248	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.309	k star (bias corrected MLE)	0.291
Theta hat (MLE)	2.3512E-4	Theta star (bias corrected MLE)	2.5021E-4
nu hat (MLE)	8.658	nu star (bias corrected)	8.136
MLE Mean (bias corrected)	7.2704E-5	MLE Sd (bias corrected)	1.3487E-4
		Approximate Chi Square Value (0.05)	2.814
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.415

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2.1020E-4	95% Adjusted Gamma UCL (use when n<50)	2.4490E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.929	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.223	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-14.95	Mean of logged Data	-11.75
Maximum of Logged Data	-7.254	SD of logged Data	2.041

Assuming Lognormal Distribution

95% H-UCL	9.3906E-4	90% Chebyshev (MVUE) UCL	1.2816E-4
95% Chebyshev (MVUE) UCL	1.6582E-4	97.5% Chebyshev (MVUE) UCL	2.1808E-4
99% Chebyshev (MVUE) UCL	3.2074E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.5638E-4	95% Jackknife UCL	1.6280E-4
95% Standard Bootstrap UCL	1.5365E-4	95% Bootstrap-t UCL	0.001
95% Hall's Bootstrap UCL	9.9986E-4	95% Percentile Bootstrap UCL	1.6192E-4
95% BCA Bootstrap UCL	2.2338E-4		
90% Chebyshev(Mean, Sd) UCL	2.2532E-4	95% Chebyshev(Mean, Sd) UCL	2.9445E-4
97.5% Chebyshev(Mean, Sd) UCL	3.9041E-4	99% Chebyshev(Mean, Sd) UCL	5.7888E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 5.7888E-4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|4,4'-DDD

General Statistics

Total Number of Observations	14	Number of Distinct Observations	13
		Number of Missing Observations	32
Minimum	7.6000E-4	Mean	0.00891
Maximum	0.052	Median	0.0054
SD	0.0129	Std. Error of Mean	0.00345
Coefficient of Variation	1.447	Skewness	3.278

Normal GOF Test

Shapiro Wilk Test Statistic	0.547	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.334	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.015	95% Adjusted-CLT UCL (Chen-1995)	0.0178
		95% Modified-t UCL (Johnson-1978)	0.0155

Gamma GOF Test

A-D Test Statistic	0.712	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.758	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.189	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.235	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.082	k star (bias corrected MLE)	0.898
Theta hat (MLE)	0.00823	Theta star (bias corrected MLE)	0.00992
nu hat (MLE)	30.31	nu star (bias corrected)	25.15
MLE Mean (bias corrected)	0.00891	MLE Sd (bias corrected)	0.0094
		Approximate Chi Square Value (0.05)	14.72
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	13.67

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.0152	95% Adjusted Gamma UCL (use when n<50)	0.0164

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.962	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.133	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-7.182	Mean of logged Data	-5.249
Maximum of Logged Data	-2.957	SD of logged Data	1.001

Assuming Lognormal Distribution

95% H-UCL	0.0188	90% Chebyshev (MVUE) UCL	0.0154
95% Chebyshev (MVUE) UCL	0.0187	97.5% Chebyshev (MVUE) UCL	0.0232
99% Chebyshev (MVUE) UCL	0.0321		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0146	95% Jackknife UCL	0.015
95% Standard Bootstrap UCL	0.0143	95% Bootstrap-t UCL	0.0276
95% Hall's Bootstrap UCL	0.0358	95% Percentile Bootstrap UCL	0.0154
95% BCA Bootstrap UCL	0.0197		
90% Chebyshev(Mean, Sd) UCL	0.0192	95% Chebyshev(Mean, Sd) UCL	0.0239
97.5% Chebyshev(Mean, Sd) UCL	0.0304	99% Chebyshev(Mean, Sd) UCL	0.0432

Suggested UCL to Use

95% Adjusted Gamma UCL	0.0164

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|4,4'-DDE

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Number of Detects	13	Number of Non-Detects	1
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.0014	Minimum Non-Detect	0.0013
Maximum Detect	0.046	Maximum Non-Detect	0.0013
Variance Detects	1.5658E-4	Percent Non-Detects	7.143%
Mean Detects	0.0114	SD Detects	0.0125
Median Detects	0.0065	CV Detects	1.101
Skewness Detects	2.09	Kurtosis Detects	4.538
Mean of Logged Detects	-4.919	SD of Logged Detects	0.955

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.734	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.307	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0106	Standard Error of Mean	0.0033
SD	0.0119	95% KM (BCA) UCL	0.0158
95% KM (t) UCL	0.0165	95% KM (Percentile Bootstrap) UCL	0.0159
95% KM (z) UCL	0.0161	95% KM Bootstrap t UCL	0.023
90% KM Chebyshev UCL	0.0205	95% KM Chebyshev UCL	0.025
97.5% KM Chebyshev UCL	0.0313	99% KM Chebyshev UCL	0.0435

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.528	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.235	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.242	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.275	k star (bias corrected MLE)	1.032
Theta hat (MLE)	0.00891	Theta star (bias corrected MLE)	0.011
nu hat (MLE)	33.14	nu star (bias corrected)	26.82
MLE Mean (bias corrected)	0.0114	MLE Sd (bias corrected)	0.0112

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.804	nu hat (KM)	22.5
Approximate Chi Square Value (22.50, α)	12.72	Adjusted Chi Square Value (22.50, β)	11.75
95% Gamma Approximate KM-UCL (use when n>=50)	0.0188	95% Gamma Adjusted KM-UCL (use when n<50)	0.0204

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0014	Mean	0.0113
Maximum	0.046	Median	0.0068
SD	0.012	CV	1.068
k hat (MLE)	1.362	k star (bias corrected MLE)	1.118
Theta hat (MLE)	0.00827	Theta star (bias corrected MLE)	0.0101
nu hat (MLE)	38.13	nu star (bias corrected)	31.3
MLE Mean (bias corrected)	0.0113	MLE Sd (bias corrected)	0.0107
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (31.30, α)	19.51	Adjusted Chi Square Value (31.30, β)	18.29
95% Gamma Approximate UCL (use when n>=50)	0.0181	95% Gamma Adjusted UCL (use when n<50)	0.0193

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.972	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.866	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.171	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.246	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0106	Mean in Log Scale	-5.086
SD in Original Scale	0.0124	SD in Log Scale	1.11
95% t UCL (assumes normality of ROS data)	0.0164	95% Percentile Bootstrap UCL	0.0162
95% BCA Bootstrap UCL	0.0183	95% Bootstrap t UCL	0.0228
95% H-UCL (Log ROS)	0.0287		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-5.042	95% H-UCL (KM -Log)	0.0226
KM SD (logged)	0.989	95% Critical H Value (KM-Log)	2.775
KM Standard Error of Mean (logged)	0.275		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.0106	Mean in Log Scale	-5.091
SD in Original Scale	0.0124	SD in Log Scale	1.122
95% t UCL (Assumes normality)	0.0164	95% H-Stat UCL	0.0294

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	0.025	95% GROS Adjusted Gamma UCL	0.0193
95% Adjusted Gamma KM-UCL	0.0204		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|4,4'-DDT

General Statistics

Total Number of Observations	14	Number of Distinct Observations	12
		Number of Missing Observations	32
Minimum	3.7000E-4	Mean	0.0571
Maximum	0.75	Median	0.0032
SD	0.199	Std. Error of Mean	0.0533
Coefficient of Variation	3.494	Skewness	3.74

Normal GOF Test

Shapiro Wilk Test Statistic	0.308	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.52	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.151	95% Adjusted-CLT UCL (Chen-1995)	0.202
		95% Modified-t UCL (Johnson-1978)	0.16

Gamma GOF Test

A-D Test Statistic	3.165	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.847	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.434	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.249	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.268	k star (bias corrected MLE)	0.259
Theta hat (MLE)	0.213	Theta star (bias corrected MLE)	0.221
nu hat (MLE)	7.516	nu star (bias corrected)	7.239
MLE Mean (bias corrected)	0.0571	MLE Sd (bias corrected)	0.112
		Approximate Chi Square Value (0.05)	2.303
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	1.951

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.179	95% Adjusted Gamma UCL (use when n<50)	0.212

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.78	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.233	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-7.902	Mean of logged Data	-5.479
Maximum of Logged Data	-0.288	SD of logged Data	1.721

Assuming Lognormal Distribution

95% H-UCL	0.131	90% Chebyshev (MVUE) UCL	0.0381
95% Chebyshev (MVUE) UCL	0.0486	97.5% Chebyshev (MVUE) UCL	0.0632
99% Chebyshev (MVUE) UCL	0.0919		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.145	95% Jackknife UCL	0.151
95% Standard Bootstrap UCL	0.141	95% Bootstrap-t UCL	6.151
95% Hall's Bootstrap UCL	2.474	95% Percentile Bootstrap UCL	0.164
95% BCA Bootstrap UCL	0.217		
90% Chebyshev(Mean, Sd) UCL	0.217	95% Chebyshev(Mean, Sd) UCL	0.289
97.5% Chebyshev(Mean, Sd) UCL	0.39	99% Chebyshev(Mean, Sd) UCL	0.587

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL	0.587

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|Aroclor-1248

General Statistics

Total Number of Observations	46	Number of Distinct Observations	34
Number of Detects	41	Number of Non-Detects	5
Number of Distinct Detects	29	Number of Distinct Non-Detects	5
Minimum Detect	0.032	Minimum Non-Detect	0.007
Maximum Detect	0.89	Maximum Non-Detect	0.011
Variance Detects	0.0392	Percent Non-Detects	10.87%
Mean Detects	0.206	SD Detects	0.198
Median Detects	0.12	CV Detects	0.962
Skewness Detects	1.856	Kurtosis Detects	3.474
Mean of Logged Detects	-1.954	SD of Logged Detects	0.862

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.769	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.941	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.27	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.138	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.184	Standard Error of Mean	0.0291
SD	0.195	95% KM (BCA) UCL	0.233
95% KM (t) UCL	0.233	95% KM (Percentile Bootstrap) UCL	0.231
95% KM (z) UCL	0.232	95% KM Bootstrap t UCL	0.246
90% KM Chebyshev UCL	0.271	95% KM Chebyshev UCL	0.311
97.5% KM Chebyshev UCL	0.366	99% KM Chebyshev UCL	0.474

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.214	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.767	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.203	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.141	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.484	k star (bias corrected MLE)	1.392
Theta hat (MLE)	0.139	Theta star (bias corrected MLE)	0.148
nu hat (MLE)	121.7	nu star (bias corrected)	114.1
MLE Mean (bias corrected)	0.206	MLE Sd (bias corrected)	0.175

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.895	nu hat (KM)	82.31
Approximate Chi Square Value (82.31, α)	62.4	Adjusted Chi Square Value (82.31, β)	61.84
95% Gamma Approximate KM-UCL (use when n>=50)	0.243	95% Gamma Adjusted KM-UCL (use when n<50)	0.245

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.185
Maximum	0.89	Median	0.115
SD	0.197	CV	1.065
k hat (MLE)	1.04	k star (bias corrected MLE)	0.987
Theta hat (MLE)	0.177	Theta star (bias corrected MLE)	0.187
nu hat (MLE)	95.7	nu star (bias corrected)	90.79
MLE Mean (bias corrected)	0.185	MLE Sd (bias corrected)	0.186
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (90.79, α)	69.82	Adjusted Chi Square Value (90.79, β)	69.22
95% Gamma Approximate UCL (use when n>=50)	0.24	95% Gamma Adjusted UCL (use when n<50)	0.242

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.956	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.941	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.15	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.138	Detected Data Not Lognormal at 5% Significance Level	

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.186	Mean in Log Scale	-2.164
SD in Original Scale	0.196	SD in Log Scale	1.016
95% t UCL (assumes normality of ROS data)	0.234	95% Percentile Bootstrap UCL	0.234
95% BCA Bootstrap UCL	0.246	95% Bootstrap t UCL	0.246
95% H-UCL (Log ROS)	0.274		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-2.281	95% H-UCL (KM -Log)	0.352
KM SD (logged)	1.234	95% Critical H Value (KM-Log)	2.588
KM Standard Error of Mean (logged)	0.184		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.184	Mean in Log Scale	-2.329
SD in Original Scale	0.197	SD in Log Scale	1.358
95% t UCL (Assumes normality)	0.233	95% H-Stat UCL	0.426

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	0.311

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|Aroclor-1260

General Statistics

Total Number of Observations	46	Number of Distinct Observations	37
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	36	Number of Distinct Non-Detects	1
Minimum Detect	0.0031	Minimum Non-Detect	0.0084
Maximum Detect	1	Maximum Non-Detect	0.0084
Variance Detects	0.0448	Percent Non-Detects	2.174%
Mean Detects	0.141	SD Detects	0.212
Median Detects	0.06	CV Detects	1.504
Skewness Detects	3.135	Kurtosis Detects	10.32
Mean of Logged Detects	-2.612	SD of Logged Detects	1.12

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.575	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.269	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.138	Standard Error of Mean	0.031
SD	0.208	95% KM (BCA) UCL	0.192
95% KM (t) UCL	0.19	95% KM (Percentile Bootstrap) UCL	0.189
95% KM (z) UCL	0.189	95% KM Bootstrap t UCL	0.232
90% KM Chebyshev UCL	0.231	95% KM Chebyshev UCL	0.273
97.5% KM Chebyshev UCL	0.331	99% KM Chebyshev UCL	0.446

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.799	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.782	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.156	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.136	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.899	k star (bias corrected MLE)	0.854
Theta hat (MLE)	0.156	Theta star (bias corrected MLE)	0.165
nu hat (MLE)	80.92	nu star (bias corrected)	76.86
MLE Mean (bias corrected)	0.141	MLE Sd (bias corrected)	0.152

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.438	nu hat (KM)	40.33
Approximate Chi Square Value (40.33, α)	26.78	Adjusted Chi Square Value (40.33, β)	26.42
95% Gamma Approximate KM-UCL (use when n>=50)	0.207	95% Gamma Adjusted KM-UCL (use when n<50)	0.21

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0031	Mean	0.138
Maximum	1	Median	0.0585
SD	0.21	CV	1.525
k hat (MLE)	0.872	k star (bias corrected MLE)	0.829
Theta hat (MLE)	0.158	Theta star (bias corrected MLE)	0.166
nu hat (MLE)	80.21	nu star (bias corrected)	76.31
MLE Mean (bias corrected)	0.138	MLE Sd (bias corrected)	0.151
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (76.31, α)	57.19	Adjusted Chi Square Value (76.31, β)	56.65
95% Gamma Approximate UCL (use when n>=50)	0.184	95% Gamma Adjusted UCL (use when n<50)	0.186

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.973	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0877	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.138	Mean in Log Scale	-2.666
SD in Original Scale	0.21	SD in Log Scale	1.167
95% t UCL (assumes normality of ROS data)	0.19	95% Percentile Bootstrap UCL	0.195
95% BCA Bootstrap UCL	0.203	95% Bootstrap t UCL	0.229
95% H-UCL (Log ROS)	0.213		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-2.68	95% H-UCL (KM -Log)	0.218
KM SD (logged)	1.189	95% Critical H Value (KM-Log)	2.536
KM Standard Error of Mean (logged)	0.177		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.138	Mean in Log Scale	-2.674
SD in Original Scale	0.21	SD in Log Scale	1.185
95% t UCL (Assumes normality)	0.19	95% H-Stat UCL	0.218

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 0.273

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|cis-Chlordane

General Statistics

Total Number of Observations	14	Number of Distinct Observations	13
		Number of Missing Observations	32
Minimum	0.0014	Mean	0.00636
Maximum	0.015	Median	0.00555
SD	0.00414	Std. Error of Mean	0.00111
Coefficient of Variation	0.65	Skewness	1.032

Normal GOF Test

Shapiro Wilk Test Statistic	0.886	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.00832	95% Adjusted-CLT UCL (Chen-1995)	0.00851
		95% Modified-t UCL (Johnson-1978)	0.00837

Gamma GOF Test

A-D Test Statistic	0.333	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.153	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.231	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.514	k star (bias corrected MLE)	2.023
Theta hat (MLE)	0.00253	Theta star (bias corrected MLE)	0.00315
nu hat (MLE)	70.39	nu star (bias corrected)	56.64
MLE Mean (bias corrected)	0.00636	MLE Sd (bias corrected)	0.00447
		Approximate Chi Square Value (0.05)	40.34
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	38.52

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.00894	95% Adjusted Gamma UCL (use when n<50)	0.00936

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.941	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.186	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-6.571	Mean of logged Data	-5.269
Maximum of Logged Data	-4.2	SD of logged Data	0.711

Assuming Lognormal Distribution

95% H-UCL	0.0105	90% Chebyshev (MVUE) UCL	0.0104
95% Chebyshev (MVUE) UCL	0.0121	97.5% Chebyshev (MVUE) UCL	0.0146
99% Chebyshev (MVUE) UCL	0.0194		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.00818	95% Jackknife UCL	0.00832
95% Standard Bootstrap UCL	0.0081	95% Bootstrap-t UCL	0.0091
95% Hall's Bootstrap UCL	0.00964	95% Percentile Bootstrap UCL	0.00821
95% BCA Bootstrap UCL	0.00836		
90% Chebyshev(Mean, Sd) UCL	0.00968	95% Chebyshev(Mean, Sd) UCL	0.0112
97.5% Chebyshev(Mean, Sd) UCL	0.0133	99% Chebyshev(Mean, Sd) UCL	0.0174

Suggested UCL to Use

95% Student's-t UCL	0.00832

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|Dieldrin

General Statistics

Total Number of Observations	14	Number of Distinct Observations	12
		Number of Missing Observations	32
Minimum	2.6000E-4	Mean	0.00182
Maximum	0.0049	Median	0.00155
SD	0.00114	Std. Error of Mean	3.0366E-4
Coefficient of Variation	0.624	Skewness	1.473

Normal GOF Test

Shapiro Wilk Test Statistic	0.883	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.185	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.00236	95% Adjusted-CLT UCL (Chen-1995)	0.00245
		95% Modified-t UCL (Johnson-1978)	0.00238

Gamma GOF Test

A-D Test Statistic	0.313	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.161	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.231	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.719	k star (bias corrected MLE)	2.184
Theta hat (MLE)	6.6963E-4	Theta star (bias corrected MLE)	8.3367E-4
nu hat (MLE)	76.13	nu star (bias corrected)	61.15
MLE Mean (bias corrected)	0.00182	MLE Sd (bias corrected)	0.00123
		Approximate Chi Square Value (0.05)	44.17
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	42.26

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.00252	95% Adjusted Gamma UCL (use when n<50)	0.00263

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.928	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.206	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-8.255	Mean of logged Data	-6.504
Maximum of Logged Data	-5.319	SD of logged Data	0.705

Assuming Lognormal Distribution

95% H-UCL	0.00303	90% Chebyshev (MVUE) UCL	0.003
95% Chebyshev (MVUE) UCL	0.0035	97.5% Chebyshev (MVUE) UCL	0.0042
99% Chebyshev (MVUE) UCL	0.00558		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.00232	95% Jackknife UCL	0.00236
95% Standard Bootstrap UCL	0.0023	95% Bootstrap-t UCL	0.00257
95% Hall's Bootstrap UCL	0.00322	95% Percentile Bootstrap UCL	0.00234
95% BCA Bootstrap UCL	0.00245		
90% Chebyshev(Mean, Sd) UCL	0.00273	95% Chebyshev(Mean, Sd) UCL	0.00314
97.5% Chebyshev(Mean, Sd) UCL	0.00372	99% Chebyshev(Mean, Sd) UCL	0.00484

Suggested UCL to Use

95% Student's-t UCL	0.00236

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|Endosulfan Sulfate

General Statistics

Total Number of Observations	14	Number of Distinct Observations	13
		Number of Missing Observations	32
Minimum	1.7000E-4	Mean	0.00203
Maximum	0.01	Median	0.00135
SD	0.00254	Std. Error of Mean	6.7983E-4
Coefficient of Variation	1.254	Skewness	2.648

Normal GOF Test

Shapiro Wilk Test Statistic	0.683	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.233	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.00323	95% Adjusted-CLT UCL (Chen-1995)	0.00366
		95% Modified-t UCL (Johnson-1978)	0.00331

Gamma GOF Test

A-D Test Statistic	0.31	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.76	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.14	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.235	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.001	k star (bias corrected MLE)	0.834
Theta hat (MLE)	0.00203	Theta star (bias corrected MLE)	0.00243
nu hat (MLE)	28.02	nu star (bias corrected)	23.35
MLE Mean (bias corrected)	0.00203	MLE Sd (bias corrected)	0.00222
		Approximate Chi Square Value (0.05)	13.36
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	12.36

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.00355	95% Adjusted Gamma UCL (use when n<50)	0.00383

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.979	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.099	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-8.68	Mean of logged Data	-6.778
Maximum of Logged Data	-4.605	SD of logged Data	1.137

Assuming Lognormal Distribution

95% H-UCL	0.00564	90% Chebyshev (MVUE) UCL	0.00407
95% Chebyshev (MVUE) UCL	0.00499	97.5% Chebyshev (MVUE) UCL	0.00627
99% Chebyshev (MVUE) UCL	0.00878		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.00315	95% Jackknife UCL	0.00323
95% Standard Bootstrap UCL	0.00311	95% Bootstrap-t UCL	0.00451
95% Hall's Bootstrap UCL	0.00758	95% Percentile Bootstrap UCL	0.00325
95% BCA Bootstrap UCL	0.00361		
90% Chebyshev(Mean, Sd) UCL	0.00407	95% Chebyshev(Mean, Sd) UCL	0.00499
97.5% Chebyshev(Mean, Sd) UCL	0.00627	99% Chebyshev(Mean, Sd) UCL	0.00879

Suggested UCL to Use

95% Student's-t UCL	0.00323

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|Endrin

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	3.1000E-4	Mean	0.00469
Maximum	0.022	Median	0.0035
SD	0.00528	Std. Error of Mean	0.00141
Coefficient of Variation	1.124	Skewness	3.062

Normal GOF Test

Shapiro Wilk Test Statistic	0.618	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.296	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.00719	95% Adjusted-CLT UCL (Chen-1995)	0.00825
		95% Modified-t UCL (Johnson-1978)	0.00738

Gamma GOF Test

A-D Test Statistic	0.567	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.175	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.233	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.418	k star (bias corrected MLE)	1.162
Theta hat (MLE)	0.00331	Theta star (bias corrected MLE)	0.00404
nu hat (MLE)	39.71	nu star (bias corrected)	32.54
MLE Mean (bias corrected)	0.00469	MLE Sd (bias corrected)	0.00435
		Approximate Chi Square Value (0.05)	20.5
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	19.24

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.00745	95% Adjusted Gamma UCL (use when n<50)	0.00794

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.928	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.152	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-8.079	Mean of logged Data	-5.754
Maximum of Logged Data	-3.817	SD of logged Data	0.948

Assuming Lognormal Distribution

95% H-UCL	0.0101	90% Chebyshev (MVUE) UCL	0.00866
95% Chebyshev (MVUE) UCL	0.0104	97.5% Chebyshev (MVUE) UCL	0.0129
99% Chebyshev (MVUE) UCL	0.0177		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.00701	95% Jackknife UCL	0.00719
95% Standard Bootstrap UCL	0.00682	95% Bootstrap-t UCL	0.011
95% Hall's Bootstrap UCL	0.0166	95% Percentile Bootstrap UCL	0.00727
95% BCA Bootstrap UCL	0.00834		
90% Chebyshev(Mean, Sd) UCL	0.00892	95% Chebyshev(Mean, Sd) UCL	0.0108
97.5% Chebyshev(Mean, Sd) UCL	0.0135	99% Chebyshev(Mean, Sd) UCL	0.0187

Suggested UCL to Use

95% Adjusted Gamma UCL	0.00794

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|Endrin ketone

General Statistics

Total Number of Observations	14	Number of Distinct Observations	13
		Number of Missing Observations	32
Number of Detects	12	Number of Non-Detects	2
Number of Distinct Detects	11	Number of Distinct Non-Detects	2
Minimum Detect	5.2000E-4	Minimum Non-Detect	7.1000E-4
Maximum Detect	0.008	Maximum Non-Detect	0.0013
Variance Detects	4.4627E-6	Percent Non-Detects	14.29%
Mean Detects	0.00299	SD Detects	0.00211
Median Detects	0.00235	CV Detects	0.706
Skewness Detects	1.515	Kurtosis Detects	2.086
Mean of Logged Detects	-6.027	SD of Logged Detects	0.71

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.846	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.23	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.00264	Standard Error of Mean	5.7584E-4
SD	0.00206	95% KM (BCA) UCL	0.00365
95% KM (t) UCL	0.00366	95% KM (Percentile Bootstrap) UCL	0.00365
95% KM (z) UCL	0.00359	95% KM Bootstrap t UCL	0.00432
90% KM Chebyshev UCL	0.00437	95% KM Chebyshev UCL	0.00515
97.5% KM Chebyshev UCL	0.00624	99% KM Chebyshev UCL	0.00837

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.327	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.74	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.144	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.248	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.469	k star (bias corrected MLE)	1.907
Theta hat (MLE)	0.00121	Theta star (bias corrected MLE)	0.00157
nu hat (MLE)	59.24	nu star (bias corrected)	45.77
MLE Mean (bias corrected)	0.00299	MLE Sd (bias corrected)	0.00217

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	1.638	nu hat (KM)	45.86
Approximate Chi Square Value (45.86, α)	31.32	Adjusted Chi Square Value (45.86, β)	29.73
95% Gamma Approximate KM-UCL (use when n>=50)	0.00387	95% Gamma Adjusted KM-UCL (use when n<50)	0.00407

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	5.2000E-4	Mean	0.00399
Maximum	0.01	Median	0.00255
SD	0.0032	CV	0.802
k hat (MLE)	1.808	k star (bias corrected MLE)	1.468
Theta hat (MLE)	0.00221	Theta star (bias corrected MLE)	0.00272
nu hat (MLE)	50.63	nu star (bias corrected)	41.11
MLE Mean (bias corrected)	0.00399	MLE Sd (bias corrected)	0.0033
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (41.11, α)	27.42	Adjusted Chi Square Value (41.11, β)	25.94
95% Gamma Approximate UCL (use when n>=50)	0.00599	95% Gamma Adjusted UCL (use when n<50)	0.00633

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.959	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.14	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.00266	Mean in Log Scale	-6.214
SD in Original Scale	0.00212	SD in Log Scale	0.807
95% t UCL (assumes normality of ROS data)	0.00366	95% Percentile Bootstrap UCL	0.00363
95% BCA Bootstrap UCL	0.0039	95% Bootstrap t UCL	0.00426
95% H-UCL (Log ROS)	0.00484		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-6.247	95% H-UCL (KM -Log)	0.00486
KM SD (logged)	0.827	95% Critical H Value (KM-Log)	2.52
KM Standard Error of Mean (logged)	0.231		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.00264	Mean in Log Scale	-6.258
SD in Original Scale	0.00214	SD in Log Scale	0.885
95% t UCL (Assumes normality)	0.00365	95% H-Stat UCL	0.00538

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.00366	95% KM (Percentile Bootstrap) UCL	0.00365

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|Heptachlor Epoxide

General Statistics

Total Number of Observations	14	Number of Distinct Observations	11
		Number of Missing Observations	32
Minimum	1.2000E-4	Mean	0.00134
Maximum	0.0062	Median	0.00104
SD	0.00149	Std. Error of Mean	3.9812E-4
Coefficient of Variation	1.11	Skewness	3.009

Normal GOF Test

Shapiro Wilk Test Statistic	0.623	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.342	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.00205	95% Adjusted-CLT UCL (Chen-1995)	0.00234
		95% Modified-t UCL (Johnson-1978)	0.0021

Gamma GOF Test

A-D Test Statistic	0.591	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.751	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.229	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.233	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.482	k star (bias corrected MLE)	1.212
Theta hat (MLE)	9.0578E-4	Theta star (bias corrected MLE)	0.00111
nu hat (MLE)	41.49	nu star (bias corrected)	33.93
MLE Mean (bias corrected)	0.00134	MLE Sd (bias corrected)	0.00122
		Approximate Chi Square Value (0.05)	21.61
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	20.31

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.00211	95% Adjusted Gamma UCL (use when n<50)	0.00224

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.178	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-9.028	Mean of logged Data	-6.987
Maximum of Logged Data	-5.083	SD of logged Data	0.897

Assuming Lognormal Distribution

95% H-UCL	0.00265	90% Chebyshev (MVUE) UCL	0.00236
95% Chebyshev (MVUE) UCL	0.00282	97.5% Chebyshev (MVUE) UCL	0.00347
99% Chebyshev (MVUE) UCL	0.00474		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.002	95% Jackknife UCL	0.00205
95% Standard Bootstrap UCL	0.00199	95% Bootstrap-t UCL	0.0031
95% Hall's Bootstrap UCL	0.00486	95% Percentile Bootstrap UCL	0.00201
95% BCA Bootstrap UCL	0.00252		
90% Chebyshev(Mean, Sd) UCL	0.00254	95% Chebyshev(Mean, Sd) UCL	0.00308
97.5% Chebyshev(Mean, Sd) UCL	0.00383	99% Chebyshev(Mean, Sd) UCL	0.0053

Suggested UCL to Use

95% Adjusted Gamma UCL	0.00224

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|Methoxychlor

General Statistics

Total Number of Observations	14	Number of Distinct Observations	11
		Number of Missing Observations	32
Minimum	0.0017	Mean	0.0124
Maximum	0.027	Median	0.012
SD	0.00673	Std. Error of Mean	0.0018
Coefficient of Variation	0.543	Skewness	0.832

Normal GOF Test

Shapiro Wilk Test Statistic	0.928	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.249	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.0156	95% Adjusted-CLT UCL (Chen-1995)	0.0158
		95% Modified-t UCL (Johnson-1978)	0.0156

Gamma GOF Test

A-D Test Statistic	0.387	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.177	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.23	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.116	k star (bias corrected MLE)	2.496
Theta hat (MLE)	0.00397	Theta star (bias corrected MLE)	0.00496
nu hat (MLE)	87.26	nu star (bias corrected)	69.89
MLE Mean (bias corrected)	0.0124	MLE Sd (bias corrected)	0.00784
		Approximate Chi Square Value (0.05)	51.65
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	49.57

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.0168	95% Adjusted Gamma UCL (use when n<50)	0.0175

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.887	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.176	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-6.377	Mean of logged Data	-4.56
Maximum of Logged Data	-3.612	SD of logged Data	0.675

Assuming Lognormal Distribution

95% H-UCL	0.0202	90% Chebyshev (MVUE) UCL	0.0202
95% Chebyshev (MVUE) UCL	0.0235	97.5% Chebyshev (MVUE) UCL	0.0281
99% Chebyshev (MVUE) UCL	0.0371		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0153	95% Jackknife UCL	0.0156
95% Standard Bootstrap UCL	0.0152	95% Bootstrap-t UCL	0.0163
95% Hall's Bootstrap UCL	0.0182	95% Percentile Bootstrap UCL	0.0153
95% BCA Bootstrap UCL	0.0159		
90% Chebyshev(Mean, Sd) UCL	0.0178	95% Chebyshev(Mean, Sd) UCL	0.0202
97.5% Chebyshev(Mean, Sd) UCL	0.0236	99% Chebyshev(Mean, Sd) UCL	0.0303

Suggested UCL to Use

95% Student's-t UCL	0.0156

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|PCB, Total Aroclors (AECOM Calc)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	33
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	32	Number of Distinct Non-Detects	1
Minimum Detect	0.0031	Minimum Non-Detect	0.0084
Maximum Detect	1.9	Maximum Non-Detect	0.0084
Variance Detects	0.164	Percent Non-Detects	2.174%
Mean Detects	0.33	SD Detects	0.405
Median Detects	0.18	CV Detects	1.227
Skewness Detects	2.629	Kurtosis Detects	7.551
Mean of Logged Detects	-1.665	SD of Logged Detects	1.143

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.671	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.299	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.323	Standard Error of Mean	0.0595
SD	0.399	95% KM (BCA) UCL	0.432
95% KM (t) UCL	0.423	95% KM (Percentile Bootstrap) UCL	0.423
95% KM (z) UCL	0.421	95% KM Bootstrap t UCL	0.472
90% KM Chebyshev UCL	0.502	95% KM Chebyshev UCL	0.583
97.5% KM Chebyshev UCL	0.695	99% KM Chebyshev UCL	0.915

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.151	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.776	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.199	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.136	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.033	k star (bias corrected MLE)	0.979
Theta hat (MLE)	0.32	Theta star (bias corrected MLE)	0.337
nu hat (MLE)	92.94	nu star (bias corrected)	88.08
MLE Mean (bias corrected)	0.33	MLE Sd (bias corrected)	0.334

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.655	nu hat (KM)	60.28
Approximate Chi Square Value (60.28, α)	43.43	Adjusted Chi Square Value (60.28, β)	42.96
95% Gamma Approximate KM-UCL (use when n>=50)	0.448	95% Gamma Adjusted KM-UCL (use when n<50)	0.453

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0031	Mean	0.323
Maximum	1.9	Median	0.175
SD	0.403	CV	1.248
k hat (MLE)	0.967	k star (bias corrected MLE)	0.918
Theta hat (MLE)	0.334	Theta star (bias corrected MLE)	0.352
nu hat (MLE)	88.94	nu star (bias corrected)	84.47
MLE Mean (bias corrected)	0.323	MLE Sd (bias corrected)	0.337
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (84.47, α)	64.29	Adjusted Chi Square Value (84.47, β)	63.72
95% Gamma Approximate UCL (use when n>=50)	0.425	95% Gamma Adjusted UCL (use when n<50)	0.429

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.949	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.129	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.323	Mean in Log Scale	-1.719
SD in Original Scale	0.403	SD in Log Scale	1.188
95% t UCL (assumes normality of ROS data)	0.423	95% Percentile Bootstrap UCL	0.428
95% BCA Bootstrap UCL	0.451	95% Bootstrap t UCL	0.488
95% H-UCL (Log ROS)	0.569		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-1.754	95% H-UCL (KM -Log)	0.636
KM SD (logged)	1.268	95% Critical H Value (KM-Log)	2.629
KM Standard Error of Mean (logged)	0.189		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.323	Mean in Log Scale	-1.748
SD in Original Scale	0.404	SD in Log Scale	1.262
95% t UCL (Assumes normality)	0.423	95% H-Stat UCL	0.632

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	0.583

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_PestPCBs|trans-Chlordane

General Statistics

Total Number of Observations	14	Number of Distinct Observations	11
		Number of Missing Observations	32
Minimum	0.0019	Mean	0.00934
Maximum	0.024	Median	0.0084
SD	0.00649	Std. Error of Mean	0.00173
Coefficient of Variation	0.695	Skewness	1.356

Normal GOF Test

Shapiro Wilk Test Statistic	0.831	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.256	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.0124	95% Adjusted-CLT UCL (Chen-1995)	0.0129
		95% Modified-t UCL (Johnson-1978)	0.0125

Gamma GOF Test

A-D Test Statistic	0.541	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.19	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.231	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.326	k star (bias corrected MLE)	1.875
Theta hat (MLE)	0.00401	Theta star (bias corrected MLE)	0.00498
nu hat (MLE)	65.13	nu star (bias corrected)	52.51
MLE Mean (bias corrected)	0.00934	MLE Sd (bias corrected)	0.00682
		Approximate Chi Square Value (0.05)	36.86
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	35.13

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.0133	95% Adjusted Gamma UCL (use when n<50)	0.014

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.915	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.234	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-6.266	Mean of logged Data	-4.904
Maximum of Logged Data	-3.73	SD of logged Data	0.742

Assuming Lognormal Distribution

95% H-UCL	0.016	90% Chebyshev (MVUE) UCL	0.0155
95% Chebyshev (MVUE) UCL	0.0182	97.5% Chebyshev (MVUE) UCL	0.022
99% Chebyshev (MVUE) UCL	0.0294		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0122	95% Jackknife UCL	0.0124
95% Standard Bootstrap UCL	0.0121	95% Bootstrap-t UCL	0.0145
95% Hall's Bootstrap UCL	0.0328	95% Percentile Bootstrap UCL	0.0122
95% BCA Bootstrap UCL	0.0126		
90% Chebyshev(Mean, Sd) UCL	0.0145	95% Chebyshev(Mean, Sd) UCL	0.0169
97.5% Chebyshev(Mean, Sd) UCL	0.0202	99% Chebyshev(Mean, Sd) UCL	0.0266

Suggested UCL to Use

95% Adjusted Gamma UCL	0.014

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Aluminum

General Statistics

Total Number of Observations	46	Number of Distinct Observations	35
		Number of Missing Observations	0
Minimum	1900	Mean	7967
Maximum	18000	Median	7300
SD	3676	Std. Error of Mean	541.9
Coefficient of Variation	0.461	Skewness	0.596

Normal GOF Test

Shapiro Wilk Test Statistic	0.958	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.0942	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	8878	95% Adjusted-CLT UCL (Chen-1995)	8910
		95% Modified-t UCL (Johnson-1978)	8885

Gamma GOF Test

A-D Test Statistic	0.398	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.101	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.335	k star (bias corrected MLE)	4.067
Theta hat (MLE)	1838	Theta star (bias corrected MLE)	1959
nu hat (MLE)	398.8	nu star (bias corrected)	374.2
MLE Mean (bias corrected)	7967	MLE Sd (bias corrected)	3951
		Approximate Chi Square Value (0.05)	330.3
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	329

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	9025	95% Adjusted Gamma UCL (use when n<50)	9061

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	7.55	Mean of logged Data	8.863
Maximum of Logged Data	9.798	SD of logged Data	0.528

Assuming Lognormal Distribution

95% H-UCL	9440	90% Chebyshev (MVUE) UCL	10095
95% Chebyshev (MVUE) UCL	10999	97.5% Chebyshev (MVUE) UCL	12254
99% Chebyshev (MVUE) UCL	14719		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	8859	95% Jackknife UCL	8878
95% Standard Bootstrap UCL	8828	95% Bootstrap-t UCL	8882
95% Hall's Bootstrap UCL	8943	95% Percentile Bootstrap UCL	8833
95% BCA Bootstrap UCL	8891		
90% Chebyshev(Mean, Sd) UCL	9593	95% Chebyshev(Mean, Sd) UCL	10330
97.5% Chebyshev(Mean, Sd) UCL	11352	99% Chebyshev(Mean, Sd) UCL	13359

Suggested UCL to Use

95% Student's-t UCL	8878

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Antimony

General Statistics

Total Number of Observations	46	Number of Distinct Observations	36
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	36	Number of Distinct Non-Detects	1
Minimum Detect	0.05	Minimum Non-Detect	0.2
Maximum Detect	2.8	Maximum Non-Detect	0.2
Variance Detects	0.191	Percent Non-Detects	2.174%
Mean Detects	0.537	SD Detects	0.437
Median Detects	0.46	CV Detects	0.814
Skewness Detects	3.469	Kurtosis Detects	16.21
Mean of Logged Detects	-0.842	SD of Logged Detects	0.675

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.692	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.212	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.528	Standard Error of Mean	0.0644
SD	0.432	95% KM (BCA) UCL	0.653
95% KM (t) UCL	0.636	95% KM (Percentile Bootstrap) UCL	0.643
95% KM (z) UCL	0.634	95% KM Bootstrap t UCL	0.698
90% KM Chebyshev UCL	0.721	95% KM Chebyshev UCL	0.809
97.5% KM Chebyshev UCL	0.93	99% KM Chebyshev UCL	1.169

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.852	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.758	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.123	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.133	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.43	k star (bias corrected MLE)	2.283
Theta hat (MLE)	0.221	Theta star (bias corrected MLE)	0.235
nu hat (MLE)	218.7	nu star (bias corrected)	205.5
MLE Mean (bias corrected)	0.537	MLE Sd (bias corrected)	0.355

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	1.496	nu hat (KM)	137.6
Approximate Chi Square Value (137.63, α)	111.5	Adjusted Chi Square Value (137.63, β)	110.8
95% Gamma Approximate KM-UCL (use when n>=50)	0.652	95% Gamma Adjusted KM-UCL (use when n<50)	0.656

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0449	Mean	0.526
Maximum	2.8	Median	0.455
SD	0.438	CV	0.833
k hat (MLE)	2.163	k star (bias corrected MLE)	2.036
Theta hat (MLE)	0.243	Theta star (bias corrected MLE)	0.258
nu hat (MLE)	199	nu star (bias corrected)	187.3
MLE Mean (bias corrected)	0.526	MLE Sd (bias corrected)	0.369
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (187.34, α)	156.7	Adjusted Chi Square Value (187.34, β)	155.8
95% Gamma Approximate UCL (use when n>=50)	0.629	95% Gamma Adjusted UCL (use when n<50)	0.633

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.966	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.115	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.528	Mean in Log Scale	-0.865
SD in Original Scale	0.436	SD in Log Scale	0.686
95% t UCL (assumes normality of ROS data)	0.636	95% Percentile Bootstrap UCL	0.636
95% BCA Bootstrap UCL	0.672	95% Bootstrap t UCL	0.704
95% H-UCL (Log ROS)	0.655		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-0.869	95% H-UCL (KM -Log)	0.654
KM SD (logged)	0.689	95% Critical H Value (KM-Log)	2.024
KM Standard Error of Mean (logged)	0.103		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.527	Mean in Log Scale	-0.873
SD in Original Scale	0.437	SD in Log Scale	0.701
95% t UCL (Assumes normality)	0.636	95% H-Stat UCL	0.66

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	0.653	95% GROS Adjusted Gamma UCL	0.633
95% Adjusted Gamma KM-UCL	0.656		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_Metals|Arsenic

General Statistics

Total Number of Observations	46	Number of Distinct Observations	30
		Number of Missing Observations	0
Minimum	0.79	Mean	3.927
Maximum	17	Median	3.25
SD	3.197	Std. Error of Mean	0.471
Coefficient of Variation	0.814	Skewness	2.703

Normal GOF Test

Shapiro Wilk Test Statistic	0.67	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.286	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	4.719	95% Adjusted-CLT UCL (Chen-1995)	4.903
		95% Modified-t UCL (Johnson-1978)	4.75

Gamma GOF Test

A-D Test Statistic	1.945	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.19	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.132	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.581	k star (bias corrected MLE)	2.427
Theta hat (MLE)	1.522	Theta star (bias corrected MLE)	1.618
nu hat (MLE)	237.4	nu star (bias corrected)	223.3
MLE Mean (bias corrected)	3.927	MLE Sd (bias corrected)	2.521
		Approximate Chi Square Value (0.05)	189.7
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	188.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	4.623	95% Adjusted Gamma UCL (use when n<50)	4.647

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.145	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-0.236	Mean of logged Data	1.162
Maximum of Logged Data	2.833	SD of logged Data	0.611

Assuming Lognormal Distribution

95% H-UCL	4.604	90% Chebyshev (MVUE) UCL	4.942
95% Chebyshev (MVUE) UCL	5.444	97.5% Chebyshev (MVUE) UCL	6.142
99% Chebyshev (MVUE) UCL	7.512		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	4.702	95% Jackknife UCL	4.719
95% Standard Bootstrap UCL	4.696	95% Bootstrap-t UCL	5.137
95% Hall's Bootstrap UCL	5.169	95% Percentile Bootstrap UCL	4.791
95% BCA Bootstrap UCL	4.873		
90% Chebyshev(Mean, Sd) UCL	5.341	95% Chebyshev(Mean, Sd) UCL	5.982
97.5% Chebyshev(Mean, Sd) UCL	6.871	99% Chebyshev(Mean, Sd) UCL	8.617

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	5.982

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Barium

General Statistics

Total Number of Observations	46	Number of Distinct Observations	36
		Number of Missing Observations	0
Minimum	17	Mean	84.33
Maximum	180	Median	85
SD	33.69	Std. Error of Mean	4.967
Coefficient of Variation	0.399	Skewness	0.375

Normal GOF Test

Shapiro Wilk Test Statistic	0.983	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.0817	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	92.67	95% Adjusted-CLT UCL (Chen-1995)	92.79
		95% Modified-t UCL (Johnson-1978)	92.71

Gamma GOF Test

A-D Test Statistic	0.479	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.085	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.502	k star (bias corrected MLE)	5.157
Theta hat (MLE)	15.33	Theta star (bias corrected MLE)	16.35
nu hat (MLE)	506.2	nu star (bias corrected)	474.5
MLE Mean (bias corrected)	84.33	MLE Sd (bias corrected)	37.13
		Approximate Chi Square Value (0.05)	425
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	423.5

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	94.15	95% Adjusted Gamma UCL (use when n<50)	94.49

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.933	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.111	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.833	Mean of logged Data	4.341
Maximum of Logged Data	5.193	SD of logged Data	0.471

Assuming Lognormal Distribution

95% H-UCL	97.82	90% Chebyshev (MVUE) UCL	104.2
95% Chebyshev (MVUE) UCL	112.6	97.5% Chebyshev (MVUE) UCL	124.3
99% Chebyshev (MVUE) UCL	147.3		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	92.5	95% Jackknife UCL	92.67
95% Standard Bootstrap UCL	92.4	95% Bootstrap-t UCL	92.89
95% Hall's Bootstrap UCL	92.92	95% Percentile Bootstrap UCL	92.52
95% BCA Bootstrap UCL	92.24		
90% Chebyshev(Mean, Sd) UCL	99.23	95% Chebyshev(Mean, Sd) UCL	106
97.5% Chebyshev(Mean, Sd) UCL	115.3	99% Chebyshev(Mean, Sd) UCL	133.7

Suggested UCL to Use

95% Student's-t UCL	92.67

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Beryllium

General Statistics

Total Number of Observations	46	Number of Distinct Observations	30
		Number of Missing Observations	0
Minimum	0.15	Mean	1.065
Maximum	2.2	Median	0.96
SD	0.444	Std. Error of Mean	0.0654
Coefficient of Variation	0.417	Skewness	0.306

Normal GOF Test

Shapiro Wilk Test Statistic	0.977	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.107	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.175	95% Adjusted-CLT UCL (Chen-1995)	1.176
		95% Modified-t UCL (Johnson-1978)	1.176

Gamma GOF Test

A-D Test Statistic	0.55	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.1	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.879	k star (bias corrected MLE)	4.575
Theta hat (MLE)	0.218	Theta star (bias corrected MLE)	0.233
nu hat (MLE)	448.8	nu star (bias corrected)	420.9
MLE Mean (bias corrected)	1.065	MLE Sd (bias corrected)	0.498
		Approximate Chi Square Value (0.05)	374.3
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	372.9

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.198	95% Adjusted Gamma UCL (use when n<50)	1.202

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.912	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.136	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-1.897	Mean of logged Data	-0.0428
Maximum of Logged Data	0.788	SD of logged Data	0.511

Assuming Lognormal Distribution

95% H-UCL	1.261	90% Chebyshev (MVUE) UCL	1.347
95% Chebyshev (MVUE) UCL	1.464	97.5% Chebyshev (MVUE) UCL	1.627
99% Chebyshev (MVUE) UCL	1.946		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.173	95% Jackknife UCL	1.175
95% Standard Bootstrap UCL	1.172	95% Bootstrap-t UCL	1.174
95% Hall's Bootstrap UCL	1.183	95% Percentile Bootstrap UCL	1.164
95% BCA Bootstrap UCL	1.177		
90% Chebyshev(Mean, Sd) UCL	1.262	95% Chebyshev(Mean, Sd) UCL	1.35
97.5% Chebyshev(Mean, Sd) UCL	1.474	99% Chebyshev(Mean, Sd) UCL	1.716

Suggested UCL to Use

95% Student's-t UCL	1.175

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Cadmium

General Statistics

Total Number of Observations	46	Number of Distinct Observations	34
		Number of Missing Observations	0
Minimum	0.24	Mean	1.22
Maximum	5.2	Median	0.875
SD	1.2	Std. Error of Mean	0.177
Coefficient of Variation	0.984	Skewness	2.227

Normal GOF Test

Shapiro Wilk Test Statistic	0.653	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.31	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.517	95% Adjusted-CLT UCL (Chen-1995)	1.573
		95% Modified-t UCL (Johnson-1978)	1.526

Gamma GOF Test

A-D Test Statistic	2.68	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.764	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.214	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.132	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.791	k star (bias corrected MLE)	1.689
Theta hat (MLE)	0.681	Theta star (bias corrected MLE)	0.722
nu hat (MLE)	164.8	nu star (bias corrected)	155.4
MLE Mean (bias corrected)	1.22	MLE Sd (bias corrected)	0.938
		Approximate Chi Square Value (0.05)	127.6
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	126.8

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.485	95% Adjusted Gamma UCL (use when n<50)	1.495

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.918	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.152	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-1.427	Mean of logged Data	-0.106
Maximum of Logged Data	1.649	SD of logged Data	0.726

Assuming Lognormal Distribution

95% H-UCL	1.463	90% Chebyshev (MVUE) UCL	1.573
95% Chebyshev (MVUE) UCL	1.759	97.5% Chebyshev (MVUE) UCL	2.017
99% Chebyshev (MVUE) UCL	2.524		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	1.511	95% Jackknife UCL	1.517
95% Standard Bootstrap UCL	1.505	95% Bootstrap-t UCL	1.606
95% Hall's Bootstrap UCL	1.545	95% Percentile Bootstrap UCL	1.527
95% BCA Bootstrap UCL	1.576		
90% Chebyshev(Mean, Sd) UCL	1.75	95% Chebyshev(Mean, Sd) UCL	1.991
97.5% Chebyshev(Mean, Sd) UCL	2.324	99% Chebyshev(Mean, Sd) UCL	2.98

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	1.991

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Chromium

General Statistics

Total Number of Observations	46	Number of Distinct Observations	32
		Number of Missing Observations	0
Minimum	11	Mean	39.22
Maximum	140	Median	36.5
SD	22.47	Std. Error of Mean	3.313
Coefficient of Variation	0.573	Skewness	2.177

Normal GOF Test

Shapiro Wilk Test Statistic	0.843	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.147	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	44.78	95% Adjusted-CLT UCL (Chen-1995)	45.8
		95% Modified-t UCL (Johnson-1978)	44.96

Gamma GOF Test

A-D Test Statistic	0.287	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0863	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.83	k star (bias corrected MLE)	3.595
Theta hat (MLE)	10.24	Theta star (bias corrected MLE)	10.91
nu hat (MLE)	352.4	nu star (bias corrected)	330.7
MLE Mean (bias corrected)	39.22	MLE Sd (bias corrected)	20.68
		Approximate Chi Square Value (0.05)	289.6
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	288.3

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	44.79	95% Adjusted Gamma UCL (use when n<50)	44.98

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.98	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0992	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.398	Mean of logged Data	3.533
Maximum of Logged Data	4.942	SD of logged Data	0.529

Assuming Lognormal Distribution

95% H-UCL	45.76	90% Chebyshev (MVUE) UCL	48.94
95% Chebyshev (MVUE) UCL	53.33	97.5% Chebyshev (MVUE) UCL	59.42
99% Chebyshev (MVUE) UCL	71.4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	44.67	95% Jackknife UCL	44.78
95% Standard Bootstrap UCL	44.73	95% Bootstrap-t UCL	45.98
95% Hall's Bootstrap UCL	48.39	95% Percentile Bootstrap UCL	44.98
95% BCA Bootstrap UCL	45.63		
90% Chebyshev(Mean, Sd) UCL	49.16	95% Chebyshev(Mean, Sd) UCL	53.66
97.5% Chebyshev(Mean, Sd) UCL	59.91	99% Chebyshev(Mean, Sd) UCL	72.18

Suggested UCL to Use

95% Adjusted Gamma UCL	44.98

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Copper

General Statistics

Total Number of Observations	46	Number of Distinct Observations	35
		Number of Missing Observations	0
Minimum	9.6	Mean	56.79
Maximum	240	Median	45
SD	45.22	Std. Error of Mean	6.668
Coefficient of Variation	0.796	Skewness	2.397

Normal GOF Test

Shapiro Wilk Test Statistic	0.747	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.255	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	67.99	95% Adjusted-CLT UCL (Chen-1995)	70.28
		95% Modified-t UCL (Johnson-1978)	68.38

Gamma GOF Test

A-D Test Statistic	0.987	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.162	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.132	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.312	k star (bias corrected MLE)	2.176
Theta hat (MLE)	24.56	Theta star (bias corrected MLE)	26.1
nu hat (MLE)	212.7	nu star (bias corrected)	200.2
MLE Mean (bias corrected)	56.79	MLE Sd (bias corrected)	38.5
		Approximate Chi Square Value (0.05)	168.4
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	167.5

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	67.49	95% Adjusted Gamma UCL (use when n<50)	67.87

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.967	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.128	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.262	Mean of logged Data	3.808
Maximum of Logged Data	5.481	SD of logged Data	0.681

Assuming Lognormal Distribution

95% H-UCL	69.74	90% Chebyshev (MVUE) UCL	74.99
95% Chebyshev (MVUE) UCL	83.38	97.5% Chebyshev (MVUE) UCL	95.02
99% Chebyshev (MVUE) UCL	117.9		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	67.76	95% Jackknife UCL	67.99
95% Standard Bootstrap UCL	67.56	95% Bootstrap-t UCL	72.27
95% Hall's Bootstrap UCL	73.79	95% Percentile Bootstrap UCL	68.32
95% BCA Bootstrap UCL	70.61		
90% Chebyshev(Mean, Sd) UCL	76.79	95% Chebyshev(Mean, Sd) UCL	85.86
97.5% Chebyshev(Mean, Sd) UCL	98.43	99% Chebyshev(Mean, Sd) UCL	123.1

Suggested UCL to Use

95% H-UCL	69.74

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

RA_SE_Metals|Iron

General Statistics

Total Number of Observations	46	Number of Distinct Observations	21
		Number of Missing Observations	0
Minimum	8200	Mean	19952
Maximum	33000	Median	19000
SD	6477	Std. Error of Mean	955
Coefficient of Variation	0.325	Skewness	0.182

Normal GOF Test

Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.132	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	21556	95% Adjusted-CLT UCL (Chen-1995)	21550
		95% Modified-t UCL (Johnson-1978)	21560

Gamma GOF Test

A-D Test Statistic	0.41	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.096	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.13	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	8.996	k star (bias corrected MLE)	8.424
Theta hat (MLE)	2218	Theta star (bias corrected MLE)	2369
nu hat (MLE)	827.6	nu star (bias corrected)	775
MLE Mean (bias corrected)	19952	MLE Sd (bias corrected)	6874
		Approximate Chi Square Value (0.05)	711.4
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	709.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	21736	95% Adjusted Gamma UCL (use when n<50)	21796

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0931	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	9.012	Mean of logged Data	9.844
Maximum of Logged Data	10.4	SD of logged Data	0.352

Assuming Lognormal Distribution

95% H-UCL	22028	90% Chebyshev (MVUE) UCL	23224
95% Chebyshev (MVUE) UCL	24671	97.5% Chebyshev (MVUE) UCL	26680
99% Chebyshev (MVUE) UCL	30626		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	21523	95% Jackknife UCL	21556
95% Standard Bootstrap UCL	21477	95% Bootstrap-t UCL	21519
95% Hall's Bootstrap UCL	21507	95% Percentile Bootstrap UCL	21522
95% BCA Bootstrap UCL	21461		
90% Chebyshev(Mean, Sd) UCL	22817	95% Chebyshev(Mean, Sd) UCL	24115
97.5% Chebyshev(Mean, Sd) UCL	25916	99% Chebyshev(Mean, Sd) UCL	29454

Suggested UCL to Use

95% Student's-t UCL 21556

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Lead

General Statistics

Total Number of Observations	46	Number of Distinct Observations	37
		Number of Missing Observations	0
Minimum	11	Mean	77.91
Maximum	320	Median	63
SD	56.62	Std. Error of Mean	8.348
Coefficient of Variation	0.727	Skewness	2.29

Normal GOF Test

Shapiro Wilk Test Statistic	0.803	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	91.93	95% Adjusted-CLT UCL (Chen-1995)	94.66
		95% Modified-t UCL (Johnson-1978)	92.4

Gamma GOF Test

A-D Test Statistic	0.493	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.758	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.109	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.132	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.539	k star (bias corrected MLE)	2.387
Theta hat (MLE)	30.69	Theta star (bias corrected MLE)	32.63
nu hat (MLE)	233.5	nu star (bias corrected)	219.6
MLE Mean (bias corrected)	77.91	MLE Sd (bias corrected)	50.42
		Approximate Chi Square Value (0.05)	186.3
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	185.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	91.84	95% Adjusted Gamma UCL (use when n<50)	92.33

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.984	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0967	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.398	Mean of logged Data	4.146
Maximum of Logged Data	5.768	SD of logged Data	0.662

Assuming Lognormal Distribution

95% H-UCL	95.83	90% Chebyshev (MVUE) UCL	103
95% Chebyshev (MVUE) UCL	114.2	97.5% Chebyshev (MVUE) UCL	129.8
99% Chebyshev (MVUE) UCL	160.5		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	91.64	95% Jackknife UCL	91.93
95% Standard Bootstrap UCL	91.7	95% Bootstrap-t UCL	96.54
95% Hall's Bootstrap UCL	101.9	95% Percentile Bootstrap UCL	92.39
95% BCA Bootstrap UCL	95.15		
90% Chebyshev(Mean, Sd) UCL	103	95% Chebyshev(Mean, Sd) UCL	114.3
97.5% Chebyshev(Mean, Sd) UCL	130	99% Chebyshev(Mean, Sd) UCL	161

Suggested UCL to Use

95% Adjusted Gamma UCL	92.33

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Manganese

General Statistics

Total Number of Observations	46	Number of Distinct Observations	30
		Number of Missing Observations	0
Minimum	100	Mean	288.3
Maximum	570	Median	270
SD	134.6	Std. Error of Mean	19.85
Coefficient of Variation	0.467	Skewness	0.595

Normal GOF Test

Shapiro Wilk Test Statistic	0.921	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.131	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	321.6	95% Adjusted-CLT UCL (Chen-1995)	322.8
		95% Modified-t UCL (Johnson-1978)	321.9

Gamma GOF Test

A-D Test Statistic	0.405	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0805	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.692	k star (bias corrected MLE)	4.4
Theta hat (MLE)	61.44	Theta star (bias corrected MLE)	65.51
nu hat (MLE)	431.7	nu star (bias corrected)	404.8
MLE Mean (bias corrected)	288.3	MLE Sd (bias corrected)	137.4
		Approximate Chi Square Value (0.05)	359.2
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	357.8

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	324.9	95% Adjusted Gamma UCL (use when n<50)	326.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.954	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0642	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.605	Mean of logged Data	5.554
Maximum of Logged Data	6.346	SD of logged Data	0.483

Assuming Lognormal Distribution

95% H-UCL	332.1	90% Chebyshev (MVUE) UCL	354.1
95% Chebyshev (MVUE) UCL	383.4	97.5% Chebyshev (MVUE) UCL	424.1
99% Chebyshev (MVUE) UCL	504.1		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	320.9	95% Jackknife UCL	321.6
95% Standard Bootstrap UCL	320.2	95% Bootstrap-t UCL	323.6
95% Hall's Bootstrap UCL	321.8	95% Percentile Bootstrap UCL	318.3
95% BCA Bootstrap UCL	321.3		
90% Chebyshev(Mean, Sd) UCL	347.8	95% Chebyshev(Mean, Sd) UCL	374.8
97.5% Chebyshev(Mean, Sd) UCL	412.2	99% Chebyshev(Mean, Sd) UCL	485.7

Suggested UCL to Use

95% Adjusted Gamma UCL	326.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Mercury

General Statistics

Total Number of Observations	46	Number of Distinct Observations	30
		Number of Missing Observations	0
Minimum	0.033	Mean	0.194
Maximum	0.69	Median	0.175
SD	0.119	Std. Error of Mean	0.0175
Coefficient of Variation	0.615	Skewness	1.844

Normal GOF Test

Shapiro Wilk Test Statistic	0.872	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.125	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.223	95% Adjusted-CLT UCL (Chen-1995)	0.228
		95% Modified-t UCL (Johnson-1978)	0.224

Gamma GOF Test

A-D Test Statistic	0.255	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.756	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0872	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.004	k star (bias corrected MLE)	2.823
Theta hat (MLE)	0.0644	Theta star (bias corrected MLE)	0.0686
nu hat (MLE)	276.4	nu star (bias corrected)	259.7
MLE Mean (bias corrected)	0.194	MLE Sd (bias corrected)	0.115
		Approximate Chi Square Value (0.05)	223.4
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	222.3

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.225	95% Adjusted Gamma UCL (use when n<50)	0.226

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.973	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0897	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-3.411	Mean of logged Data	-1.817
Maximum of Logged Data	-0.371	SD of logged Data	0.624

Assuming Lognormal Distribution

95% H-UCL	0.237	90% Chebyshev (MVUE) UCL	0.255
95% Chebyshev (MVUE) UCL	0.281	97.5% Chebyshev (MVUE) UCL	0.318
99% Chebyshev (MVUE) UCL	0.39		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.222	95% Jackknife UCL	0.223
95% Standard Bootstrap UCL	0.222	95% Bootstrap-t UCL	0.23
95% Hall's Bootstrap UCL	0.234	95% Percentile Bootstrap UCL	0.224
95% BCA Bootstrap UCL	0.224		
90% Chebyshev(Mean, Sd) UCL	0.246	95% Chebyshev(Mean, Sd) UCL	0.27
97.5% Chebyshev(Mean, Sd) UCL	0.303	99% Chebyshev(Mean, Sd) UCL	0.368

Suggested UCL to Use

95% Student's-t UCL	0.223

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Nickel

General Statistics

Total Number of Observations	46	Number of Distinct Observations	32
		Number of Missing Observations	0
Minimum	7.7	Mean	38.32
Maximum	160	Median	29
SD	33.08	Std. Error of Mean	4.878
Coefficient of Variation	0.863	Skewness	2.447

Normal GOF Test

Shapiro Wilk Test Statistic	0.692	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.294	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	46.51	95% Adjusted-CLT UCL (Chen-1995)	48.22
		95% Modified-t UCL (Johnson-1978)	46.8

Gamma GOF Test

A-D Test Statistic	1.79	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.198	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.132	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.234	k star (bias corrected MLE)	2.103
Theta hat (MLE)	17.15	Theta star (bias corrected MLE)	18.22
nu hat (MLE)	205.5	nu star (bias corrected)	193.5
MLE Mean (bias corrected)	38.32	MLE Sd (bias corrected)	26.43
		Approximate Chi Square Value (0.05)	162.3
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	161.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	45.68	95% Adjusted Gamma UCL (use when n<50)	45.94

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.95	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.146	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.041	Mean of logged Data	3.406
Maximum of Logged Data	5.075	SD of logged Data	0.659

Assuming Lognormal Distribution

95% H-UCL	45.57	90% Chebyshev (MVUE) UCL	48.98
95% Chebyshev (MVUE) UCL	54.3	97.5% Chebyshev (MVUE) UCL	61.69
99% Chebyshev (MVUE) UCL	76.2		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	46.34	95% Jackknife UCL	46.51
95% Standard Bootstrap UCL	46.43	95% Bootstrap-t UCL	48.81
95% Hall's Bootstrap UCL	48.43	95% Percentile Bootstrap UCL	47.04
95% BCA Bootstrap UCL	48.78		
90% Chebyshev(Mean, Sd) UCL	52.95	95% Chebyshev(Mean, Sd) UCL	59.58
97.5% Chebyshev(Mean, Sd) UCL	68.78	99% Chebyshev(Mean, Sd) UCL	86.85

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	59.58

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Selenium

General Statistics

Total Number of Observations	46	Number of Distinct Observations	30
		Number of Missing Observations	0
Minimum	0.034	Mean	0.891
Maximum	1.8	Median	0.88
SD	0.428	Std. Error of Mean	0.0632
Coefficient of Variation	0.481	Skewness	-0.0936

Normal GOF Test

Shapiro Wilk Test Statistic	0.966	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.1	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.997	95% Adjusted-CLT UCL (Chen-1995)	0.994
		95% Modified-t UCL (Johnson-1978)	0.997

Gamma GOF Test

A-D Test Statistic	1.141	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.127	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.132	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.868	k star (bias corrected MLE)	2.695
Theta hat (MLE)	0.311	Theta star (bias corrected MLE)	0.331
nu hat (MLE)	263.8	nu star (bias corrected)	247.9
MLE Mean (bias corrected)	0.891	MLE Sd (bias corrected)	0.543
		Approximate Chi Square Value (0.05)	212.5
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	211.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.04	95% Adjusted Gamma UCL (use when n<50)	1.045

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.158	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-3.381	Mean of logged Data	-0.3
Maximum of Logged Data	0.588	SD of logged Data	0.742

Assuming Lognormal Distribution

95% H-UCL	1.227	90% Chebyshev (MVUE) UCL	1.319
95% Chebyshev (MVUE) UCL	1.478	97.5% Chebyshev (MVUE) UCL	1.698
99% Chebyshev (MVUE) UCL	2.131		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.995	95% Jackknife UCL	0.997
95% Standard Bootstrap UCL	0.992	95% Bootstrap-t UCL	0.996
95% Hall's Bootstrap UCL	0.992	95% Percentile Bootstrap UCL	0.994
95% BCA Bootstrap UCL	1		
90% Chebyshev(Mean, Sd) UCL	1.081	95% Chebyshev(Mean, Sd) UCL	1.167
97.5% Chebyshev(Mean, Sd) UCL	1.286	99% Chebyshev(Mean, Sd) UCL	1.52

Suggested UCL to Use

95% Student's-t UCL	0.997

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

RA_SE_Metals|Silver

General Statistics

Total Number of Observations	46	Number of Distinct Observations	40
		Number of Missing Observations	0
Minimum	0.044	Mean	0.556
Maximum	3.5	Median	0.33
SD	0.712	Std. Error of Mean	0.105
Coefficient of Variation	1.28	Skewness	3.016

Normal GOF Test

Shapiro Wilk Test Statistic	0.631	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.259	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.732	95% Adjusted-CLT UCL (Chen-1995)	0.779
		95% Modified-t UCL (Johnson-1978)	0.74

Gamma GOF Test

A-D Test Statistic	1.095	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.775	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.14	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.134	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.117	k star (bias corrected MLE)	1.059
Theta hat (MLE)	0.498	Theta star (bias corrected MLE)	0.525
nu hat (MLE)	102.8	nu star (bias corrected)	97.43
MLE Mean (bias corrected)	0.556	MLE Sd (bias corrected)	0.54
		Approximate Chi Square Value (0.05)	75.66
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	75.04

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.716	95% Adjusted Gamma UCL (use when n<50)	0.722

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.981	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0665	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-3.124	Mean of logged Data	-1.097
Maximum of Logged Data	1.253	SD of logged Data	0.991

Assuming Lognormal Distribution

95% H-UCL	0.768	90% Chebyshev (MVUE) UCL	0.813
95% Chebyshev (MVUE) UCL	0.937	97.5% Chebyshev (MVUE) UCL	1.111
99% Chebyshev (MVUE) UCL	1.451		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.729	95% Jackknife UCL	0.732
95% Standard Bootstrap UCL	0.725	95% Bootstrap-t UCL	0.858
95% Hall's Bootstrap UCL	1.494	95% Percentile Bootstrap UCL	0.747
95% BCA Bootstrap UCL	0.782		
90% Chebyshev(Mean, Sd) UCL	0.871	95% Chebyshev(Mean, Sd) UCL	1.014
97.5% Chebyshev(Mean, Sd) UCL	1.212	99% Chebyshev(Mean, Sd) UCL	1.6

Suggested UCL to Use

95% H-UCL	0.768

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

RA_SE_Metals|Thallium

General Statistics

Total Number of Observations	46	Number of Distinct Observations	26
		Number of Missing Observations	0
Minimum	0.037	Mean	0.203
Maximum	0.63	Median	0.18
SD	0.107	Std. Error of Mean	0.0157
Coefficient of Variation	0.525	Skewness	1.933

Normal GOF Test

Shapiro Wilk Test Statistic	0.846	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.149	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.23	95% Adjusted-CLT UCL (Chen-1995)	0.234
		95% Modified-t UCL (Johnson-1978)	0.23

Gamma GOF Test

A-D Test Statistic	0.705	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.11	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.194	k star (bias corrected MLE)	3.935
Theta hat (MLE)	0.0485	Theta star (bias corrected MLE)	0.0516
nu hat (MLE)	385.9	nu star (bias corrected)	362
MLE Mean (bias corrected)	0.203	MLE Sd (bias corrected)	0.102
		Approximate Chi Square Value (0.05)	318.9
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	317.6

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.231	95% Adjusted Gamma UCL (use when n<50)	0.232

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.126	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-3.297	Mean of logged Data	-1.717
Maximum of Logged Data	-0.462	SD of logged Data	0.521

Assuming Lognormal Distribution

95% H-UCL	0.238	90% Chebyshev (MVUE) UCL	0.255
95% Chebyshev (MVUE) UCL	0.277	97.5% Chebyshev (MVUE) UCL	0.309
99% Chebyshev (MVUE) UCL	0.37		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.229	95% Jackknife UCL	0.23
95% Standard Bootstrap UCL	0.229	95% Bootstrap-t UCL	0.237
95% Hall's Bootstrap UCL	0.245	95% Percentile Bootstrap UCL	0.229
95% BCA Bootstrap UCL	0.232		
90% Chebyshev(Mean, Sd) UCL	0.25	95% Chebyshev(Mean, Sd) UCL	0.272
97.5% Chebyshev(Mean, Sd) UCL	0.302	99% Chebyshev(Mean, Sd) UCL	0.36

Suggested UCL to Use

95% Adjusted Gamma UCL	0.232

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Vanadium

General Statistics

Total Number of Observations	46	Number of Distinct Observations	35
		Number of Missing Observations	0
Minimum	8.5	Mean	61.39
Maximum	440	Median	35
SD	86.49	Std. Error of Mean	12.75
Coefficient of Variation	1.409	Skewness	3.187

Normal GOF Test

Shapiro Wilk Test Statistic	0.534	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.362	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	82.81	95% Adjusted-CLT UCL (Chen-1995)	88.77
		95% Modified-t UCL (Johnson-1978)	83.81

Gamma GOF Test

A-D Test Statistic	4.443	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.773	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.297	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.134	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.22	k star (bias corrected MLE)	1.155
Theta hat (MLE)	50.31	Theta star (bias corrected MLE)	53.14
nu hat (MLE)	112.3	nu star (bias corrected)	106.3
MLE Mean (bias corrected)	61.39	MLE Sd (bias corrected)	57.12
		Approximate Chi Square Value (0.05)	83.49
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	82.84

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	78.15	95% Adjusted Gamma UCL (use when n<50)	78.77

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.877	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.221	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.14	Mean of logged Data	3.655
Maximum of Logged Data	6.087	SD of logged Data	0.839

Assuming Lognormal Distribution

95% H-UCL	72.06	90% Chebyshev (MVUE) UCL	77.19
95% Chebyshev (MVUE) UCL	87.51	97.5% Chebyshev (MVUE) UCL	101.8
99% Chebyshev (MVUE) UCL	130		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	82.37	95% Jackknife UCL	82.81
95% Standard Bootstrap UCL	82.24	95% Bootstrap-t UCL	99.33
95% Hall's Bootstrap UCL	94.21	95% Percentile Bootstrap UCL	83.86
95% BCA Bootstrap UCL	89.48		
90% Chebyshev(Mean, Sd) UCL	99.65	95% Chebyshev(Mean, Sd) UCL	117
97.5% Chebyshev(Mean, Sd) UCL	141	99% Chebyshev(Mean, Sd) UCL	188.3

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	117

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_Metals|Zinc

General Statistics

Total Number of Observations	46	Number of Distinct Observations	28
		Number of Missing Observations	0
Minimum	46	Mean	211.5
Maximum	630	Median	190
SD	122.7	Std. Error of Mean	18.09
Coefficient of Variation	0.58	Skewness	1.565

Normal GOF Test

Shapiro Wilk Test Statistic	0.871	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.151	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	241.9	95% Adjusted-CLT UCL (Chen-1995)	245.7
		95% Modified-t UCL (Johnson-1978)	242.6

Gamma GOF Test

A-D Test Statistic	0.39	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.755	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0875	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.419	k star (bias corrected MLE)	3.21
Theta hat (MLE)	61.87	Theta star (bias corrected MLE)	65.89
nu hat (MLE)	314.5	nu star (bias corrected)	295.4
MLE Mean (bias corrected)	211.5	MLE Sd (bias corrected)	118.1
		Approximate Chi Square Value (0.05)	256.5
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	255.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	243.5	95% Adjusted Gamma UCL (use when n<50)	244.6

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.972	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.945	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.106	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.131	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.829	Mean of logged Data	5.201
Maximum of Logged Data	6.446	SD of logged Data	0.573

Assuming Lognormal Distribution

95% H-UCL	252.3	90% Chebyshev (MVUE) UCL	270.3
95% Chebyshev (MVUE) UCL	296.3	97.5% Chebyshev (MVUE) UCL	332.4
99% Chebyshev (MVUE) UCL	403.3		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	241.3	95% Jackknife UCL	241.9
95% Standard Bootstrap UCL	241.2	95% Bootstrap-t UCL	246.4
95% Hall's Bootstrap UCL	251	95% Percentile Bootstrap UCL	241.5
95% BCA Bootstrap UCL	245.5		
90% Chebyshev(Mean, Sd) UCL	265.8	95% Chebyshev(Mean, Sd) UCL	290.4
97.5% Chebyshev(Mean, Sd) UCL	324.5	99% Chebyshev(Mean, Sd) UCL	391.6

Suggested UCL to Use

95% Adjusted Gamma UCL	244.6

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_SVOCs|2-Methylnaphthalene

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Number of Detects	13	Number of Non-Detects	1
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.0092	Minimum Non-Detect	0.27
Maximum Detect	0.074	Maximum Non-Detect	0.27
Variance Detects	5.5851E-4	Percent Non-Detects	7.143%
Mean Detects	0.0357	SD Detects	0.0236
Median Detects	0.028	CV Detects	0.662
Skewness Detects	0.634	Kurtosis Detects	-1.324
Mean of Logged Detects	-3.551	SD of Logged Detects	0.708

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.859	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.211	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0357	Standard Error of Mean	0.00655
SD	0.0227	95% KM (BCA) UCL	0.0467
95% KM (t) UCL	0.0473	95% KM (Percentile Bootstrap) UCL	0.0463
95% KM (z) UCL	0.0465	95% KM Bootstrap t UCL	0.05
90% KM Chebyshev UCL	0.0554	95% KM Chebyshev UCL	0.0643
97.5% KM Chebyshev UCL	0.0766	99% KM Chebyshev UCL	0.101

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.46	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.183	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.239	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.436	k star (bias corrected MLE)	1.925
Theta hat (MLE)	0.0147	Theta star (bias corrected MLE)	0.0185
nu hat (MLE)	63.33	nu star (bias corrected)	50.05
MLE Mean (bias corrected)	0.0357	MLE Sd (bias corrected)	0.0257

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	2.473	nu hat (KM)	69.25
Approximate Chi Square Value (69.25, α)	51.09	Adjusted Chi Square Value (69.25, β)	49.03
95% Gamma Approximate KM-UCL (use when n>=50)	0.0484	95% Gamma Adjusted KM-UCL (use when n<50)	0.0504

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0092	Mean	0.0354
Maximum	0.074	Median	0.029
SD	0.0227	CV	0.642
k hat (MLE)	2.607	k star (bias corrected MLE)	2.096
Theta hat (MLE)	0.0136	Theta star (bias corrected MLE)	0.0169
nu hat (MLE)	73	nu star (bias corrected)	58.69
MLE Mean (bias corrected)	0.0354	MLE Sd (bias corrected)	0.0245
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (58.69, α)	42.07	Adjusted Chi Square Value (58.69, β)	40.21
95% Gamma Approximate UCL (use when n>=50)	0.0494	95% Gamma Adjusted UCL (use when n<50)	0.0517

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.933	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.17	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0352	Mean in Log Scale	-3.551
SD in Original Scale	0.0228	SD in Log Scale	0.68
95% t UCL (assumes normality of ROS data)	0.046	95% Percentile Bootstrap UCL	0.0448
95% BCA Bootstrap UCL	0.0455	95% Bootstrap t UCL	0.0479
95% H-UCL (Log ROS)	0.0559		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.551	95% H-UCL (KM -Log)	0.0559
KM SD (logged)	0.68	95% Critical H Value (KM-Log)	2.315
KM Standard Error of Mean (logged)	0.196		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0428	Mean in Log Scale	-3.441
SD in Original Scale	0.0349	SD in Log Scale	0.796
95% t UCL (Assumes normality)	0.0593	95% H-Stat UCL	0.0759

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0473	95% KM (Percentile Bootstrap) UCL	0.0463

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|4-Methylphenol

General Statistics

Total Number of Observations	14	Number of Distinct Observations	11
		Number of Missing Observations	32
Number of Detects	6	Number of Non-Detects	8
Number of Distinct Detects	5	Number of Distinct Non-Detects	6
Minimum Detect	0.021	Minimum Non-Detect	0.16
Maximum Detect	0.11	Maximum Non-Detect	1.3
Variance Detects	0.00117	Percent Non-Detects	57.14%
Mean Detects	0.072	SD Detects	0.0341
Median Detects	0.068	CV Detects	0.474
Skewness Detects	-0.212	Kurtosis Detects	-0.571
Mean of Logged Detects	-2.759	SD of Logged Detects	0.61

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.919	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.2	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.362	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.072	Standard Error of Mean	0.0139
SD	0.0312	95% KM (BCA) UCL	0.095
95% KM (t) UCL	0.0967	95% KM (Percentile Bootstrap) UCL	0.0946
95% KM (z) UCL	0.0949	95% KM Bootstrap t UCL	0.104
90% KM Chebyshev UCL	0.114	95% KM Chebyshev UCL	0.133
97.5% KM Chebyshev UCL	0.159	99% KM Chebyshev UCL	0.211

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.377	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.7	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.197	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.333	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.055	k star (bias corrected MLE)	2.138
Theta hat (MLE)	0.0178	Theta star (bias corrected MLE)	0.0337
nu hat (MLE)	48.66	nu star (bias corrected)	25.66
MLE Mean (bias corrected)	0.072	MLE Sd (bias corrected)	0.0492

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	5.337	nu hat (KM)	149.4
Approximate Chi Square Value (149.44, α)	122.2	Adjusted Chi Square Value (149.44, β)	118.9
95% Gamma Approximate KM-UCL (use when n>=50)	0.0881	95% Gamma Adjusted KM-UCL (use when n<50)	0.0905

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.021	Mean	0.0704
Maximum	0.11	Median	0.0685
SD	0.0239	CV	0.339
k hat (MLE)	7.616	k star (bias corrected MLE)	6.031
Theta hat (MLE)	0.00925	Theta star (bias corrected MLE)	0.0117
nu hat (MLE)	213.2	nu star (bias corrected)	168.9
MLE Mean (bias corrected)	0.0704	MLE Sd (bias corrected)	0.0287
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (168.88, α)	139.8	Adjusted Chi Square Value (168.88, β)	136.3
95% Gamma Approximate UCL (use when n>=50)	0.0851	95% Gamma Adjusted UCL (use when n<50)	0.0873

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.862	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.362	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0682	Mean in Log Scale	-2.759
SD in Original Scale	0.0251	SD in Log Scale	0.425
95% t UCL (assumes normality of ROS data)	0.08	95% Percentile Bootstrap UCL	0.079
95% BCA Bootstrap UCL	0.0801	95% Bootstrap t UCL	0.0806
95% H-UCL (Log ROS)	0.0877		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-2.759	95% H-UCL (KM -Log)	0.102
KM SD (logged)	0.557	95% Critical H Value (KM-Log)	2.1
KM Standard Error of Mean (logged)	0.249		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.154	Mean in Log Scale	-2.179
SD in Original Scale	0.154	SD in Log Scale	0.79
95% t UCL (Assumes normality)	0.227	95% H-Stat UCL	0.265

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0967	95% KM (Percentile Bootstrap) UCL	0.0946

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Acenaphthene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	37
Number of Detects	36	Number of Non-Detects	10
Number of Distinct Detects	29	Number of Distinct Non-Detects	8
Minimum Detect	0.0077	Minimum Non-Detect	0.0067
Maximum Detect	0.14	Maximum Non-Detect	0.27
Variance Detects	8.8166E-4	Percent Non-Detects	21.74%
Mean Detects	0.0407	SD Detects	0.0297
Median Detects	0.033	CV Detects	0.73
Skewness Detects	1.733	Kurtosis Detects	3.296
Mean of Logged Detects	-3.427	SD of Logged Detects	0.681

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.935	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.242	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.148	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0388	Standard Error of Mean	0.00461
SD	0.0286	95% KM (BCA) UCL	0.0466
95% KM (t) UCL	0.0465	95% KM (Percentile Bootstrap) UCL	0.0465
95% KM (z) UCL	0.0464	95% KM Bootstrap t UCL	0.049
90% KM Chebyshev UCL	0.0526	95% KM Chebyshev UCL	0.0589
97.5% KM Chebyshev UCL	0.0676	99% KM Chebyshev UCL	0.0846

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.499	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.757	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.169	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.148	Detected Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.386	k star (bias corrected MLE)	2.206
Theta hat (MLE)	0.017	Theta star (bias corrected MLE)	0.0184
nu hat (MLE)	171.8	nu star (bias corrected)	158.8
MLE Mean (bias corrected)	0.0407	MLE Sd (bias corrected)	0.0274

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	1.844	nu hat (KM)	169.6
Approximate Chi Square Value (169.64, α)	140.5	Adjusted Chi Square Value (169.64, β)	139.7
95% Gamma Approximate KM-UCL (use when n>=50)	0.0468	95% Gamma Adjusted KM-UCL (use when n<50)	0.0471

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0077	Mean	0.0381
Maximum	0.14	Median	0.0326
SD	0.0271	CV	0.71
k hat (MLE)	2.644	k star (bias corrected MLE)	2.486
Theta hat (MLE)	0.0144	Theta star (bias corrected MLE)	0.0153
nu hat (MLE)	243.3	nu star (bias corrected)	228.8
MLE Mean (bias corrected)	0.0381	MLE Sd (bias corrected)	0.0242
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (228.75, α)	194.7	Adjusted Chi Square Value (228.75, β)	193.7
95% Gamma Approximate UCL (use when n>=50)	0.0448	95% Gamma Adjusted UCL (use when n<50)	0.045

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.979	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.935	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.123	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.148	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0377	Mean in Log Scale	-3.488
SD in Original Scale	0.0272	SD in Log Scale	0.658
95% t UCL (assumes normality of ROS data)	0.0444	95% Percentile Bootstrap UCL	0.0444
95% BCA Bootstrap UCL	0.0461	95% Bootstrap t UCL	0.0469
95% H-UCL (Log ROS)	0.0462		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.488	95% H-UCL (KM -Log)	0.0484
KM SD (logged)	0.702	95% Critical H Value (KM-Log)	2.034
KM Standard Error of Mean (logged)	0.115		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0491	Mean in Log Scale	-3.317
SD in Original Scale	0.0385	SD in Log Scale	0.827
95% t UCL (Assumes normality)	0.0586	95% H-Stat UCL	0.0665

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Percentile Bootstrap) UCL	0.0465	95% GROS Adjusted Gamma UCL	0.045
95% Adjusted Gamma KM-UCL	0.0471		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Acenaphthylene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	41
Number of Detects	36	Number of Non-Detects	10
Number of Distinct Detects	33	Number of Distinct Non-Detects	10
Minimum Detect	0.016	Minimum Non-Detect	0.0067
Maximum Detect	0.17	Maximum Non-Detect	0.27
Variance Detects	8.1588E-4	Percent Non-Detects	21.74%
Mean Detects	0.0592	SD Detects	0.0286
Median Detects	0.054	CV Detects	0.483
Skewness Detects	1.743	Kurtosis Detects	5.418
Mean of Logged Detects	-2.93	SD of Logged Detects	0.465

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.935	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.103	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.148	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0547	Standard Error of Mean	0.00459
SD	0.029	95% KM (BCA) UCL	0.0623
95% KM (t) UCL	0.0624	95% KM (Percentile Bootstrap) UCL	0.0624
95% KM (z) UCL	0.0622	95% KM Bootstrap t UCL	0.0636
90% KM Chebyshev UCL	0.0685	95% KM Chebyshev UCL	0.0747
97.5% KM Chebyshev UCL	0.0834	99% KM Chebyshev UCL	0.1

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.242	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0814	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.147	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.035	k star (bias corrected MLE)	4.634
Theta hat (MLE)	0.0118	Theta star (bias corrected MLE)	0.0128
nu hat (MLE)	362.5	nu star (bias corrected)	333.6
MLE Mean (bias corrected)	0.0592	MLE Sd (bias corrected)	0.0275

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	3.547	nu hat (KM)	326.3
Approximate Chi Square Value (326.33, α)	285.5	Adjusted Chi Square Value (326.33, β)	284.2
95% Gamma Approximate KM-UCL (use when n>=50)	0.0625	95% Gamma Adjusted KM-UCL (use when n<50)	0.0628

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0102	Mean	0.0546
Maximum	0.17	Median	0.0499
SD	0.0276	CV	0.506
k hat (MLE)	4.268	k star (bias corrected MLE)	4.004
Theta hat (MLE)	0.0128	Theta star (bias corrected MLE)	0.0136
nu hat (MLE)	392.6	nu star (bias corrected)	368.3
MLE Mean (bias corrected)	0.0546	MLE Sd (bias corrected)	0.0273
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (368.35, α)	324.9	Adjusted Chi Square Value (368.35, β)	323.6
95% Gamma Approximate UCL (use when n>=50)	0.0619	95% Gamma Adjusted UCL (use when n<50)	0.0621

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.987	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.935	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.106	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.148	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0547	Mean in Log Scale	-3.014
SD in Original Scale	0.0272	SD in Log Scale	0.473
95% t UCL (assumes normality of ROS data)	0.0614	95% Percentile Bootstrap UCL	0.0611
95% BCA Bootstrap UCL	0.0626	95% Bootstrap t UCL	0.0622
95% H-UCL (Log ROS)	0.0626		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.066	95% H-UCL (KM -Log)	0.0681
KM SD (logged)	0.625	95% Critical H Value (KM-Log)	1.976
KM Standard Error of Mean (logged)	0.103		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.0583	Mean in Log Scale	-3.021
SD in Original Scale	0.0331	SD in Log Scale	0.678
95% t UCL (Assumes normality)	0.0665	95% H-Stat UCL	0.0752

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0624	95% KM (Percentile Bootstrap) UCL	0.0624

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Acetophenone

General Statistics

Total Number of Observations	14	Number of Distinct Observations	11
		Number of Missing Observations	32
Number of Detects	6	Number of Non-Detects	8
Number of Distinct Detects	4	Number of Distinct Non-Detects	7
Minimum Detect	0.015	Minimum Non-Detect	0.12
Maximum Detect	0.044	Maximum Non-Detect	1.3
Variance Detects	8.5467E-5	Percent Non-Detects	57.14%
Mean Detects	0.0293	SD Detects	0.00924
Median Detects	0.03	CV Detects	0.315
Skewness Detects	0.0753	Kurtosis Detects	2.232
Mean of Logged Detects	-3.576	SD of Logged Detects	0.349

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.889	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.305	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.362	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0293	Standard Error of Mean	0.00377
SD	0.00844	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.036	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.0355	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.0407	95% KM Chebyshev UCL	0.0458
97.5% KM Chebyshev UCL	0.0529	99% KM Chebyshev UCL	0.0669

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.568	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.267	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	10.85	k star (bias corrected MLE)	5.537
Theta hat (MLE)	0.0027	Theta star (bias corrected MLE)	0.0053
nu hat (MLE)	130.2	nu star (bias corrected)	66.45
MLE Mean (bias corrected)	0.0293	MLE Sd (bias corrected)	0.0125

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	12.08	nu hat (KM)	338.3
Approximate Chi Square Value (338.27, α)	296.7	Adjusted Chi Square Value (338.27, β)	291.5
95% Gamma Approximate KM-UCL (use when n>=50)	0.0334	95% Gamma Adjusted KM-UCL (use when n<50)	0.034

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.015	Mean	0.029
Maximum	0.044	Median	0.0288
SD	0.00603	CV	0.207
k hat (MLE)	22.92	k star (bias corrected MLE)	18.05
Theta hat (MLE)	0.00127	Theta star (bias corrected MLE)	0.00161
nu hat (MLE)	641.7	nu star (bias corrected)	505.5
MLE Mean (bias corrected)	0.029	MLE Sd (bias corrected)	0.00684
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (505.51, α)	454.4	Adjusted Chi Square Value (505.51, β)	447.9
95% Gamma Approximate UCL (use when n>=50)	0.0323	95% Gamma Adjusted UCL (use when n<50)	0.0328

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.854	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.292	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.362	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0286	Mean in Log Scale	-3.576
SD in Original Scale	0.00608	SD in Log Scale	0.227
95% t UCL (assumes normality of ROS data)	0.0315	95% Percentile Bootstrap UCL	0.0312
95% BCA Bootstrap UCL	0.0311	95% Bootstrap t UCL	0.0317
95% H-UCL (Log ROS)	0.0322		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.576	95% H-UCL (KM -Log)	0.0349
KM SD (logged)	0.319	95% Critical H Value (KM-Log)	1.91
KM Standard Error of Mean (logged)	0.143		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.131	Mean in Log Scale	-2.575
SD in Original Scale	0.165	SD in Log Scale	1.058
95% t UCL (Assumes normality)	0.209	95% H-Stat UCL	0.311

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.036	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Anthracene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	28
Number of Detects	44	Number of Non-Detects	2
Number of Distinct Detects	26	Number of Distinct Non-Detects	2
Minimum Detect	0.016	Minimum Non-Detect	0.0067
Maximum Detect	0.22	Maximum Non-Detect	0.042
Variance Detects	0.00221	Percent Non-Detects	4.348%
Mean Detects	0.104	SD Detects	0.047
Median Detects	0.096	CV Detects	0.451
Skewness Detects	0.865	Kurtosis Detects	1.016
Mean of Logged Detects	-2.374	SD of Logged Detects	0.52

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.918	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.141	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.1	Standard Error of Mean	0.00736
SD	0.0493	95% KM (BCA) UCL	0.112
95% KM (t) UCL	0.112	95% KM (Percentile Bootstrap) UCL	0.113
95% KM (z) UCL	0.112	95% KM Bootstrap t UCL	0.113
90% KM Chebyshev UCL	0.122	95% KM Chebyshev UCL	0.132
97.5% KM Chebyshev UCL	0.146	99% KM Chebyshev UCL	0.173

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.658	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0999	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.134	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.608	k star (bias corrected MLE)	4.309
Theta hat (MLE)	0.0226	Theta star (bias corrected MLE)	0.0242
nu hat (MLE)	405.5	nu star (bias corrected)	379.2
MLE Mean (bias corrected)	0.104	MLE Sd (bias corrected)	0.0502

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.122	nu hat (KM)	379.3
Approximate Chi Square Value (379.25, α)	335.1	Adjusted Chi Square Value (379.25, β)	333.8
95% Gamma Approximate KM-UCL (use when n>=50)	0.113	95% Gamma Adjusted KM-UCL (use when n<50)	0.114

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.016	Mean	0.101
Maximum	0.22	Median	0.095
SD	0.0487	CV	0.483
k hat (MLE)	3.858	k star (bias corrected MLE)	3.621
Theta hat (MLE)	0.0261	Theta star (bias corrected MLE)	0.0278
nu hat (MLE)	355	nu star (bias corrected)	333.1
MLE Mean (bias corrected)	0.101	MLE Sd (bias corrected)	0.053
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (333.15, α)	291.9	Adjusted Chi Square Value (333.15, β)	290.6
95% Gamma Approximate UCL (use when n>=50)	0.115	95% Gamma Adjusted UCL (use when n<50)	0.116

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.901	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.113	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.101	Mean in Log Scale	-2.423
SD in Original Scale	0.0484	SD in Log Scale	0.56
95% t UCL (assumes normality of ROS data)	0.113	95% Percentile Bootstrap UCL	0.113
95% BCA Bootstrap UCL	0.113	95% Bootstrap t UCL	0.114
95% H-UCL (Log ROS)	0.122		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-2.474	95% H-UCL (KM -Log)	0.132
KM SD (logged)	0.695	95% Critical H Value (KM-Log)	2.028
KM Standard Error of Mean (logged)	0.104		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.1	Mean in Log Scale	-2.479
SD in Original Scale	0.0497	SD in Log Scale	0.736
95% t UCL (Assumes normality)	0.112	95% H-Stat UCL	0.138

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	0.112	95% GROS Adjusted Gamma UCL	0.116
95% Adjusted Gamma KM-UCL	0.114		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Benzaldehyde

General Statistics

Total Number of Observations	13	Number of Distinct Observations	12
		Number of Missing Observations	33
Number of Detects	11	Number of Non-Detects	2
Number of Distinct Detects	10	Number of Distinct Non-Detects	2
Minimum Detect	0.024	Minimum Non-Detect	0.3
Maximum Detect	0.32	Maximum Non-Detect	1.3
Variance Detects	0.00938	Percent Non-Detects	15.38%
Mean Detects	0.145	SD Detects	0.0968
Median Detects	0.14	CV Detects	0.668
Skewness Detects	0.543	Kurtosis Detects	-0.917
Mean of Logged Detects	-2.181	SD of Logged Detects	0.796

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.924	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.18	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.267	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.144	Standard Error of Mean	0.0285
SD	0.0913	95% KM (BCA) UCL	0.194
95% KM (t) UCL	0.194	95% KM (Percentile Bootstrap) UCL	0.19
95% KM (z) UCL	0.19	95% KM Bootstrap t UCL	0.201
90% KM Chebyshev UCL	0.229	95% KM Chebyshev UCL	0.268
97.5% KM Chebyshev UCL	0.322	99% KM Chebyshev UCL	0.428

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.288	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.738	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.156	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.258	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.156	k star (bias corrected MLE)	1.629
Theta hat (MLE)	0.0673	Theta star (bias corrected MLE)	0.089
nu hat (MLE)	47.43	nu star (bias corrected)	35.83
MLE Mean (bias corrected)	0.145	MLE Sd (bias corrected)	0.114

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	2.471	nu hat (KM)	64.24
Approximate Chi Square Value (64.24, α)	46.8	Adjusted Chi Square Value (64.24, β)	44.68
95% Gamma Approximate KM-UCL (use when n>=50)	0.197	95% Gamma Adjusted KM-UCL (use when n<50)	0.206

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.024	Mean	0.141
Maximum	0.32	Median	0.125
SD	0.0889	CV	0.63
k hat (MLE)	2.497	k star (bias corrected MLE)	1.972
Theta hat (MLE)	0.0565	Theta star (bias corrected MLE)	0.0716
nu hat (MLE)	64.93	nu star (bias corrected)	51.28
MLE Mean (bias corrected)	0.141	MLE Sd (bias corrected)	0.101
		Adjusted Level of Significance (β)	0.0301
Approximate Chi Square Value (51.28, α)	35.83	Adjusted Chi Square Value (51.28, β)	34
95% Gamma Approximate UCL (use when n>=50)	0.202	95% Gamma Adjusted UCL (use when n<50)	0.213

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.152	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.267	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.139	Mean in Log Scale	-2.191
SD in Original Scale	0.0897	SD in Log Scale	0.728
95% t UCL (assumes normality of ROS data)	0.183	95% Percentile Bootstrap UCL	0.179
95% BCA Bootstrap UCL	0.186	95% Bootstrap t UCL	0.194
95% H-UCL (Log ROS)	0.242		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-2.189	95% H-UCL (KM -Log)	0.255
KM SD (logged)	0.756	95% Critical H Value (KM-Log)	2.454
KM Standard Error of Mean (logged)	0.238		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.184	Mean in Log Scale	-2.024
SD in Original Scale	0.166	SD in Log Scale	0.874
95% t UCL (Assumes normality)	0.266	95% H-Stat UCL	0.376

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.194	95% KM (Percentile Bootstrap) UCL	0.19

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Benzo(a)anthracene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	30
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	29	Number of Distinct Non-Detects	1
Minimum Detect	0.021	Minimum Non-Detect	0.0067
Maximum Detect	1	Maximum Non-Detect	0.0067
Variance Detects	0.0358	Percent Non-Detects	2.174%
Mean Detects	0.441	SD Detects	0.189
Median Detects	0.42	CV Detects	0.429
Skewness Detects	0.524	Kurtosis Detects	1.809
Mean of Logged Detects	-0.952	SD of Logged Detects	0.636

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.946	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.134	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.432	Standard Error of Mean	0.0292
SD	0.196	95% KM (BCA) UCL	0.482
95% KM (t) UCL	0.481	95% KM (Percentile Bootstrap) UCL	0.48
95% KM (z) UCL	0.48	95% KM Bootstrap t UCL	0.485
90% KM Chebyshev UCL	0.519	95% KM Chebyshev UCL	0.559
97.5% KM Chebyshev UCL	0.614	99% KM Chebyshev UCL	0.722

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.831	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.215	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.132	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.878	k star (bias corrected MLE)	3.634
Theta hat (MLE)	0.114	Theta star (bias corrected MLE)	0.121
nu hat (MLE)	349	nu star (bias corrected)	327.1
MLE Mean (bias corrected)	0.441	MLE Sd (bias corrected)	0.232

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.879	nu hat (KM)	448.9
Approximate Chi Square Value (448.88, α)	400.8	Adjusted Chi Square Value (448.88, β)	399.3
95% Gamma Approximate KM-UCL (use when n>=50)	0.484	95% Gamma Adjusted KM-UCL (use when n<50)	0.486

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.021	Mean	0.434
Maximum	1	Median	0.42
SD	0.193	CV	0.444
k hat (MLE)	3.651	k star (bias corrected MLE)	3.428
Theta hat (MLE)	0.119	Theta star (bias corrected MLE)	0.127
nu hat (MLE)	335.9	nu star (bias corrected)	315.4
MLE Mean (bias corrected)	0.434	MLE Sd (bias corrected)	0.235
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (315.36, α)	275.2	Adjusted Chi Square Value (315.36, β)	274
95% Gamma Approximate UCL (use when n>=50)	0.498	95% Gamma Adjusted UCL (use when n<50)	0.5

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.779	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.257	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.434	Mean in Log Scale	-0.983
SD in Original Scale	0.194	SD in Log Scale	0.662
95% t UCL (assumes normality of ROS data)	0.482	95% Percentile Bootstrap UCL	0.482
95% BCA Bootstrap UCL	0.481	95% Bootstrap t UCL	0.484
95% H-UCL (Log ROS)	0.568		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.432	Mean in Log Scale	-1.056
SD in Original Scale	0.198	SD in Log Scale	0.941
95% t UCL (Assumes normality)	0.481	95% H-Stat UCL	0.744

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.481	95% KM (Percentile Bootstrap) UCL	0.48

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Benzo(a)pyrene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	35
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	34	Number of Distinct Non-Detects	1
Minimum Detect	0.028	Minimum Non-Detect	0.0067
Maximum Detect	1.1	Maximum Non-Detect	0.0067
Variance Detects	0.0422	Percent Non-Detects	2.174%
Mean Detects	0.504	SD Detects	0.206
Median Detects	0.52	CV Detects	0.407
Skewness Detects	0.0383	Kurtosis Detects	1.077
Mean of Logged Detects	-0.815	SD of Logged Detects	0.626

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.969	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.118	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.494	Standard Error of Mean	0.0319
SD	0.214	95% KM (BCA) UCL	0.547
95% KM (t) UCL	0.547	95% KM (Percentile Bootstrap) UCL	0.548
95% KM (z) UCL	0.546	95% KM Bootstrap t UCL	0.545
90% KM Chebyshev UCL	0.589	95% KM Chebyshev UCL	0.632
97.5% KM Chebyshev UCL	0.693	99% KM Chebyshev UCL	0.811

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.044	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.205	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.132	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.979	k star (bias corrected MLE)	3.729
Theta hat (MLE)	0.127	Theta star (bias corrected MLE)	0.135
nu hat (MLE)	358.1	nu star (bias corrected)	335.6
MLE Mean (bias corrected)	0.504	MLE Sd (bias corrected)	0.261

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	5.335	nu hat (KM)	490.8
Approximate Chi Square Value (490.83, α)	440.5	Adjusted Chi Square Value (490.83, β)	438.9
95% Gamma Approximate KM-UCL (use when n>=50)	0.55	95% Gamma Adjusted KM-UCL (use when n<50)	0.552

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.028	Mean	0.497
Maximum	1.1	Median	0.515
SD	0.209	CV	0.421
k hat (MLE)	3.784	k star (bias corrected MLE)	3.551
Theta hat (MLE)	0.131	Theta star (bias corrected MLE)	0.14
nu hat (MLE)	348.1	nu star (bias corrected)	326.7
MLE Mean (bias corrected)	0.497	MLE Sd (bias corrected)	0.264
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (326.73, α)	285.9	Adjusted Chi Square Value (326.73, β)	284.6
95% Gamma Approximate UCL (use when n>=50)	0.568	95% Gamma Adjusted UCL (use when n<50)	0.57

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.781	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.245	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.496	Mean in Log Scale	-0.845
SD in Original Scale	0.211	SD in Log Scale	0.651
95% t UCL (assumes normality of ROS data)	0.548	95% Percentile Bootstrap UCL	0.547
95% BCA Bootstrap UCL	0.546	95% Bootstrap t UCL	0.548
95% H-UCL (Log ROS)	0.645		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.494	Mean in Log Scale	-0.921
SD in Original Scale	0.216	SD in Log Scale	0.95
95% t UCL (Assumes normality)	0.547	95% H-Stat UCL	0.862

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.547	95% KM (Percentile Bootstrap) UCL	0.548

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Benzo(g,h,i)perylene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	34
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	33	Number of Distinct Non-Detects	1
Minimum Detect	0.029	Minimum Non-Detect	0.0067
Maximum Detect	1.2	Maximum Non-Detect	0.0067
Variance Detects	0.0529	Percent Non-Detects	2.174%
Mean Detects	0.53	SD Detects	0.23
Median Detects	0.53	CV Detects	0.434
Skewness Detects	0.0363	Kurtosis Detects	0.612
Mean of Logged Detects	-0.781	SD of Logged Detects	0.656

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.975	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.108	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.519	Standard Error of Mean	0.0354
SD	0.238	95% KM (BCA) UCL	0.575
95% KM (t) UCL	0.578	95% KM (Percentile Bootstrap) UCL	0.575
95% KM (z) UCL	0.577	95% KM Bootstrap t UCL	0.579
90% KM Chebyshev UCL	0.625	95% KM Chebyshev UCL	0.673
97.5% KM Chebyshev UCL	0.74	99% KM Chebyshev UCL	0.871

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.558	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.754	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.193	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.132	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.577	k star (bias corrected MLE)	3.354
Theta hat (MLE)	0.148	Theta star (bias corrected MLE)	0.158
nu hat (MLE)	322	nu star (bias corrected)	301.8
MLE Mean (bias corrected)	0.53	MLE Sd (bias corrected)	0.29

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.767	nu hat (KM)	438.5
Approximate Chi Square Value (438.54, α)	391	Adjusted Chi Square Value (438.54, β)	389.5
95% Gamma Approximate KM-UCL (use when n>=50)	0.582	95% Gamma Adjusted KM-UCL (use when n<50)	0.584

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.029	Mean	0.522
Maximum	1.2	Median	0.525
SD	0.234	CV	0.448
k hat (MLE)	3.399	k star (bias corrected MLE)	3.192
Theta hat (MLE)	0.154	Theta star (bias corrected MLE)	0.164
nu hat (MLE)	312.7	nu star (bias corrected)	293.7
MLE Mean (bias corrected)	0.522	MLE Sd (bias corrected)	0.292
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (293.68, α)	255	Adjusted Chi Square Value (293.68, β)	253.8
95% Gamma Approximate UCL (use when n>=50)	0.601	95% Gamma Adjusted UCL (use when n<50)	0.604

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.815	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.227	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.521	Mean in Log Scale	-0.813
SD in Original Scale	0.236	SD in Log Scale	0.684
95% t UCL (assumes normality of ROS data)	0.579	95% Percentile Bootstrap UCL	0.578
95% BCA Bootstrap UCL	0.577	95% Bootstrap t UCL	0.577
95% H-UCL (Log ROS)	0.689		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.519	Mean in Log Scale	-0.888
SD in Original Scale	0.24	SD in Log Scale	0.973
95% t UCL (Assumes normality)	0.578	95% H-Stat UCL	0.922

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.578	95% KM (Percentile Bootstrap) UCL	0.575

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Benzo(k)fluoranthene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	31
Number of Detects	44	Number of Non-Detects	2
Number of Distinct Detects	29	Number of Distinct Non-Detects	2
Minimum Detect	0.066	Minimum Non-Detect	0.0067
Maximum Detect	0.56	Maximum Non-Detect	0.042
Variance Detects	0.0143	Percent Non-Detects	4.348%
Mean Detects	0.291	SD Detects	0.119
Median Detects	0.29	CV Detects	0.41
Skewness Detects	0.197	Kurtosis Detects	-0.0514
Mean of Logged Detects	-1.337	SD of Logged Detects	0.499

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.962	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.123	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.279	Standard Error of Mean	0.0193
SD	0.129	95% KM (BCA) UCL	0.309
95% KM (t) UCL	0.311	95% KM (Percentile Bootstrap) UCL	0.31
95% KM (z) UCL	0.311	95% KM Bootstrap t UCL	0.311
90% KM Chebyshev UCL	0.337	95% KM Chebyshev UCL	0.363
97.5% KM Chebyshev UCL	0.399	99% KM Chebyshev UCL	0.471

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.984	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.155	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.134	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.003	k star (bias corrected MLE)	4.677
Theta hat (MLE)	0.0582	Theta star (bias corrected MLE)	0.0623
nu hat (MLE)	440.3	nu star (bias corrected)	411.6
MLE Mean (bias corrected)	0.291	MLE Sd (bias corrected)	0.135

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.653	nu hat (KM)	428.1
Approximate Chi Square Value (428.09, α)	381.1	Adjusted Chi Square Value (428.09, β)	379.7
95% Gamma Approximate KM-UCL (use when n>=50)	0.313	95% Gamma Adjusted KM-UCL (use when n<50)	0.314

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.066	Mean	0.282
Maximum	0.56	Median	0.29
SD	0.124	CV	0.441
k hat (MLE)	4.278	k star (bias corrected MLE)	4.014
Theta hat (MLE)	0.066	Theta star (bias corrected MLE)	0.0703
nu hat (MLE)	393.6	nu star (bias corrected)	369.3
MLE Mean (bias corrected)	0.282	MLE Sd (bias corrected)	0.141
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (369.28, α)	325.7	Adjusted Chi Square Value (369.28, β)	324.4
95% Gamma Approximate UCL (use when n>=50)	0.32	95% Gamma Adjusted UCL (use when n<50)	0.321

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.9	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.188	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.282	Mean in Log Scale	-1.386
SD in Original Scale	0.124	SD in Log Scale	0.541
95% t UCL (assumes normality of ROS data)	0.313	95% Percentile Bootstrap UCL	0.312
95% BCA Bootstrap UCL	0.312	95% Bootstrap t UCL	0.314
95% H-UCL (Log ROS)	0.338		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.279	Mean in Log Scale	-1.487
SD in Original Scale	0.13	SD in Log Scale	0.883
95% t UCL (Assumes normality)	0.311	95% H-Stat UCL	0.446

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.311	95% KM (Percentile Bootstrap) UCL	0.31

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|bis-(2-Ethylhexyl)phthalate

General Statistics

Total Number of Observations	14	Number of Distinct Observations	11
		Number of Missing Observations	32
Minimum	0.2	Mean	1.043
Maximum	1.6	Median	1.15
SD	0.466	Std. Error of Mean	0.125
Coefficient of Variation	0.447	Skewness	-0.373

Normal GOF Test

Shapiro Wilk Test Statistic	0.897	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.194	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.263	95% Adjusted-CLT UCL (Chen-1995)	1.234
		95% Modified-t UCL (Johnson-1978)	1.261

Gamma GOF Test

A-D Test Statistic	0.7	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.74	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.181	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.23	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.905	k star (bias corrected MLE)	3.116
Theta hat (MLE)	0.267	Theta star (bias corrected MLE)	0.335
nu hat (MLE)	109.3	nu star (bias corrected)	87.24
MLE Mean (bias corrected)	1.043	MLE Sd (bias corrected)	0.591
		Approximate Chi Square Value (0.05)	66.71
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	64.33

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.364	95% Adjusted Gamma UCL (use when n<50)	1.414

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.843	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.194	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-1.609	Mean of logged Data	-0.0915
Maximum of Logged Data	0.47	SD of logged Data	0.599

Assuming Lognormal Distribution

95% H-UCL	1.575	90% Chebyshev (MVUE) UCL	1.613
95% Chebyshev (MVUE) UCL	1.856	97.5% Chebyshev (MVUE) UCL	2.194
99% Chebyshev (MVUE) UCL	2.857		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.248	95% Jackknife UCL	1.263
95% Standard Bootstrap UCL	1.239	95% Bootstrap-t UCL	1.253
95% Hall's Bootstrap UCL	1.224	95% Percentile Bootstrap UCL	1.245
95% BCA Bootstrap UCL	1.236		
90% Chebyshev(Mean, Sd) UCL	1.416	95% Chebyshev(Mean, Sd) UCL	1.586
97.5% Chebyshev(Mean, Sd) UCL	1.821	99% Chebyshev(Mean, Sd) UCL	2.282

Suggested UCL to Use

95% Student's-t UCL	1.263

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

RA_SE_SVOCs|Butylbenzylphthalate

General Statistics

Total Number of Observations	14	Number of Distinct Observations	13
		Number of Missing Observations	32
Number of Detects	7	Number of Non-Detects	7
Number of Distinct Detects	7	Number of Distinct Non-Detects	7
Minimum Detect	0.063	Minimum Non-Detect	0.12
Maximum Detect	0.18	Maximum Non-Detect	1.3
Variance Detects	0.0017	Percent Non-Detects	50%
Mean Detects	0.1	SD Detects	0.0412
Median Detects	0.086	CV Detects	0.411
Skewness Detects	1.355	Kurtosis Detects	1.792
Mean of Logged Detects	-2.364	SD of Logged Detects	0.375

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.207	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0965	Standard Error of Mean	0.0133
SD	0.0355	95% KM (BCA) UCL	0.118
95% KM (t) UCL	0.12	95% KM (Percentile Bootstrap) UCL	0.118
95% KM (z) UCL	0.118	95% KM Bootstrap t UCL	0.135
90% KM Chebyshev UCL	0.136	95% KM Chebyshev UCL	0.155
97.5% KM Chebyshev UCL	0.18	99% KM Chebyshev UCL	0.229

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.319	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.709	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.191	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.312	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	7.999	k star (bias corrected MLE)	4.666
Theta hat (MLE)	0.0125	Theta star (bias corrected MLE)	0.0215
nu hat (MLE)	112	nu star (bias corrected)	65.33
MLE Mean (bias corrected)	0.1	MLE Sd (bias corrected)	0.0464

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	7.368	nu hat (KM)	206.3
Approximate Chi Square Value (206.30, α)	174.1	Adjusted Chi Square Value (206.30, β)	170.1
95% Gamma Approximate KM-UCL (use when n>=50)	0.114	95% Gamma Adjusted KM-UCL (use when n<50)	0.117

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.063	Mean	0.0949
Maximum	0.18	Median	0.092
SD	0.0287	CV	0.302
k hat (MLE)	14.83	k star (bias corrected MLE)	11.7
Theta hat (MLE)	0.0064	Theta star (bias corrected MLE)	0.00811
nu hat (MLE)	415.3	nu star (bias corrected)	327.7
MLE Mean (bias corrected)	0.0949	MLE Sd (bias corrected)	0.0277
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (327.66, α)	286.7	Adjusted Chi Square Value (327.66, β)	281.6
95% Gamma Approximate UCL (use when n>=50)	0.108	95% Gamma Adjusted UCL (use when n<50)	0.11

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.166	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0941	Mean in Log Scale	-2.398
SD in Original Scale	0.0288	SD in Log Scale	0.259
95% t UCL (assumes normality of ROS data)	0.108	95% Percentile Bootstrap UCL	0.108
95% BCA Bootstrap UCL	0.111	95% Bootstrap t UCL	0.119
95% H-UCL (Log ROS)	0.107		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-2.396	95% H-UCL (KM -Log)	0.115
KM SD (logged)	0.33	95% Critical H Value (KM-Log)	1.919
KM Standard Error of Mean (logged)	0.126		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.155	Mean in Log Scale	-2.118
SD in Original Scale	0.153	SD in Log Scale	0.651
95% t UCL (Assumes normality)	0.227	95% H-Stat UCL	0.224

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.12	95% KM (Percentile Bootstrap) UCL	0.118

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Carbazole

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	0.023	Mean	0.0869
Maximum	0.25	Median	0.0745
SD	0.0592	Std. Error of Mean	0.0158
Coefficient of Variation	0.681	Skewness	1.86

Normal GOF Test

Shapiro Wilk Test Statistic	0.807	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.27	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.115	95% Adjusted-CLT UCL (Chen-1995)	0.121
		95% Modified-t UCL (Johnson-1978)	0.116

Gamma GOF Test

A-D Test Statistic	0.458	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.188	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.231	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.848	k star (bias corrected MLE)	2.286
Theta hat (MLE)	0.0305	Theta star (bias corrected MLE)	0.038
nu hat (MLE)	79.76	nu star (bias corrected)	64
MLE Mean (bias corrected)	0.0869	MLE Sd (bias corrected)	0.0575
		Approximate Chi Square Value (0.05)	46.59
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	44.63

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.119	95% Adjusted Gamma UCL (use when n<50)	0.125

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.162	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-3.772	Mean of logged Data	-2.628
Maximum of Logged Data	-1.386	SD of logged Data	0.637

Assuming Lognormal Distribution

95% H-UCL	0.132	90% Chebyshev (MVUE) UCL	0.133
95% Chebyshev (MVUE) UCL	0.154	97.5% Chebyshev (MVUE) UCL	0.183
99% Chebyshev (MVUE) UCL	0.241		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.113	95% Jackknife UCL	0.115
95% Standard Bootstrap UCL	0.112	95% Bootstrap-t UCL	0.138
95% Hall's Bootstrap UCL	0.27	95% Percentile Bootstrap UCL	0.114
95% BCA Bootstrap UCL	0.123		
90% Chebyshev(Mean, Sd) UCL	0.134	95% Chebyshev(Mean, Sd) UCL	0.156
97.5% Chebyshev(Mean, Sd) UCL	0.186	99% Chebyshev(Mean, Sd) UCL	0.244

Suggested UCL to Use

95% Adjusted Gamma UCL	0.125

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Chrysene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	37
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	36	Number of Distinct Non-Detects	1
Minimum Detect	0.031	Minimum Non-Detect	0.0067
Maximum Detect	1.5	Maximum Non-Detect	0.0067
Variance Detects	0.0797	Percent Non-Detects	2.174%
Mean Detects	0.719	SD Detects	0.282
Median Detects	0.76	CV Detects	0.393
Skewness Detects	-0.039	Kurtosis Detects	1.126
Mean of Logged Detects	-0.458	SD of Logged Detects	0.636

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.959	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.126	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.703	Standard Error of Mean	0.044
SD	0.295	95% KM (BCA) UCL	0.773
95% KM (t) UCL	0.777	95% KM (Percentile Bootstrap) UCL	0.773
95% KM (z) UCL	0.776	95% KM Bootstrap t UCL	0.775
90% KM Chebyshev UCL	0.835	95% KM Chebyshev UCL	0.895
97.5% KM Chebyshev UCL	0.978	99% KM Chebyshev UCL	1.141

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.381	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.206	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.132	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.072	k star (bias corrected MLE)	3.815
Theta hat (MLE)	0.177	Theta star (bias corrected MLE)	0.188
nu hat (MLE)	366.4	nu star (bias corrected)	343.3
MLE Mean (bias corrected)	0.719	MLE Sd (bias corrected)	0.368

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	5.688	nu hat (KM)	523.3
Approximate Chi Square Value (523.29, α)	471.2	Adjusted Chi Square Value (523.29, β)	469.6
95% Gamma Approximate KM-UCL (use when n>=50)	0.781	95% Gamma Adjusted KM-UCL (use when n<50)	0.784

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.031	Mean	0.709
Maximum	1.5	Median	0.755
SD	0.288	CV	0.406
k hat (MLE)	3.898	k star (bias corrected MLE)	3.659
Theta hat (MLE)	0.182	Theta star (bias corrected MLE)	0.194
nu hat (MLE)	358.6	nu star (bias corrected)	336.6
MLE Mean (bias corrected)	0.709	MLE Sd (bias corrected)	0.371
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (336.59, α)	295.1	Adjusted Chi Square Value (336.59, β)	293.8
95% Gamma Approximate UCL (use when n>=50)	0.808	95% Gamma Adjusted UCL (use when n<50)	0.812

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.739	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.243	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.707	Mean in Log Scale	-0.487
SD in Original Scale	0.291	SD in Log Scale	0.659
95% t UCL (assumes normality of ROS data)	0.779	95% Percentile Bootstrap UCL	0.776
95% BCA Bootstrap UCL	0.779	95% Bootstrap t UCL	0.779
95% H-UCL (Log ROS)	0.929		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.703	Mean in Log Scale	-0.572
SD in Original Scale	0.298	SD in Log Scale	0.996
95% t UCL (Assumes normality)	0.777	95% H-Stat UCL	1.309

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.777	95% KM (Percentile Bootstrap) UCL	0.773

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Dibenzo(a,h)anthracene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	25
Number of Detects	44	Number of Non-Detects	2
Number of Distinct Detects	23	Number of Distinct Non-Detects	2
Minimum Detect	0.024	Minimum Non-Detect	0.0067
Maximum Detect	0.21	Maximum Non-Detect	0.042
Variance Detects	0.00205	Percent Non-Detects	4.348%
Mean Detects	0.119	SD Detects	0.0453
Median Detects	0.125	CV Detects	0.379
Skewness Detects	-0.38	Kurtosis Detects	-0.373
Mean of Logged Detects	-2.227	SD of Logged Detects	0.507

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.959	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.131	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.115	Standard Error of Mean	0.00725
SD	0.0486	95% KM (BCA) UCL	0.127
95% KM (t) UCL	0.127	95% KM (Percentile Bootstrap) UCL	0.126
95% KM (z) UCL	0.127	95% KM Bootstrap t UCL	0.126
90% KM Chebyshev UCL	0.137	95% KM Chebyshev UCL	0.146
97.5% KM Chebyshev UCL	0.16	99% KM Chebyshev UCL	0.187

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.48	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.152	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.134	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.13	k star (bias corrected MLE)	4.796
Theta hat (MLE)	0.0233	Theta star (bias corrected MLE)	0.0249
nu hat (MLE)	451.5	nu star (bias corrected)	422
MLE Mean (bias corrected)	0.119	MLE Sd (bias corrected)	0.0545

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	5.591	nu hat (KM)	514.4
Approximate Chi Square Value (514.40, α)	462.8	Adjusted Chi Square Value (514.40, β)	461.2
95% Gamma Approximate KM-UCL (use when n>=50)	0.128	95% Gamma Adjusted KM-UCL (use when n<50)	0.128

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.024	Mean	0.116
Maximum	0.21	Median	0.12
SD	0.0467	CV	0.402
k hat (MLE)	4.688	k star (bias corrected MLE)	4.397
Theta hat (MLE)	0.0248	Theta star (bias corrected MLE)	0.0264
nu hat (MLE)	431.3	nu star (bias corrected)	404.5
MLE Mean (bias corrected)	0.116	MLE Sd (bias corrected)	0.0554
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (404.51, α)	358.9	Adjusted Chi Square Value (404.51, β)	357.5
95% Gamma Approximate UCL (use when n>=50)	0.131	95% Gamma Adjusted UCL (use when n<50)	0.131

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.853	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.116	Mean in Log Scale	-2.271
SD in Original Scale	0.0472	SD in Log Scale	0.54
95% t UCL (assumes normality of ROS data)	0.128	95% Percentile Bootstrap UCL	0.127
95% BCA Bootstrap UCL	0.127	95% Bootstrap t UCL	0.127
95% H-UCL (Log ROS)	0.139		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.115	Mean in Log Scale	-2.338
SD in Original Scale	0.0495	SD in Log Scale	0.748
95% t UCL (Assumes normality)	0.127	95% H-Stat UCL	0.161

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.127	95% KM (Percentile Bootstrap) UCL	0.126

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Di-n-butylphthalate

General Statistics

Total Number of Observations	14	Number of Distinct Observations	12
		Number of Missing Observations	32
Number of Detects	4	Number of Non-Detects	10
Number of Distinct Detects	4	Number of Distinct Non-Detects	9
Minimum Detect	0.023	Minimum Non-Detect	0.12
Maximum Detect	0.2	Maximum Non-Detect	1.3
Variance Detects	0.00735	Percent Non-Detects	71.43%
Mean Detects	0.072	SD Detects	0.0857
Median Detects	0.0325	CV Detects	1.191
Skewness Detects	1.946	Kurtosis Detects	3.803
Mean of Logged Detects	-3.076	SD of Logged Detects	1.013

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.703	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.391	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0537	Standard Error of Mean	0.0265
SD	0.0602	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.101	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.0973	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.133	95% KM Chebyshev UCL	0.169
97.5% KM Chebyshev UCL	0.219	99% KM Chebyshev UCL	0.317

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.621	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.664	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.356	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.401	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.263	k star (bias corrected MLE)	0.483
Theta hat (MLE)	0.057	Theta star (bias corrected MLE)	0.149
nu hat (MLE)	10.11	nu star (bias corrected)	3.86
MLE Mean (bias corrected)	0.072	MLE Sd (bias corrected)	0.104

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.796	nu hat (KM)	22.29
Approximate Chi Square Value (22.29, α)	12.55	Adjusted Chi Square Value (22.29, β)	11.59
95% Gamma Approximate KM-UCL (use when n>=50)	0.0954	95% Gamma Adjusted KM-UCL (use when n<50)	0.103

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0161	Mean	0.0476
Maximum	0.2	Median	0.0403
SD	0.0459	CV	0.963
k hat (MLE)	2.432	k star (bias corrected MLE)	1.958
Theta hat (MLE)	0.0196	Theta star (bias corrected MLE)	0.0243
nu hat (MLE)	68.09	nu star (bias corrected)	54.83
MLE Mean (bias corrected)	0.0476	MLE Sd (bias corrected)	0.034
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (54.83, α)	38.82	Adjusted Chi Square Value (54.83, β)	37.04
95% Gamma Approximate UCL (use when n>=50)	0.0672	95% Gamma Adjusted UCL (use when n<50)	N/A

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.807	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.296	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0463	Mean in Log Scale	-3.27
SD in Original Scale	0.0451	SD in Log Scale	0.536
95% t UCL (assumes normality of ROS data)	0.0676	95% Percentile Bootstrap UCL	0.0697
95% BCA Bootstrap UCL	0.0816	95% Bootstrap t UCL	0.154
95% H-UCL (Log ROS)	0.0596		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.286	95% H-UCL (KM -Log)	0.0785
KM SD (logged)	0.726	95% Critical H Value (KM-Log)	2.373
KM Standard Error of Mean (logged)	0.334		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.158	Mean in Log Scale	-2.216
SD in Original Scale	0.158	SD in Log Scale	0.924
95% t UCL (Assumes normality)	0.233	95% H-Stat UCL	0.331

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.101	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Di-n-octylphthalate

General Statistics

Total Number of Observations	14	Number of Distinct Observations	11
		Number of Missing Observations	32
Number of Detects	4	Number of Non-Detects	10
Number of Distinct Detects	4	Number of Distinct Non-Detects	8
Minimum Detect	0.042	Minimum Non-Detect	0.12
Maximum Detect	0.24	Maximum Non-Detect	1.3
Variance Detects	0.00792	Percent Non-Detects	71.43%
Mean Detects	0.126	SD Detects	0.089
Median Detects	0.11	CV Detects	0.709
Skewness Detects	0.721	Kurtosis Detects	-1.263
Mean of Logged Detects	-2.288	SD of Logged Detects	0.777

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.94	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0996	Standard Error of Mean	0.0308
SD	0.0663	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.154	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.15	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.192	95% KM Chebyshev UCL	0.234
97.5% KM Chebyshev UCL	0.292	99% KM Chebyshev UCL	0.406

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.246	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.66	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.233	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.397	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.502	k star (bias corrected MLE)	0.792
Theta hat (MLE)	0.0502	Theta star (bias corrected MLE)	0.158
nu hat (MLE)	20.02	nu star (bias corrected)	6.338
MLE Mean (bias corrected)	0.126	MLE Sd (bias corrected)	0.141

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	2.255	nu hat (KM)	63.14
Approximate Chi Square Value (63.14, α)	45.86	Adjusted Chi Square Value (63.14, β)	43.91
95% Gamma Approximate KM-UCL (use when n>=50)	0.137	95% Gamma Adjusted KM-UCL (use when n<50)	0.143

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.042	Mean	0.0939
Maximum	0.24	Median	0.0805
SD	0.0522	CV	0.555
k hat (MLE)	4.645	k star (bias corrected MLE)	3.698
Theta hat (MLE)	0.0202	Theta star (bias corrected MLE)	0.0254
nu hat (MLE)	130.1	nu star (bias corrected)	103.5
MLE Mean (bias corrected)	0.0939	MLE Sd (bias corrected)	0.0489
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (103.53, α)	81.05	Adjusted Chi Square Value (103.53, β)	78.42
95% Gamma Approximate UCL (use when n>=50)	0.12	95% Gamma Adjusted UCL (use when n<50)	N/A

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0901	Mean in Log Scale	-2.52
SD in Original Scale	0.0521	SD in Log Scale	0.46
95% t UCL (assumes normality of ROS data)	0.115	95% Percentile Bootstrap UCL	0.112
95% BCA Bootstrap UCL	0.122	95% Bootstrap t UCL	0.137
95% H-UCL (Log ROS)	0.116		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-2.506	95% H-UCL (KM -Log)	0.144
KM SD (logged)	0.616	95% Critical H Value (KM-Log)	2.231
KM Standard Error of Mean (logged)	0.31		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.171	Mean in Log Scale	-2.012
SD in Original Scale	0.152	SD in Log Scale	0.685
95% t UCL (Assumes normality)	0.242	95% H-Stat UCL	0.263

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.154	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Fluoranthene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	31
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	30	Number of Distinct Non-Detects	1
Minimum Detect	0.037	Minimum Non-Detect	0.0067
Maximum Detect	2.8	Maximum Non-Detect	0.0067
Variance Detects	0.271	Percent Non-Detects	2.174%
Mean Detects	1.044	SD Detects	0.52
Median Detects	0.99	CV Detects	0.498
Skewness Detects	1.22	Kurtosis Detects	3.371
Mean of Logged Detects	-0.117	SD of Logged Detects	0.689

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.898	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.168	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	1.022	Standard Error of Mean	0.0791
SD	0.531	95% KM (BCA) UCL	1.158
95% KM (t) UCL	1.155	95% KM (Percentile Bootstrap) UCL	1.152
95% KM (z) UCL	1.152	95% KM Bootstrap t UCL	1.169
90% KM Chebyshev UCL	1.259	95% KM Chebyshev UCL	1.367
97.5% KM Chebyshev UCL	1.516	99% KM Chebyshev UCL	1.809

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.754	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.755	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.215	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.133	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.284	k star (bias corrected MLE)	3.08
Theta hat (MLE)	0.318	Theta star (bias corrected MLE)	0.339
nu hat (MLE)	295.6	nu star (bias corrected)	277.2
MLE Mean (bias corrected)	1.044	MLE Sd (bias corrected)	0.595

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	3.705	nu hat (KM)	340.8
Approximate Chi Square Value (340.84, α)	299.1	Adjusted Chi Square Value (340.84, β)	297.8
95% Gamma Approximate KM-UCL (use when n>=50)	1.164	95% Gamma Adjusted KM-UCL (use when n<50)	1.169

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.037	Mean	1.026
Maximum	2.8	Median	0.99
SD	0.529	CV	0.515
k hat (MLE)	3.038	k star (bias corrected MLE)	2.855
Theta hat (MLE)	0.338	Theta star (bias corrected MLE)	0.359
nu hat (MLE)	279.5	nu star (bias corrected)	262.6
MLE Mean (bias corrected)	1.026	MLE Sd (bias corrected)	0.607
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (262.63, α)	226.1	Adjusted Chi Square Value (262.63, β)	225
95% Gamma Approximate UCL (use when n>=50)	1.192	95% Gamma Adjusted UCL (use when n<50)	1.198

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.793	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.261	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.026	Mean in Log Scale	-0.15
SD in Original Scale	0.529	SD in Log Scale	0.718
95% t UCL (assumes normality of ROS data)	1.157	95% Percentile Bootstrap UCL	1.159
95% BCA Bootstrap UCL	1.176	95% Bootstrap t UCL	1.176
95% H-UCL (Log ROS)	1.387		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.022	Mean in Log Scale	-0.238
SD in Original Scale	0.537	SD in Log Scale	1.069
95% t UCL (Assumes normality)	1.154	95% H-Stat UCL	2.045

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	1.367

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Fluorene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	37
Number of Detects	38	Number of Non-Detects	8
Number of Distinct Detects	31	Number of Distinct Non-Detects	7
Minimum Detect	0.012	Minimum Non-Detect	0.0067
Maximum Detect	0.12	Maximum Non-Detect	0.27
Variance Detects	6.9691E-4	Percent Non-Detects	17.39%
Mean Detects	0.0503	SD Detects	0.0264
Median Detects	0.0445	CV Detects	0.525
Skewness Detects	1.115	Kurtosis Detects	0.923
Mean of Logged Detects	-3.121	SD of Logged Detects	0.532

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.901	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.938	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.166	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.144	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0485	Standard Error of Mean	0.00422
SD	0.0264	95% KM (BCA) UCL	0.0553
95% KM (t) UCL	0.0556	95% KM (Percentile Bootstrap) UCL	0.0555
95% KM (z) UCL	0.0554	95% KM Bootstrap t UCL	0.0564
90% KM Chebyshev UCL	0.0612	95% KM Chebyshev UCL	0.0669
97.5% KM Chebyshev UCL	0.0748	99% KM Chebyshev UCL	0.0905

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.308	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.101	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.144	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.968	k star (bias corrected MLE)	3.672
Theta hat (MLE)	0.0127	Theta star (bias corrected MLE)	0.0137
nu hat (MLE)	301.5	nu star (bias corrected)	279.1
MLE Mean (bias corrected)	0.0503	MLE Sd (bias corrected)	0.0262

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	3.373	nu hat (KM)	310.3
Approximate Chi Square Value (310.30, α)	270.5	Adjusted Chi Square Value (310.30, β)	269.3
95% Gamma Approximate KM-UCL (use when n>=50)	0.0556	95% Gamma Adjusted KM-UCL (use when n<50)	0.0559

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.0481
Maximum	0.12	Median	0.0441
SD	0.025	CV	0.521
k hat (MLE)	3.971	k star (bias corrected MLE)	3.727
Theta hat (MLE)	0.0121	Theta star (bias corrected MLE)	0.0129
nu hat (MLE)	365.4	nu star (bias corrected)	342.9
MLE Mean (bias corrected)	0.0481	MLE Sd (bias corrected)	0.0249
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (342.86, α)	301	Adjusted Chi Square Value (342.86, β)	299.7
95% Gamma Approximate UCL (use when n>=50)	0.0548	95% Gamma Adjusted UCL (use when n<50)	0.055

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.973	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.938	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0765	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.144	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0479	Mean in Log Scale	-3.168
SD in Original Scale	0.025	SD in Log Scale	0.527
95% t UCL (assumes normality of ROS data)	0.0541	95% Percentile Bootstrap UCL	0.0542
95% BCA Bootstrap UCL	0.0546	95% Bootstrap t UCL	0.055
95% H-UCL (Log ROS)	0.0561		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.184	95% H-UCL (KM -Log)	0.059
KM SD (logged)	0.599	95% Critical H Value (KM-Log)	1.956
KM Standard Error of Mean (logged)	0.0966		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.057	Mean in Log Scale	-3.075
SD in Original Scale	0.0353	SD in Log Scale	0.717
95% t UCL (Assumes normality)	0.0657	95% H-Stat UCL	0.0743

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	0.0553	95% GROS Adjusted Gamma UCL	0.055
95% Adjusted Gamma KM-UCL	0.0559		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Indeno(1,2,3-cd)pyrene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	34
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	33	Number of Distinct Non-Detects	1
Minimum Detect	0.022	Minimum Non-Detect	0.0067
Maximum Detect	1.2	Maximum Non-Detect	0.0067
Variance Detects	0.04	Percent Non-Detects	2.174%
Mean Detects	0.42	SD Detects	0.2
Median Detects	0.42	CV Detects	0.475
Skewness Detects	0.902	Kurtosis Detects	4.223
Mean of Logged Detects	-1.025	SD of Logged Detects	0.678

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.915	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.134	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.411	Standard Error of Mean	0.0305
SD	0.205	95% KM (BCA) UCL	0.462
95% KM (t) UCL	0.463	95% KM (Percentile Bootstrap) UCL	0.46
95% KM (z) UCL	0.462	95% KM Bootstrap t UCL	0.465
90% KM Chebyshev UCL	0.503	95% KM Chebyshev UCL	0.544
97.5% KM Chebyshev UCL	0.602	99% KM Chebyshev UCL	0.715

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.066	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.755	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.217	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.133	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.304	k star (bias corrected MLE)	3.099
Theta hat (MLE)	0.127	Theta star (bias corrected MLE)	0.136
nu hat (MLE)	297.4	nu star (bias corrected)	278.9
MLE Mean (bias corrected)	0.42	MLE Sd (bias corrected)	0.239

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.044	nu hat (KM)	372.1
Approximate Chi Square Value (372.06, α)	328.4	Adjusted Chi Square Value (372.06, β)	327
95% Gamma Approximate KM-UCL (use when n>=50)	0.466	95% Gamma Adjusted KM-UCL (use when n<50)	0.468

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.022	Mean	0.414
Maximum	1.2	Median	0.415
SD	0.203	CV	0.491
k hat (MLE)	3.124	k star (bias corrected MLE)	2.935
Theta hat (MLE)	0.132	Theta star (bias corrected MLE)	0.141
nu hat (MLE)	287.4	nu star (bias corrected)	270
MLE Mean (bias corrected)	0.414	MLE Sd (bias corrected)	0.241
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (270.01, α)	233	Adjusted Chi Square Value (270.01, β)	231.8
95% Gamma Approximate UCL (use when n>=50)	0.479	95% Gamma Adjusted UCL (use when n<50)	0.482

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.812	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.252	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.413	Mean in Log Scale	-1.058
SD in Original Scale	0.204	SD in Log Scale	0.707
95% t UCL (assumes normality of ROS data)	0.464	95% Percentile Bootstrap UCL	0.463
95% BCA Bootstrap UCL	0.469	95% Bootstrap t UCL	0.466
95% H-UCL (Log ROS)	0.552		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.411	Mean in Log Scale	-1.127
SD in Original Scale	0.207	SD in Log Scale	0.961
95% t UCL (Assumes normality)	0.463	95% H-Stat UCL	0.714

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 0.544

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Naphthalene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	37
Number of Detects	24	Number of Non-Detects	22
Number of Distinct Detects	19	Number of Distinct Non-Detects	19
Minimum Detect	0.0049	Minimum Non-Detect	0.0067
Maximum Detect	0.095	Maximum Non-Detect	0.27
Variance Detects	5.0558E-4	Percent Non-Detects	47.83%
Mean Detects	0.0331	SD Detects	0.0225
Median Detects	0.0255	CV Detects	0.679
Skewness Detects	1.753	Kurtosis Detects	3.166
Mean of Logged Detects	-3.6	SD of Logged Detects	0.645

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.809	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.916	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.169	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.181	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0295	Standard Error of Mean	0.00358
SD	0.0198	95% KM (BCA) UCL	0.0357
95% KM (t) UCL	0.0356	95% KM (Percentile Bootstrap) UCL	0.0355
95% KM (z) UCL	0.0354	95% KM Bootstrap t UCL	0.0366
90% KM Chebyshev UCL	0.0403	95% KM Chebyshev UCL	0.0452
97.5% KM Chebyshev UCL	0.0519	99% KM Chebyshev UCL	0.0652

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.501	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.118	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.179	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.755	k star (bias corrected MLE)	2.438
Theta hat (MLE)	0.012	Theta star (bias corrected MLE)	0.0136
nu hat (MLE)	132.2	nu star (bias corrected)	117
MLE Mean (bias corrected)	0.0331	MLE Sd (bias corrected)	0.0212

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	2.23	nu hat (KM)	205.2
Approximate Chi Square Value (205.18, α)	173	Adjusted Chi Square Value (205.18, β)	172.1
95% Gamma Approximate KM-UCL (use when n>=50)	0.035	95% Gamma Adjusted KM-UCL (use when n<50)	0.0352

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0049	Mean	0.0287
Maximum	0.095	Median	0.0245
SD	0.0172	CV	0.602
k hat (MLE)	3.978	k star (bias corrected MLE)	3.733
Theta hat (MLE)	0.00721	Theta star (bias corrected MLE)	0.00768
nu hat (MLE)	366	nu star (bias corrected)	343.4
MLE Mean (bias corrected)	0.0287	MLE Sd (bias corrected)	0.0148
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (343.45, α)	301.5	Adjusted Chi Square Value (343.45, β)	300.2
95% Gamma Approximate UCL (use when n>=50)	0.0327	95% Gamma Adjusted UCL (use when n<50)	0.0328

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.959	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.916	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.118	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.181	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0281	Mean in Log Scale	-3.704
SD in Original Scale	0.0173	SD in Log Scale	0.514
95% t UCL (assumes normality of ROS data)	0.0324	95% Percentile Bootstrap UCL	0.0325
95% BCA Bootstrap UCL	0.0332	95% Bootstrap t UCL	0.0342
95% H-UCL (Log ROS)	0.0325		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.732	95% H-UCL (KM -Log)	0.0371
KM SD (logged)	0.682	95% Critical H Value (KM-Log)	2.018
KM Standard Error of Mean (logged)	0.135		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0452	Mean in Log Scale	-3.374
SD in Original Scale	0.0354	SD in Log Scale	0.788
95% t UCL (Assumes normality)	0.054	95% H-Stat UCL	0.0599

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0356	95% KM (Percentile Bootstrap) UCL	0.0355

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Phenanthrene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	32
Number of Detects	44	Number of Non-Detects	2
Number of Distinct Detects	30	Number of Distinct Non-Detects	2
Minimum Detect	0.092	Minimum Non-Detect	0.0067
Maximum Detect	2	Maximum Non-Detect	0.042
Variance Detects	0.0975	Percent Non-Detects	4.348%
Mean Detects	0.451	SD Detects	0.312
Median Detects	0.375	CV Detects	0.692
Skewness Detects	3.337	Kurtosis Detects	14.25
Mean of Logged Detects	-0.941	SD of Logged Detects	0.515

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.68	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.228	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.432	Standard Error of Mean	0.047
SD	0.315	95% KM (BCA) UCL	0.522
95% KM (t) UCL	0.511	95% KM (Percentile Bootstrap) UCL	0.515
95% KM (z) UCL	0.509	95% KM Bootstrap t UCL	0.551
90% KM Chebyshev UCL	0.573	95% KM Chebyshev UCL	0.637
97.5% KM Chebyshev UCL	0.726	99% KM Chebyshev UCL	0.9

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.335	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.754	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.139	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.134	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.595	k star (bias corrected MLE)	3.365
Theta hat (MLE)	0.126	Theta star (bias corrected MLE)	0.134
nu hat (MLE)	316.3	nu star (bias corrected)	296.1
MLE Mean (bias corrected)	0.451	MLE Sd (bias corrected)	0.246

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	1.88	nu hat (KM)	172.9
Approximate Chi Square Value (172.92, α)	143.5	Adjusted Chi Square Value (172.92, β)	142.6
95% Gamma Approximate KM-UCL (use when n>=50)	0.521	95% Gamma Adjusted KM-UCL (use when n<50)	0.524

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.432
Maximum	2	Median	0.37
SD	0.318	CV	0.737
k hat (MLE)	2.064	k star (bias corrected MLE)	1.944
Theta hat (MLE)	0.209	Theta star (bias corrected MLE)	0.222
nu hat (MLE)	189.9	nu star (bias corrected)	178.9
MLE Mean (bias corrected)	0.432	MLE Sd (bias corrected)	0.31
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (178.85, α)	148.9	Adjusted Chi Square Value (178.85, β)	148
95% Gamma Approximate UCL (use when n>=50)	0.519	95% Gamma Adjusted UCL (use when n<50)	0.522

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.959	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.105	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.437	Mean in Log Scale	-0.993
SD in Original Scale	0.313	SD in Log Scale	0.561
95% t UCL (assumes normality of ROS data)	0.514	95% Percentile Bootstrap UCL	0.512
95% BCA Bootstrap UCL	0.539	95% Bootstrap t UCL	0.561
95% H-UCL (Log ROS)	0.509		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-1.118	95% H-UCL (KM -Log)	0.726
KM SD (logged)	0.967	95% Critical H Value (KM-Log)	2.292
KM Standard Error of Mean (logged)	0.144		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.432	Mean in Log Scale	-1.108
SD in Original Scale	0.318	SD in Log Scale	0.958
95% t UCL (Assumes normality)	0.511	95% H-Stat UCL	0.724

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	0.637

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Pyrene

General Statistics

Total Number of Observations	46	Number of Distinct Observations	32
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	31	Number of Distinct Non-Detects	1
Minimum Detect	0.036	Minimum Non-Detect	0.0067
Maximum Detect	2.1	Maximum Non-Detect	0.0067
Variance Detects	0.132	Percent Non-Detects	2.174%
Mean Detects	0.857	SD Detects	0.364
Median Detects	0.84	CV Detects	0.425
Skewness Detects	0.776	Kurtosis Detects	3.043
Mean of Logged Detects	-0.286	SD of Logged Detects	0.635

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.929	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.154	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.838	Standard Error of Mean	0.0562
SD	0.377	95% KM (BCA) UCL	0.928
95% KM (t) UCL	0.932	95% KM (Percentile Bootstrap) UCL	0.93
95% KM (z) UCL	0.931	95% KM Bootstrap t UCL	0.941
90% KM Chebyshev UCL	1.007	95% KM Chebyshev UCL	1.083
97.5% KM Chebyshev UCL	1.189	99% KM Chebyshev UCL	1.397

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.234	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.132	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.983	k star (bias corrected MLE)	3.732
Theta hat (MLE)	0.215	Theta star (bias corrected MLE)	0.23
nu hat (MLE)	358.5	nu star (bias corrected)	335.9
MLE Mean (bias corrected)	0.857	MLE Sd (bias corrected)	0.443

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.946	nu hat (KM)	455
Approximate Chi Square Value (455.01, α)	406.5	Adjusted Chi Square Value (455.01, β)	405.1
95% Gamma Approximate KM-UCL (use when n>=50)	0.938	95% Gamma Adjusted KM-UCL (use when n<50)	0.941

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.036	Mean	0.843
Maximum	2.1	Median	0.835
SD	0.371	CV	0.439
k hat (MLE)	3.757	k star (bias corrected MLE)	3.526
Theta hat (MLE)	0.225	Theta star (bias corrected MLE)	0.239
nu hat (MLE)	345.6	nu star (bias corrected)	324.4
MLE Mean (bias corrected)	0.843	MLE Sd (bias corrected)	0.449
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (324.42, α)	283.7	Adjusted Chi Square Value (324.42, β)	282.5
95% Gamma Approximate UCL (use when n>=50)	0.965	95% Gamma Adjusted UCL (use when n<50)	0.969

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.755	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.273	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.842	Mean in Log Scale	-0.315
SD in Original Scale	0.373	SD in Log Scale	0.659
95% t UCL (assumes normality of ROS data)	0.934	95% Percentile Bootstrap UCL	0.932
95% BCA Bootstrap UCL	0.94	95% Bootstrap t UCL	0.944
95% H-UCL (Log ROS)	1.104		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.838	Mean in Log Scale	-0.403
SD in Original Scale	0.381	SD in Log Scale	1.016
95% t UCL (Assumes normality)	0.932	95% H-Stat UCL	1.596

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	1.083

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Total High-molecular-weight PAHs

General Statistics

Total Number of Observations	46	Number of Distinct Observations	36
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	35	Number of Distinct Non-Detects	1
Minimum Detect	0.25	Minimum Non-Detect	0.0067
Maximum Detect	13	Maximum Non-Detect	0.0067
Variance Detects	5.33	Percent Non-Detects	2.174%
Mean Detects	5.683	SD Detects	2.309
Median Detects	5.7	CV Detects	0.406
Skewness Detects	0.315	Kurtosis Detects	2.113
Mean of Logged Detects	1.607	SD of Logged Detects	0.637

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.145	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	5.56	Standard Error of Mean	0.359
SD	2.405	95% KM (BCA) UCL	6.204
95% KM (t) UCL	6.162	95% KM (Percentile Bootstrap) UCL	6.126
95% KM (z) UCL	6.15	95% KM Bootstrap t UCL	6.182
90% KM Chebyshev UCL	6.636	95% KM Chebyshev UCL	7.123
97.5% KM Chebyshev UCL	7.799	99% KM Chebyshev UCL	9.128

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.48	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.23	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.132	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.003	k star (bias corrected MLE)	3.751
Theta hat (MLE)	1.42	Theta star (bias corrected MLE)	1.515
nu hat (MLE)	360.3	nu star (bias corrected)	337.6
MLE Mean (bias corrected)	5.683	MLE Sd (bias corrected)	2.935

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	5.345	nu hat (KM)	491.8
Approximate Chi Square Value (491.77, α)	441.3	Adjusted Chi Square Value (491.77, β)	439.8
95% Gamma Approximate KM-UCL (use when n>=50)	6.195	95% Gamma Adjusted KM-UCL (use when n<50)	6.217

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.25	Mean	5.601
Maximum	13	Median	5.7
SD	2.351	CV	0.42
k hat (MLE)	3.816	k star (bias corrected MLE)	3.582
Theta hat (MLE)	1.467	Theta star (bias corrected MLE)	1.564
nu hat (MLE)	351.1	nu star (bias corrected)	329.5
MLE Mean (bias corrected)	5.601	MLE Sd (bias corrected)	2.959
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (329.54, α)	288.5	Adjusted Chi Square Value (329.54, β)	287.2
95% Gamma Approximate UCL (use when n>=50)	6.398	95% Gamma Adjusted UCL (use when n<50)	6.425

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.744	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.266	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	5.588	Mean in Log Scale	1.578
SD in Original Scale	2.373	SD in Log Scale	0.661
95% t UCL (assumes normality of ROS data)	6.175	95% Percentile Bootstrap UCL	6.163
95% BCA Bootstrap UCL	6.196	95% Bootstrap t UCL	6.223
95% H-UCL (Log ROS)	7.341		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	5.56	Mean in Log Scale	1.449
SD in Original Scale	2.432	SD in Log Scale	1.248
95% t UCL (Assumes normality)	6.162	95% H-Stat UCL	15.06

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	7.123

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Total Low-molecular-weight PAHs

General Statistics

Total Number of Observations	46	Number of Distinct Observations	38
Number of Detects	44	Number of Non-Detects	2
Number of Distinct Detects	36	Number of Distinct Non-Detects	2
Minimum Detect	0.15	Minimum Non-Detect	0.0067
Maximum Detect	2.6	Maximum Non-Detect	0.042
Variance Detects	0.175	Percent Non-Detects	4.348%
Mean Detects	0.698	SD Detects	0.419
Median Detects	0.59	CV Detects	0.6
Skewness Detects	2.718	Kurtosis Detects	9.893
Mean of Logged Detects	-0.486	SD of Logged Detects	0.493

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.756	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.199	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.668	Standard Error of Mean	0.064
SD	0.429	95% KM (BCA) UCL	0.79
95% KM (t) UCL	0.775	95% KM (Percentile Bootstrap) UCL	0.782
95% KM (z) UCL	0.773	95% KM Bootstrap t UCL	0.812
90% KM Chebyshev UCL	0.86	95% KM Chebyshev UCL	0.946
97.5% KM Chebyshev UCL	1.067	99% KM Chebyshev UCL	1.304

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.036	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.133	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.134	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.113	k star (bias corrected MLE)	3.848
Theta hat (MLE)	0.17	Theta star (bias corrected MLE)	0.181
nu hat (MLE)	361.9	nu star (bias corrected)	338.6
MLE Mean (bias corrected)	0.698	MLE Sd (bias corrected)	0.356

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	2.425	nu hat (KM)	223.1
Approximate Chi Square Value (223.07, α)	189.5	Adjusted Chi Square Value (223.07, β)	188.5
95% Gamma Approximate KM-UCL (use when n>=50)	0.786	95% Gamma Adjusted KM-UCL (use when n<50)	0.79

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0421	Mean	0.669
Maximum	2.6	Median	0.585
SD	0.431	CV	0.644
k hat (MLE)	2.638	k star (bias corrected MLE)	2.48
Theta hat (MLE)	0.254	Theta star (bias corrected MLE)	0.27
nu hat (MLE)	242.7	nu star (bias corrected)	228.2
MLE Mean (bias corrected)	0.669	MLE Sd (bias corrected)	0.425
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (228.18, α)	194.2	Adjusted Chi Square Value (228.18, β)	193.2
95% Gamma Approximate UCL (use when n>=50)	0.786	95% Gamma Adjusted UCL (use when n<50)	0.79

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.965	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.106	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.134	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.676	Mean in Log Scale	-0.537
SD in Original Scale	0.422	SD in Log Scale	0.538
95% t UCL (assumes normality of ROS data)	0.78	95% Percentile Bootstrap UCL	0.784
95% BCA Bootstrap UCL	0.808	95% Bootstrap t UCL	0.817
95% H-UCL (Log ROS)	0.787		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-0.683	95% H-UCL (KM -Log)	1.248
KM SD (logged)	1.038	95% Critical H Value (KM-Log)	2.367
KM Standard Error of Mean (logged)	0.155		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.668	Mean in Log Scale	-0.673
SD in Original Scale	0.433	SD in Log Scale	1.027
95% t UCL (Assumes normality)	0.775	95% H-Stat UCL	1.239

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	0.79	95% GROS Adjusted Gamma UCL	0.79
95% Adjusted Gamma KM-UCL	0.79		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_SVOCs|Total PAHs (sum 16)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	35
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	34	Number of Distinct Non-Detects	1
Minimum Detect	0.25	Minimum Non-Detect	0.0067
Maximum Detect	14	Maximum Non-Detect	0.0067
Variance Detects	6.88	Percent Non-Detects	2.174%
Mean Detects	6.366	SD Detects	2.623
Median Detects	6.3	CV Detects	0.412
Skewness Detects	0.488	Kurtosis Detects	2.325
Mean of Logged Detects	1.719	SD of Logged Detects	0.646

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.142	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	6.227	Standard Error of Mean	0.407
SD	2.728	95% KM (BCA) UCL	6.957
95% KM (t) UCL	6.91	95% KM (Percentile Bootstrap) UCL	6.883
95% KM (z) UCL	6.896	95% KM Bootstrap t UCL	6.95
90% KM Chebyshev UCL	7.448	95% KM Chebyshev UCL	8
97.5% KM Chebyshev UCL	8.767	99% KM Chebyshev UCL	10.27

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.396	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.228	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.132	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.955	k star (bias corrected MLE)	3.706
Theta hat (MLE)	1.61	Theta star (bias corrected MLE)	1.718
nu hat (MLE)	355.9	nu star (bias corrected)	333.5
MLE Mean (bias corrected)	6.366	MLE Sd (bias corrected)	3.307

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	5.212	nu hat (KM)	479.5
Approximate Chi Square Value (479.50, α)	429.7	Adjusted Chi Square Value (479.50, β)	428.2
95% Gamma Approximate KM-UCL (use when n>=50)	6.949	95% Gamma Adjusted KM-UCL (use when n<50)	6.973

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.25	Mean	6.272
Maximum	14	Median	6.25
SD	2.67	CV	0.426
k hat (MLE)	3.765	k star (bias corrected MLE)	3.534
Theta hat (MLE)	1.666	Theta star (bias corrected MLE)	1.775
nu hat (MLE)	346.4	nu star (bias corrected)	325.2
MLE Mean (bias corrected)	6.272	MLE Sd (bias corrected)	3.336
		Adjusted Level of Significance (β)	0.0448
Approximate Chi Square Value (325.17, α)	284.4	Adjusted Chi Square Value (325.17, β)	283.2
95% Gamma Approximate UCL (use when n>=50)	7.171	95% Gamma Adjusted UCL (use when n<50)	7.202

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.733	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.268	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	6.258	Mean in Log Scale	1.69
SD in Original Scale	2.694	SD in Log Scale	0.669
95% t UCL (assumes normality of ROS data)	6.925	95% Percentile Bootstrap UCL	6.91
95% BCA Bootstrap UCL	6.912	95% Bootstrap t UCL	6.992
95% H-UCL (Log ROS)	8.282		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	6.227	Mean in Log Scale	1.558
SD in Original Scale	2.758	SD in Log Scale	1.267
95% t UCL (Assumes normality)	6.91	95% H-Stat UCL	17.39

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_VOCs|Acetone

General Statistics

Total Number of Observations	14	Number of Distinct Observations	12
		Number of Missing Observations	32
Number of Detects	2	Number of Non-Detects	12
Number of Distinct Detects	2	Number of Distinct Non-Detects	10
Minimum Detect	0.02	Minimum Non-Detect	0.023
Maximum Detect	0.055	Maximum Non-Detect	0.076
Variance Detects	6.1250E-4	Percent Non-Detects	85.71%
Mean Detects	0.0375	SD Detects	0.0247
Median Detects	0.0375	CV Detects	0.66
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	-3.406	SD of Logged Detects	0.715

Warning: Data set has only 2 Detected Values.

This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0229	Standard Error of Mean	0.00395
SD	0.00967	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.0299	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.0294	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.0348	95% KM Chebyshev UCL	0.0401
97.5% KM Chebyshev UCL	0.0476	99% KM Chebyshev UCL	0.0622

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	4.231	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.00886	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	16.92	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	5.612	nu hat (KM)	157.1
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (157.14, α)	129.2	Adjusted Chi Square Value (157.14, β)	125.8
95% Gamma Approximate KM-UCL (use when n>=50)	0.0279	95% Gamma Adjusted KM-UCL (use when n<50)	0.0286

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0228	Mean in Log Scale	-3.833
SD in Original Scale	0.00959	SD in Log Scale	0.295
95% t UCL (assumes normality of ROS data)	0.0273	95% Percentile Bootstrap UCL	0.0276
95% BCA Bootstrap UCL	0.0301	95% Bootstrap t UCL	0.037
95% H-UCL (Log ROS)	0.0264		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0252	Mean in Log Scale	-3.75
SD in Original Scale	0.0106	SD in Log Scale	0.375
95% t UCL (Assumes normality)	0.0302	95% H-Stat UCL	0.0309

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0299	95% KM (% Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	2/26/2015 1:48:41 PM
From File	Eco_Sed_ProUCL_Input_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

RA_SE_DioxinsFurans|1,2,3,4,6,7,8-HpCDD

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	8.4200E-6	Mean	4.2289E-4
Maximum	0.0041	Median	6.2950E-5
SD	0.00109	Std. Error of Mean	2.9224E-4
Coefficient of Variation	2.586	Skewness	3.392

Normal GOF Test

Shapiro Wilk Test Statistic	0.422	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.445	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	9.4042E-4	95% Adjusted-CLT UCL (Chen-1995)	0.00119
		95% Modified-t UCL (Johnson-1978)	9.8457E-4

Gamma GOF Test

A-D Test Statistic	1.875	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.814	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.355	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.245	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.393	k star (bias corrected MLE)	0.357
Theta hat (MLE)	0.00107	Theta star (bias corrected MLE)	0.00119
nu hat (MLE)	11.02	nu star (bias corrected)	9.989
MLE Mean (bias corrected)	4.2289E-4	MLE Sd (bias corrected)	7.0800E-4
		Approximate Chi Square Value (0.05)	3.935
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	3.446

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.00107	95% Adjusted Gamma UCL (use when n<50)	0.00123

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.891	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.229	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-11.68	Mean of logged Data	-9.445
Maximum of Logged Data	-5.497	SD of logged Data	1.626

Assuming Lognormal Distribution

95% H-UCL	0.00174	90% Chebyshev (MVUE) UCL	6.1311E-4
95% Chebyshev (MVUE) UCL	7.7862E-4	97.5% Chebyshev (MVUE) UCL	0.00101
99% Chebyshev (MVUE) UCL	0.00146		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	9.0358E-4	95% Jackknife UCL	9.4042E-4
95% Standard Bootstrap UCL	8.8155E-4	95% Bootstrap-t UCL	0.00955
95% Hall's Bootstrap UCL	0.00463	95% Percentile Bootstrap UCL	9.8047E-4
95% BCA Bootstrap UCL	0.00135		
90% Chebyshev(Mean, Sd) UCL	0.0013	95% Chebyshev(Mean, Sd) UCL	0.0017
97.5% Chebyshev(Mean, Sd) UCL	0.00225	99% Chebyshev(Mean, Sd) UCL	0.00333

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 0.00333

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,4,6,7,8-HpCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	13
		Number of Missing Observations	32
Minimum	2.3700E-7	Mean	1.1957E-4
Maximum	0.00108	Median	1.8500E-5
SD	2.8913E-4	Std. Error of Mean	7.7273E-5
Coefficient of Variation	2.418	Skewness	3.262

Normal GOF Test

Shapiro Wilk Test Statistic	0.464	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.417	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	2.5642E-4	95% Adjusted-CLT UCL (Chen-1995)	3.1867E-4
		95% Modified-t UCL (Johnson-1978)	2.6765E-4

Gamma GOF Test

A-D Test Statistic	1.282	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.822	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.358	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.246	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.349	k star (bias corrected MLE)	0.322
Theta hat (MLE)	3.4218E-4	Theta star (bias corrected MLE)	3.7114E-4
nu hat (MLE)	9.784	nu star (bias corrected)	9.021
MLE Mean (bias corrected)	1.1957E-4	MLE Sd (bias corrected)	2.1066E-4
		Approximate Chi Square Value (0.05)	3.34
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.897

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	3.2299E-4	95% Adjusted Gamma UCL (use when n<50)	3.7238E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.235	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-15.26	Mean of logged Data	-10.96
Maximum of Logged Data	-6.831	SD of logged Data	2.074

Assuming Lognormal Distribution

95% H-UCL	0.00241	90% Chebyshev (MVUE) UCL	3.0073E-4
95% Chebyshev (MVUE) UCL	3.8954E-4	97.5% Chebyshev (MVUE) UCL	5.1280E-4
99% Chebyshev (MVUE) UCL	7.5492E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	2.4668E-4	95% Jackknife UCL	2.5642E-4
95% Standard Bootstrap UCL	2.3979E-4	95% Bootstrap-t UCL	8.4555E-4
95% Hall's Bootstrap UCL	8.8852E-4	95% Percentile Bootstrap UCL	2.5224E-4
95% BCA Bootstrap UCL	3.5936E-4		
90% Chebyshev(Mean, Sd) UCL	3.5139E-4	95% Chebyshev(Mean, Sd) UCL	4.5640E-4
97.5% Chebyshev(Mean, Sd) UCL	6.0214E-4	99% Chebyshev(Mean, Sd) UCL	8.8843E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 8.88E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,4,7,8,9-HpCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	13
		Number of Missing Observations	32
Minimum	8.0000E-8	Mean	1.4963E-5
Maximum	1.5100E-4	Median	1.4000E-6
SD	4.0609E-5	Std. Error of Mean	1.0853E-5
Coefficient of Variation	N/A	Skewness	3.358

Normal GOF Test

Shapiro Wilk Test Statistic	0.415	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.456	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	3.4183E-5	95% Adjusted-CLT UCL (Chen-1995)	4.3223E-5
		95% Modified-t UCL (Johnson-1978)	3.5806E-5

Gamma GOF Test

A-D Test Statistic	2.047	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.828	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.391	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.247	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.323	k star (bias corrected MLE)	0.301
Theta hat (MLE)	4.6386E-5	Theta star (bias corrected MLE)	4.9699E-5
nu hat (MLE)	9.032	nu star (bias corrected)	8.43
MLE Mean (bias corrected)	1.4963E-5	MLE Sd (bias corrected)	2.7269E-5
		Approximate Chi Square Value (0.05)	2.986
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.573

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	4.2236E-5	95% Adjusted Gamma UCL (use when n<50)	4.9025E-5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.886	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.275	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-16.34	Mean of logged Data	-13.22
Maximum of Logged Data	-8.798	SD of logged Data	1.882

Assuming Lognormal Distribution

95% H-UCL	1.0802E-4	90% Chebyshev (MVUE) UCL	2.1972E-5
95% Chebyshev (MVUE) UCL	2.8252E-5	97.5% Chebyshev (MVUE) UCL	3.6968E-5
99% Chebyshev (MVUE) UCL	5.4088E-5		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	3.2814E-5	95% Jackknife UCL	3.4183E-5
95% Standard Bootstrap UCL	3.1726E-5	95% Bootstrap-t UCL	5.0365E-4
95% Hall's Bootstrap UCL	3.4242E-4	95% Percentile Bootstrap UCL	3.5960E-5
95% BCA Bootstrap UCL	5.0096E-5		
90% Chebyshev(Mean, Sd) UCL	4.7522E-5	95% Chebyshev(Mean, Sd) UCL	6.2270E-5
97.5% Chebyshev(Mean, Sd) UCL	8.2740E-5	99% Chebyshev(Mean, Sd) UCL	1.2295E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 1.23E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,4,7,8-HxCDD

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	1.5800E-7	Mean	2.8442E-5
Maximum	2.8900E-4	Median	1.3750E-6
SD	7.8129E-5	Std. Error of Mean	2.0881E-5
Coefficient of Variation	N/A	Skewness	3.317

Normal GOF Test

Shapiro Wilk Test Statistic	0.422	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.436	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.5421E-5	95% Adjusted-CLT UCL (Chen-1995)	8.2570E-5
		95% Modified-t UCL (Johnson-1978)	6.8506E-5

Gamma GOF Test

A-D Test Statistic	2.027	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.844	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.39	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.249	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.275	k star (bias corrected MLE)	0.263
Theta hat (MLE)	1.0357E-4	Theta star (bias corrected MLE)	1.0798E-4
nu hat (MLE)	7.69	nu star (bias corrected)	7.375
MLE Mean (bias corrected)	2.8442E-5	MLE Sd (bias corrected)	5.5419E-5
		Approximate Chi Square Value (0.05)	2.379
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.02

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	8.8184E-5	95% Adjusted Gamma UCL (use when n<50)	1.0385E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.867	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.266	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-15.66	Mean of logged Data	-13.01
Maximum of Logged Data	-8.149	SD of logged Data	2.095

Assuming Lognormal Distribution

95% H-UCL	3.3740E-4	90% Chebyshev (MVUE) UCL	3.9862E-5
95% Chebyshev (MVUE) UCL	5.1670E-5	97.5% Chebyshev (MVUE) UCL	6.8058E-5
99% Chebyshev (MVUE) UCL	1.0025E-4		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	6.2788E-5	95% Jackknife UCL	6.5421E-5
95% Standard Bootstrap UCL	6.1544E-5	95% Bootstrap-t UCL	6.7675E-4
95% Hall's Bootstrap UCL	6.8298E-4	95% Percentile Bootstrap UCL	6.4681E-5
95% BCA Bootstrap UCL	8.9828E-5		
90% Chebyshev(Mean, Sd) UCL	9.1085E-5	95% Chebyshev(Mean, Sd) UCL	1.1946E-4
97.5% Chebyshev(Mean, Sd) UCL	1.5884E-4	99% Chebyshev(Mean, Sd) UCL	2.3620E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 2.36E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,4,7,8-HxCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	9.0200E-8	Mean	5.5513E-5
Maximum	4.7000E-4	Median	2.1650E-6
SD	1.2984E-4	Std. Error of Mean	3.4702E-5
Coefficient of Variation	N/A	Skewness	2.91

Normal GOF Test

Shapiro Wilk Test Statistic	0.501	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.438	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.1697E-4	95% Adjusted-CLT UCL (Chen-1995)	1.4143E-4
		95% Modified-t UCL (Johnson-1978)	1.2147E-4

Gamma GOF Test

A-D Test Statistic	1.671	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.851	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.377	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.25	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.261	k star (bias corrected MLE)	0.253
Theta hat (MLE)	2.1270E-4	Theta star (bias corrected MLE)	2.1969E-4
nu hat (MLE)	7.308	nu star (bias corrected)	7.075
MLE Mean (bias corrected)	5.5513E-5	MLE Sd (bias corrected)	1.1043E-4
		Approximate Chi Square Value (0.05)	2.212
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	1.869

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.7757E-4	95% Adjusted Gamma UCL (use when n<50)	2.1013E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.896	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.245	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-16.22	Mean of logged Data	-12.5
Maximum of Logged Data	-7.663	SD of logged Data	2.438

Assuming Lognormal Distribution

95% H-UCL	0.00314	90% Chebyshev (MVUE) UCL	1.2861E-4
95% Chebyshev (MVUE) UCL	1.6836E-4	97.5% Chebyshev (MVUE) UCL	2.2354E-4
99% Chebyshev (MVUE) UCL	3.3193E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.1259E-4	95% Jackknife UCL	1.1697E-4
95% Standard Bootstrap UCL	1.0799E-4	95% Bootstrap-t UCL	2.2770E-4
95% Hall's Bootstrap UCL	2.6836E-4	95% Percentile Bootstrap UCL	1.1386E-4
95% BCA Bootstrap UCL	1.3533E-4		
90% Chebyshev(Mean, Sd) UCL	1.5962E-4	95% Chebyshev(Mean, Sd) UCL	2.0678E-4
97.5% Chebyshev(Mean, Sd) UCL	2.7223E-4	99% Chebyshev(Mean, Sd) UCL	4.0079E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 4.01E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,6,7,8-HxCDD

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	2.6500E-7	Mean	5.1843E-5
Maximum	5.4800E-4	Median	3.2350E-6
SD	1.4683E-4	Std. Error of Mean	3.9242E-5
Coefficient of Variation	N/A	Skewness	3.438

Normal GOF Test

Shapiro Wilk Test Statistic	0.403	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.449	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.2134E-4	95% Adjusted-CLT UCL (Chen-1995)	1.5492E-4
		95% Modified-t UCL (Johnson-1978)	1.2735E-4

Gamma GOF Test

A-D Test Statistic	2.019	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.838	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.385	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.248	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.287	k star (bias corrected MLE)	0.273
Theta hat (MLE)	1.8058E-4	Theta star (bias corrected MLE)	1.8977E-4
nu hat (MLE)	8.039	nu star (bias corrected)	7.649
MLE Mean (bias corrected)	5.1843E-5	MLE Sd (bias corrected)	9.9187E-5
		Approximate Chi Square Value (0.05)	2.534
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.16

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.5652E-4	95% Adjusted Gamma UCL (use when n<50)	1.8357E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.889	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.259	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-15.14	Mean of logged Data	-12.29
Maximum of Logged Data	-7.509	SD of logged Data	2.014

Assuming Lognormal Distribution

95% H-UCL	4.8556E-4	90% Chebyshev (MVUE) UCL	7.1174E-5
95% Chebyshev (MVUE) UCL	9.1993E-5	97.5% Chebyshev (MVUE) UCL	1.2089E-4
99% Chebyshev (MVUE) UCL	1.7765E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.1639E-4	95% Jackknife UCL	1.2134E-4
95% Standard Bootstrap UCL	1.1416E-4	95% Bootstrap-t UCL	0.00169
95% Hall's Bootstrap UCL	0.00141	95% Percentile Bootstrap UCL	1.2204E-4
95% BCA Bootstrap UCL	1.7646E-4		
90% Chebyshev(Mean, Sd) UCL	1.6957E-4	95% Chebyshev(Mean, Sd) UCL	2.2289E-4
97.5% Chebyshev(Mean, Sd) UCL	2.9691E-4	99% Chebyshev(Mean, Sd) UCL	4.4229E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 4.42E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,6,7,8-HxCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	1.0500E-7	Mean	3.0296E-5
Maximum	2.7200E-4	Median	3.5450E-6
SD	7.3299E-5	Std. Error of Mean	1.9590E-5
Coefficient of Variation	N/A	Skewness	3.203

Normal GOF Test

Shapiro Wilk Test Statistic	0.469	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.404	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.4989E-5	95% Adjusted-CLT UCL (Chen-1995)	8.0438E-5
		95% Modified-t UCL (Johnson-1978)	6.7784E-5

Gamma GOF Test

A-D Test Statistic	1.385	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.823	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.332	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.246	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.345	k star (bias corrected MLE)	0.319
Theta hat (MLE)	8.7864E-5	Theta star (bias corrected MLE)	9.5109E-5
nu hat (MLE)	9.655	nu star (bias corrected)	8.919
MLE Mean (bias corrected)	3.0296E-5	MLE Sd (bias corrected)	5.3679E-5
		Approximate Chi Square Value (0.05)	3.278
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.84

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	8.2429E-5	95% Adjusted Gamma UCL (use when n<50)	9.5140E-5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.228	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-16.07	Mean of logged Data	-12.36
Maximum of Logged Data	-8.21	SD of logged Data	2.011

Assuming Lognormal Distribution

95% H-UCL	4.4556E-4	90% Chebyshev (MVUE) UCL	6.5810E-5
95% Chebyshev (MVUE) UCL	8.5051E-5	97.5% Chebyshev (MVUE) UCL	1.1176E-4
99% Chebyshev (MVUE) UCL	1.6421E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	6.2519E-5	95% Jackknife UCL	6.4989E-5
95% Standard Bootstrap UCL	6.2154E-5	95% Bootstrap-t UCL	2.3463E-4
95% Hall's Bootstrap UCL	2.5446E-4	95% Percentile Bootstrap UCL	6.5115E-5
95% BCA Bootstrap UCL	8.2472E-5		
90% Chebyshev(Mean, Sd) UCL	8.9066E-5	95% Chebyshev(Mean, Sd) UCL	1.1569E-4
97.5% Chebyshev(Mean, Sd) UCL	1.5264E-4	99% Chebyshev(Mean, Sd) UCL	2.2521E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 2.25E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,7,8,9-HxCDD

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	2.0900E-7	Mean	6.8996E-5
Maximum	7.0500E-4	Median	3.4050E-6
SD	1.9015E-4	Std. Error of Mean	5.0819E-5
Coefficient of Variation	N/A	Skewness	3.343

Normal GOF Test

Shapiro Wilk Test Statistic	0.42	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.432	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.5899E-4	95% Adjusted-CLT UCL (Chen-1995)	2.0110E-4
		95% Modified-t UCL (Johnson-1978)	1.6656E-4

Gamma GOF Test

A-D Test Statistic	1.905	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.845	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.382	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.249	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.272	k star (bias corrected MLE)	0.261
Theta hat (MLE)	2.5354E-4	Theta star (bias corrected MLE)	2.6391E-4
nu hat (MLE)	7.62	nu star (bias corrected)	7.32
MLE Mean (bias corrected)	6.8996E-5	MLE Sd (bias corrected)	1.3494E-4
		Approximate Chi Square Value (0.05)	2.348
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	1.992

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2.1511E-4	95% Adjusted Gamma UCL (use when n<50)	2.5355E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.897	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.251	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-15.38	Mean of logged Data	-12.16
Maximum of Logged Data	-7.257	SD of logged Data	2.156

Assuming Lognormal Distribution

95% H-UCL	0.00106	90% Chebyshev (MVUE) UCL	1.0560E-4
95% Chebyshev (MVUE) UCL	1.3717E-4	97.5% Chebyshev (MVUE) UCL	1.8097E-4
99% Chebyshev (MVUE) UCL	2.6702E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.5259E-4	95% Jackknife UCL	1.5899E-4
95% Standard Bootstrap UCL	1.5201E-4	95% Bootstrap-t UCL	0.00153
95% Hall's Bootstrap UCL	0.00151	95% Percentile Bootstrap UCL	1.5766E-4
95% BCA Bootstrap UCL	2.1823E-4		
90% Chebyshev(Mean, Sd) UCL	2.2145E-4	95% Chebyshev(Mean, Sd) UCL	2.9051E-4
97.5% Chebyshev(Mean, Sd) UCL	3.8636E-4	99% Chebyshev(Mean, Sd) UCL	5.7464E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 5.75E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,7,8,9-HxCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Number of Detects	11	Number of Non-Detects	3
Number of Distinct Detects	11	Number of Distinct Non-Detects	3
Minimum Detect	6.0500E-8	Minimum Non-Detect	1.4800E-8
Maximum Detect	2.4300E-5	Maximum Non-Detect	2.9700E-7
Variance Detects	5.355E-11	Percent Non-Detects	21.43%
Mean Detects	2.9989E-6	SD Detects	7.3179E-6
Median Detects	2.5400E-7	CV Detects	N/A
Skewness Detects	2.968	Kurtosis Detects	9.039
Mean of Logged Detects	-14.8	SD of Logged Detects	1.914

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.473	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.85	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.436	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.267	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.37E-06	Standard Error of Mean	1.7666E-6
SD	6.3022E-6	95% KM (BCA) UCL	5.8123E-6
95% KM (t) UCL	5.4953E-6	95% KM (Percentile Bootstrap) UCL	5.7434E-6
95% KM (z) UCL	5.2726E-6	95% KM Bootstrap t UCL	7.3946E-5
90% KM Chebyshev UCL	7.6665E-6	95% KM Chebyshev UCL	1.0067E-5
97.5% KM Chebyshev UCL	1.3399E-5	99% KM Chebyshev UCL	1.9944E-5

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.581	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.815	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.363	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.275	Detected Data Not Gamma Distributed at 5% Significance Level	

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.326	k star (bias corrected MLE)	0.298
Theta hat (MLE)	9.1931E-6	Theta star (bias corrected MLE)	1.0069E-5
nu hat (MLE)	7.177	nu star (bias corrected)	6.553
MLE Mean (bias corrected)	2.9989E-6	MLE Sd (bias corrected)	5.4950E-6

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.141	nu hat (KM)	3.949
Approximate Chi Square Value (3.95, α)	0.702	Adjusted Chi Square Value (3.95, β)	0.545
95% Gamma Approximate KM-UCL (use when n>=50)	1.3320E-5	95% Gamma Adjusted KM-UCL (use when n<50)	1.7138E-5

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	6.0500E-8	Mean	0.00215
Maximum	0.01	Median	2.9700E-7
SD	0.00426	CV	1.984
k hat (MLE)	0.122	k star (bias corrected MLE)	0.144
Theta hat (MLE)	0.0176	Theta star (bias corrected MLE)	0.0149
nu hat (MLE)	3.422	nu star (bias corrected)	4.022
MLE Mean (bias corrected)	0.00215	MLE Sd (bias corrected)	0.00566
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (4.02, α)	0.73	Adjusted Chi Square Value (4.02, β)	0.569
95% Gamma Approximate UCL (use when n>=50)	0.0118	95% Gamma Adjusted UCL (use when n<50)	0.0152

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.829	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.85	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.272	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.267	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.3627E-6	Mean in Log Scale	-15.5
SD in Original Scale	6.5416E-6	SD in Log Scale	2.246
95% t UCL (assumes normality of ROS data)	5.4588E-6	95% Percentile Bootstrap UCL	5.7759E-6
95% BCA Bootstrap UCL	7.5737E-6	95% Bootstrap t UCL	7.2581E-5
95% H-UCL (Log ROS)	5.8080E-5		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	2.3682E-6	Mean in Log Scale	-15.4
SD in Original Scale	6.5396E-6	SD in Log Scale	2.158
95% t UCL (Assumes normality)	5.4634E-6	95% H-Stat UCL	4.1724E-5

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

99% KM (Chebyshev) UCL 1.99E-05

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,7,8-PeCDD

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	4.2600E-8	Mean	2.7250E-5
Maximum	2.7700E-4	Median	1.4450E-6
SD	7.4569E-5	Std. Error of Mean	1.9929E-5
Coefficient of Variation	N/A	Skewness	3.355

Normal GOF Test

Shapiro Wilk Test Statistic	0.421	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.446	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.2543E-5	95% Adjusted-CLT UCL (Chen-1995)	7.9126E-5
		95% Modified-t UCL (Johnson-1978)	6.5522E-5

Gamma GOF Test

A-D Test Statistic	1.609	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.842	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.31	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.249	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.278	k star (bias corrected MLE)	0.266
Theta hat (MLE)	9.7998E-5	Theta star (bias corrected MLE)	1.0241E-4
nu hat (MLE)	7.786	nu star (bias corrected)	7.451
MLE Mean (bias corrected)	2.7250E-5	MLE Sd (bias corrected)	5.2825E-5
		Approximate Chi Square Value (0.05)	2.421
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.058

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	8.3855E-5	95% Adjusted Gamma UCL (use when n<50)	9.8639E-5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.183	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-16.97	Mean of logged Data	-13.02
Maximum of Logged Data	-8.191	SD of logged Data	2.227

Assuming Lognormal Distribution

95% H-UCL	6.2865E-4	90% Chebyshev (MVUE) UCL	5.0786E-5
95% Chebyshev (MVUE) UCL	6.6108E-5	97.5% Chebyshev (MVUE) UCL	8.7374E-5
99% Chebyshev (MVUE) UCL	1.2915E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	6.0031E-5	95% Jackknife UCL	6.2543E-5
95% Standard Bootstrap UCL	5.9029E-5	95% Bootstrap-t UCL	6.6285E-4
95% Hall's Bootstrap UCL	4.8545E-4	95% Percentile Bootstrap UCL	6.1979E-5
95% BCA Bootstrap UCL	8.7036E-5		
90% Chebyshev(Mean, Sd) UCL	8.7038E-5	95% Chebyshev(Mean, Sd) UCL	1.1412E-4
97.5% Chebyshev(Mean, Sd) UCL	1.5171E-4	99% Chebyshev(Mean, Sd) UCL	2.2554E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 2.26E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|1,2,3,7,8-PeCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Number of Detects	13	Number of Non-Detects	1
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	1.1300E-7	Minimum Non-Detect	1.7700E-8
Maximum Detect	1.2400E-4	Maximum Non-Detect	1.7700E-8
Variance Detects	1.2404E-9	Percent Non-Detects	7.143%
Mean Detects	1.4931E-5	SD Detects	3.5219E-5
Median Detects	9.7200E-7	CV Detects	N/A
Skewness Detects	2.927	Kurtosis Detects	8.875
Mean of Logged Detects	-13.42	SD of Logged Detects	2.141

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.496	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.419	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	1.39E-05	Standard Error of Mean	9.1330E-6
SD	3.2832E-5	95% KM (BCA) UCL	3.0249E-5
95% KM (t) UCL	3.0039E-5	95% KM (Percentile Bootstrap) UCL	3.0384E-5
95% KM (z) UCL	2.8888E-5	95% KM Bootstrap t UCL	1.0672E-4
90% KM Chebyshev UCL	4.1264E-5	95% KM Chebyshev UCL	5.3675E-5
97.5% KM Chebyshev UCL	7.0901E-5	99% KM Chebyshev UCL	1.0474E-4

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.572	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.83	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.39	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.256	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.299	k star (bias corrected MLE)	0.281
Theta hat (MLE)	4.9992E-5	Theta star (bias corrected MLE)	5.3130E-5
nu hat (MLE)	7.765	nu star (bias corrected)	7.307
MLE Mean (bias corrected)	1.4931E-5	MLE Sd (bias corrected)	2.8165E-5

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.178	nu hat (KM)	4.994
Approximate Chi Square Value (4.99, α)	1.149	Adjusted Chi Square Value (4.99, β)	0.927
95% Gamma Approximate KM-UCL (use when n>=50)	6.0245E-5	95% Gamma Adjusted KM-UCL (use when n<50)	7.4718E-5

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	1.1300E-7	Mean	7.2815E-4
Maximum	0.01	Median	1.1110E-6
SD	0.00267	CV	3.665
k hat (MLE)	0.139	k star (bias corrected MLE)	0.157
Theta hat (MLE)	0.00522	Theta star (bias corrected MLE)	0.00463
nu hat (MLE)	3.906	nu star (bias corrected)	4.402
MLE Mean (bias corrected)	7.2815E-4	MLE Sd (bias corrected)	0.00184
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (4.40, α)	0.887	Adjusted Chi Square Value (4.40, β)	0.701
95% Gamma Approximate UCL (use when n>=50)	0.00362	95% Gamma Adjusted UCL (use when n<50)	0.00457

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.876	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.281	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data Not Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.3865E-5	Mean in Log Scale	-13.78
SD in Original Scale	3.4071E-5	SD in Log Scale	2.462
95% t UCL (assumes normality of ROS data)	2.9991E-5	95% Percentile Bootstrap UCL	3.0426E-5
95% BCA Bootstrap UCL	4.0314E-5	95% Bootstrap t UCL	1.0688E-4
95% H-UCL (Log ROS)	9.9156E-4		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-13.74	95% H-UCL (KM -Log)	4.1430E-4
KM SD (logged)	2.287	95% Critical H Value (KM-Log)	5.258
KM Standard Error of Mean (logged)	0.636		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.3865E-5	Mean in Log Scale	-13.79
SD in Original Scale	3.4071E-5	SD in Log Scale	2.471
95% t UCL (Assumes normality)	2.9991E-5	95% H-Stat UCL	0.00104

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

99% KM (Chebyshev) UCL 1.05E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|2,3,4,6,7,8-HxCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	7.3700E-8	Mean	2.9155E-5
Maximum	2.8500E-4	Median	1.5350E-6
SD	7.6799E-5	Std. Error of Mean	2.0525E-5
Coefficient of Variation	N/A	Skewness	3.299

Normal GOF Test

Shapiro Wilk Test Statistic	0.44	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.418	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.5505E-5	95% Adjusted-CLT UCL (Chen-1995)	8.2255E-5
		95% Modified-t UCL (Johnson-1978)	6.8521E-5

Gamma GOF Test

A-D Test Statistic	1.638	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.841	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.366	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.249	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.28	k star (bias corrected MLE)	0.268
Theta hat (MLE)	1.0408E-4	Theta star (bias corrected MLE)	1.0890E-4
nu hat (MLE)	7.844	nu star (bias corrected)	7.496
MLE Mean (bias corrected)	2.9155E-5	MLE Sd (bias corrected)	5.6348E-5
		Approximate Chi Square Value (0.05)	2.447
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	2.082

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	8.9321E-5	95% Adjusted Gamma UCL (use when n<50)	1.0500E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.92	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.23	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-16.42	Mean of logged Data	-12.93
Maximum of Logged Data	-8.163	SD of logged Data	2.213

Assuming Lognormal Distribution

95% H-UCL	6.4232E-4	90% Chebyshev (MVUE) UCL	5.4080E-5
95% Chebyshev (MVUE) UCL	7.0367E-5	97.5% Chebyshev (MVUE) UCL	9.2972E-5
99% Chebyshev (MVUE) UCL	1.3737E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	6.2917E-5	95% Jackknife UCL	6.5505E-5
95% Standard Bootstrap UCL	6.0283E-5	95% Bootstrap-t UCL	3.2191E-4
95% Hall's Bootstrap UCL	3.4202E-4	95% Percentile Bootstrap UCL	6.5712E-5
95% BCA Bootstrap UCL	9.3379E-5		
90% Chebyshev(Mean, Sd) UCL	9.0732E-5	95% Chebyshev(Mean, Sd) UCL	1.1862E-4
97.5% Chebyshev(Mean, Sd) UCL	1.5734E-4	99% Chebyshev(Mean, Sd) UCL	2.3338E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 2.33E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|2,3,4,7,8-PeCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Number of Detects	13	Number of Non-Detects	1
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	3.4500E-7	Minimum Non-Detect	1.5600E-8
Maximum Detect	2.1700E-4	Maximum Non-Detect	1.5600E-8
Variance Detects	3.6719E-9	Percent Non-Detects	7.143%
Mean Detects	2.5250E-5	SD Detects	6.0596E-5
Median Detects	2.1800E-6	CV Detects	N/A
Skewness Detects	3.093	Kurtosis Detects	9.959
Mean of Logged Detects	-12.64	SD of Logged Detects	1.969

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.48	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.407	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.34E-05	Standard Error of Mean	1.5710E-5
SD	5.6476E-5	95% KM (BCA) UCL	5.4120E-5
95% KM (t) UCL	5.1269E-5	95% KM (Percentile Bootstrap) UCL	5.1929E-5
95% KM (z) UCL	4.9289E-5	95% KM Bootstrap t UCL	1.8557E-4
90% KM Chebyshev UCL	7.0578E-5	95% KM Chebyshev UCL	9.1927E-5
97.5% KM Chebyshev UCL	1.2156E-4	99% KM Chebyshev UCL	1.7976E-4

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.529	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.824	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.358	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.255	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.33	k star (bias corrected MLE)	0.305
Theta hat (MLE)	7.6546E-5	Theta star (bias corrected MLE)	8.2780E-5
nu hat (MLE)	8.576	nu star (bias corrected)	7.931
MLE Mean (bias corrected)	2.5250E-5	MLE Sd (bias corrected)	4.5719E-5

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.172	nu hat (KM)	4.826
Approximate Chi Square Value (4.83, α)	1.073	Adjusted Chi Square Value (4.83, β)	0.861
95% Gamma Approximate KM-UCL (use when n>=50)	1.0549E-4	95% Gamma Adjusted KM-UCL (use when n<50)	1.3151E-4

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	3.4500E-7	Mean	7.3773E-4
Maximum	0.01	Median	2.2550E-6
SD	0.00267	CV	3.614
k hat (MLE)	0.157	k star (bias corrected MLE)	0.171
Theta hat (MLE)	0.0047	Theta star (bias corrected MLE)	0.00431
nu hat (MLE)	4.399	nu star (bias corrected)	4.79
MLE Mean (bias corrected)	7.3773E-4	MLE Sd (bias corrected)	0.00178
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (4.79, α)	1.056	Adjusted Chi Square Value (4.79, β)	0.846
95% Gamma Approximate UCL (use when n>=50)	0.00335	95% Gamma Adjusted UCL (use when n<50)	0.00418

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.3449E-5	Mean in Log Scale	-12.98
SD in Original Scale	5.8608E-5	SD in Log Scale	2.266
95% t UCL (assumes normality of ROS data)	5.1188E-5	95% Percentile Bootstrap UCL	5.2360E-5
95% BCA Bootstrap UCL	7.0404E-5	95% Bootstrap t UCL	1.8584E-4
95% H-UCL (Log ROS)	7.9682E-4		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-13.03	95% H-UCL (KM -Log)	8.2429E-4
KM SD (logged)	2.282	95% Critical H Value (KM-Log)	5.248
KM Standard Error of Mean (logged)	0.635		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	2.3447E-5	Mean in Log Scale	-13.08
SD in Original Scale	5.8609E-5	SD in Log Scale	2.484
95% t UCL (Assumes normality)	5.1187E-5	95% H-Stat UCL	0.00227

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

99% KM (Chebyshev) UCL 1.80E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|2,3,7,8-TCDD

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Number of Detects	9	Number of Non-Detects	5
Number of Distinct Detects	9	Number of Distinct Non-Detects	5
Minimum Detect	5.9300E-8	Minimum Non-Detect	1.3100E-8
Maximum Detect	3.8200E-5	Maximum Non-Detect	5.2000E-7
Variance Detects	1.612E-10	Percent Non-Detects	35.71%
Mean Detects	6.3700E-6	SD Detects	1.2697E-5
Median Detects	6.6300E-7	CV Detects	N/A
Skewness Detects	2.462	Kurtosis Detects	6.114
Mean of Logged Detects	-13.74	SD of Logged Detects	2.043

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.578	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.829	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.41	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.295	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	4.11E-06	Standard Error of Mean	2.8537E-6
SD	1.0067E-5	95% KM (BCA) UCL	9.5908E-6
95% KM (t) UCL	9.1615E-6	95% KM (Percentile Bootstrap) UCL	8.8140E-6
95% KM (z) UCL	8.8017E-6	95% KM Bootstrap t UCL	6.3052E-5
90% KM Chebyshev UCL	1.2669E-5	95% KM Chebyshev UCL	1.6547E-5
97.5% KM Chebyshev UCL	2.1929E-5	99% KM Chebyshev UCL	3.2501E-5

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.728	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.794	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.282	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.299	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.375	k star (bias corrected MLE)	0.324
Theta hat (MLE)	1.6995E-5	Theta star (bias corrected MLE)	1.9664E-5
nu hat (MLE)	6.747	nu star (bias corrected)	5.831
MLE Mean (bias corrected)	6.3700E-6	MLE Sd (bias corrected)	1.1192E-5

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.167	nu hat (KM)	4.663
Approximate Chi Square Value (4.66, α)	1	Adjusted Chi Square Value (4.66, β)	0.798
95% Gamma Approximate KM-UCL (use when n>=50)	1.9161E-5	95% Gamma Adjusted KM-UCL (use when n<50)	2.4016E-5

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	5.9300E-8	Mean	0.00358
Maximum	0.01	Median	7.8900E-6
SD	0.00497	CV	1.39
k hat (MLE)	0.158	k star (bias corrected MLE)	0.171
Theta hat (MLE)	0.0227	Theta star (bias corrected MLE)	0.0209
nu hat (MLE)	4.412	nu star (bias corrected)	4.8
MLE Mean (bias corrected)	0.00358	MLE Sd (bias corrected)	0.00864
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (4.80, α)	1.061	Adjusted Chi Square Value (4.80, β)	0.85
95% Gamma Approximate UCL (use when n>=50)	0.0162	95% Gamma Adjusted UCL (use when n<50)	0.0202

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.947	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.162	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.295	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	4.1007E-6	Mean in Log Scale	-15.35
SD in Original Scale	1.0450E-5	SD in Log Scale	2.786
95% t UCL (assumes normality of ROS data)	9.0465E-6	95% Percentile Bootstrap UCL	8.7320E-6
95% BCA Bootstrap UCL	1.2193E-5	95% Bootstrap t UCL	6.2743E-5
95% H-UCL (Log ROS)	0.00135		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-15.22	95% H-UCL (KM -Log)	4.1846E-4
KM SD (logged)	2.565	95% Critical H Value (KM-Log)	5.832
KM Standard Error of Mean (logged)	0.736		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	4.1168E-6	Mean in Log Scale	-15.17
SD in Original Scale	1.0443E-5	SD in Log Scale	2.695
95% t UCL (Assumes normality)	9.0595E-6	95% H-Stat UCL	9.3356E-4

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	9.5908E-6	95% GROS Adjusted Gamma UCL	0.0202
95% Adjusted Gamma KM-UCL	2.4016E-5		

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|2,3,7,8-TCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Number of Detects	13	Number of Non-Detects	1
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	1.2700E-7	Minimum Non-Detect	1.1800E-8
Maximum Detect	5.6700E-5	Maximum Non-Detect	1.1800E-8
Variance Detects	2.625E-10	Percent Non-Detects	7.143%
Mean Detects	8.0781E-6	SD Detects	1.6202E-5
Median Detects	1.1600E-6	CV Detects	N/A
Skewness Detects	2.708	Kurtosis Detects	7.493
Mean of Logged Detects	-13.19	SD of Logged Detects	1.738

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.553	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.366	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	7.50E-06	Standard Error of Mean	4.2124E-6
SD	1.5143E-5	95% KM (BCA) UCL	1.4353E-5
95% KM (t) UCL	1.4962E-5	95% KM (Percentile Bootstrap) UCL	1.4866E-5
95% KM (z) UCL	1.4431E-5	95% KM Bootstrap t UCL	4.2569E-5
90% KM Chebyshev UCL	2.0139E-5	95% KM Chebyshev UCL	2.5863E-5
97.5% KM Chebyshev UCL	3.3809E-5	99% KM Chebyshev UCL	4.9415E-5

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.991	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.801	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.285	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.252	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.442	k star (bias corrected MLE)	0.392
Theta hat (MLE)	1.8263E-5	Theta star (bias corrected MLE)	2.0633E-5
nu hat (MLE)	11.5	nu star (bias corrected)	10.18
MLE Mean (bias corrected)	8.0781E-6	MLE Sd (bias corrected)	1.2910E-5

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.245	nu hat (KM)	6.872
Approximate Chi Square Value (6.87, α)	2.1	Adjusted Chi Square Value (6.87, β)	1.769
95% Gamma Approximate KM-UCL (use when n>=50)	2.4543E-5	95% Gamma Adjusted KM-UCL (use when n<50)	2.9145E-5

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	1.2700E-7	Mean	7.2179E-4
Maximum	0.01	Median	1.5200E-6
SD	0.00267	CV	3.7
k hat (MLE)	0.145	k star (bias corrected MLE)	0.161
Theta hat (MLE)	0.00499	Theta star (bias corrected MLE)	0.00448
nu hat (MLE)	4.049	nu star (bias corrected)	4.515
MLE Mean (bias corrected)	7.2179E-4	MLE Sd (bias corrected)	0.0018
		Adjusted Level of Significance (β)	0.0312
Approximate Chi Square Value (4.51, α)	0.935	Adjusted Chi Square Value (4.51, β)	0.742
95% Gamma Approximate UCL (use when n>=50)	0.00349	95% Gamma Adjusted UCL (use when n<50)	0.00439

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.955	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.181	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	7.5030E-6	Mean in Log Scale	-13.49
SD in Original Scale	1.5714E-5	SD in Log Scale	2.019
95% t UCL (assumes normality of ROS data)	1.4941E-5	95% Percentile Bootstrap UCL	1.5048E-5
95% BCA Bootstrap UCL	1.8887E-5	95% Bootstrap t UCL	4.2530E-5
95% H-UCL (Log ROS)	1.4808E-4		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-13.55	95% H-UCL (KM -Log)	1.7689E-4
KM SD (logged)	2.071	95% Critical H Value (KM-Log)	4.818
KM Standard Error of Mean (logged)	0.576		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	7.5015E-6	Mean in Log Scale	-13.6
SD in Original Scale	1.5715E-5	SD in Log Scale	2.27
95% t UCL (Assumes normality)	1.4939E-5	95% H-Stat UCL	4.3746E-4

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

99% KM (Chebyshev) UCL 4.94E-05

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|OCDD

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	3.3800E-4	Mean	0.00295
Maximum	0.0147	Median	0.00157
SD	0.00403	Std. Error of Mean	0.00108
Coefficient of Variation	1.365	Skewness	2.358

Normal GOF Test

Shapiro Wilk Test Statistic	0.671	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.272	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.00486	95% Adjusted-CLT UCL (Chen-1995)	0.00544
		95% Modified-t UCL (Johnson-1978)	0.00497

Gamma GOF Test

A-D Test Statistic	0.539	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.765	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.167	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.236	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.885	k star (bias corrected MLE)	0.743
Theta hat (MLE)	0.00333	Theta star (bias corrected MLE)	0.00397
nu hat (MLE)	24.78	nu star (bias corrected)	20.8
MLE Mean (bias corrected)	0.00295	MLE Sd (bias corrected)	0.00342
		Approximate Chi Square Value (0.05)	11.45
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	10.54

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.00536	95% Adjusted Gamma UCL (use when n<50)	0.00582

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.95	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.113	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-7.992	Mean of logged Data	-6.488
Maximum of Logged Data	-4.22	SD of logged Data	1.172

Assuming Lognormal Distribution

95% H-UCL	0.00824	90% Chebyshev (MVUE) UCL	0.00572
95% Chebyshev (MVUE) UCL	0.00704	97.5% Chebyshev (MVUE) UCL	0.00887
99% Chebyshev (MVUE) UCL	0.0125		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.00472	95% Jackknife UCL	0.00486
95% Standard Bootstrap UCL	0.00464	95% Bootstrap-t UCL	0.00849
95% Hall's Bootstrap UCL	0.0131	95% Percentile Bootstrap UCL	0.00482
95% BCA Bootstrap UCL	0.00546		
90% Chebyshev(Mean, Sd) UCL	0.00618	95% Chebyshev(Mean, Sd) UCL	0.00764
97.5% Chebyshev(Mean, Sd) UCL	0.00967	99% Chebyshev(Mean, Sd) UCL	0.0137

Suggested UCL to Use

95% Adjusted Gamma UCL 0.00582

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SE_DioxinsFurans|OCDF

General Statistics

Total Number of Observations	14	Number of Distinct Observations	14
		Number of Missing Observations	32
Minimum	5.1400E-7	Mean	1.0914E-4
Maximum	0.001	Median	2.2700E-5
SD	2.6648E-4	Std. Error of Mean	7.1220E-5
Coefficient of Variation	2.442	Skewness	3.338

Normal GOF Test

Shapiro Wilk Test Statistic	0.435	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.461	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	2.3526E-4	95% Adjusted-CLT UCL (Chen-1995)	2.9417E-4
		95% Modified-t UCL (Johnson-1978)	2.4585E-4

Gamma GOF Test

A-D Test Statistic	1.583	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.809	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.37	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.244	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.421	k star (bias corrected MLE)	0.378
Theta hat (MLE)	2.5934E-4	Theta star (bias corrected MLE)	2.8852E-4
nu hat (MLE)	11.78	nu star (bias corrected)	10.59
MLE Mean (bias corrected)	1.0914E-4	MLE Sd (bias corrected)	1.7745E-4
		Approximate Chi Square Value (0.05)	4.315
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	3.797

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2.6790E-4	95% Adjusted Gamma UCL (use when n<50)	3.0439E-4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.912	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.24	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.237	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-14.48	Mean of logged Data	-10.67
Maximum of Logged Data	-6.908	SD of logged Data	1.753

Assuming Lognormal Distribution

95% H-UCL	8.2123E-4	90% Chebyshev (MVUE) UCL	2.2342E-4
95% Chebyshev (MVUE) UCL	2.8559E-4	97.5% Chebyshev (MVUE) UCL	3.7189E-4
99% Chebyshev (MVUE) UCL	5.4140E-4		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	2.2628E-4	95% Jackknife UCL	2.3526E-4
95% Standard Bootstrap UCL	2.1782E-4	95% Bootstrap-t UCL	0.00226
95% Hall's Bootstrap UCL	0.00109	95% Percentile Bootstrap UCL	2.2999E-4
95% BCA Bootstrap UCL	3.1647E-4		
90% Chebyshev(Mean, Sd) UCL	3.2280E-4	95% Chebyshev(Mean, Sd) UCL	4.1958E-4
97.5% Chebyshev(Mean, Sd) UCL	5.5390E-4	99% Chebyshev(Mean, Sd) UCL	8.1776E-4

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 8.18E-04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

General Statistics on Uncensored Data

Date/Time of Computation	2/13/2015 3:12:53 PM
User Selected Options	
From File	caprolactam.xls
Full Precision	OFF

From File: caprolactam.xls

General Statistics for Censored Datasets (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
;E_SVOCs|Caprolactam	14	32	1	13	92.86%	0.62	6.8	0.39	0	0	N/A

General Statistics for Raw Dataset using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
;E_SVOCs|Caprolactam	1	32	0.39	0.39	0.39	0.39	N/A	N/A	0	N/A	N/A

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
;E_SVOCs|Caprolactam	14	32	0.683	0.932	1.025	1.55	1.675	1.78	2.46	4.135	6.267

SURFACEWATER - DISSOIVED

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	2/13/2015 4:52:54 PM
From File	ECO_SW_Input.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

RA_SW_Metals|Barium

General Statistics

Total Number of Observations	10	Number of Distinct Observations	6
		Number of Missing Observations	0
Minimum	28	Mean	32.5
Maximum	36	Median	33
SD	2.677	Std. Error of Mean	0.847
Coefficient of Variation	0.0824	Skewness	-0.239

Normal GOF Test

Shapiro Wilk Test Statistic	0.941	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	34.05	95% Adjusted-CLT UCL (Chen-1995)	33.82
		95% Modified-t UCL (Johnson-1978)	34.04

Gamma GOF Test

A-D Test Statistic	0.326	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.724	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.266	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	161.2	k star (bias corrected MLE)	112.9
Theta hat (MLE)	0.202	Theta star (bias corrected MLE)	0.288
nu hat (MLE)	3225	nu star (bias corrected)	2259
MLE Mean (bias corrected)	32.5	MLE Sd (bias corrected)	3.058
		Approximate Chi Square Value (0.05)	2149
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	2131

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	34.15	95% Adjusted Gamma UCL (use when n<50)	34.45

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.332	Mean of logged Data	3.478
Maximum of Logged Data	3.584	SD of logged Data	0.0834

Assuming Lognormal Distribution

95% H-UCL	N/A	90% Chebyshev (MVUE) UCL	35.07
95% Chebyshev (MVUE) UCL	36.24	97.5% Chebyshev (MVUE) UCL	37.86
99% Chebyshev (MVUE) UCL	41.04		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	33.89	95% Jackknife UCL	34.05
95% Standard Bootstrap UCL	33.8	95% Bootstrap-t UCL	33.97
95% Hall's Bootstrap UCL	33.82	95% Percentile Bootstrap UCL	33.8
95% BCA Bootstrap UCL	33.7		
90% Chebyshev(Mean, Sd) UCL	35.04	95% Chebyshev(Mean, Sd) UCL	36.19
97.5% Chebyshev(Mean, Sd) UCL	37.79	99% Chebyshev(Mean, Sd) UCL	40.92

Suggested UCL to Use

95% Student's-t UCL 34.05

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

SURFACEWATER - TOTAL

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	2/13/2015 16:53
From File	ECO_SW_Input_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

RA_SW_Metals|Aluminum

General Statistics

Total Number of Observations	10	Number of Distinct Observations	9
		Number of Missing Observations	0
Minimum	230	Mean	380
Maximum	570	Median	355
SD	116.2	Std. Error of Mean	36.76
Coefficient of Variation	0.306	Skewness	0.289

Normal GOF Test

Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.166	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	447.4	95% Adjusted-CLT UCL (Chen-1995)	444
		95% Modified-t UCL (Johnson-1978)	447.9

Gamma GOF Test

A-D Test Statistic	0.314	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.725	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.18	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.267	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.77	k star (bias corrected MLE)	8.306
Theta hat (MLE)	32.28	Theta star (bias corrected MLE)	45.75
nu hat (MLE)	235.4	nu star (bias corrected)	166.1
MLE Mean (bias corrected)	380	MLE Sd (bias corrected)	131.8
		Approximate Chi Square Value (0.05)	137.3
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	132.8

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	459.7	95% Adjusted Gamma UCL (use when n<50)	475.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.945	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.438	Mean of logged Data	5.897
Maximum of Logged Data	6.346	SD of logged Data	0.312

Assuming Lognormal Distribution

95% H-UCL	469.7	90% Chebyshev (MVUE) UCL	493.4
95% Chebyshev (MVUE) UCL	544.6	97.5% Chebyshev (MVUE) UCL	615.8
99% Chebyshev (MVUE) UCL	755.6		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	440.5	95% Jackknife UCL	447.4
95% Standard Bootstrap UCL	438.1	95% Bootstrap-t UCL	448.7
95% Hall's Bootstrap UCL	438.1	95% Percentile Bootstrap UCL	437
95% BCA Bootstrap UCL	444		
90% Chebyshev(Mean, Sd) UCL	490.3	95% Chebyshev(Mean, Sd) UCL	540.2
97.5% Chebyshev(Mean, Sd) UCL	609.6	99% Chebyshev(Mean, Sd) UCL	745.7

Suggested UCL to Use

95% Student's-t UCL 447.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

General Statistics

Total Number of Observations	10	Number of Distinct Observations	7
		Number of Missing Observations	0
Minimum	33	Mean	36.6
Maximum	41	Median	36.5
SD	2.547	Std. Error of Mean	0.806
Coefficient of Variation	0.0696	Skewness	0.0565

Normal GOF Test

Shapiro Wilk Test Statistic	0.961	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.121	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	38.08	95% Adjusted-CLT UCL (Chen-1995)	37.94
		95% Modified-t UCL (Johnson-1978)	38.08

Gamma GOF Test

A-D Test Statistic	0.229	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.724	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.135	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.266	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	228.9	k star (bias corrected MLE)	160.3
Theta hat (MLE)	0.16	Theta star (bias corrected MLE)	0.228
nu hat (MLE)	4578	nu star (bias corrected)	3206
MLE Mean (bias corrected)	36.6	MLE Sd (bias corrected)	2.891
		Approximate Chi Square Value (0.05)	3076
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	3053

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	38.15	95% Adjusted Gamma UCL (use when n<50)	38.43

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.958	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.497	Mean of logged Data	3.598
Maximum of Logged Data	3.714	SD of logged Data	0.0698

Assuming Lognormal Distribution

95% H-UCL	N/A	90% Chebyshev (MVUE) UCL	39.02
95% Chebyshev (MVUE) UCL	40.12	97.5% Chebyshev (MVUE) UCL	41.64
99% Chebyshev (MVUE) UCL	44.64		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	37.92	95% Jackknife UCL	38.08
95% Standard Bootstrap UCL	37.87	95% Bootstrap-t UCL	38.01
95% Hall's Bootstrap UCL	38.12	95% Percentile Bootstrap UCL	37.9
95% BCA Bootstrap UCL	37.8		
90% Chebyshev(Mean, Sd) UCL	39.02	95% Chebyshev(Mean, Sd) UCL	40.11
97.5% Chebyshev(Mean, Sd) UCL	41.63	99% Chebyshev(Mean, Sd) UCL	44.61

Suggested UCL to Use

95% Student's-t UCL 38.08

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

General Statistics

Total Number of Observations	10	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	740	Mean	1079
Maximum	1400	Median	1100
SD	210.2	Std. Error of Mean	66.47
Coefficient of Variation	0.195	Skewness	-0.238

Normal GOF Test

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.14	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1201	95% Adjusted-CLT UCL (Chen-1995)	1183
		95% Modified-t UCL (Johnson-1978)	1200

Gamma GOF Test

A-D Test Statistic	0.248	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.725	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.166	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.266	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	27.67	k star (bias corrected MLE)	19.44
Theta hat (MLE)	39	Theta star (bias corrected MLE)	55.52
nu hat (MLE)	553.4	nu star (bias corrected)	388.7
MLE Mean (bias corrected)	1079	MLE Sd (bias corrected)	244.7
		Approximate Chi Square Value (0.05)	344
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	336.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1219	95% Adjusted Gamma UCL (use when n<50)	1246

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.95	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	6.607	Mean of logged Data	6.966
Maximum of Logged Data	7.244	SD of logged Data	0.204

Assuming Lognormal Distribution

95% H-UCL	1230	90% Chebyshev (MVUE) UCL	1290
95% Chebyshev (MVUE) UCL	1385	97.5% Chebyshev (MVUE) UCL	1517
99% Chebyshev (MVUE) UCL	1777		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1188	95% Jackknife UCL	1201
95% Standard Bootstrap UCL	1183	95% Bootstrap-t UCL	1194
95% Hall's Bootstrap UCL	1184	95% Percentile Bootstrap UCL	1180
95% BCA Bootstrap UCL	1175		
90% Chebyshev(Mean, Sd) UCL	1278	95% Chebyshev(Mean, Sd) UCL	1369
97.5% Chebyshev(Mean, Sd) UCL	1494	99% Chebyshev(Mean, Sd) UCL	1740

Suggested UCL to Use

95% Student's-t UCL 1201

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

General Statistics

Total Number of Observations	10	Number of Distinct Observations	9
		Number of Missing Observations	0
Minimum	2.1	Mean	2.69
Maximum	3.2	Median	2.75
SD	0.367	Std. Error of Mean	0.116
Coefficient of Variation	0.136	Skewness	-0.357

Normal GOF Test

Shapiro Wilk Test Statistic	0.956	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.118	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	2.902	95% Adjusted-CLT UCL (Chen-1995)	2.867
		95% Modified-t UCL (Johnson-1978)	2.9

Gamma GOF Test

A-D Test Statistic	0.279	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.724	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.137	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.266	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	57.51	k star (bias corrected MLE)	40.32
Theta hat (MLE)	0.0468	Theta star (bias corrected MLE)	0.0667
nu hat (MLE)	1150	nu star (bias corrected)	806.5
MLE Mean (bias corrected)	2.69	MLE Sd (bias corrected)	0.424
		Approximate Chi Square Value (0.05)	741.6
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	730.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2.925	95% Adjusted Gamma UCL (use when n<50)	2.969

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.136	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.742	Mean of logged Data	0.981
Maximum of Logged Data	1.163	SD of logged Data	0.141

Assuming Lognormal Distribution

95% H-UCL	2.935	90% Chebyshev (MVUE) UCL	3.05
95% Chebyshev (MVUE) UCL	3.213	97.5% Chebyshev (MVUE) UCL	3.44
99% Chebyshev (MVUE) UCL	3.884		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	2.881	95% Jackknife UCL	2.902
95% Standard Bootstrap UCL	2.875	95% Bootstrap-t UCL	2.878
95% Hall's Bootstrap UCL	2.863	95% Percentile Bootstrap UCL	2.86
95% BCA Bootstrap UCL	2.85		
90% Chebyshev(Mean, Sd) UCL	3.038	95% Chebyshev(Mean, Sd) UCL	3.195
97.5% Chebyshev(Mean, Sd) UCL	3.414	99% Chebyshev(Mean, Sd) UCL	3.843

Suggested UCL to Use

95% Student's-t UCL 2.902

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

General Statistics

Total Number of Observations	10	Number of Distinct Observations	5
		Number of Missing Observations	0
Minimum	120	Mean	140
Maximum	170	Median	140
SD	13.33	Std. Error of Mean	4.216
Coefficient of Variation	0.0952	Skewness	1.055

Normal GOF Test

Shapiro Wilk Test Statistic	0.875	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.3	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.28	Data Not Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	147.7	95% Adjusted-CLT UCL (Chen-1995)	148.4
		95% Modified-t UCL (Johnson-1978)	148

Gamma GOF Test

A-D Test Statistic	0.651	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.724	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.288	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.266	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	127.7	k star (bias corrected MLE)	89.43
Theta hat (MLE)	1.097	Theta star (bias corrected MLE)	1.565
nu hat (MLE)	2553	nu star (bias corrected)	1789
MLE Mean (bias corrected)	140	MLE Sd (bias corrected)	14.8
		Approximate Chi Square Value (0.05)	1691
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	1675

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	148	95% Adjusted Gamma UCL (use when n<50)	149.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.897	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.283	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.28	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.787	Mean of logged Data	4.938
Maximum of Logged Data	5.136	SD of logged Data	0.0925

Assuming Lognormal Distribution

95% H-UCL	N/A	90% Chebyshev (MVUE) UCL	152.3
95% Chebyshev (MVUE) UCL	157.9	97.5% Chebyshev (MVUE) UCL	165.6
99% Chebyshev (MVUE) UCL	180.8		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	146.9	95% Jackknife UCL	147.7
95% Standard Bootstrap UCL	146.4	95% Bootstrap-t UCL	149.8
95% Hall's Bootstrap UCL	167.4	95% Percentile Bootstrap UCL	147
95% BCA Bootstrap UCL	147		
90% Chebyshev(Mean, Sd) UCL	152.6	95% Chebyshev(Mean, Sd) UCL	158.4
97.5% Chebyshev(Mean, Sd) UCL	166.3	99% Chebyshev(Mean, Sd) UCL	182

Suggested UCL to Use

95% Student's-t UCL 147.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

General Statistics

Total Number of Observations	5	Number of Distinct Observations	4
		Number of Missing Observations	3
Minimum	1700	Mean	1900
Maximum	2200	Median	1800
SD	234.5	Std. Error of Mean	104.9
Coefficient of Variation	0.123	Skewness	0.581

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test

Shapiro Wilk Test Statistic	0.836	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.762	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.265	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.396	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	2124	95% Adjusted-CLT UCL (Chen-1995)	2102
		95% Modified-t UCL (Johnson-1978)	2128

Gamma GOF Test

A-D Test Statistic	0.52	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.678	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.275	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.357	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	83.97	k star (bias corrected MLE)	33.72
Theta hat (MLE)	22.63	Theta star (bias corrected MLE)	56.34
nu hat (MLE)	839.7	nu star (bias corrected)	337.2
MLE Mean (bias corrected)	1900	MLE Sd (bias corrected)	327.2
		Approximate Chi Square Value (0.05)	295.7
Adjusted Level of Significance	0.0086	Adjusted Chi Square Value	278.5

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2167	95% Adjusted Gamma UCL (use when n<50)	2301

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.838	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.762	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.396	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	7.438	Mean of logged Data	7.544
Maximum of Logged Data	7.696	SD of logged Data	0.121

Assuming Lognormal Distribution

95% H-UCL	2157	90% Chebyshev (MVUE) UCL	2209
95% Chebyshev (MVUE) UCL	2349	97.5% Chebyshev (MVUE) UCL	2544
99% Chebyshev (MVUE) UCL	2926		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	2073	95% Jackknife UCL	2124
95% Standard Bootstrap UCL	N/A	95% Bootstrap-t UCL	N/A
95% Hall's Bootstrap UCL	N/A	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A		
90% Chebyshev(Mean, Sd) UCL	2215	95% Chebyshev(Mean, Sd) UCL	2357
97.5% Chebyshev(Mean, Sd) UCL	2555	99% Chebyshev(Mean, Sd) UCL	2944

Suggested UCL to Use

95% Student's-t UCL 2124

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

General Statistics

Total Number of Observations	5	Number of Distinct Observations	3
		Number of Missing Observations	3
Minimum	0.0011	Mean	0.00126
Maximum	0.0016	Median	0.0011
SD	2.3022E-4	Std. Error of Mean	1.0296E-4
Coefficient of Variation	0.183	Skewness	1.016

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test

Shapiro Wilk Test Statistic	0.773	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.762	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.356	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.396	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.00148	95% Adjusted-CLT UCL (Chen-1995)	0.00148
		95% Modified-t UCL (Johnson-1978)	0.00149

Gamma GOF Test

A-D Test Statistic	0.71	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.678	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.383	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.357	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	39.75	k star (bias corrected MLE)	16.03
Theta hat (MLE)	3.1696E-5	Theta star (bias corrected MLE)	7.8581E-5
nu hat (MLE)	397.5	nu star (bias corrected)	160.3
MLE Mean (bias corrected)	0.00126	MLE Sd (bias corrected)	3.1466E-4
		Approximate Chi Square Value (0.05)	132.1
Adjusted Level of Significance	0.0086	Adjusted Chi Square Value	120.8

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.00153	95% Adjusted Gamma UCL (use when n<50)	0.00167

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.769	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.762	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.359	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.396	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-6.812	Mean of logged Data	-6.689
Maximum of Logged Data	-6.438	SD of logged Data	0.175

Assuming Lognormal Distribution

95% H-UCL	0.00153	90% Chebyshev (MVUE) UCL	0.00156
95% Chebyshev (MVUE) UCL	0.00169	97.5% Chebyshev (MVUE) UCL	0.00187
99% Chebyshev (MVUE) UCL	0.00224		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.00143	95% Jackknife UCL	0.00148
95% Standard Bootstrap UCL	N/A	95% Bootstrap-t UCL	N/A
95% Hall's Bootstrap UCL	N/A	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A		
90% Chebyshev(Mean, Sd) UCL	0.00157	95% Chebyshev(Mean, Sd) UCL	0.00171
97.5% Chebyshev(Mean, Sd) UCL	0.0019	99% Chebyshev(Mean, Sd) UCL	0.00228

Suggested UCL to Use

95% Student's-t UCL	0.00148

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

RA_SW_SVOCs|Anthracene

	General Statistics		
Total Number of Observations	10	Number of Distinct Observations	5
Number of Detects	1	Number of Non-Detects	9
Number of Distinct Detects	1	Number of Distinct Non-Detects	4

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable RA_SW_SVOCs|Anthracene was not processed!

RA_SW_SVOCs|Carbazole

	General Statistics		
Total Number of Observations	5	Number of Distinct Observations	4
		Number of Missing Observations	3
Number of Detects	1	Number of Non-Detects	4
Number of Distinct Detects	1	Number of Distinct Non-Detects	3

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable RA_SW_SVOCs|Carbazole was not processed!

General Statistics

Total Number of Observations	10	Number of Distinct Observations	6
Number of Detects	4	Number of Non-Detects	6
Number of Distinct Detects	4	Number of Distinct Non-Detects	2
Minimum Detect	0.021	Minimum Non-Detect	0.19
Maximum Detect	0.038	Maximum Non-Detect	0.21
Variance Detects	5.8917E-5	Percent Non-Detects	60%
Mean Detects	0.0298	SD Detects	0.00768
Median Detects	0.03	CV Detects	0.258
Skewness Detects	-0.124	Kurtosis Detects	-2.919
Mean of Logged Detects	-3.541	SD of Logged Detects	0.267

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.21	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0298	Standard Error of Mean	0.00384
SD	0.00665	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.0368	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.0361	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.0413	95% KM Chebyshev UCL	0.0465
97.5% KM Chebyshev UCL	0.0537	99% KM Chebyshev UCL	0.0679

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.268	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.25	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	19.26	k star (bias corrected MLE)	4.981
Theta hat (MLE)	0.00154	Theta star (bias corrected MLE)	0.00597
nu hat (MLE)	154.1	nu star (bias corrected)	39.85
MLE Mean (bias corrected)	0.0298	MLE Sd (bias corrected)	0.0133

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	20.03	nu hat (KM)	400.6
Approximate Chi Square Value (400.59, α)	355.2	Adjusted Chi Square Value (400.59, β)	347.8
95% Gamma Approximate KM-UCL (use when n>=50)	0.0336	95% Gamma Adjusted KM-UCL (use when n<50)	0.0343

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.02	Mean	0.0297
Maximum	0.0404	Median	0.0294
SD	0.00689	CV	0.231
k hat (MLE)	20.16	k star (bias corrected MLE)	14.18
Theta hat (MLE)	0.00148	Theta star (bias corrected MLE)	0.0021
nu hat (MLE)	403.2	nu star (bias corrected)	283.6
MLE Mean (bias corrected)	0.0297	MLE Sd (bias corrected)	0.0079
		Adjusted Level of Significance (β)	0.0267
Approximate Chi Square Value (283.55, α)	245.6	Adjusted Chi Square Value (283.55, β)	239.4
95% Gamma Approximate UCL (use when n>=50)	0.0343	95% Gamma Adjusted UCL (use when n<50)	N/A

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.955	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.225	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0297	Mean in Log Scale	-3.541
SD in Original Scale	0.00702	SD in Log Scale	0.24
95% t UCL (assumes normality of ROS data)	0.0338	95% Percentile Bootstrap UCL	0.0333
95% BCA Bootstrap UCL	0.0332	95% Bootstrap t UCL	0.0339
95% H-UCL (Log ROS)	0.0348		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.541	95% H-UCL (KM -Log)	0.0345
KM SD (logged)	0.232	95% Critical H Value (KM-Log)	1.909
KM Standard Error of Mean (logged)	0.134		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0699	Mean in Log Scale	-2.819
SD in Original Scale	0.035	SD in Log Scale	0.641
95% t UCL (Assumes normality)	0.0902	95% H-Stat UCL	0.123

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0368	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

RA_SW_SVOCs|Total High-molecular-weight PAHs

General Statistics

Total Number of Observations	10	Number of Distinct Observations	7
Number of Detects	7	Number of Non-Detects	3
Number of Distinct Detects	5	Number of Distinct Non-Detects	2
Minimum Detect	0.019	Minimum Non-Detect	0.19
Maximum Detect	0.07	Maximum Non-Detect	0.21
Variance Detects	5.4214E-4	Percent Non-Detects	30%
Mean Detects	0.0419	SD Detects	0.0233
Median Detects	0.035	CV Detects	0.556
Skewness Detects	0.326	Kurtosis Detects	-2.287
Mean of Logged Detects	-3.318	SD of Logged Detects	0.59

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.821	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.243	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0419	Standard Error of Mean	0.0088
SD	0.0216	95% KM (BCA) UCL	0.055
95% KM (t) UCL	0.058	95% KM (Percentile Bootstrap) UCL	0.056
95% KM (z) UCL	0.0563	95% KM Bootstrap t UCL	0.0609
90% KM Chebyshev UCL	0.0683	95% KM Chebyshev UCL	0.0802
97.5% KM Chebyshev UCL	0.0968	99% KM Chebyshev UCL	0.129

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.613	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.711	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.268	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.313	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.62	k star (bias corrected MLE)	2.164
Theta hat (MLE)	0.0116	Theta star (bias corrected MLE)	0.0193
nu hat (MLE)	50.68	nu star (bias corrected)	30.3
MLE Mean (bias corrected)	0.0419	MLE Sd (bias corrected)	0.0285

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	3.77	nu hat (KM)	75.41
Approximate Chi Square Value (75.41, α)	56.4	Adjusted Chi Square Value (75.41, β)	53.56
95% Gamma Approximate KM-UCL (use when n>=50)	0.056	95% Gamma Adjusted KM-UCL (use when n<50)	0.0589

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.019	Mean	0.0412
Maximum	0.07	Median	0.0371
SD	0.0198	CV	0.481
k hat (MLE)	4.693	k star (bias corrected MLE)	3.352
Theta hat (MLE)	0.00879	Theta star (bias corrected MLE)	0.0123
nu hat (MLE)	93.86	nu star (bias corrected)	67.03
MLE Mean (bias corrected)	0.0412	MLE Sd (bias corrected)	0.0225
		Adjusted Level of Significance (β)	0.0267
Approximate Chi Square Value (67.03, α)	49.19	Adjusted Chi Square Value (67.03, β)	46.55
95% Gamma Approximate UCL (use when n>=50)	0.0562	95% Gamma Adjusted UCL (use when n<50)	0.0594

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.832	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.251	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0405	Mean in Log Scale	-3.318
SD in Original Scale	0.0198	SD in Log Scale	0.502
95% t UCL (assumes normality of ROS data)	0.052	95% Percentile Bootstrap UCL	0.0512
95% BCA Bootstrap UCL	0.0512	95% Bootstrap t UCL	0.0534
95% H-UCL (Log ROS)	0.0596		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.318	95% H-UCL (KM -Log)	0.0637
KM SD (logged)	0.546	95% Critical H Value (KM-Log)	2.286
KM Standard Error of Mean (logged)	0.223		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0588	Mean in Log Scale	-3.019
SD in Original Scale	0.0334	SD in Log Scale	0.682
95% t UCL (Assumes normality)	0.0781	95% H-Stat UCL	0.109

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.058	95% KM (Percentile Bootstrap) UCL	0.056

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

General Statistics

Total Number of Observations	10	Number of Distinct Observations	5
Number of Detects	1	Number of Non-Detects	9
Number of Distinct Detects	1	Number of Distinct Non-Detects	4

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable RA_SW_SVOCs|Total Low-molecular-weight PAHs was not processed!

General Statistics

Total Number of Observations	10	Number of Distinct Observations	7
Number of Detects	7	Number of Non-Detects	3
Number of Distinct Detects	5	Number of Distinct Non-Detects	2
Minimum Detect	0.019	Minimum Non-Detect	0.19
Maximum Detect	0.07	Maximum Non-Detect	0.21
Variance Detects	5.4729E-4	Percent Non-Detects	30%
Mean Detects	0.0444	SD Detects	0.0234
Median Detects	0.053	CV Detects	0.527
Skewness Detects	-0.111	Kurtosis Detects	-2.43
Mean of Logged Detects	-3.259	SD of Logged Detects	0.606

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.813	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.27	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0444	Standard Error of Mean	0.00884
SD	0.0217	95% KM (BCA) UCL	0.058
95% KM (t) UCL	0.0606	95% KM (Percentile Bootstrap) UCL	0.058
95% KM (z) UCL	0.059	95% KM Bootstrap t UCL	0.0614
90% KM Chebyshev UCL	0.071	95% KM Chebyshev UCL	0.083
97.5% KM Chebyshev UCL	0.0996	99% KM Chebyshev UCL	0.132

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.766	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.711	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.289	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.313	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.612	k star (bias corrected MLE)	2.159
Theta hat (MLE)	0.0123	Theta star (bias corrected MLE)	0.0206
nu hat (MLE)	50.57	nu star (bias corrected)	30.23
MLE Mean (bias corrected)	0.0444	MLE Sd (bias corrected)	0.0302

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.208	nu hat (KM)	84.16
Approximate Chi Square Value (84.16, α)	64.01	Adjusted Chi Square Value (84.16, β)	60.97
95% Gamma Approximate KM-UCL (use when n>=50)	0.0584	95% Gamma Adjusted KM-UCL (use when n<50)	0.0613

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.019	Mean	0.0438
Maximum	0.07	Median	0.0474
SD	0.0199	CV	0.454
k hat (MLE)	4.742	k star (bias corrected MLE)	3.386
Theta hat (MLE)	0.00924	Theta star (bias corrected MLE)	0.0129
nu hat (MLE)	94.83	nu star (bias corrected)	67.71
MLE Mean (bias corrected)	0.0438	MLE Sd (bias corrected)	0.0238
		Adjusted Level of Significance (β)	0.0267
Approximate Chi Square Value (67.71, α)	49.78	Adjusted Chi Square Value (67.71, β)	47.11
95% Gamma Approximate UCL (use when n>=50)	0.0596	95% Gamma Adjusted UCL (use when n<50)	0.063

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.788	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.273	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.043	Mean in Log Scale	-3.259
SD in Original Scale	0.02	SD in Log Scale	0.515
95% t UCL (assumes normality of ROS data)	0.0546	95% Percentile Bootstrap UCL	0.0528
95% BCA Bootstrap UCL	0.0526	95% Bootstrap t UCL	0.0542
95% H-UCL (Log ROS)	0.0645		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.259	95% H-UCL (KM -Log)	0.0693
KM SD (logged)	0.561	95% Critical H Value (KM-Log)	2.309
KM Standard Error of Mean (logged)	0.229		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0606	Mean in Log Scale	-2.977
SD in Original Scale	0.0324	SD in Log Scale	0.672
95% t UCL (Assumes normality)	0.0794	95% H-Stat UCL	0.111

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0606	95% KM (Percentile Bootstrap) UCL	0.058

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

General Statistics on Uncensored Data

Date/Time of Computation	2/16/2015 10:01:04 AM
User Selected Options	
From File	ECO_SW_Input_a.xls
Full Precision	OFF

From File: ECO_SW_Input_a.xls

General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
SW_SVOCs|Anthracene	10	0	1	9	90.00%	0.19	0.27	0.018	0	0	N/A
_SW_SVOCs|Carbazole	5	3	1	4	80.00%	0.19	0.22	0.037	0	0	N/A
r-molecular-weight PAHs	10	0	1	9	90.00%	0.19	0.27	0.018	0	0	N/A

General Statistics for Raw Data Sets using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
SW_SVOCs|Anthracene	1	0	0.018	0.018	0.018	0.018	N/A	N/A	0	N/A	N/A
_SW_SVOCs|Carbazole	1	3	0.037	0.037	0.037	0.037	N/A	N/A	0	N/A	N/A
r-molecular-weight PAHs	1	0	0.018	0.018	0.018	0.018	N/A	N/A	0	N/A	N/A

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
SW_SVOCs|Anthracene	10	0	0.173	0.19	0.19	0.19	0.21	0.212	0.225	0.248	0.266
_SW_SVOCs|Carbazole	5	3	0.0982	0.159	0.19	0.19	0.21	0.212	0.216	0.218	0.22
r-molecular-weight PAHs	10	0	0.173	0.19	0.19	0.19	0.21	0.212	0.225	0.248	0.266

Attachment E

Calculation of the Groundwater DAF

Attachment E
Calculation of Groundwater DAF
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Groundwater discharge from MW-1 upper aquifer to the Anacostia (Q) = KIA
Calculation of A (lxh):

Elevation of top of silt-clay layer
-21.36 ft MLLW

Elevation of water table (low tide)
3.24 ft MLLW

Saturated thickness (h) of unconfined aquifer
24.6 ft

Width of boundary segment through which GW flows (l)
235 ft (distance from property boundary to halfway between MW-1 and MW-2, from Google Earth)

A= 5781 square ft

Calculation of K:

Average of K from slug tests:

MW-1A
0.00002596 ft/sec
0.00002817 ft/sec
0.00002737 ft/sec
0.0000275 ft/sec
0.00002781 ft/sec

K= 2.7362E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-1, MW-2, and MW-5

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-1A	1323686.71	448230.77	3.24
MW-2A	1323684.71	448456.98	4
MW-5A	1324032.04	448172.22	6.6

I= 0.011 ft/ft (calculated graphically by 3-point problem method)

Q= 0.00173998 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application (http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 0.00012518

Groundwater discharge from MW-1 lower aquifer to the Anacostia (Q) = KIA

Calculation of A (lxh):

Thickness of lower aquifer (h)

Top of LWZ (ft bgs)	Bottom of LWZ (ft bgs)	Thickness
39	52	13

Width of boundary segment through which GW flows (l)

235 ft (distance from property boundary to halfway between MW-1 and MW-2, from Google Earth)

A= 3055 square ft

Calculation of K:

Average of K from slug tests:

MW-1B
0.00005158 ft/sec
0.00005409 ft/sec
0.00005568 ft/sec
0.00005965 ft/sec
0.00007115 ft/sec
0.00005471 ft/sec

K= 0.00005781 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-1, MW-2, and MW-5

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-1B	1323686.71	448230.768	3.27
MW-2B	1323684.71	448456.975	3.54
MW-5B	1324032.04	448172.221	4.43

I= 0.004 ft/ft (calculated graphically by 3-point problem method)

Q= 0.00070644 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application
(http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 5.0823E-05

Groundwater discharge from MW-2 upper aquifer to the Anacostia (Q) = KIA
Calculation of A (lxh):

Elevation of top of silt-clay layer
-14.72 ft MLLW

Elevation of water table (low tide)
4 ft MLLW

Saturated thickness (h) of unconfined aquifer
18.72 ft

Width of boundary segment through which GW flows (l)
290 ft (distance from midpoint of MW-1 and MW-2 to midpoint of MW-2 and MW-3, from Google Earth)

A= 5428.8 square ft

Calculation of K:

Average of K from slug tests at 3 wells in the western portion of the site:

	MW-1A	MW-3A	MW-6A	
	0.00002596	8.022E-05	0.0000173	ft/sec
	0.00002817	0.0000565	2.399E-05	ft/sec
	0.00002737	5.023E-05	2.221E-05	ft/sec
	0.0000275	5.748E-05	2.251E-05	ft/sec
	0.00002781	4.915E-05	2.131E-05	ft/sec
		5.104E-05	1.976E-05	ft/sec
average	2.7362E-05	5.744E-05	2.118E-05	ft/sec

K= 3.2168E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-2, MW-3, and MW-6

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-2A	1323684.71	448456.98	4
MW-3A	1323686.31	448809.39	5.4
MW-6A	1324211.25	448553.86	5.8

I= 0.005 ft/ft (calculated graphically by 3-point problem method)

Q= 0.00087316 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application
(http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 6.2817E-05

Groundwater discharge from MW-2 lower aquifer to the Anacostia (Q) = KIA

Calculation of A (lxh):

Thickness of lower aquifer (h)

Top of LWZ (ft bgs)	Bottom of LWZ (ft bgs)	Thickness
35	53	18

Width of boundary segment through which GW flows (l)

290 ft (distance from midpoint of MW-1 and MW-2 to midpoint of MW-2 and MW-3, from Google

A= 5220 square ft

Calculation of K:

Average of K from slug tests at 3 wells in the western portion of the site:

	MW-1B	MW-3B	MW-6B	
	0.00005158	0.00008006	0.0000268	ft/sec
	0.00005409	0.00007025	0.00001901	ft/sec
	0.00005568	0.00007011	0.00002869	ft/sec
	0.00005965	0.00005106	0.00002498	ft/sec
	0.00007115	0.00009747	0.00002324	ft/sec
	0.00005471	0.0000648	0.00001652	ft/sec
average	0.00005781	7.2292E-05	2.3207E-05	ft/sec

K= 4.5945E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-1, MW-2, and MW-5

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-2B	1323684.71	448456.975	3.54
MW-3B	1323686.31	448809.394	4.5
MW-6B	1324211.25	448553.855	6.0

I= 0.005 ft/ft (calculated graphically by 3-point problem method)

Q= 0.00150884 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application (http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 0.00010855

Attachment E
Calculation of Groundwater DAF
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Groundwater discharge from MW-3 upper aquifer to the Anacostia (Q) = KIA

Calculation of A (lxh):

Elevation of top of silt-clay layer
-8.42 ft MLLW

Elevation of water table (low tide)
5.4 ft MLLW

Saturated thickness (h) of unconfined aquifer
13.82 ft

Width of boundary segment through which GW flows (l)
330 ft (distance from midpoint of MW-2 and MW-3 to midpoint of MW-3 and MW-4, from Google

A= 4560.6 square ft

Calculation of K:

Average of K from slug tests:

MW-3A
8.022E-05 ft/sec
0.0000565 ft/sec
5.023E-05 ft/sec
5.748E-05 ft/sec
4.915E-05 ft/sec
5.104E-05 ft/sec

K= 5.872E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-3, MW-4, and MW-8

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-3A	1323686.3	448809.39	5.4
MW-4A	1323752.9	449113.68	5.55
MW-8A	1324070.2	449146.9	5.7

I= 0.0006 ft/ft (calculated graphically by 3-point problem method)

Q= 0.000160668 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application
(http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 1.15589E-05

Groundwater discharge from MW-3 lower aquifer to the Anacostia (Q) = KIA

Calculation of A (lxh):

Thickness of lower aquifer (h)

Top of LWZ (ft bgs)	Bottom of LWZ (ft bgs)	Thickness
40	50	10

Width of boundary segment through which GW flows (l)

330 ft (distance from property boundary to halfway between MW-1 and MW-2, from Google Earth)

A= 3300 square ft

Calculation of K:

Average of K from slug tests:

MW-3B

0.00008006 ft/sec
0.00007025 ft/sec
0.00007011 ft/sec
0.00005106 ft/sec
0.00009747 ft/sec
0.0000648 ft/sec

K= 7.2292E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-3, MW-4, and MW-7

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-3B	1323686.31	448809.394	4.5
MW-4B	1323752.88	449113.68	4.66
MW-7B	1324287.51	448860.381	7.2

I= 0.005 ft/ft (calculated graphically by 3-point problem method)

Q= 0.00119281 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application (http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 8.5814E-05

Groundwater discharge from MW-4 upper aquifer to the Anacostia (Q) = KIA

Calculation of A (lxh):

Elevation of top of silt-clay layer
-9.95 ft MLLW

Elevation of water table (low tide)
5.55 ft MLLW

Saturated thickness (h) of unconfined aquifer
15.5 ft

Width of boundary segment through which GW flows (l)
250 ft (distance from midpoint of MW-3 and MW-4 to midpoint of MW-4 and MW-8, from Google Earth)

A= 3875 square ft

Calculation of K:

Average of K from slug tests at 3 wells in the western portion of the site:

	MW-1A	MW-3A	MW-6A	
	2.596E-05	8.022E-05	0.0000173	ft/sec
	2.817E-05	0.0000565	2.399E-05	ft/sec
	2.737E-05	5.023E-05	2.221E-05	ft/sec
	0.0000275	5.748E-05	2.251E-05	ft/sec
	2.781E-05	4.915E-05	2.131E-05	ft/sec
		5.104E-05	1.976E-05	ft/sec
average	2.736E-05	5.744E-05	2.118E-05	ft/sec

K= 3.217E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-4, MW-6, and MW-8

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-4A	1323752.9	449113.68	5.55
MW-6A	1324211.3	448553.86	5.8
MW-8A	1324070.2	449146.9	5.7

I= 0.0005 ft/ft (calculated graphically by 3-point problem method)

Q= 5.3014E-05 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application (http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 3.8139E-06

Groundwater discharge from MW-4 lower aquifer to the Anacostia (Q) = KIA

Calculation of A (lxh):

Thickness of lower aquifer (h)

Top of LWZ (ft bgs)	Bottom of LWZ (ft bgs)	Thickness
35	45	10

Width of boundary segment through which GW flows (l)

250 ft (distance from midpoint of MW-3 and MW-4 to midpoint of MW-4 and MW-8, from Google

A= 2500 square ft

Calculation of K:

Average of K from slug tests at 3 wells in the western portion of the site:

	MW-1B	MW-3B	MW-6B	
	0.00005158	0.00008006	0.0000268	ft/sec
	0.00005409	0.00007025	0.00001901	ft/sec
	0.00005568	0.00007011	0.00002869	ft/sec
	0.00005965	0.00005106	0.00002498	ft/sec
	0.00007115	0.00009747	0.00002324	ft/sec
	0.00005471	0.0000648	0.00001652	ft/sec
average	0.00005781	7.2292E-05	2.3207E-05	ft/sec

K= 4.5945E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-4, MW-6, and MW-7

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-4B	1323752.88	449113.68	4.66
MW-6B	1324211.25	448553.855	6
MW-7B	1324287.51	448860.381	7.2

I= 0.004 ft/ft (calculated graphically by 3-point problem method)

Q= 0.0005781 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application (http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 4.15899E-05

Groundwater discharge from MW-8 upper aquifer to the Anacostia (Q) = KIA

Calculation of A (lxh):

Elevation of top of silt-clay layer

-6.4 ft MLLW

Elevation of water table (low tide)

5.7 ft MLLW

Saturated thickness (h) of unconfined aquifer

12.1 ft

Width of boundary segment through which GW flows (l)

440 ft (distance from midpoint of MW-4 and MW-8 to midpoint of MW-8 and MW-11, from Google Earth)

A= 5324 square ft

Calculation of K:

Average of K from slug tests at 3 wells in the northwest portion of the site:

	MW-3A	MW-6A	MW-11A	
	8.022E-05	0.0000173	1.376E-05	ft/sec
	0.0000565	2.399E-05	1.278E-05	ft/sec
	5.023E-05	2.221E-05	2.109E-05	ft/sec
	5.748E-05	2.251E-05	1.388E-05	ft/sec
	4.915E-05	2.131E-05	1.903E-05	ft/sec
	5.104E-05	1.976E-05	1.377E-05	ft/sec
average	5.872E-05	2.118E-05	1.572E-05	ft/sec

K= 2.694E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-8, MW-7, and MW-11

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-8A	1324070.2	449146.9	5.7
MW-7A	1324287.5	448860.38	7.3
MW-11A	1324624.3	449241.15	6.1

I= 0.0047 ft/ft (calculated graphically by 3-point problem method)

Q= 0.00146924 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application (http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 0.0001057

Groundwater discharge from MW-8 lower aquifer to the Anacostia (Q) = KIA

Calculation of A (Ixh):

Thickness of lower aquifer (h)

Top of LWZ (ft bgs)	Bottom of LWZ (ft bgs)	Thickness
50	60	10

Width of boundary segment through which GW flows (l)

440 ft (distance from midpoint of MW-4 and MW-8 to midpoint of MW-8 and MW-11, from Google Earth)

A= 4400 square ft

Calculation of K:

Average of K from slug tests at 3 wells in the northwest portion of the site:

	MW-3A	MW-6A	MW-11A	
	0.00008022	0.0000173	0.00001376	ft/sec
	0.0000565	0.00002399	0.00001278	ft/sec
	0.00005023	0.00002221	0.00002109	ft/sec
	0.00005748	0.00002251	0.00001388	ft/sec
	0.00004915	0.00002131	0.00001903	ft/sec
	0.00005104	0.00001976	0.00001377	ft/sec
average	5.7437E-05	0.00002118	1.5718E-05	ft/sec

K= 2.6741E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-8, MW-7, and MW-11

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-8B	1324070.24	449146.902	4.2
MW-7B	1324287.51	448860.381	7.2
MW-11B	1324624.32	449241.152	4.6

I= 0.009 ft/ft (calculated graphically by 3-point problem method)

Q= 0.00227449 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application (http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 0.00016363

Groundwater discharge from MW-11 upper aquifer to the Anacostia (Q) = KIA

Calculation of A (lxh):

Elevation of top of silt-clay layer
-23.5 ft MLLW

Elevation of water table (low tide)
6.1 ft MLLW

Saturated thickness (h) of unconfined aquifer
29.6 ft

Width of boundary segment through which GW flows (l)
500 ft (distance from midpoint of MW-8 and MW-1 to site boundary, from Google Earth)

A= 14800 square ft

Calculation of K:

Average of K from slug tests:

MW-11A
1.376E-05 ft/sec
1.278E-05 ft/sec
2.109E-05 ft/sec
1.388E-05 ft/sec
1.903E-05 ft/sec
1.377E-05 ft/sec

K= 1.572E-05 ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-11, MW-7, and MW-10

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-11A	1324624.3	449241.15	6.1
MW-7A	1324287.5	448860.38	7.3
MW-10A	1324574	448707.16	10.8

I= 0.0120 ft/ft (calculated graphically by 3-point problem method)

Q= 0.00279158 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application
(http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 0.00020083

Groundwater discharge from MW-11 lower aquifer to the Anacostia (Q) = KIA

Calculation of A (lxh):

Thickness of lower aquifer (h)

Top of LWZ (ft bgs)	Bottom of LWZ (ft bgs)	Thickness
50	61.8	11.8

Width of boundary segment through which GW flows (l)

500 ft (distance from property boundary to halfway between MW-1 and MW-2, from Google Earth)

A= 5900 square ft

Calculation of K:

Average of K from slug tests:

MW-11B	
3.333E-05	ft/sec
2.153E-05	ft/sec
2.161E-05	ft/sec
2.016E-05	ft/sec
0.0000233	ft/sec
2.235E-05	ft/sec
K= 2.371E-05	ft/sec

Calculation of I (dh/dL):

dh/dl = slope of the plane formed by gw level at MW-11, MW-7, and MW-10

	x (easting)	y (northing)	z (water level, ft MLLW)
MW-11B	1324624.3	449241.152	4.6
MW-7B	1324287.5	448860.381	7.2
MW-10B	1324574	448707.159	10.3

I= 0.012 ft/ft (calculated graphically by 3-point problem method)

Q= 0.001678904 cu.ft./sec

7Q10 Anacostia streamflow 13.9 cu.ft./sec

7Q10 estimated by USGS Maryland StreamStats application (http://water.usgs.gov/osw/streamstats/maryland.html)

DAF= 0.000120784

pepco

A PHI Company

Attachment F

Derivation of Critical Body Residues for Fish

Attachment F Table 1
Critical Body Residue Values Considered for Fish Tissue Evaluation
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Reference Identification	Lifestage	Species (Common name)	Concentration (mg/kg wet weight)	Effect	Endpoint
2164	Adult	Fathead minnow	1.28	Mortality	LOEC
2165	Adult	Fathead minnow	102	Mortality	LOEC
2172	Early life - Adult	Fathead minnow	11	Growth	LOEC
2192	Early life	Brook trout	77.9	Mortality	LOEC
2198	Early life	Brook trout	71	Growth	LOEC
2203	Adult	Fathead minnow	648	Mortality	LOEC
2205	Early life - Adult	Fathead minnow	83	Reproduction	LOEC
2229	Adult	Fathead minnow	0.36	Mortality	LOEC
2230	Adult	Fathead minnow	161	Mortality	LOEC
2233	Adult	Fathead minnow	0.45	Mortality	LOEC
JA264	Early life	Lake trout	202	Growth	LOEC
JA264	Early life	Lake trout	182	Growth	NOED
JA264	Early life	Lake trout	182	Growth	NOED
JA264	Early life	Lake trout	202	Growth	NOED
JA278	Early life	Brook trout	125	Mortality	LOEC
JA278	Early life	Brook trout	71	Mortality	NOED
JA28	Early life	Lake trout	1.53	Mortality	LOEC
JAW9	Early life	Rainbow trout	1.3	Mortality	LOEC
MEC04-046	Adult	Zebra Danio	0.14	Mortality	NOED
MEC04-046	Adult	Zebra Danio	1.9	Growth	NOED
MEC04-046	Adult	Zebra Danio	1.1	Mortality	LOEC
MEC04-046	Adult	Zebra Danio	0.14	Growth	LOEC
MEC04-046	Adult	Zebra Danio	1.9	Reproduction	NOED
MEC04-046	Adult	Zebra Danio	1.1	Reproduction	LOEC
URS104	Early life	Channel catfish	14.3	Growth	LOEC
URS14	Adult	Minnow	180	Growth	LOEC
URS14	Adult	Minnow	70	Mortality	LOEC
URS14	Adult	Minnow	15	Reproduction	LOEC
URS14	Adult	Minnow	1.6	Reproduction	NOEC
URS173	Early life	Lake trout	1.8	Growth	LOEC
URS173	Early life	Lake trout	2.4	Growth	LOEC
URS173	Early life	Lake trout	0.76	Growth	NOEC
URS234	Early life	Striped Bass	4.4	Growth	NOEC
URS94	Early life	Coho salmon	2.3	Growth	LOEC
URS94	Early life	Coho salmon	0.6	Growth	NOEC
Weston06-065	NS	Brook trout	0.15	Mortality	LOEC
Weston06-065	NS	Rainbow trout	0.28	Mortality	LOEC
Weston06-065	NS	Rainbow trout	0.46	Mortality	LOEC
Weston06-065	NS	Coho salmon	250	Growth	LOEC
Weston06-065	NS	Atlantic salmon	1.1	Growth	LOEC
Weston06-065	NS	Brook trout	12.5	Mortality	LOEC
Weston06-065	NS	Rainbow trout	150	Growth	LOEC
Niimi 1996	NS	Trout & minnow	>30	Reproduction	Reduced spawning/ hatching succcess
Niimi 1996	NS	Minnow	350	Reproduction	NOED
Nebeker et al. 1974	NS	Fathead minnow	105	Reproduction	NOED
Nebeker et al. 1974	NS	Fathead minnow	429	Reproduction	LOED
Hansen et al. 1974	NS	Sheepshead minnow	1.9	Reproduction	NOED
Hansen et al. 1974	NS	Sheepshead minnow	9.3	Reproduction	LOED

Notes:
LOEC/LOED - Lowest observed effect concentration/dose.
NOEC/NOED - No observed effect concentration/dose.
The Reference Identification corresponds to references presented in the reference table.
Tissue residue selection process:
1 - Select only whole body residues.
2 - Identify freshwater fish species.
3 - Identify Reproduction, Growth, and Survival/Mortality effects.
4 - Identify no-effect values that have no associated effects values and exclude the no-effect values.
5 - Identify range of acceptable no-effect and low-effect results for the selected receptor and effects.
Alternative effects levels (e.g., LC50) only presented if no acceptable no-effect or low-effect values are identified.

Reference ID	Year	Author	Journal
2164	1995	van Wezel AP, de Vries DAM, Kostense S,	Aquat Toxicol 33:325–342
2165	1995	van Wezel AP, de Vries DAM, Kostense S,	Aquat Toxicol 33:325–342
2172	1978	DeFoe DL, Veith GD, Carlson RW	J Fish Res Board Can 35:997–1002
2192	1975	Freeman HC, Idler DR	Can J Biochem 53:666–670
2198	1978	Mauck WL, Mehrle PM, Mayer FL	J Fish Res Board Can 35:1084–1088
2203	1995	van Wezel AP, de Vries DAM, Kostense S,	Aquat Toxicol 33:325–342
2205	1974	Nebeker AV, Puglisi FA, DeFoe DL	Trans Am Fish Soc 103:562–568
2229	1995	van Wezel AP, de Vries DAM, Kostense S,	Aquat Toxicol 33:325–342
2230	1995	van Wezel AP, de Vries DAM, Kostense S,	Aquat Toxicol 33:325–342
2233	1995	van Wezel AP, de Vries DAM, Kostense S,	Aquat Toxicol 33:325–342
JA264	1981	Mac MJ, JC Seelye	Bull Environ Contam Toxicol 27:359-367
JA278	1978	Mauck, W.L., P.M. Mehrle, and F.L. Mayer..	J Fish Res Bd Can 35:1084-1088
JA28	198	Berlin, W.H., R.J. Hesselberg, and M.J. Mac.	In Chlorinated Hydrocarbons as a Factor in the Reproduction and Survival of Lake Trout (Salvelinus namaycush) in Lake Michigan
JAW9	1975	Hogan, J.W., and J.L. Brauhn.	The Progressive Fish Culturist 37 (4):229-230
MEC04-046	1998	Orn, S., P.L. Anderson, L. Forlin, M. Tysklind, L. Norrgren.	Arch Environ Contam Toxicol 35:53-57
URS104	1976	Hansen, L.G., W.B. Wiekhorst and J. Simon.	J Fish Res Bd Can 33:1343-1352
URS14	1980	Bengtsson, B.E..	Water Res, 14:681-687
URS173	198	Mac, M.J. and J.G. Seelye.	Bull Environ Contam Toxicol 27:359-367
URS234	1983	Westin, D.T., Olney, C.E., Rogers, B.A..	Bull Environ Contam Toxicol 30:50-57
Niimi 1996	1996	Niimi AJ.	Environmental Contaminants in Wildlife Interpreting Tissue Concentrations
Nebeker et al. 1974	1974	Nebeker AV, Puglisi FA, DeFoe DL.	Trans Am Fish Soc 3:562-568.
Hansen et al. 1974	1974	Hansen DJ,Schimmel SC, and Forester J.	Proceedings of Southeastern Game Fish Commission
URS94	1976	Gruger, E.H., T. Hurley and N.L. Karrick.	Environ Sci Tech 10:1033-1037
Weston06-065	2002	Meador JP, TK Collier and JE Stein	Aquatic Conserv: Mar. Freshw Ecosyst. 12:493-516

Attachment G

Derivation of Toxicity Reference Values

1.0 Introduction

The ecotoxicity values utilized in this risk assessment, referred to herein as toxicity reference values (TRVs), represent conservative thresholds for ecological effects. TRVs can be defined as the daily dose of a constituent that is considered protective of wildlife (mammals and birds) populations or individuals. The dose is expressed in milligram per kilogram body weight per day (mg/kg$_{bw}$/day) and can be based on either a no observed adverse effects level (NOAEL) or a lowest observed adverse effects level (LOAEL).

The TRV relates the dose of a respective chemical from oral exposure with a potential adverse effect. TRVs incorporated into the quantitative evaluation of potential ecological risks to wildlife were obtained following a review of sources including the current USEPA Ecological Soil Screening Level (Eco-SSL) documents (www.epa.gov/ecotox/ecossl/), Oak Ridge National Laboratory's (ORNL) publication *Toxicological Benchmarks for Wildlife: 1996 Revision* (Sample et al., 1996), and other literature sources.

USEPA guidance (USEPA, 1997) specifies that it is preferred that TRVs represent a NOAEL for chronic exposure to site-related constituents. Should a NOAEL not be available, USEPA guidance allows the use of the lowest exposure level shown to produce adverse effects (i.e., the LOAEL) in the development of TRVs. Both upper and lower bound TRVs (LOAEL-based TRVs and NOAEL-based TRVs, respectively) were developed for this assessment in order to estimate a range of potential risks to mammalian and avian receptors. The NOAEL-based TRVs represent non-hazardous exposure levels for the wildlife species evaluated, while the LOAEL-based TRVs represent potential exposure levels at which adverse effects may become evident.

NOAEL-based TRVs were preferably based on chronic NOAELs, with an emphasis on studies that measured effects on survival, reproduction, and growth endpoints applicable to the protection of wildlife populations. The following steps were followed to select LOAEL-based TRVs:

- If a LOAEL was reported for the study used to derive the NOAEL-based TRV, that LOAEL value was selected as the LOAEL-based TRV;
- In the case where the geometric mean of several NOAELs for growth and reproductive endpoints was used as the NOAEL-based TRV (i.e., EcoSSL-based TRVs), the geometric mean of the LOAELs for growth and reproduction was calculated and selected as the LOAEL-based TRV;
- For EcoSSL-based TRVs, when the NOAEL-based TRV was based on a single NOAEL and no corresponding LOAEL was available, the upper-bound LOAEL for growth and reproduction was used; and
- For TRVs derived from other sources, a factor of 4 was applied to the NOAEL-based TRV to estimate a LOAEL-based TRV when a study-specific LOAEL was not available..

The derivation of the individual TRVs is discussed in the following section.

2.0 Wildlife Toxicity Reference Values for Polychlorinated Biphenyls (PCBs)

There are 209 possible polychlorinated biphenyl (PCBs) isomers. Since 1974, all uses of PCBs in the United States have been confined to closed systems such as electrical capacitors, electrical transformers, vacuum pumps, and gas-transmission turbines. PCBs are no longer produced in the United States except for limited research and development applications. Consumer products that may contain PCBs include old fluorescent lighting fixtures, electrical devices or appliances which incorporate PCB capacitors made before PCB use was stopped (ATSDR, 2000).

In animal studies, exposure to PCBs has been reported to cause possible liver, kidney, and central nervous system effects. Animals exposed to PCBs have also exhibited learning deficits, impaired immune function, cellular alterations of the thyroid, and reproductive effects such as decreased fertility, decreased conception, and disruption of the ovarian cycle (ATSDR, 2000).

The mammalian TRVs were developed by ORNL (Sample et al., 1996) based on a chronic toxicity study with mink exposure to Aroclor 1254 (Aulerich and Ringer, 1977 as cited in Sample et al., 1996). Aroclor 1254 was fed to mink in their diet at three concentrations (1, 5, and 15 ppm). Reproductive effects were observed over a period of 4.5 months. Mink exposed to 5 and 15 ppm Aroclor 1254 in their diet experienced a reduction in the number of offspring born alive. No effects were observed in the group exposed to 1 ppm Aroclor 1254 in the diet. This dose was considered the chronic NOAEL and the 5 ppm dose was considered to be the chronic LOAEL. Assuming a food consumption rate of 0.137 kg/day (Bleavins and Aulerich 1981 as cited in Sample et al., 1996) and a body weight of 1 kg (EPA 1993 as cited in Sample et al., 1996), the final chronic LOAEL and NOAEL were calculated to be 0.69 and 0.14 mg/kg_{bw}/day, respectively. Therefore, the LOAEL- and NOAEL-based TRVs for mammals were 0.69 mg/kg_{bw}/day and 0.14 mg/kg_{bw}/day respectively.

The avian TRVs were derived using the methodology of ORNL (Sample et al., 1996) based on a chronic toxicity study of ring-necked pheasant exposure to Aroclor 1254 (Dahlgren et al., 1972). Aroclor 1254 was administered weekly over 17 weeks to pheasants at 2 dose levels: 12.5 and 50 mg/bird/week. Reproductive effects were monitored and reduced egg hatchability was not impacted in the 12.5 mg/bird/week dose, but was reduced in the 50 mg/bird/week dose. Therefore, the lowest dose level was considered the chronic NOAEL. Assuming a body weight of 1 kg (EPA, 1993 as cited in Sample et al., 1996) the final chronic NOAEL was calculated to be 1.8 mg/kg_{bw}/day and the LOAEL was 7.2 mg/kg_{bw}/day. Therefore, the LOAEL- and NOAEL-based TRVs for birds were 7.2 mg/kg_{bw}/day and 1.8 mg/kg_{bw}/day respectively.

3.0 References

ATSDR. 2000. Toxicological Profile for Polychlorinated Biphenyls (PCBs). Agency for Toxic Substances and Disease Registry (ATSDR), Public Health Service. November 2000.

Dahlgren, R.B., R.L. Linder, and C.W. Carlson. 1972. Polychlorinated biphenyls: their effects on penned pheasants. Environmental Health Perspectives. 1: 89-101.

Sample, B. E., D.M. Opresko, G. W. Suter II. 1996. Toxicological Benchmarks for Wildlife: 1996 Revision. Oak Ridge National Laboratory, Oak Ridge, TN. June 1996. ES/ER/TM-86/R3.

USEPA, 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (Interim Final). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response. EPA 540/R-97/006. June, 1997.

Attachment H

Food Web Model

pepco
A PHI Company

Attachment H
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Table of Contents

Attachment H
Table 1 Wildlife Exposure Factors
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Receptor Species	Body Weight (kg)	Assumed Diet Fraction of diet as %; Amount as kg_{ww}/day Units	 Fish	Food Ingestion Rate (kg_{dw}/day)	Food Ingestion Rate (kg_{ww}/day)	Fraction Sediment in Diet (%) Amount as kg_{dw}/day	Water Intake Rate (kg/day)	Home Range (ha)	Exposure Duration (unitless)
			0.75						
Piscivores									
Great Blue Heron (*Ardea herodias*)	2.336 (a)	% kg_{ww}/day	100% 0.5812 (b)	0.1453 (c)	0.5812 (d)	5% 0.0073 (e)	0.1042 (f)	4.5 (g)	1 (h)
Belted kingfisher (*Megaceryle alcyon*)	0.147 (a)	% kg_{ww}/day	100% 0.0930 (b)	0.0233 (c)	0.0930 (d)	2% 0.0005 (e)	0.0164 (f)	1.65 (g)	1 (h)
Raccoon (*Procyon lotor*)	5.7 (a)	% kg_{ww}/day	100% 0.6082 (b)	0.1520 (c)	0.6082 (d)	9.4% 0.0143 (e)	0.4742 (f)	156 (g)	1 (h)

General Notes:

Food ingestion rates are wet weight for food items and dry weight for sediment/soil ingestion. As needed, rate may be converted.
Ingested diet and ingested abiotic media (i.e., soil or sediment) total 100% of dietary ingestion.
See individual organism notes for source, units, and conversion.
Moisture content of food items assumed to be as follows: 75% for Fish (USEPA, 1993).

BW - Body Weight.
COPC - Constituent of Potential Concern.
dw - Dry Weight.
FIR - Food Ingestion Rate.
ha - hectare.
USEPA - United States Environmental Protection Agency.
WIR - Water Ingestion Rate (1 L of water has weight of 1 kg).
ww - Wet Weight.

Footnotes for individual species parameters and assumptions presented on next pages.

Attachment H
Table 1 Wildlife Exposure Factors
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Notes for Great Blue Heron (*Ardea herodias*):
(a) Average body weight of adult male and female herons (USEPA, 1993).
(b) Diet assumed to be exclusively fish.
(c) Food ingestion rate calculated using algorithm for carnivorous birds developed by Nagy, 2001 [FIR (g_{dw}/day) = $0.849*BW^{0.663}$].
(d) Dry weight food ingestion rate converted to wet weight food ingestion rate:

$$FIR_{ww} = \text{Sum } \{[(\text{Proportion of food}_i \text{ in diet}) \times (FIR_{dw})] / (1\text{-moisture content}_i)\}$$

(e) Assumption for wading bird based on best professional judgement.
(f) Water ingestion rate calculated using algorithm for all birds developed by Calder and Braun, 1983 [WIR (kg/day) = $0.059*BW^{0.67}$].
(g) Average feeding territory size based on studies conducted in freshwater marsh and estuary in Oregon (USEPA, 1993).
(h) Great blue heron assumed to be present and actively foraging year-round.

Notes for Belted Kingfisher (*Megaceryle alcyon*):
(a) Average body weight of adult male and female kingfishers (USEPA, 1993).
(b) Diet assumed to be exclusively fish.
(c) Food ingestion rate calculated using algorithm for carnivorous birds developed by Nagy, 2001 [FIR (g_{dw}/day) = $0.849*BW^{0.663}$].
(d) Dry weight food ingestion rate converted to wet weight food ingestion rate:

$$FIR_{ww} = \text{Sum } \{[(\text{Proportion of food}_i \text{ in diet}) \times (FIR_{dw})] / (1\text{-moisture content}_i)\}$$

(e) Assumption for kingfisher based on best professional judgement.
(f) Water ingestion rate calculated using algorithm for all birds developed by Calder and Braun, 1983 [WIR (kg/day) = $0.059*BW^{0.67}$].
(g) Average territory (km shoreline) based on studies conducted in streams in Pennsylvania and Ohio (USEPA, 1993).
(h) Belted kingfisher assumed to be present and actively foraging year-round.

Notes for Raccoon (*Procyon lotor*):
(a) Average body weight of adult male and female raccoons in Illinois, Missouri, and Alabama studies (USEPA, 1993).
(b) Diet assumed to be exclusively fish.
(c) Food ingestion rate calculated using algorithm for omnivorous mammals developed by Nagy, 2001 [FIR (g_{dw}/day) = $0.432*BW^{0.678}$].
(d) Dry weight food ingestion rate converted to wet weight food ingestion rate:

$$FIR_{ww} = \text{Sum } \{[(\text{Proportion of food}_i \text{ in diet}) \times (FIR_{dw})] / (1\text{-moisture content}_i)\}$$

(e) Value for raccoon soil consumption (Table 4-4; USEPA, 1993).
(f) Water ingestion rate calculated using algorithm for all mammals developed by Calder and Braun, 1983 [WIR (kg/day) = $0.099*BW^{0.90}$].
(g) Mean of home ranges from Michigan study (USEPA, 1993).
(h) Raccoon assumed to be present and actively foraging year-round.

pepco
A PHI Company

Attachment H
Table 2 Abiotic Media and Fish Tissue Concentrations
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

	Measured Media Concentrations (a)					
COPC	**Sediment Maximum EPC (mg/kg_{dw})**	**Fish Tissue Maximum EPC (mg/kg_{ww})**	**Surface Water [Total] Maximum EPC (mg/L)**	**Sediment Average EPC (mg/kg_{dw})**	**Fish Tissue Average EPC (mg/kg_{ww})**	**Surface Water [Total] Average EPC (mg/L)**
POLYCHLORINATED BIPHENYLs (PCBs)						
Total PCBs	0.58	0.51	ND	0.32	0.22	ND

Notes:
(a) Sediment maximum and average EPCs are based on the 95% Upper Confidence Limit and arithmetic mean, respectively, which were calculated using ProUCL 5.0 (output presented in Attachment G). Fish tissue maximum and arithmetic average were calculated based on the concentrations of the seven fish composite samples in the Upper Anacostia River Sampling Area (presented in Table 5 of the ERA report).
COPC - Constituent of Potential Concern.
dw - Dry Weight.
EPC - Exposure Point Concentration.
ND - Not Detected.
ww - Wet Weight.

Attachment H
Table 3 Toxicity Reference Values
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

			NOAEL-based TRVs			LOAEL-based TRVs		
COPC	**Source**	**Target Species**	**Test Species**	**NOAEL ($mg/kg_{bw}/day$)**	**NOAEL Test Endpoint**	**Test Species**	**Test LOAEL ($mg/kg_{bw}/day$)**	**LOAEL Test Endpoint**
POLYCHLORINATED BIPHENYLs (PCBs)								
Total PCBs	Sample et al., 1996	Mammal	Mink	0.14	Reproduction	Mink	0.69	Reproduction
	Dahlgren et al., 1972	Bird	Ring-necked Pheasant	1.8	Reproduction	Ring-necked Pheasant	7.2	Reproduction

Notes:
BW - Body Weight.
COPC - Constituent of Potential Concern.
LOAEL - Lowest Observed Adverse Effects Level.
NOAEL - No Observed Adverse Effects Level.
TRV - Toxicity Reference Value.

TRV derivations described in Attachment F.

Attachment H
Table 4 Potential Risks to the Great Blue Heron
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

ASSUMPTIONS FOR THE GREAT BLUE HERON	
Body Weight (kg)	2.3
Exposure Duration	1
Area Use Factor	1
Sediment Consumption Rate (kg_{dw}/day)	0.0073
Water Consumption Rate (kg/day)	0.1042
Fish Consumption Rate (kg_{ww}/day)	0.5812

$$\text{Total Daily Dose} = \frac{\Sigma([IR_f \times C_f] + [IR_s \times C_s] + [IR_w \times C_w]) \times ED \times AUF}{\text{Body Weight}}$$

Where:
IR_f = Ingestion rate of food (kg/day)
IR_s = Incidental ingestion rate of sediment (kg/day)
IR_w = Ingestion rate of water (L/day)
C_f = Concentration of COPC in food (mg/kg)
C_s= Concentration of COPC in sediment or soil (mg/kg)
C_w = Concentration of COPC in water (mg/kg)
ED = Exposure duration (fraction of time receptor spends within exposure area)
AUF = Area use factor (ratio of the receptor's home range relative to the size of exposure area)

Notes:
BW - Body Weight.
COPC - Constituent of Potential Concern.
dw - Dry Weight.
EPC - Exposure Point Concentration.
HQ - Hazard Quotient (Dose/TRV).
LOAEL - Lowest Observed Adverse Effects Level.
NC - Not Calculated.
ND - Not Detected
NOAEL - No Observed Adverse Effects Level.
TRV - Toxicity Reference Value.
ww - Wet Weight.

HQs above 1 are bolded and highlighted.

SUPPORTING CALCULATIONS

MAXIMUM EPC	Media Concentrations			Potential Daily Dose (mg/kg_{bw}/day)							
COPC	Sediment (mg/kg_{dw})	Fish (mg/kg_{ww})	Surface Water [Total] (mg/L)	Sediment	Fish	Surface Water [Total]	Total	NOAEL-based TRV (mg/kg_{bw}/day)	NOAEL-based HQ	LOAEL-based TRV (mg/kg_{bw}/day)	LOAEL-based HQ
POLYCHLORINATED BIPHENYLs (PCBs)											
Total PCBs	0.58	0.51	ND	0.0018	0.127	NC	0.129	1.8	0.071	7.2	0.0179

AVERAGE EPC	Media Concentrations			Potential Daily Dose (mg/kg_{bw}/day)							
COPC	Sediment (mg/kg_{dw})	Fish (mg/kg_{ww})	Surface Water [Total] (mg/L)	Sediment	Fish	Surface Water [Total]	Total	NOAEL-based TRV (mg/kg_{bw}/day)	NOAEL-based HQ	LOAEL-based TRV (mg/kg_{bw}/day)	LOAEL-based HQ
POLYCHLORINATED BIPHENYLs (PCBs)											
Total PCBs	0.32	0.22	ND	0.0010	0.055	NC	0.056	1.8	0.031	7.2	0.0077

pepco
A PHI Company

Attachment H
Table 5 Potential Risks to the Belted Kingfisher
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

ASSUMPTIONS FOR THE BELTED KINGFISHER	
Body Weight (kg)	0.147
Exposure Duration	1
Area Use Factor	1
Sediment Consumption Rate (kg_{dw}/day)	0.0005
Water Consumption Rate (kg/day)	0.0164
Fish Consumption Rate (kg_{ww}/day)	0.0930

$$\text{Total Daily Dose} = \frac{\Sigma([IR_f \times C_f] + [IR_s \times C_s] + [IR_w \times C_w]) \times ED \times AUF}{\text{Body Weight}}$$

Where:
IR_f = Ingestion rate of food (kg/day)
IR_s = Incidental ingestion rate of sediment (kg/day)
IR_w = Ingestion rate of water (L/day)
C_f = Concentration of COPC in food (mg/kg)
C_s= Concentration of COPC in sediment or soil (mg/kg)
C_w = Concentration of COPC in water (mg/kg)
ED = Exposure duration (fraction of time receptor spends within exposure area)
AUF = Area use factor (ratio of the receptor's home range relative to the size of exposure area)

Notes:
BW - Body Weight.
COPC - Constituent of Potential Concern.
dw - Dry Weight.
EPC - Exposure Point Concentration.
HQ - Hazard Quotient (Dose/TRV).
LOAEL - Lowest Observed Adverse Effects Level.
NC - Not Calculated.
ND - Not Detected
NOAEL - No Observed Adverse Effects Level.
TRV - Toxicity Reference Value.
ww - Wet Weight.

HQs above 1 are bolded and highlighted.

SUPPORTING CALCULATIONS

MAXIMUM EPC	Media Concentrations			Potential Daily Dose (mg/kg_{bw}/day)							
COPC	Sediment (mg/kg_{dw})	Fish (mg/kg_{ww})	Surface Water [Total] (mg/L)	Sediment	Fish	Surface Water [Total]	Total	NOAEL-based TRV (mg/kg_{bw}/day)	NOAEL-based HQ	LOAEL-based TRV (mg/kg_{bw}/day)	LOAEL-based HQ
POLYCHLORINATED BIPHENYLs (PCBs)											
Total PCBs	0.58	0.51	ND	0.0018	0.322	NC	0.324	1.8	0.180	7.2	0.0450

AVERAGE EPC	Media Concentrations			Potential Daily Dose (mg/kg_{bw}/day)							
COPC	Sediment (mg/kg_{dw})	Fish (mg/kg_{ww})	Surface Water [Total] (mg/L)	Sediment	Fish	Surface Water [Total]	Total	NOAEL-based TRV (mg/kg_{bw}/day)	NOAEL-based HQ	LOAEL-based TRV (mg/kg_{bw}/day)	LOAEL-based HQ
POLYCHLORINATED BIPHENYLs (PCBs)											
Total PCBs	0.32	0.22	ND	0.0010	0.139	NC	0.140	1.8	0.078	7.2	0.0194

pepco
A PHI Company

Attachment H
Table 6 Potential Risks to the Great Blue Heron
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Total Daily Dose = $\frac{\Sigma([IR_f \times C_f] + [IR_s \times C_s] + [IR_w \times C_w]) \times ED \times AUF}{\text{Body Weight}}$

Where:
IR_f = Ingestion rate of food (kg/day)
IR_s = Incidental ingestion rate of sediment (kg/day)
IR_w = Ingestion rate of water (L/day)
C_f = Concentration of COPC in food (mg/kg)
C_s= Concentration of COPC in sediment or soil (mg/kg)
C_w = Concentration of COPC in water (mg/kg)
ED = Exposure duration (fraction of time receptor spends within exposure area)
AUF = Area use factor (ratio of the receptor's home range relative to the size of exposure area)

ASSUMPTIONS FOR THE RACCOON	
Body Weight (kg)	5.7
Exposure Duration	1
Area Use Factor	1
Sediment Consumption Rate (kg_{dw}/day)	0.0143
Water Consumption Rate (kg/day)	0.4742
Fish Consumption Rate (kg_{ww}/day)	0.6082

Notes:
BW - Body Weight.
COPC - Constituent of Potential Concern.
dw - Dry Weight.
EPC - Exposure Point Concentration.
HQ - Hazard Quotient (Dose/TRV).
LOAEL - Lowest Observed Adverse Effects Level.
NC - Not Calculated.
ND - Not Detected
NOAEL - No Observed Adverse Effects Level.
TRV - Toxicity Reference Value.
ww - Wet Weight.

HQs above 1 are bolded and highlighted.

SUPPORTING CALCULATIONS

MAXIMUM EPC	Media Concentrations			Potential Daily Dose (mg/kg_{bw}/day)							
COPC	Sediment (mg/kg_{dw})	Fish (mg/kg_{ww})	Surface Water [Total] (mg/L)	Sediment	Fish	Surface Water [Total]	Total	NOAEL-based TRV (mg/kg_{bw}/day)	NOAEL-based HQ	LOAEL-based TRV (mg/kg_{bw}/day)	LOAEL-based HQ
POLYCHLORINATED BIPHENYLs (PCBs)											
Total PCBs	0.58	0.51	ND	0.0015	0.054	NC	0.056	0.14	0.40	0.69	0.081

AVERAGE EPC	Media Concentrations			Potential Daily Dose (mg/kg_{bw}/day)							
COPC	Sediment (mg/kg_{dw})	Fish (mg/kg_{ww})	Surface Water [Total] (mg/L)	Sediment	Fish	Surface Water [Total]	Total	NOAEL-based TRV (mg/kg_{bw}/day)	NOAEL-based HQ	LOAEL-based TRV (mg/kg_{bw}/day)	LOAEL-based HQ
POLYCHLORINATED BIPHENYLs (PCBs)											
Total PCBs	0.32	0.22	ND	0.00081	0.023	NC	0.024	0.14	0.173	0.69	0.035

pepco
A PHI Company

Attachment H
Table 7 Summary of Potential Risks to Wildlife
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

HQs for Potential PCB Exposure					
Maximum EPC					
Great Blue Heron		Belted kingfisher		Raccoon	
NOAEL-based HQ	LOAEL-based HQ	NOAEL-based HQ	LOAEL-based HQ	NOAEL-based HQ	LOAEL-based HQ
0.071	0.0179	0.180	0.045	0.40	0.081
Average EPC					
Great Blue Heron		Belted kingfisher		Raccoon	
NOAEL-based HQ	LOAEL-based HQ	NOAEL-based HQ	LOAEL-based HQ	NOAEL-based HQ	LOAEL-based HQ
0.031	0.0077	0.078	0.0194	0.173	0.035

Notes:
HQs above 1 are bolded and highlighted.

EPC - Exposure Point Concentration.
HQ - Hazard Quotient.
LOAEL - Lowest Observed Adverse Effects Level.
NOAEL - No Observed Adverse Effect Level.
PCBs - Polychlorinated Biphenyls.

pepco
A PHI Company

Attachment H
Table 8 References Cited
Screening Level Food Web Model
Benning Road Facility RI/FS Project
3400 Benning Rd, N.E., Washington DC 20019

Calder, W.A. and E.J. Braun. 1983. Scaling of osmotic regulation in mammals and birds. American Journal of Physiology. 244: R601-R606.
Dahlgren, R.B., R.L. Linder, and C.W. Carlson. 1972. Polychlorinated Biphenyls: Their Effects on Penned Pheasants. Environ. Health Perspect. 1:89-101.
Nagy, K.A. 2001. Food requirements of wild animals: predictive equations for free-living mammals, reptiles, and birds. Nutrition Abstracts and Reviews, Series B 71, 21R-31R.
Sample, B. E., D.M. Opresko, G. W. Suter II. 1996. Toxicological Benchmarks for Wildlife: 1996 Revision. Oak Ridge National Laboratory, Oak Ridge, TN. June 1996. ES/ER/TM-86/R3.
U.S. Environmental Protection Agency (USEPA). 1993. Wildlife Exposure Factors Handbook. Vols. I and II. Office of Research and Development; Washington, D.C. EPA/600-R/R-93/187a,187b.