AECOM Environment

Submitted to:
Town of Greenwich
Department of Public Works
Town Hall
101 Field Point Road
Greenwich, CT 06836-2540

Submitted by:
AECOM
Fort Collins, Colorado
60225155.0600
March 2013

Screening Level Ecological Risk Assessment

Greenwich High School
Greenwich, CT

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Prepared By
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Executive Summary

The screening level ecological risk assessment (SLERA) evaluated risks potentially attributable to compounds in sediment and surface water associated with the site-related reach of West Brothers Brook (including Cider Mill Pond), which traverses the Greenwich High School (GHS) Site. This SLERA was conducted in accordance with United States (U.S.) Environmental Protection Agency (EPA) ecological risk assessment guidance and provides estimates of potential risk to plants and animals that live in or obtain food and water resources from West Brothers Brook and associated Cider Mill Pond.

Screening Level Ecological Risk Assessment Process

In accordance with EPA guidance, the risk assessment process includes three primary components: 1) problem formation, 2) risk analysis (exposure and toxicity characterization), and 3) risk characterization. Within this context, the SLERA includes the following steps:

- Step 1: Screening Level Problem Formulation. A presentation of the tools and sources to be used in development of an ecological conceptual site model (CSM). The CSM describes the current understanding of the Site including chemicals of potential ecological concern (COPECs), relevant exposure scenarios, and representative ecological receptors.
- Step 2: Initial Screening Level Evaluation. A preliminary (screening) evaluation. Step 2 includes exposure /risk estimation and characterization of risk based on the assumption of maximum exposure to site compounds and is intended to focus the SLERA to only those compounds and ecological receptors that require further site-specific evaluation.
- Step 3A: Refinement of COPECs. An iteration of Step 2 exposure/risk estimates and risk characterization. Step 3A applies site-specific information and more realistic exposure assumptions to further refine the COPECs (and affected receptors) to those requiring further consideration in subsequent studies.

The outcome of the SLERA is intended to support remedial decisions and/or provide the basis for additional evaluation.

Step 1 Problem Formulation

Based on Step 1 results, nine representative ecological receptors were included for Step 2 evaluation of potential risk based on exposure to surface water and sediment in West Brothers Brook and Cider Mill Pond. Representative receptors include:

- Aquatic Community (plants, invertebrates and fish), exposed directly to surface water;
- Amphibian Community (larvae/tadpoles), exposed directly to surface water;
- Benthic Community (invertebrates), exposed to sediment;
- Aquatic-Feeding Birds (mallard and great blue heron), exposed to sediment, surface water and biota; and
- Aquatic-Feeding Mammals (mink, raccoon and muskrat) exposed to sediment, surface water and biota.

Aquatic and amphibian communities were also conservatively evaluated based on assumed exposure at the groundwater-surface water interface (i.e., where groundwater is presumed to enter the brook) to determine whether groundwater is a potentially significant source to the brook.

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Step 2/Step 3A Screening Level Ecological Risk Assessment Results

Step 2 results defined receptors and COPECs to be carried forward into Step 3A, the final SLERA step. With the exception of the amphibian community, all remaining receptors and associated media were carried forward for Step 3A evaluation. For Step 3A, the aquatic community was evaluated by comparison of average (95 percent upper confidence limit [UCL]) surface water concentrations directly to protective screening criteria from Connecticut Department of Energy and Environmental Protection, EPA, and other sources. Similarly, the benthic invertebrate community was evaluated by comparison of average (95 percent UCL) sediment concentrations directly to protective screening criteria from EPA and a compendia of "probable effect" screening levels from the National Oceanic and Atmospheric Administration (NOAA). Bioavailability was also considered in the evaluation of the benthic community.

In Step 2/Step 3A, wildlife were evaluated based on a calculated exposure estimate that was compared to generally accepted toxicity data from a variety of sources including EPA. Step 3A exposure and toxicity assumptions were modified from the conservative assumptions applied in Step 2 to include exposure and toxicity assumptions directly relevant to the Site. Based on Step 3A evaluation, no risk is expected for wildlife living in and/or obtaining food or water resources from West Brothers Brook or Cider Mill Pond.

The results of Step 3A of the SLERA indicate the potential for unacceptable risk to the aquatic and benthic communities. For the aquatic community, West Brothers Brook average surface water concentrations were in excess of conservative screening levels for four COPECs. Two of these COPECs (barium and chlordane) may have off-site (upstream) natural and/or anthropogenic origin, as these were also detected at the upstream property boundary. The organic compounds pyrene and total summation of 4,4'-dichlorodiphenyltrichloroethane (4,4'-DDT), 4,4'-dichlorodiphenyl-dichloroethylene (4,4'-DDE),and 4,4'dichlorodiphenyldichloroethane (4,4'-DDD) (DDx) also exceeded their respective screening levels at a few sampling locations in West Brothers Brook and Cider Mill. However, both COPECs were detected infrequently and at, or only marginally above, the laboratory reporting limit and consequently their detected levels may be an artifact of analytical imprecision.

For the benthic community, the majority of impacts for sediment are noted in Cider Mill Pond from chlordane, which also impacts several locations in West Brothers Brook upstream of the pond. Chlordane impacts in sediment (and surface water) may be related, at least in part, to off-site anthropogenic sources and/or Site sources unrelated to fill material. The potential for unacceptable risk to sediment biota from PCBs is also indicated but is localized to a single location in Cider Mill Pond. Post Pond, which is located at the southern property boundary, receives outflow water from Cider Mill Pond and is not impacted (no exceedances of sediment screening levels).

Preliminary Remediation Goals

To address the potential for unacceptable risk identified for COPEC-receptor pairs in the exposure media discussed above, preliminary remediation goals (PRGs) that are protective of aquatic and benthic organisms are defined for risk drivers (i.e., COPECs that are responsible for all or the majority of reported risk based on the outcome of Step 3A). The PRG represents the concentration at and below which adverse effects are not expected; conversely, concentrations in excess of the PRG indicate a potential for unacceptable risk.

The following ecological PRGs based on surface water criteria and probable effect sediment levels are defined for the Site:

- Surface Water PRG: Chlordane (0.0043 micrograms per liter [µg/L]); and
- Sediment PRGs: Total PCBs (676 µg/kg) and Chlordane (17.6 µg/kg).

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PRGs are not provided for surface water barium, total DDX or pyrene as concentrations of these COPECs in surface water are uncertain (i.e., potential off-site influence) and definitive conclusions regarding potential site-related risk cannot be assessed at this time.

Selection of appropriate final remedial goals will occur subsequent to the SLERA, at the time of remedy selection, design, and implementation of the final remedy (or remedies) to be applied at the Site.

Recommended Next Steps

Further study of impacts by risk drivers affecting West Brothers Brook and Cider Mill Pond is warranted. Although the potential for unacceptable risk is present for these risk drivers, the potential source(s) of these compounds is not yet fully defined. Prior to consideration and implementation of remedial action, the following information should be obtained to better inform remedial decisions.

- Upstream/Background. Upstream (background) data in West Brothers Brook are an important line of evidence to assess the levels of both inorganic and organic COPECs observed in the brook. Determination of background levels will allow identification of potential current/on-going sources of impacts to the site-related reach of West Brothers Brook from upstream sources. Evaluation of metals, pesticides, polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) is warranted.

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List of Acronyms

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
AECOM	AECOM Technical Services, Inc.
AOC	areas of concern
AUF	area use factors
AVS	acid volatile sulfide
BAF	bioaccumulation factor
BCC	bioaccumulative chemical compound
BERA	Baseline Ecological Risk Assessment
BSAFs	biota-sediment accumulation factor
COPEC	contaminants of potential ecological concern
CSM	conceptual site model
CT DEEP	Connecticut Department of Energy and Environmental Protection
DDx	summation of 4,4'-dichlorodiphenyltrichloroethane (4,4'-DDT), 4,4'-dichlorodiphenyl-dichloroethylene (4,4'-DDE),and 4,4'dichlorodiphenyldichloroethane (4,4'-DDD)
DTC	Diversified Technology Consultants
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERA	Ecological Risk Assessment
ERAGS	Ecological Risk Assessment Guidance for Superfund
FS	Feasibility Study
GHS	Greenwich High School
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
IRM	Interim Remedial Measures
K_{ow}	octanol water partitioning coefficient
LOAEL	lowest observed adverse effect level
MDC	maximum detected concentrations
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MRL	maximum reporting limit
NOAA	National Oceanic and Atmospheric Administration
NOAEL	no observable adverse effect level

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NWI	National Wetland Inventory
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PEC	probable effect concentration
PEL	probable effect level
PRG	preliminary remediation goal
RI	Remedial Investigation
Site	Greenwich High School
SLERA	Screening Level Ecological Risk Assessment
SMDP	scientific management decision point
SQuiRT	Screening Quick Reference Tables
SVOC	semivolatile organic compound
T&E	threatened and endangered
TAL	target analyte list
TEL	threshold effect level
Town	Town of Greenwich
TRV	toxicity reference value
U.S.	United States
UCL	upper confidence limit
UF	uncertainty factor
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

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1.0 Introduction

On behalf of the Town of Greenwich (Town), AECOM Technical Services, Inc. (AECOM) presents this aquatic screening level ecological risk assessment (SLERA) conducted for the Greenwich High School (GHS) Site (Site) located at 10 Hillside Road in Greenwich, Fairfield County, Connecticut (**Figure 1-1**). The SLERA is one component of the investigation, data analysis, and remedial evaluation program established for the Site. Impacts to Site environmental media were assessed to determine the nature and extent of impacts potentially related to historical filling of a wetland area. Potential impacts due to historical construction actions as well as routine Site use and operations were also assessed. These data were further evaluated to determine whether impacts are present at concentrations that could present the potential for unacceptable risk to human health and/or the environment. To this end, the evaluation of risk to the environment posed by impacts to sediment and surface water is evaluated in this SLERA, and supplements the current Remedial Investigation (RI) (AECOM 2012a) and Human Health Risk Assessment (HHRA) (AECOM 2012b). These Site investigations and data analysis tasks in total are being conducted to support the development of the Feasibility Study for the Site.

The SLERA presented herein was specifically conducted to address potential impacts to surface water and sediment associated with the site-associated reach of West Brothers Brook, which traverses the Site. Potential impacts to Cider Mill Pond, an impoundment in the southeastern portion of the Site and part of West Brothers Brook, and Post Pond (an area of marsh/meadow below the outfall of Cider Mill Pond) are also specifically addressed. Upland (terrestrial) ecological habitat is limited or absent at the Site, which is an operating high school in a residential area, and therefore potential exposure to upland soil is not a potentially significant exposure pathway and is thus not addressed. The site-related reach of West Brothers Brook is shown in **Figure 1-2**.

The SLERA serves as a key component of the overall investigation strategy and is intended to inform subsequent steps of the project lifecycle process. This investigation process includes:

- **Remedial Investigation** – to identify the nature and extent of impacts present at the Site.
- **Human Health Risk Assessment** – to identify the potential for unacceptable risk to human health at the Site.
- **Ecological Risk Assessment** – to identify the potential for unacceptable risk to the environment (ecological resources) at the Site.
- **Feasibility Study** – to define preliminary remediation goals (PRGs) and evaluate remedial options for implementation at the Site.

The Feasibility Study (FS) will inform decisions regarding final remedy selection, design, and implementation of the final remedy (or remedies) to be applied at the Site. Please note that the RI (AECOM 2012a) and HHRA (AECOM 2012b) are presented separately. Development of the FS is currently in process.

Evaluation of ecological risk is intended to supplement the Remedial Investigation (AECOM 2012a), provide a basis for remedial decisions, define additional data requirements (if any), and provide sufficient information to support risk management decisions. To these ends, the scope of the SLERA is to estimate and evaluate the potential for unacceptable risk posed to ecological receptors from exposure to Site environmental media (i.e., surface water and sediment), with an overall objective of assuring protection of ecological resources associated with the Site.

1.1 Regulatory Basis and Key Guidance

The SLERA is based on United States (U.S.) Environmental Protection Agency (EPA) guidance per Connecticut Department of Energy and Environmental Protection (CT DEEP) recommendation and considers the following key guidance documents:

- **Ecological Risk Assessment Guidance for Superfund (ERAGS)** (EPA 1997a). ERAGS is specific guidance establishing the fundamental tiered process for assessing ecological risk at hazardous waste sites. This SLERA focuses on the first two steps of the EPA process (Screening Level Ecological Risk Assessment [SLERA]) and considers elements of EPA Step 3 (Baseline Ecological Risk Assessment [BERA][1]).
- **Guidelines for Ecological Risk Assessment (Guidelines)** (EPA 1998). This general guidance focuses on the process and theory of Ecological Risk Assessment (ERA) in the U.S.
- **The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments** (EPA 2001). This guidance provides clarification on sub-tiers in conducting an ERA and provides for iteration of screening level risks using site-specific data for refining contaminants of potential ecological concern (COPEC) as part of EPA Step 3 of the ERA process. Inclusion of this iteration allows for identification of COPECs, pathways, and receptors for risk management considerations within the context of the SLERA, and/or further evaluation in a baseline ERA (i.e., EPA Step 3).

The SLERA process to be implemented at the Site is discussed in the following section.

1.2 Ecological Risk Assessment Process

Ecological Risk Assessment is a two-tiered process: Tier 1 SLERA, and Tier 2 BERA. This SLERA is conducted in accordance with EPA ecological risk guidance (EPA 2001, 1998, 1997a). As presented in ERAGS, the SLERA encompasses Steps 1 and 2 of the EPA ERA process. The outcome of Step 2 represents an initial and highly conservative refinement of COPECs based on comparison to conservative screening levels, and/or based on a conservative screening level risk estimate for higher order receptors. For this SLERA, following Step 2 screening, the ERA process is complemented by an additional step (i.e., Step 3A). Step 3A honors the iterative ERA process outlined in ERAGS (EPA 1997a) and Guidelines (EPA 1998) and implements more recent EPA guidance (EPA 2001) that focuses on the refinement of COPECs (i.e., outside the context of a BERA [EPA Step 3]). This Step 3A, conducted within the context of the screening level ERA, enables identification of screening level risk estimates with site specific significance. The overall ERA process implemented for the Site and its relationship to the overall EPA process is provided in **Figure 1-3**. The SLERA presented herein consists of the following steps:

- **Step 1: Screening Level Problem Formulation.** This first step of the ERA process is consistent with EPA guidance (1998, 1997a). The intent of Step 1 is to present the tools and sources to be used in development of a conceptual site model (CSM). This step involves a qualitative assessment of the Site to determine area, medium, and receptor inclusion or exclusion in the ERA. Results of this evaluation provide the basis for developing this SLERA, which focuses on those areas, media, and receptors appropriate for further evaluation.

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[1] A Baseline Ecological Risk Assessment (BERA) is conducted for sites for which the screening level assessment indicates a need for further ecological risk evaluation. A revised scope and goals are defined for the BERA which incorporates additional site-specific information (e.g., tissue concentrations, toxicity tests) and proceeds through required EPA Steps 3 through 7, as appropriate.

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- **Step 2: Initial Screening Level Evaluation.** This second step corresponds to the first two steps of the eight-step ERA process defined by EPA 1997a (**Figure 1-3**). The evaluation is based on the assumption of maximum exposure to site constituents and is intended to focus the ERA to only those COPECs and key measurement receptors that require further site-specific evaluation. The outcome of the Step 2 evaluation is a list of COPECs and applicable receptors with unacceptable Step 2 risk, which are carried forward into Step 3A of the ERA process.
- **Step 3A: Refinement of COPECs.** Based on EPA guidance (EPA 2001, 1998, 1997a), EPA Step 3 provides for iteration of risk estimates by applying additional site-specific information to further refine the COPECs to those requiring remedial evaluation and/or additional evaluation via a BERA. The Step 3A (refinement of COPECs) incorporates elements of baseline risk (EPA Step 3) and is the final outcome of this SLERA, which represents a scientific management decision point (SMDP) (**Figure 1-3**). In most cases, the Step 3A refined risk estimate provides the basis for defining potential Site risk drivers with the overall goal of identifying and prioritizing additional data needs (i.e., BERA and/or early remedial action decisions for the Site).

The outcome Step 3A of this SLERA is the identification of Site risk drivers (i.e., COPECs that are responsible for all or the majority of reported risk) and associated media and ecological receptors, as noted above. The SLERA outcome is a SMDP and is intended to inform risk management decisions regarding how to proceed. Risk management decisions may include early remediation of all or part of the Site and/or additional assessment to further evaluate ecological conditions at the Site.

1.3 Screening Level Ecological Risk Assessment Contents

The following sections are included in the SLERA:

- **Section 2.0, Site Conditions**, provides a brief summary of current Site conditions and available data.
- **Section 3.0, Problem Formulation**, summarizes and identifies key ecological communities, receptors, appropriate Step 2 (and Step 3A) assessment and measurement endpoints, and the process for determining Site COPECs.
- **Section 4.0, Exposure and Toxicity Assessment**, presents sources, procedures, and assumptions for exposure and toxicity parameters applied in Steps 2 and 3A.
- **Section 5.0, Risk Characterization**, presents the methods and process to describe risk estimates assuming Steps 2 and 3A toxicity and exposure assumptions.
- **Section 6.0, Uncertainty Analysis**, presents a summary of the sources of uncertainty inherent to ERAs.
- **Section 7.0, Risk Conclusions**, presents a summary of the risk results and conclusions based on consideration of the Step 3A refinement of COPECs risk characterization and uncertainty analyses.
- **Section 8.0, References**, provides the sources of information used in the SLERA.

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2.0 Site Conditions

The Site is located at 10 Hillside Road in Greenwich, Fairfield County, Connecticut, at approximately 73.61 degrees west longitude and 41.04 degrees north latitude. Information obtained from the Town of Greenwich Tax Assessor's office indicates that the Site is owned by the Town and occupies 54.75 acres. A wetland, fed and drained by West Brothers Brook, existed at the Site before the parcels that make up the GHS Site were purchased by the Town. Prior to construction of the school in the mid-1960s, the brook was diverted in a concrete channel (to dry out the wetlands) and the wetland was filled and built up to current grades. AOC 1 (see **Figure 1-2**) is the area where imported fill material was used to backfill the wetlands that were historically located at the Site.

Additional Site history, setting, background and historical and current Site use are described in detail in the RI (AECOM 2012a) and will not be repeated here. Information pertinent to the ecological setting at the Site is provided below.

2.1 Current and Future Land Use

The Site is in an area zoned for single-family residential use (R-20) and is bounded by residential properties to the north and west, East Putnam Avenue to the south, and Hillside Road to the east (**Figure 1-2**). Residential properties are located beyond East Putnam Avenue and Hillside Road. The Site is currently an active public high school. The reasonably anticipated future land use at and surrounding the Site is expected to remain unchanged from current use. Current improvements include a high school building complex with multiple specific-use wings, paved parking areas, natural and artificial turf athletic fields, tennis courts, batting cages, landscaped areas and pedestrian walkways.

The SLERA is focused on West Brothers Brook, which traverses the Site, entering at the northwest property boundary and exiting at the southeast property boundary adjacent to East Putnam Avenue (**Figure 1-2**).

2.2 Previous Investigations

The following is a summary of the investigations performed at the Site to date. All of the reports and supporting information presented below have previously been made available to federal and state regulators and released to the public and are available at the Greenwich Public Schools Environmental Testing webpage. Please refer to the RI for full detail regarding these investigations.

- Diversified Technology Consultants (DTC) site wide surface soil sampling (July and August 2011) – focused investigation on the grass-covered athletic fields, grass-covered areas surrounding the athletic fields, and grass and soil covered areas on the southern portion of the Site.
- DTC Phase I ESA for the Site (August 2011) – summarized site historical information and identified nine areas of concern (AOCs). The Phase I ESA recommended that additional site investigation activities be performed;
- Interim Remedial Measures (IRMs) (September 2011) — IRMs were performed to allow for safe access to the athletic fields.
- AECOM soil investigation (October and November 2011) – conducted in support of the MISA construction activities. Several reports were generated based on this investigation:
  - MISA Investigation Report, AECOM, January 23, 2012.
  - Soil Remedial Action Report, AECOM, January 23, 2012.

  - Soil Remedial Action Report Addendum, AECOM, April 20, 2012.
  - Town of Greenwich Response to the EPA, Town of Greenwich, August 16, 2012.

- AECOM site wide investigation (December 2011) – investigation activities included collection of surface and subsurface soil samples, installation of groundwater monitoring wells and groundwater sampling, and sampling of surface water and sediments from the West Brothers Brook and Cider Mill Pond.
- AECOM drinking water supply and well surveys (March 2012) – conducted for all properties abutting the GHS Site and within a quarter-mile of the property boundary.
- AECOM supplemental site wide investigations (February and April 2012) – Investigation activities included collection of surface and subsurface soil samples, installation of additional groundwater monitoring wells, and collection of groundwater samples from new and existing wells.
- AECOM supplemental site wide investigation in June and July 2012 – Investigation activities included collection of surface and subsurface soil samples, installation of additional groundwater monitoring wells, collection of groundwater samples from new and existing wells, collection of sediment and surface water samples from West Brothers Brook and Cider Mill Pond, collection of ambient air samples site-wide, and collection of soil vapor samples from beneath and near the high school buildings.

2.3 Ecological Characteristics

The Site is an active high school located in an urban area. Of the identified potential ecological habitat at the Site, two habitat types were eliminated from further consideration in the SLERA that either lack significant ecological habitat to support diverse and abundant biological communities (under current or anticipated future conditions) or are not known to be impacted. In addition, the SLERA is focused on only those potential habitats located on Site (i.e., off site locations are not evaluated). The areas and habitats excluded from evaluation in the SLERA include:

- Upland/Terrestrial Areas. Upland (terrestrial) habitat is limited in extent and is considered "marginal" at the Site. Impervious cover and maintained areas make up the majority of the Site, which is occupied by buildings, paved parking areas, maintained/landscaped lawns and sports fields, all with minimal ecological habitat. Ecological habitat in these areas is either entirely absent or consists of limited areas of urban landscape narrow and discontinuous wooded corridors. Animal life is limited to occasional foraging by urbanized bird species (e.g., house sparrows, starlings, crows). Terrestrial areas are not evaluated in the SLERA.
- Off-site Areas. The SLERA does not specifically address off-site areas, which include a variety of habitat types that are consistent with the terrestrial habitat identified above and the aquatic habitat to be discussed subsequently.

Significant ecological habitat at the Site is thus limited to the aquatic habitat associated with the site-associated reach of West Brothers Brook.

2.3.1 Site Exposure Areas and Habitat

Two exposure areas (or Site subunits used to assess risk) have been defined based on habitat and site characteristics: West Brothers Brook and Cider Mill Pond. Sediments in West Brothers Brook (AOC 11) were subdivided into three AOCs for the purposes of the RI: AOC 11A (concrete-lined reach), AOC 11B (natural reach), and AOC 11C (Post Pond, marsh/meadow reach below Cider Mill Pond); and sediments in Cider Mill Pond are defined as AOC 12. Surface water, common to both the brook and the pond, were designated as AOC 15. Although Cider Mill Pond is a subpart of West Brothers Brook, it is included as a separate exposure area because it represents an area of

sedimentation, accumulating suspended sediment from upstream areas. Ecological habitat specific to each exposure area is summarized in **Table 2-1** and reviewed below. Photos depicting the site-related reach of West Brothers Brook are presented in **Appendix A**.

2.3.2 West Brothers Brook

West Brothers Brook is an urban stream that flows through urban residential areas upstream of the Site. The brook is classified as a Class AA Water of the State according to the Connecticut. As defined, designated uses for this classification include existing or proposed drinking water supplies; habitat for fish and other aquatic life and wildlife; recreation; and water supply for industry and agriculture. West Brothers Brook enters the property from the northwest, enters a concrete channel that follows the western Site boundary, then curves east between the football stadium (Field 1) and the baseball diamond (Field 2) before returning to a natural stream bed, which widens into a small and shallow (i.e., 1 to 2 feet in depth) surface water impoundment in the southeast corner of the Site (Cider Mill Pond). Water from Cider Mill Pond flows over two man-made dams into a small marshy area that is seasonally inundated (Post Pond) and then exits the property via a culvert under East Putnam Avenue (**Figure 1-2**). The site-related reach of the stream is characterized by a moderate channel width (4 to 6 feet), slow to moderate flow and shallow water (depth generally less than 1 foot) over a substrate dominated by bedrock outcrops (in the natural substrate reach) and fractured bedrock/sand/gravel. The riparian corridor is narrow or absent (especially near the concrete – lined reach) and where present is dominated by deciduous trees, grasses and herbaceous cover. The canopy above the channel is mostly open. The site-related reach of the stream is approximately 2984 linear feet (0.56 mile) in length and occupies a total footprint of about 2.4 acres.

After leaving the Site, West Brothers Brook merges with East Brothers Brook to the south of East Putnam Avenue. East Brothers Brook flows into Davis Mill Pond, an impoundment created by a man-made dam. Then water from Davis Mill Pond discharges via a spillway to the tidally-influenced Indian Harbor, which in turn discharges to Captain Harbor of Long Island Sound.

2.3.3 Cider Mill Pond

Cider Mill Pond occupies a shallow depression near the southeast corner of the Site and occupies approximately 0.77 acre under most flow conditions. Water depth in the pond varies from about 1 to 3 feet and is controlled by a constructed dam at its southern end, where two outfall areas are present. The pond contains macrophytes and algae populations and is also the recipient of some anthropogenic debris (tires, trash), and although not observed, likely supports a limited population of small fish, amphibians and reptiles. The area around the pond is wooded by deciduous trees, as well as some shrubs and herbaceous cover, providing limited cover/canopy for the pond. This area lies between the school and East Putnam Avenue and is in close proximity to the on-site tennis courts and court access/walking trail.

2.4 Sensitive Species and Habitats

Review of the potential presence of state and/or federally listed species is a key component of the SLERA. A review of potential threatened and endangered (T&E) species was conducted as part of the planned site work. Based on consultation with the U. S. Fish and Wildlife Service (USFWS) and the CT DEEP (for state-listed species), and site-specific assessment of potential habitat, no state and federally listed species were identified as a potential species expected to occur at or in association with the Site. **Appendix B** provides a listing of T&E species provided by CT DEEP and USFWS known to occur in Fairfield County and the assessment to determine potential Site T&E presence.

The presence of wetlands at or near the Site was also reviewed, via a desktop analysis, based on examination of data available from the USFWS National Wetland Inventory (NWI). Based on review of NWI data, no areas of emergent wetlands (or other environmentally sensitive areas) are known to be present in the area (at or within one-half mile of the Site). Wetlands are defined as those areas

"inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas" (EPA, as cited at http://water.epa.gov/type/wetlands/index.cfm). **Appendix B** provides a NWI map showing Cider Mill Pond and other nearby water bodies. Cider Mill Pond is designated as a palustrine unconsolidated bottom, permanently flooded and diked/impounded water body per NWI.

It is important to note that the focus on the NWI is to make available to the public inventoried wetland area maps and/or digital database resources that apply the USFWS wetland classification system, which describes key wetland attributes. The NWI also provides projections and reporting on national wetland trends. Review of the NWI is a preliminary step in establishing a need to conduct a "ground truth" survey and/or a detailed wetland delineation study (i.e., should emergent wetland areas be identified) per state and/or federal (i.e., United States Army Corps of Engineers) guidelines.

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3.0 Problem Formulation

The problem formulation synthesizes what is known or predicted for the Site in order to develop a CSM that will guide the SLERA process. The problem formulation identifies representative receptors drawn from the potential ecological receptors present at the Site, and develops assessment endpoints and measures of effect to evaluate ecological risk. Some receptors may be evaluated as individual populations or individuals of a species (i.e., receptor specific), while others are evaluated as ecological communities (i.e., community specific). The following parameters will be addressed in the problem formulation:

- Ecological fate and transport pathways and media of concern;
- Key habitats and receptors;
- Assessment and measurement endpoints;
- Conceptual Site Model; and
- Determination of site COPECs.

3.1 Ecological Fate and Transport Pathways and Media of Concern

Several potential migration pathways may allow exposure of receptors to Site-related chemicals. Fate and transport refers to movement of residual contaminants from primary sources of impact (e.g., spill, impoundment) to secondary and tertiary sources, all of which may be contacted by a receptor. Potentially significant migration pathways at the Site include movement and deposition of soil contaminants via wind generated dusts, overland surface flow/erosion following precipitation events, and vertical leaching through the soil column to underlying groundwater and movement of impacted groundwater into surface water of West Brothers Brook. As presented in the RI (AECOM 2012a), groundwater generally flows from north to south across the Site and exits along its southeast boundary. Groundwater contours indicate that groundwater discharges towards the surface water channel. Although hydraulic connectivity has not been positively established, it is assumed present for the purposes of the SLERA. Note that groundwater is not a primary medium of concern for ecological evaluation; however lateral transport of groundwater and mixing with West Brothers Brook is considered a potentially complete fate and transport pathway.

Exposure media, exposure areas and applicable receptors were detailed in **Table 2-1**. On the basis of Site observations and current conditions, the following media and pathways are considered potentially significant for ecological exposure:

- **Surface water, direct contact/indirect contact**. This pathway is potentially complete for aquatic/semi-aquatic wildlife receptors. Exposure assumes direct contact with surface water in West Brothers Brook and indirect exposure via ingestion of biota (e.g., (non-rooted) aquatic plants and invertebrates).
- **Sediment, direct contact/indirect contact.** This pathway is potentially complete for benthic and aquatic/semi-aquatic receptors. Exposure assumes direct contact to sediment and indirect exposure via ingestion of sediment biota (e.g., rooted aquatic plants and benthic invertebrates).

Potentially complete and significant pathways are put into the context of applicable assessment and measurement endpoints as discussed below.

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3.1.1 Key Habitats and Receptors

The key habitat identified for evaluation at the Site is limited to aquatic habitat. Pathways of exposure and selection of representative receptors known or expected to occur in association with aquatic habitat were determined based on site-specific information. **Table 3-1** presents an analysis of receptors and exposure pathways for the exposure areas defined above. **Table 3-2** presents each selected representative receptor and provides a concise summary of the pathways that will be evaluated in the SLERA. Considering all areas and habitats at the Site, the following representative ecological receptors are evaluated in the SLERA:

- Aquatic Receptors
  - Aquatic Community (plants, invertebrates and fish);
  - Amphibian Community (larvae);
  - Benthic Community (invertebrates);
  - Great Blue Heron (piscivorous bird);
  - Mallard (omnivorous bird); and
  - Muskrat (herbivorous mammal).
- Semi-Aquatic Receptors (evaluated for aquatic exposure);
  - Mink (carnivorous/piscivorous mammal); and
  - Raccoon (omnivorous mammal).

Rationale for selection of each of these receptors is provided in **Table 3-1**.

3.1.2 Assessment Endpoints and Measures of Effect

An Assessment Endpoint is an explicit expression of the environmental value to be protected (EPA 1997a). The measurement endpoint is the ecological characteristic that quantifies the assessment endpoint. The measurement endpoints for wildlife receptors (measurement receptors) are the maximum doses that are protective of the population under generally conservative (Step 2) and more site-specific (less conservative) Step 3A analysis assumptions. Assessment endpoints are based on population-level effects. Because of the difficulty in directly evaluating population-level effects, the evaluation is based on toxic effects to the individual and addresses exposure based on a no observed adverse effect level (NOAEL) toxicity reference value (TRV). The Step 3A evaluation indirectly approximates population effects by utilizing, as a surrogate, individual lowest observed adverse effect level (LOAEL) TRVs.

Table 3-3 presents the assessment and measurement endpoints to be considered in the SLERA. Risk questions are expressed in terms of productivity. For the purposes of this SLERA, *productivity* is defined as a combined measure of population-level endpoints, which include impairments to survival, growth, and reproduction, and are evaluated through calculation of risk-based dose levels under NOAEL or LOAEL assumptions.

3.1.3 Conceptual Site Model

The CSM integrates each component of the problem formulation detailed above (with consideration for analyte fate and transport pathways) to define exposure pathways for feeding guilds and representative species and presents them in the context of selected assessment endpoints. **Figure 3-1** presents the graphical CSM for the ecologically relevant exposure areas, receptors and habitat at the Site. **Figure 3-2** provides a food web model that further defines the CSM. The figures graphically show pathways, media, and receptors proposed for evaluation in the SLERA.

3.2 Determination of Site COPECs

The target analyte list (TAL) for the Site was defined based on the previous investigations listed in Section 2.0. Site history and background information is detailed in the RI (AECOM 2012a). The TAL includes metals, semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) and pesticides. These analytes are included in the selection process for determining COPECs.

3.2.1 Dataset

The surface water and sediment dataset available for use in the SLERA was collected during the AECOM site wide investigation (December 2011) and AECOM supplemental site wide investigation conducted in June and July 2012. The dataset has been validated and the analytical data have been determined to be adequate for risk assessment purposes; see Section 6 and Appendix E of the RI (AECOM 2012a).

The SLERA (and HHRA, AECOM 2012b) surface water/sediment dataset is based on the data collected in 2011 and 2012 by AECOM. The SLERA dataset was modified (i.e., filtered) to include only those data that are relevant for evaluating potential risk to ecological receptors. Summaries of these data are provided in **Table 3-4** for sediment, surface water and groundwater.

The Site investigation and media sampling strategy used to evaluate ecological exposures at the Site include:

- **Sediment and Surface Water**. Perennial surface water and sediment are present in West Brothers Brook. Forty one sediment samples (32 samples in December 2011) and 18 surface water samples (6 samples in December 2011 and the remaining in July 2012) were obtained from West Brothers Brook and associated Cider Mill Pond.

- **Groundwater**. Groundwater is not a primary medium of concern for the SLERA. However, as indicated previously, lateral transport of groundwater and mixing with West Brothers Brook is considered a potentially complete fate and transport pathway. Nine groundwater monitoring wells are present at the Site that are located within proximity to West Brothers Brook. Of these, data associated with eight well locations were included for evaluation in the SLERA (no data were available from MW-AP11, which was dry). Of these, four wells are located adjacent to the concrete-lined portion of West Brothers Brook and the remaining wells are adjacent to the "natural" portions of the brook. The monitoring wells were gauged for water levels and sampled for groundwater quality during the December 2011 AECOM initial site wide investigation, and AECOM supplemental site wide investigations conducted in February and April 2012 and June and July 2012. Groundwater samples obtained at these times were submitted for laboratory analyses. Note that all Site groundwater wells are addressed in the HHRA (AECOM 2012b). These adjacent wells are considered "indicator" wells due to their proximity to the brook and are conservatively used to evaluate the potential for migration and impact to the brook via the groundwater-surface water interface (transition zone). This recent groundwater dataset is used in the SLERA to evaluate current conditions.

Sample locations used in the SLERA are shown on **Figure 1-2**. The analytical data used in the SLERA are summarized in **Appendix C**. The results of the data collection investigations provide sufficient data to adequately evaluate environmental conditions at the Site.

3.2.2 COPEC Screening Process

The COPEC screening process is implicit in the overall ERA process, which serves to focus only those COPECs that are likely to result in exposures producing the potential for unacceptable risk. Inherent in the COPEC process is defining the initial set of COPECs by comparison of maximum detected site

concentrations to conservative screening concentrations protective of ecological receptors. **Figure 3-3** presents the site-specific COPEC selection process, consistent with EPA guidance (EPA 1994), and is comparable with the methodology presented for the HHRA (AECOM 2012b).

All COPECs identified in this process were carried forward for development of Step 2 risk estimates. Non-detected analytes with the maximum reporting limit (MRL) in excess of applicable screening levels are addressed in the uncertainty analysis.

3.2.2.1 Calculated Totals

For the ERA, some chemical compounds that are present in multiple forms (e.g., isomers, congeners and/or homologues) were summed. This process was implemented to accommodate those analytes for which screening levels and/or toxicity data are available on a "total" basis. The totals used for summing were based on the sum of the detected constituent parameters (non-detected parameters were not included in the sum; i.e., treated as zeros in summing). If none of the constituent parameters were detected, the total concentration was considered non-detected and was represented by the highest reporting limit (i.e., the MRL) for the constituent parameters. The following summarizes those chemical constituents that were summed and the component constituents comprising the totals:

Parameter	Constituent Parameters
Polychlorinated Biphenyls	
Total PCB Aroclors	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, Aroclor 1260, Aroclor 1262, and Aroclor 1268
Total PCB Homologues	monochlorobiphenyl, dichlorobiphenyl, trichlorobiphenyl, tetrachlorobiphenyl, pentachlorobiphenyl, hexachlorobiphenyl, heptachlorobiphenyl, octachlorobiphenyl, nonachlorobiphenyl, decachlorobiphenyl
Polycyclic Aromatic Hydrocarbons	
Total High Molecular Weight PAHs	benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene,[c] benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3,-c,d)pyrene, and pyrene
Total Low Molecular Weight PAHs	acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene; 1- and 2-methylnaphthalene are also included
Total PAHs	acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene,[c] benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3,-c,d)pyrene, naphthalene, phenanthrene, and pyrene; and 1- and 2-methylnaphthalene are also included
Pesticides	
Total endosulfan	alpha-endosulfan (endosulfan I), beta-endosulfan (endosulfan II), and endosulfan sulfate
Total DDx	4,4'-dichlorodiphenyltrichloroethane (4,4'-DDT), 4,4'-dichlorodiphenyldichloroethylene (4,4'-DDE),and 4,4'dichlorodiphenyldichloroethane (4,4'-DDD)
Volatile Organic Compounds	
Total Xylenes	o-xylene and m,p-xylene

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3.2.2.2 Ecological Screening Levels

The sources and hierarchy for selection of screening levels for application in the COPEC process are presented in **Table 3-5** for all target analytes. The primary sources include:

- For sediment, screening levels are derived from the National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRT) tables (Buchman 2008); and
- For surface water, levels are derived from Connecticut Water Quality Standards (CT DEEP 2011) and National Ambient Water Quality Criteria (EPA 2010).

Additional sources and hierarchy of selection are detailed in **Table 3-5**.

3.2.2.3 COPEC Screening Results

The complete COPEC evaluation conducted by medium for all detected and non-detected analytes is provided in **Appendix D**. Detected COPECs were retained for quantitative evaluation in the Step 2 SLERA. The chemical classes retained as COPEC are concisely summarized for surface water in **Table 3-6**, for sediment in **Table 3-7** and groundwater in **Table 3-8**, and summarized below:

- Surface Water – two metals (barium and copper), high molecular weight PAHs (pyrene), and pesticides (chlordane and total DDx) (i.e., the sum of [4,4'-DDT] and its by-products [4,4'-DDE] and 4,4'-DDD]).
- Sediment – ten metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, vanadium and zinc); total PAHs (including low and high molecular weight PAHs); total (Aroclor) PCBs; pesticides chlordane and total DDx; and VOCs (acetone and 2-butanone).
- Transition Zone Groundwater – barium only.

Note that PCBs, PAHs, and DDT and its products are evaluated on a totals basis in Step 2 and Step 3A.

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4.0 Exposure and Toxicity Assessment

4.1 Community-specific and Wildlife-Specific Evaluations

Ecological risk assessment involves evaluation of both community receptors and wildlife receptors. Community receptors (e.g., benthic invertebrates) are exposed to a given medium on a continuous basis. Conversely, wildlife receptors are exposed intermittently to potentially affected media as they are generally more mobile. In this context, assessment of community-level receptors is medium specific and therefore, exposure is evaluated by direct comparison of Site concentrations to available ecological screening concentrations.

The wildlife evaluation is receptor specific and is based on dose-response evaluations of individuals determined using Step 2 exposure and toxicity assumptions, or populations based on the Step 3A exposure and toxicity assumptions. The following sections describe the sources and methods for quantifying exposure and toxicity.

4.2 Exposure Assumptions

The exposure assessment presents the assumptions and parameters used to develop estimates of exposure. Per EPA (1997a) guidance, the SLERA is an evaluation based on conservative assumptions and is intended to eliminate COPECs with no potential to cause risk. To this end, the Step 2 initial COPEC screening serves to identify indicators of potential risk. A more-detailed Step 3A refinement of COPECs evaluation (EPA 2001, 1997a) allows for the identification and characterization of current and future risk using site-specific assumptions, and ultimately serves to define the scope for additional ERA tiers (e.g., baseline ERA) or as the basis for risk-based decisions.

Table 4-1 defines the specific differences in exposure assumptions used for the Step 2 screening and Step 3A refinement of COPECs and indicates where the site-specific and receptor-specific values are implemented in the SLERA process. Each exposure parameter is described in more detail in the following subsections.

4.2.1 Community-based Receptor Exposure

Community-based receptors are assumed to be exposed to contaminants on a continuous basis. For example, aquatic plant communities experience direct uptake via roots and/or foliage. Assessing contaminant exposure in ecological communities is, therefore, based upon the integration of all exposures into a single criterion for the media of exposure (i.e., the screening benchmark).

4.2.2 Wildlife Receptor Ingested Dose

Ingested doses to wildlife receptors are modeled using exposure point concentrations (EPCs) along with exposure parameters for a given representative receptor. The ingested dose equation for a wildlife receptor is presented below. The equation is adapted from the equation presented in EPA (2005).

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$$Dose\ (sediment) = [(S_j \times P_s \times FIR \times Af_{js}) + \sum_{i=1}^{n} B_i \times P_i \times FIR \times AF_{ji}\ ] \times AUF \quad [1]$$

$$Dose\ (water) = (W_j \times WIR \times Af_{jw} \times AUF_w) \quad [2]$$

Where:

AF_{ji}	=	absorbed fraction of j from biota i (assumed equal to 1)
AF_{jw}	=	absorbed fraction of j from water (assumed equal to 1)
AF_{js}	=	absorbed fraction of j from sediment (assumed equal to 1)
AUF	=	area use factor (Step 2=1, Step 3A=site specific)
AUF_w	=	area use factor for water (Step 2=1; Step 3A=site specific)
B_i	=	concentration of j in biota type i, where Bi = BAFi x Sj (plants, fish, and invertebrates), BAFi = bioaccumulation factor of j from sediment (or surface water) to food item i, on a dry weight basis (Step 2=90th percentile value, if known; Step 3A = median or typical value)
Dose	=	ingested dose based on direct and indirect contact to sediment (mg/kg) or direct contact to water (milligrams per liter [mg/L])
FIR	=	food ingestion rate (kg food – dry weight (dwt)/kg body weight (BW)-day) (literature value)
P_s	=	sediment/soil ingestion as a fraction of the diet (literature value)
P_i	=	proportion of biota i as part of the diet (literature value). (Step 2 = 100 percent dominant food item, Step 3A= typical species diet)
S_j	=	concentration of COPEC j in sediment (mg/kg)
W_j	=	concentration of COPEC j in water (mg/L)
WIR	=	water ingestion rate (L/kg BW-day) (literature value)

Exposure via inhalation in the absence of very high volatile organic compound concentrations is not considered significant for non-burrowing wildlife receptors (EPA 2005). Such conditions do not exist at the Site. Therefore, this exposure route is not considered for non-burrowing or burrowing animals. Dermal uptake is also considered insignificant relative to the dose from ingestion for most wildlife species in the absence of free product (EPA 2005). Neither of these pathways is considered in the ingested dose evaluations but is further addressed in the uncertainty discussion, as applicable.

4.2.3 Bioaccumulation Factors

Bioaccumulation factors (BAFs) are used to estimate prey tissue concentrations in the absence of empirical, site-specific data; this estimate is based on the product of the BAF and media concentration (e.g., S_j). BAFs were developed for each of the following biota: aquatic plants, sediment invertebrates, and fish. The BAFs for site-specific COPECs are presented in **Table 4-2**. The BAFs and hierarchy of sources for quantitatively evaluated media are summarized below.

- **Soil/Sediment to Plant BAF.** For metals and inorganics, the BAFs developed by Bechtel-Jacobs (1998a) are used as the primary source. Organic BAFs are modeled per the uptake relationship based upon the octanol water partitioning coefficient (K_{ow}) developed by EPA (2005) where applicable. Estimated plant uptake values (constants) are computed using the following relationship for analytes having a log K_{ow} between 3 and 8:

$$\log BAF_{soil/sediment\ to\ plant} = 1.781 - 0.4057 * \log K_{ow}\ (EPA\ 2005)$$

For those analytes with log K_{ow} outside of this range, the relationship presented by Travis and Arms (1988) is used, as cited in EPA (1999).

- **Sediment to Benthic Invertebrate BAF.** Uptake factors for sediment to benthic invertebrates for inorganics are based on values obtained from Bechtel-Jacobs (1998b). Organic BAFs (or rather biota-sediment accumulation factors [BSAFs] for invertebrates) are derived from EPA's Biota-Sediment Accumulation Factor Data Set (EPA 2012) or EPA's 2nd Edition of the National Sediment Quality Survey (EPA 2004) where available. For other organics lacking applicable values, a default value of 1 is used.
- **Surface Water to Fish BAF.** Uptake factors for surface water to fish are based on values obtained from EPA 2002 (National Recommended Water Quality Criteria), California Office of Environmental Health Assessment (OEHHA 2012) and EPA's EPI Suite database (EPA 2011a).
- **Sediment to Fish BSAF**. Uptake factors for sediment to fish (BSAFs) are based on values obtained from EPA's EPI Suite database (EPA 2011a) or EPA's 2nd Edition of the National Sediment Quality Survey (EPA 2004).

4.2.4 Life History Parameters

Life history parameters and exposure factors for wildlife receptors will be derived from EPA (2005, 1993) or calculated using the relationships cited therein with few exceptions. The life history parameters for wildlife receptors quantitatively evaluated in the SLERA are presented in **Table 4-3**.

Other pertinent parameters in assessing exposure are area use factors (AUF) and absorption factors (or bioavailability). The AUF is the site-specific ratio of the defined exposure area to the total area of foraging or home range of the receptor. Foraging areas obtained from EPA (1993) and other literature sources were applied to the site-defined exposure area(s). Area use factors for each receptor and applicable exposure area are presented in **Table 4-3**.

To return conservative estimates of risk, 100 percent bioavailability (i.e., AF=1) of site COPECs is assumed for both the Step 2 and Step 3A evaluations. Bioavailability issues are discussed qualitatively, as necessary, in the risk characterization and uncertainty analysis.

4.2.5 Exposure Point Concentrations

EPCs are the average or representative concentration of COPECs across a defined exposure area. As indicated in **Table 4-1**, EPCs for Step 2 are represented by the maximum detected concentration (MDC), and in Step 3A a central tendency (average) estimate was used to represent the EPC for each defined exposure area. In Step 3A, a central tendency EPC (95% upper confidence limit [UCL]) was developed for sediment and surface water COPEC were sufficient data were available. Sediment and surface water (and transition zone groundwater), are also evaluated on a sample point-by-sample point basis to provide a localized assessment for low mobility receptors (e.g., benthic community).

The following EPCs were applied for each receptor group using the datasets defined in Section 3.0:

- Step 2
  - Community Receptors/Wildlife Receptors – evaluated using EPC represented by the MDC as part of the initial COPEC screen; and
  - Wildlife Receptors – exposure/risk estimates developed using an EPC represented by the MDC.

- Step 3A
  - Community Receptors – evaluated on a sample point-by-sample point basis and with consideration for central tendency EPCs; and
  - Wildlife Receptors – evaluated using an EPC represented by an estimated central tendency (average) concentration for defined exposure area.

The EPC based on the central tendency for West Brother Brook sediment and surface water was developed per EPA (2002). In the Step 3A refinement of COPECs, the 95% UCL for each COPEC and defined exposure area was calculated using ProUCL version 4.1 (EPA 2011b) where adequate data density (i.e., n≥10) was available and COPEC detection (n≥5) was sufficient to compute a 95% UCL; otherwise the MDC was applied. The lower of the 95% UCL and MDC was used to represent the EPC in those instances where the distribution of the data skews the 95% UCL above the MDC. Use of the MDC in the Step 3A risk estimates is discussed in the uncertainty section. All EPCs for sediment and surface water COPECs are presented in **Table 4-4**. **Appendix E** provides a more comprehensive presentation of EPC calculations including ProUCL input/output and a summary of descriptive statistics for all COPECs.

4.3 Toxicity Assumptions

The following section outlines the development of and hierarchy for selection of wildlife TRVs used in the SLERA. **Table 4-5** presents the avian TRVs and **Table 4-6** presents the mammalian TRVs.

4.3.1 Higher Trophic Order Toxicity Reference Values

For wildlife receptors, two TRVs were developed based upon ingested dose and appropriate toxicological effect endpoint(s) (e.g., reproduction and growth):

- A NOAEL-based TRV applied in the Step 2 screening and Step 3A refinement of COPECs; and
- A LOAEL-based TRV applied in the Step 3A refinement of COPECs.

All TRVs were derived from recognized literature sources including (in order of preference) EPA (2005), Sample et al. (1996), EPA (1999), and others as available.

All toxicity study-based doses were adjusted for study duration and toxicological endpoint to chronic NOAEL and chronic LOAEL TRVs by application of uncertainty factors (UF) as applicable per EPA (1997b). All UFs are presented in **Table 4-7**. Refinement of the laboratory/study-based TRV to the relevant ecological receptor using intertaxon extrapolation was not done due to the associated uncertainties. Ecological TRVs were developed separately for birds and mammals; that is, no extrapolation across taxonomic classes was applied (e.g., mammalian toxicity data will not be extrapolated to birds or vice-versa). COPECs without available toxicity data are discussed in the uncertainty analysis.

The TRV available for total PAHs for birds was developed from a study conducted by Patton and Dieter (1980) based on a PAH mixture, as there is a paucity of reliable individual PAH toxicity values for avian species. For mammals, a hazard quotient (HQ) was developed for low molecular weight PAHs and high molecular PAHs as adequate toxicity data are available. A Hazard Index (HI) for PAHs, which approximates a total PAH risk level, is equal to the sum of the HQs for the low molecular weight and high molecular weight PAHs and is provided for comparative purposes for the evaluation of PAH risk to birds and mammals.

4.3.2 Community-level Receptors

Community receptors were evaluated using media-based screening concentrations or benchmarks. The approach for each defined community-level receptor is presented below.

- **Aquatic communities** – evaluated on a point-specific basis where concentrations were screened against medium-specific benchmarks protective of aquatic life. For Step 3A, these benchmarks are the freshwater aquatic life screening level as defined for the determination of COPECs (**Table 3-5**) but also consider central tendency EPC estimates in the brook.
- **Sediment (benthic) community** – evaluated using a two-tiered toxicity screening process. The Step 2 evaluation includes comparison of media concentrations to threshold effect (low) levels (e.g., TEC) per NOAA SQuiRTs (Buchman 2008) (**Table 3-5**), and supplemental sources (defined subsequently). The Step 3A evaluation compares media concentrations to the sediment probable effect benchmark (e.g., probable effect concentration [PEC] or probable effect level [PEL]) instead of the threshold sediment levels. The probable effect concentration screening benchmark is the concentration above which some adverse effects may be expected in more than 50 percent of benthic communities. The probable effect sediment benchmarks were derived from a combination of sources (defined subsequently).

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5.0 Risk Characterization

Risk characterization is the estimation and description of risk based on the exposure and toxicity assessment (EPA 1998, 1997a). The outcome of the SLERA (Step 3A refinement of COPECs) represents a SMDP (scientific management decision point) in which the conclusion of acceptable or unacceptable ecological risk is used to guide risk management decisions or define additional data needs to further characterize risk in a baseline ERA.

Assessment endpoints based on standardized media concentrations (i.e., terrestrial plants and invertebrates exposed to soil) are evaluated by comparison to appropriate benchmarks. For soil exposures there is a single, conservative benchmark for comparison for each receptor group. Long-term chronic risk cannot be ruled out when the media EPC (measured either as a MDC, 95% UCL, or point-by-point concentration) exceeds the benchmark. These benchmarks are generally based on the most sensitive members of the community, members which may or may not be present under site-specific conditions. In addition, as some degree of community level effect may be acceptable (e.g., a shift towards a more tolerant mix of species), this evaluation is highly conservative.

For higher trophic level wildlife receptors, the risk estimate is based on the HQ, defined as the ingested dose divided by the species-specific TRV:

$$HQ = \frac{DD}{TRV} \quad [3]$$

Where:

DD = estimated dietary dose expressed in like terms to that of the TRV (i.e., mg/kg-BW-day).

TRV = toxicity reference value in matching units to that of DD.

The HQ is not a predictor of risk but rather is an index used to rule out potential risk. A HQ ≤ 1 suggests that a given COPEC/receptor combination may be excluded from further consideration (i.e., potential risk is not likely). If a HQ=1 (unity) is exceeded, then the potential for risk cannot be ruled out for the given assessment endpoint. Note also that the magnitude of the HQ is not comparable across assessment endpoints (i.e., a HQ of 10 for one receptor is not necessarily “worse” than a HQ of 5 for another), as the underlying dose-response relationship is not linear nor comparable between species.

Except for PAHs, where toxic effects are generally considered additive based on a general narcosis model of toxicity (Di Toro and McGrath 2000; Di Toro et al. 2000), a cumulative HI is not calculated (EPA 1997a). For mammals, the HI for PAHs is equal to the sum of the HQ for low molecular weight PAHs and high molecular weight PAHs. For birds, an HI is not necessary as a total PAH TRV is available to derive an HQ.

Food web biotransfer from contaminated media to biota are based on assumptions that generally result in conservative estimates of exposure dose. Risk estimates will be based on the following:

- For the Step 2 screening, the dose and TRV was based on the most conservative assumptions including NOAEL-based toxicity values, predators feeding only on the most dominant dietary food item from a single location (MDC), and uptake factors (BAFs) based on the upper end of observed distributions. Risk estimates developed in Step 2 are not intended to serve as a basis for a SMDP but rather as a means to identify COPECs to be carried forward into the Step 3A refinement of COPECs analysis. The Step 2 risk estimates are tabulated and presented in the SLERA.

- The Step 3A refinement of COPECs has relaxed exposure and toxicity assumptions that provide a more site-specific and realistic estimate of risk. Specific differences in exposure and toxicity assumptions assumed for Step 2 and Step 3A analyses are contrasted in **Table 4-1**. For Step 3A, a risk estimate was computed based on site-specific exposure assumptions that consider the full distribution of exposure and effect. To this end, Step 3A risks are bounded by toxicity study duration endpoints based on a NOAEL-based and a LOAEL-based HQ. The bounded Step 3A risk estimates are tabulated and presented in the SLERA.

The outcome of the Step 3A refinement of COPECs represents a SMDP that provides the basis for risk management decisions for the Site. The Step 3A refinement of COPECs risk characterization criteria for key assessment endpoints are summarized below:

- Potential risk to wildlife species exposed to sediment, prey, and surface water are based on the Step 3A HQs (or the HI for PAHs for mammals). Exceedance of a HQ=1 (or HI=1 for PAHs) suggests that risk cannot be ruled out. Potential for risk that cannot be excluded based on the HQ is discussed further in the uncertainty analysis, in which additional factors are considered in qualifying the estimated risk, if applicable. Such factors include but are not limited to the contribution of local or regional background concentrations to the reported risk and bioavailability of COPECs based on dietary consumption.

Risk reported in the Step 3A risk characterization is carried forward for further consideration in the uncertainty analysis. The uncertainty analysis provides a means to discuss the uncertainties related to interpretation of risk characterization results. The uncertainty analysis is provided in Section 6.0.

5.1 Step 2 Screening Level Ecological Risk Characterization

This section summarizes the risk characterization results for the selected assessment endpoints under the screening level exposure and toxicity scenarios.

5.1.1 Surface Water Evaluation (Assessment Endpoints 1 and 2: Aquatic Community and Amphibians)

Table 5-1 shows a summary evaluation of surface water data against aquatic life and amphibian screening levels. The data are shown separately for each of the two exposure areas (West Brothers Brook and Cider Mill Pond) considered quantitatively as potential aquatic biota and amphibian habitat. Results of screening of the MDC against surface water screening levels protective of aquatic biota are:

- **West Brothers Brook (Site Wide)**. Metals: barium is the only metal that exceeds the surface water screening criteria. Organics: pyrene (and high molecular weight PAHs), as well as the pesticides chlordane and total DDx exceed the surface water criteria. The potential for unacceptable risk cannot be excluded from these COPECs. These COPECs are considered in Step 3A.
- **Cider Mill Pond.** Metals: barium is the only metal that exceeds the surface water screening criteria. Organics: pyrene (and high molecular weight PAHs), as well as pesticides chlordane and total DDx exceed the surface water criteria. The potential for unacceptable risk cannot be excluded from these COPECs. These COPECs are considered in Step 3A.

No exceedances were noted based on exceedance of amphibian screening levels. This receptor is not considered further.

In addition to the direct evaluation of surface water data, groundwater data from well locations near West Brothers Brook were evaluated to determine the likelihood of migration of groundwater to the surface water interface at concentrations exceeding surface water and/or amphibian screening levels, potentially causing impacts in the groundwater-surface water interface. Groundwater data were

compared directly to surface water and amphibian screening levels with no consideration of attenuation between the groundwater sample location and the point of presumed entry into the brook (see also Section 6.3.2). Eight monitoring wells installed near West Brothers Brook were selected as representative "transition zone groundwater". Because four of the eight wells are located adjacent to concrete engineered portion of West Brothers Brook, these data were not considered quantitatively; as transition into the brook is assumed "blocked" by the engineered channel. One round of groundwater data has been collected at each of the wells included for quantitative evaluation. All groundwater data for wells near the brook are shown in **Appendix C**.

- **Lower (Natural) West Brothers Brook transition zone**. Concentrations of barium (MDC=642 micrograms per liter [µg/L] in groundwater) only were above the screening level; however, the concentration is below the criteria for groundwater quality MCL of 2,000 µg/L (per EPA 2012 Regional Screening Levels). A groundwater background concentration is currently not available, so it is not clear whether the measured values exceed background. Site groundwater may contribute barium to West Brothers Brook at concentrations having a potential for adverse effects to aquatic biota within the transition zone (i.e., at the groundwater-surface water interface). However, concentrations of barium in surface water are consistent throughout the site-related reach of West Brothers Brook, suggesting that groundwater transition does not significantly contribute barium to the system. No other analytes exceeded the applicable screening level.

5.1.2 Sediment Evaluation (Assessment Endpoint 3: Benthic Invertebrate Community)

Table 5-2 shows the summary evaluation of sediment data against Step 2 and Step 3A screening levels protective of the benthic invertebrate community assessment endpoint. The data are shown separately for each of the two exposure areas considered quantitatively as benthic biota habitat. Only Step 2 evaluation is discussed in this section. Step 3A evaluation is discussed in Section 5.2. For the Step 2 screening level evaluation the appropriate screening level is the threshold effect level (TEL). This table also shows the results of the probable effect evaluation, to be explained further in the Step 3A evaluation, presented in Section 5.2. Sample location specific evaluation of applicable screening level exceedances is provided in **Appendix F**.

- **West Brothers Brook**. All metals show at least some exceedances of the threshold (low) level. Note that literature-based "background" concentrations were used for barium and vanadium screening. For organic chemicals, total PCBs (Aroclors), total PAHs and the pesticide chlordane exceed the applicable threshold screening level. The potential for unacceptable risk cannot be ruled out. Therefore, these COPECs are considered in Step 3A.
- **Cider Mill Pond**. Because the majority of MDCs are located in association with the pond, the results of the screening identify the same COPECs as those indicated when considering the entire site-related reach of the brook system as reported above (all metals, total PCBs, total PAHs and chlordane). These COPECs are considered in Step 3A.

5.1.3 Sediment Evaluation (Assessment Endpoints 4 and 5: Aquatic Feeding Birds)

Aquatic feeding birds were evaluated based on ingested dose via incidental ingestion of sediment and biological uptake via prey using the exposure assumptions described in Section 4.0. The Step 2 screening level evaluation is based on highly conservative assumptions: continual (lifelong and year round) exposure to the maximum concentration in the exposure area, NOAEL-based TRVs, and preferential feeding on the most contaminated food item.

Two assessment endpoints are addressed: an omnivorous bird (the mallard duck, and a piscivore, (great blue heron). Both receptors were evaluated assuming sediment contact, biota ingestion and ingestion of area surface water. **Table 5-3** shows the Step 2 results. Each representative receptor was

evaluated based on exposure to the entire site-related reach of the West Brothers Brook system, (including Cider Mill Pond) and Cider Mill Pond only.

- **West Brothers Brook**. For the mallard, Step 2 HQs greater than one are present for metals only: cadmium (HQ=1.1), chromium (HQ=2.6), copper (HQ=13.9), lead (HQ=6.7), nickel (HQ=2.2) vanadium (HQ=1.2) and zinc (HQ=3.4). For the heron, Step 2 HQs greater than one are present for pesticides only: chlordane (HQ=1.8) and total DDx (HQ=2.0). These COPEC and receptors will be evaluated under Step 3A assumptions.
- **Cider Mill Pond**. For the mallard, Step 2 HQs greater than one are present for metals only: cadmium (HQ=1.1), copper (HQ=13.9), lead (HQ=6.7), nickel (HQ=2.2) vanadium (HQ=1.2) and zinc (HQ=3.4). For the heron, Step 2 HQs greater than one are present for pesticides only: chlordane (HQ=1.8) and total DDx (HQ=2.0). These COPEC and receptors will be evaluated under Step 3A assumptions.

5.1.4 Sediment Evaluation (Assessment Endpoints 6, 7 and 8: Aquatic Feeding Mammals)

Aquatic feeding mammals were evaluated based on incidental ingestion of sediment and biological uptake via prey using the exposure assumptions described in Section 4. The Step 2 screening level evaluation is based on highly conservative assumptions: continual (lifelong and year round) exposure to the maximum concentration in the exposure area, NOAEL-based TRVs, and preferential feeding on the most contaminated food item.

Three assessment endpoints are addressed: an herbivorous mammal (the muskrat), an omnivorous mammal (the raccoon), and a carnivore/piscivore (the mink). All receptors were evaluated assuming sediment contact, biota ingestion and ingestion of area surface water. **Table 5-3** shows the Step 2 results. Each representative receptor was evaluated based on exposure to the entire site-related reach of West Brothers Brook and Cider Mill Pond only.

- **West Brothers Brook**. For the muskrat, Step 2 HQ greater than one is present for arsenic only (HQ=1.3). Modeled exposure to other metals results in HQs greater than one for the raccoon: cadmium (HQ=1.1), chromium (HQ=1.8), copper (HQ=5.4), lead (HQ=1.3), nickel (HQ=4.8) and zinc (HQ=1.6). For the mink, Step 2 HQ greater than one is present for organics only: total PAHs (HQ=3.0), and pesticides total DDx (HQ=3.5) and chlordane (HQ=1.1). These COPEC and receptors will be evaluated under Step 3A assumptions.
- **Cider Mill Pond**. For the muskrat, Step 2 HQ greater than one is present for arsenic only (HQ=1.3). Modeled exposure to other metals results in HQs great than one for the raccoon: cadmium (HQ=1.1), copper (HQ=5.4), lead (HQ=1.3), nickel (HQ=2.0) and zinc (HQ=1.6). For the mink, Step 2 HQ greater than one is present for organics only: total PAHs (HQ=2.3) and total DDx (HQ=3.5). Chlordane (HQ=1.0) is conservatively carried forward to Step 3A. These COPEC and receptors will be evaluated under Step 3A assumptions.

5.2 Step 3A Refinement of COPEC

In the refinement of COPEC step, exceedances of Step 2 screening criteria/HQs are further evaluated based on site-specific modifying factors (**Table 4-1**). These include:

- Consideration of background where available. Regional literature-based background concentrations are considered as applicable.
- Consideration of area averaged EPCs. For sediment and surface water data with sample size, the 95% UCL of the arithmetic mean is considered the EPC. The EPC defaults to the MDC if too few samples are available to calculate a reliable 95% UCL or if the 95% UCL is skewed higher than the MDC due to the presence of censored (ND) data.

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- Application of site-specific exposure assumptions for birds and mammals, as outlined in **Table 4-1**.
- Relaxation of the toxicity criteria by using LOAEL-based TRVs for birds and mammals.
- Use of probable effect (high) sediment criteria and SEM-AVS data (discussed below) to evaluate sediment biota.

In Step 3A refinement of COPEC, additional BERA-level sediment data are considered in assessing the potential for unacceptable risk to benthic organisms. Simultaneously extracted metal (SEM) and acid volatile sulfide (AVS) data were obtained as a means to predict the bioavailability of metals in sediments (Long et al. 1998). Many divalent metals, specifically copper, cadmium, nickel, lead, silver and zinc react with sulfide in sediments under reducing conditions to form insoluble metal sulfides. These insoluble metal sulfides are generally not available for uptake by sediment dwelling biota.

The SEM-AVS approach stipulates that if AVS molar concentrations in the sediment exceed the sum of the molar concentration (in units of μmol/g) of reactive sediment metals (i.e., $\sum SEM/AVS < 1$), then all divalent metals will react with sulfide and be "trapped" as insoluble metal sulfides. Conversely, if the sum of SEM concentrations is greater than the AVS concentration ($\sum SEM/AVS > 1$), free metal will exist in the sediment interstices and be available for uptake by sediment biota, potentially resulting in unacceptable risk.

It is important to note that, with the exception of silver, one mole of AVS reacts with one mole of SEM during the formation of metal sulfides. One mole of silver reacts with 2 moles of AVS (McGrath et al. 2002). SEM-AVS data are considered concurrent to evaluation of sediment using probable (high) screening levels.

The following subsections characterize the estimated risk for the endpoints carried through from Step 2.

5.2.1 Surface Water Evaluation (Assessment Endpoint 1: Aquatic Community)

There are no alternative screening levels to apply to surface water screening in Step 3A. When considering all surface water data for West Brothers Brook calculation of a central tendency value (i.e., 95% UCL) is possible for most COPEC. However, due to the smaller sample size associated with Cider Mill Pond, the 95% UCL of the mean cannot be calculated and the EPC remains the MDC. Although off-site background concentrations are not available, the most upstream sample location at the property boundary (i.e., AS10) was considered qualitatively to represent upstream conditions in West Brothers Brook surface water (i.e., as it enters the Site). The observed upstream concentration is considered representative of background. The background concentrations for barium (79.8 μg/L) and chlordane (0.027 μg/L) exceed the applicable screening levels. Copper (<5.0 μg/L), pyrene (<0.05 μg/L) and total DDx (<0.004 μg/L) are not detected at AS10-SW12, although the reporting limits for total DDx and pyrene exceed the screening level of 0.001 and 0.025 μg/L, respectively, at this location. The screening criterion for copper is comparable to the reporting limit and does not represent an exceedance at this location. The sample point specific presentation of exceedances is presented in **Appendix F**.

- **West Brothers Brook**.
  - Barium (HQ=22.7) – exceeds Step 3A criteria, where upstream location AS10 contributes 90% of the HQ. Barium was detected throughout West Brothers Brook at all locations sampled. Observed concentrations may represent local background conditions (barium enrichment also observed in Site soil and sediment); all surface water concentrations were comparable and no concentrations were significantly elevated relative to AS10. Per USEPA (www.epa.gov/ogwdw/pdfs/factsheets/ioc/tech/barium.pdf), barium occurs

naturally in almost all (99.4%) of the surface waters studied. Background concentrations in the ambient water systems examined ranged from 2 to 340 µg/l, with an average concentration of 43 µg/l. The aquatic toxicity of barium is dictated by the presence of bioavailable (soluble) barium. In waters with a high sulfate or carbonate content (i.e., increased hardness), soluble barium can react with sulfates and carbonates in water forming insoluble barium sulfate and barium carbonate salts that are not readily bioavailable (ATSDR 2007). Hardness data are not currently available. Based on available data, the potential for unacceptable risk from is barium is unlikely but cannot be discounted.

- Pyrene (HQ=3.6) – exceeds Step 3A criteria. Detection of pyrene was limited to three locations, one in the concrete-lined portion of the brook (O14A) and two locations in Cider Mill Pond (G27A and F28A). All detections were comparable (<2-fold difference) and at concentrations only just above the reporting limit, suggesting that these detections may be an artifact of analytical imprecision. The potential for unacceptable risk from pyrene is unlikely but cannot be discounted.
- Chlordane (HQ=6.4) – detected in upstream location AS10 and exceeds Step 3A criteria where the upstream location contributes 98% of the HQ. The individual sample point and 95%UCL concentrations are comparable to the upstream location suggesting the potential influence of an off-site source(s). There is a potential for unacceptable risk from chlordane, although the potential source(s) is unknown.
- Total DDx (HQ=2.0) – exceeds Step 3A criteria. Detection of total DDx above the screening criteria was noted in 3 of 20 locations. All detected concentrations were identical (0.002 µg/L) and were detected at the reporting limit, suggesting that these detections may be an artifact of analytical imprecision. The potential for unacceptable risk from total DDx is unlikely but cannot be discounted.

- **Cider Mill Pond**. Results for the pond are comparable to those described above for the site-related reach of West Brothers Brook. The HQs differ slightly as indicated in **Table 5-1** because the MDC (located in the pond in all cases) represents the EPC.

5.2.2 Sediment Evaluation (Assessment Endpoint 3: Benthic Invertebrate Community)

Metals, PAHs, PCBs, and pesticides exceeded applicable Step 2 threshold (low) sediment levels. Step 3A evaluation compares the 95% UCL of the arithmetic mean against both threshold (low) and probable (high) effect levels. Probable (high) sediment screening levels and applicable sources are listed in **Table 5-2**, which identifies those analytes with an HQ exceeding both threshold and probable levels (highlighted in **Table 5-2)**. Also considered in evaluation of the benthic community is the bioavailability of SEM (divalent) metals. SEM-AVS results (**Table 5-4**) are discussed as applicable. The sample point specific presentation of screening level exceedances is presented in **Appendix F**.

- **West Brothers Brook**.
  - **Metals.** Only lead (HQ=1.2) exceeds the probable (high) sediment level. Lead concentrations elevated above the high sediment screening level were associated with Cider Mill Pond and Post Pond. These elevated concentrations were distributed throughout Cider Mill Pond and were not localized. However, SEM-AVS analysis indicates a ratio of ∑SEM/AVS<1 at all SEM/AVS-sampled locations in Cider Mill Pond and Post Pond. These results suggest that SEM metals (including lead) are not bioavailable and thus toxicity due to lead is not expected.

    Barium lacks an applicable freshwater threshold or probable screening level and is presented using a literature “background” level per Buchman (2008). While the EPC is in excess of the literature sediment background value, regional soil conditions suggest natural enrichment by barium (400 milligrams per kilogram [mg/kg], per EPA 2005). Based

on available data, the potential for toxicity/risk cannot be assessed or predicted and therefore the potential for unacceptable risk from barium is unlikely but cannot be discounted.

- **PCBs**. Total PCBs (HQ=1.9) exceedance is present in association with Cider Mill Pond only (at D-28, 1 of 43 sample locations). The exceedance is based on the MDC in the pond and is co-located with exceedances observed for chlordane (discussed below). Although localized to the immediate vicinity of a single sample in the pond, there is a potential for unacceptable risk from total PCBs.

- **Pesticides**. Chlordane was the only pesticide detected in excess of the probable (high) sediment level (HQ=5.3). Exceedances of the probable level were uniformly distributed throughout Cider Mill Pond but also in excess of the assessment level in the concrete-lined and natural bed substrate portions of the brook. There is a potential for unacceptable risk from chlordane.

- **Cider Mill Pond**. Results for the pond are comparable to those described above for the site-related reach of West Brothers Brook (which includes the pond). The HQs differ slightly as indicated in **Table 5-1** because the MDC (located in the pond in all cases) drives the final EPC above that observed when considering the whole brook system.

Note that for COPECs present at concentrations exceeding the TEL but not the PEL, the potential for adverse effects exists. However, the potential incidence of adverse effects is expected to be low.

5.2.3 Sediment Evaluation (Assessment Endpoints 4, 5, 6, 7 and 8: Aquatic-Feeding Mammals and Birds)

Table 5-5 shows the Step 3A ecological risk characterization results for aquatic-feeding mammals and birds exposed to sediment, surface water, and food obtained from the site-related reach of West Brothers Brook. Applying Step 3A assumptions to the risk characterizations shows that there is no potential for unacceptable risk to aquatic-feeding mammals and birds expected to utilize West Brothers Brook (or associated Cider Mill Pond), as no HQ (lower bound or upper bound) exceeds unity.

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6.0 Uncertainty Analysis

Quantitative evaluation of risk is frequently limited by uncertainty (lack of knowledge) regarding data, exposure, toxicity, and risk issues. Although risk assessment follows a formal scientific approach, making assumptions or estimates based on limited data that are available and incorporation of professional judgment is an inherent part of the risk assessment process. The uncertainty analysis provides a description of the nature of the uncertainties encountered in developing risk estimates and is an integral part of the ERA process as defined by EPA guidance (1997a). Uncertainties built into the estimation of exposures and ultimately risks may act either to increase or decrease the identified risks, depending on the source of uncertainty.

In general, risk assessment is designed to include conservative assumptions to avoid missing potential risk. Because of these assumptions and estimates, the resulting risk estimates are themselves conservative, and it is important to keep this in mind when interpreting the results of a risk assessment. Common sources of uncertainty include those related to the development of the CSM(s), the factors used to develop the risk estimate (e.g., exposure assumptions and toxicity assumptions), and uncertainty in the parameters used to evaluate risk (e.g., data gaps, exposure point estimates). The common uncertainties associated with ERA are typically related to the following general categories:

- Data quality;
- Selection of COPECs;
- Exposure assessment;
- Development and Application of EPCs;
- Toxicity assessment; and
- Risk characterization.

Uncertainties associated with these ERA components account for the majority of potential limitations in risk assessment methodology. Key sources of uncertainty and the potential impact on this present assessment are described below.

6.1 Uncertainties Associated with Data Quality

6.1.1 Accuracy of Analytical Measurements

Laboratory analysis of environmental samples is subject to a number of technical difficulties, and values reported by the laboratory may not always be accurate. The magnitude of analytical error is usually small compared to other sources of uncertainty, although the relative uncertainty increases for results that are near the detection limit. Constituents detected below the sample reporting limit but above the method detection limit (i.e., J-flagged data) lack sufficient precision in the reported concentration and are thus estimated concentrations. However, to minimize underestimation of site concentrations, J-flagged data were included. Inclusion of these data in development of EPCs generally returns conservative exposure concentration and resulting risk estimates. Inclusion of these data in the SLERA is generally conservative and likely overestimates risk that is based in part or solely on these data. All DDx surface water concentrations (total DDx concentration was based solely on detection of 4,4'-DDE) were detected at the reporting limit, where there is less precision. Inclusion of these results in the SLERA is conservative and likely results in overestimation of total DDx risk.

The Site investigation efforts had as primary objectives the definition of nature and extent of contamination, and the collection of data adequate to support risk assessment. Sediment data collection was conducted in depositional areas of the creek (i.e., areas conducive to the accumulation

of fine sediments where contaminants are expected reside and locations likely to be most impacted). The free-flowing portions of the brook accumulate little sediment: the concrete-lined section (AOC 11A) is subject to continual scour and sediment accumulation is minimal; as is the case in the natural-bed portion (AOC 11B) of the brook where the primary bed substrate consists of bedrock, with limited areas of gravel and sand. Neither area is conducive to significant accumulation of fine sediment. In contrast, Cider Mill Pond contains areas of fine-grained sediments, especially in deeper portions of the pond where sedimentation is highest. For this reason, the bulk of data collection has focused on the pond, especially sediment. These data sets therefore address authoritatively selected ("worst case") areas. Data sets containing these worst-case samples (particularly where conclusions are based on the MDC because the small number of samples precludes development of a statistically robust UCL) will result in overestimation of risk.

6.1.2 Potential Data Gaps

Reliable natural and/or anthropogenic background data for inorganic (and organic) compounds were not available for surface water or sediment, and literature-based regional background values for inorganic compounds in other media (soil) may not be fully representative. The actual contribution of background to risk estimates is, therefore, unknown. Risk estimates are based on total exposure and are independent of background and, therefore, are unaffected by uncertainties in background. Therefore, risk conclusions based on a qualitative evaluation of the contribution of background to total risk may result in over- or under-estimate of risk. However, if background is erroneously quantified as much higher than true background, the qualitative attribution of most or all the reported risk to background may be in error and under-estimate risk at the Site.

It should be acknowledged that the soil background data applied for barium (and vanadium) in sediment were based on regional levels (per EPA 2005) expected in Connecticut soil and were not specific to sediment. No upstream sediment or surface water data are currently available. The most upgradient surface water location, at the property boundary, was used to qualitatively address the potential contribution of upstream sources to surface water concentrations observed downstream. Use of these data provides a point of departure for discussion of potential upstream sources but because this location (AS10) is located at the property boundary it may or may not be influenced by representative of potential upstream conditions. Use of these upstream data to qualify risk may over- or under-estimate risk.

6.2 Uncertainties Associated with Selection of COPEC

6.2.1 Detected Analytes with no Screening Levels or Other Numeric Assumptions

Applicable screening levels or other relevant toxicity values are lacking in generally accepted data sources and regulations for many of the analytes. The absence of toxicity information may underestimate risk, particularly if observed concentrations are high.

For some COPECs, partial toxicity information may exist for some receptor classes, but not others. As it is inappropriate to extrapolate TRVs between taxonomic classes, this was not done. Data gaps in toxicity information were partially addressed by using surrogate values derived from similar compounds. The use of surrogates introduces an unknown level of uncertainty in the risk estimates, especially for less similar compounds. Surrogate values applied in the SLERA included the extension of the wildlife TRV for PCB mixture data (i.e., Aroclor 1254) to assess risk from total PCBs. This is appropriate as the total PCB estimate for exposure by birds and mammals to sediment is based solely on Aroclors. Surface water PCB data were based on PCB homologues. Although no toxicity data are available for homologues, these latter data were used to model uptake of PCBs from surface water to biota (i.e., water to fish tissue) and to estimate ingestion of surface water PCBs by wildlife. Because the homologue analytical methodology affords improved reporting limits, low level PCBs, if present, are accounted for in the total PCB concentration, thereby reducing the overall uncertainty. Uncertainties associated with the use of these surrogate data are low.

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Appendix D presents the determination of COPEC and identified detected COPECs that lacked applicable screening levels on a medium-specific basis. In Section 5.0, all detected COPECs that lacked soil screening values were included in the evaluation if an applicable TRV existed (these included low molecular weight PAHs (in surface water) and acetone and 2-butanone (in sediment). For birds, one only 2-butanone lacked applicable avian TRV and could not be evaluated. For community-level receptors, the absence of sediment screening threshold values may result in underestimation of risk to benthic organisms. However, as TRVs or sediment threshold levels exist for all these compounds, with the exception of 2-butanone for birds, the absence of sediment screening levels does not result in risk underestimation for this Site. It is important to note that the sediment screening concentrations for barium and vanadium are not toxicity-based. Rather these are based on sediment background concentration per Buchman (2008). Therefore, in the absence of applicable toxicity data, the potential for unacceptable risk cannot be fully assessed for these compounds.

A TRV is absent for total PAHs for mammals. However, applicable toxicity data are available for total low molecular weight and total high molecular weight PAHs. Therefore, the absence of a total PAH TRV for mammals does not result in risk underestimation.

A number of analytes were retained as COPECs based solely on their status as bioaccumulative chemical compounds (BCCs) (see the COPEC selection summary tables, **Table 3-6** and **Table 3-7**). The process for COPEC selection was based on comparison to protective screening criteria. To remain conservative, detected compounds with the potential to bioaccumulate, but below screening levels, were retained as COPECs if detected. Inclusion of these constituents as COPECs may overestimate the potential risk.

Note that evaluation of potential risk to aquatic and benthic (sediment) community receptors were based on overall effects and do not specifically consider uptake/accumulation. Therefore, some uncertainty surrounds conclusions drawn about potential risk from BCCs for these communities.

6.2.2 Uncertainties related to Non-Detected Analytes

Some of the analytes never detected in a given medium had MRLs in exceedance of the applicable screening level (**Appendix D**). Analytes that were never detected in any media were not retained as COPECs. This elimination may result in an underestimate of Site risk by an unknown amount. The presence of censored data (i.e., data reported as non-detected above a specific reporting limit) in a data set has the potential to affect risk estimates; i.e., censored data introduces uncertainty as the true concentration is within the interval between the reporting limit and zero. The underestimation would be moderate because if the non-detected constituent were actually site-related and were present at levels of significant concern, it likely would have been noted at levels above the detection limit at least a few times.

Table 3-6 and **Table 3-7** include a summary of analytes by chemical class that were not detected in the listed media, but where the MRL exceeds the applicable screening level. Note that although the MRL was exceeded for these, not all RLs were in excess of the screening level. Complete summary statistics for each of these so called “non-detected COPECs” are presented in detail in **Appendix E** and include the following:

- Surface water (**Table 3-6**) - 5 metals, 2 individual PAHs, 2 VOCs, 9 SVOCs, 2 pesticides and PCBs (total PCB homologues and total PCB Aroclors);
- Sediment (**Table 3-7**) - 4 metals, 5 PAHs, 1 (Aroclor) PCB, 27 SVOCs, 14 pesticides, and 26 VOCs; and
- Transition Zone Groundwater (**Table 3-8**) – 8 individual PAHs, 2 VOCs, 8 SVOCs and 2 pesticides.

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Uncertainty regarding PAHs and PCBs is negligible because these chemical classes were evaluated on a total basis and therefore exceedance of the MRL by individual PAH and/or Aroclors (PCBs) does not affect evaluation of these classes.

6.3 Uncertainties Associated with Exposure Assessment

6.3.1 Exposure Pathways

The actual presence, Site use, and year-round abundance of the representative receptors included in the SLERA are uncertain. Exposure pathways selected for quantitative evaluation in this SLERA do not include all potential exposure pathways for all ecological receptors. Exposure pathways that were not evaluated because they tend to minimally influence the risk outcome include:

- Ingestion of sediments and prey items by benthic invertebrates – not easily quantifiable as rates of ingestion by invertebrates are not established. Exposure to invertebrates is addressed based on literature-derived toxicity bioassays and resulting sediment benchmarks;
- Dermal exposures of wildlife to soil, sediment, and surface water – not easily quantifiable; considered to be insignificant due to the protection that wildlife coat/feathers offer, which limits direct dermal contact; and
- Inhalation of dust particles by wildlife – considered minor/negligible due to assumption of purely aquatic exposure. Regardless, in general, given the presence of vegetative cover in the generation of significant levels of fugitive dust is pertinent only on a site-specific basis. Potential exposure via this pathway is negligible.

The surface water ingestion pathway for wildlife is quantifiable (EPA 1993) and was included in the evaluation. Results are presented for reference in the risk calculation summaries in **Appendix G**. The contribution to the overall risk estimate from water ingestion is trivial relative to the ingested dose via incidental ingestion of sediment and diet, and contributes little to overall risk. Based on maximum surface water concentrations, the dose from water ingestion of metals, VOCs and SVOCs contributes less than 1 percent of the combined total dose from other exposure pathways. This negligible contribution from water to overall dose is typical for these chemical classes and leads to a risk estimate unaffected by the water pathway.

In practice, many drinking water sources not related to the Site are also available and used by wide ranging animals. Therefore, estimating risk based on an assumed reliance of mobile animals on only one or a few impacted and Site-related locations for water resources is likely to overestimate risk.

These exposure pathways (e.g., dermal exposures and ingestion of water for wildlife) are minor compared to other pathways that were evaluated, and the magnitude of the underestimation is not likely to be significant.

6.3.2 Exposure Point Concentrations

In all exposure calculations, the desired input parameter is the true mean concentration (or the 95% UCL of the sample average, to be conservative) of a compound within a given medium over the area where exposure may occur. Use of the UCL concentration provides a conservative estimate of average site concentrations and can compensate for potential deficiencies in sample size, or systematic or random errors in the chemical analysis. It is likely that use of the UCL concentration may result in a moderate overestimate of risk, particularly when sample locations were biased to include impacted areas within an exposure area. However, in some instances calculating an estimated mean concentration is not possible or not wholly applicable as a result of data that are dynamic due to temporal fluctuation (e.g., surface water concentrations). Use of the MDC in these instances for a defined time period is a conservative approach and is likely to overestimate exposure based on water intake, as average exposures are more likely. For the SLERA, the 95% UCL for the complete surface

water dataset was used to estimate the water ingestion exposure and biota uptake where available. The surface water MDC was used to evaluate Cider Mill Pond, as data were insufficient to calculate a 95% UCL estimate.

Use of the MDC in these instances for a defined time period is a highly conservative approach that is likely to overestimate water-based exposure because the MDCs are continuously diluted and attenuated as a result of mixing and dispersion.

Total metal concentrations were used as exposure concentrations for the evaluation of the groundwater-surface water transition zone evaluation. Total concentrations are not representative of the fraction biologically available to aquatic organisms. Use of total concentrations instead of dissolved concentrations as EPCs may overestimate actual exposures.

For the special case of the groundwater to surface water interactions, the concentrations in the transitional pore water zone where ecological exposure may occur was assumed equal to concentrations in groundwater wells close but not immediately adjacent to the exposure point. Therefore, the effects of attenuation, limited mobility, or transformation of COPECs between the point of measurement and the point of exposure introduce uncertainty. This uncertainty was minimized by application of CT DEEP surface-water protection criteria for substances in ground water (CT DEEP 1996), which were applied as available; aquatic life criteria were applied in the absence of these values. This uncertainty is likely to result in overestimated risk, particularly for immobile and insoluble COPECs.

Tissue samples were not collected from ecological receptors at the Site because of the low potential for adverse impacts to organisms and the uncertainty associated with interpretation of tissue concentrations, especially for mobile receptors; i.e., actual tissue concentrations of sediment biota (e.g., plants, invertebrates) or from prey animals (fish) was not conducted. Modeling the exposure dose to aquatic wildlife is a conservative method for estimating the potential for adverse impacts and in general considered to minimize underestimation of potential risk.

6.3.3 Exposure Analysis

Knowledge about site-specific dietary composition, exposure pathways, and spatial and temporal constraints on exposure for the selected receptors may be incomplete. Moreover, the actual dietary composition of an organism will vary daily and seasonally. The intake (ingestion) rates for food, soil, and sediment used to estimate exposure of wildlife at the Site were derived from literature reports of typical intake rates, body weights, dietary compositions, consumption rates, and metabolic rates in receptors at other locations or from measurements of laboratory-raised organisms. These values are not necessarily representative for site-specific intake rates of receptors.

Use of a single surrogate species to represent several species may introduce uncertainty because of interspecies variability in exposure or sensitivity to a COPEC. Risks to wildlife were assessed for a small subset of the species likely to be present at the Site. Although wildlife receptors selected represent a range of taxonomic groups and life history types, these species may not represent the full range of exposures and sensitivities present. The species selected may be either more or less exposed or sensitive to constituents than typical species located within the area. However, the species selected for evaluation are considered typical and representative for ecological risk evaluation in this region.

It is unlikely any receptor would be exposed concurrently to the average concentrations of all constituents in each area or in all media. For this analysis, it was assumed that wildlife exposures were continuous and that receptor home ranges were located entirely or at least in part within the Site boundary (i.e., the entire dietary intake was assumed to be from the Site). In the case of resident small-home-range receptors (e.g., muskrat), these assumptions are likely to be fairly realistic.

However, these assumptions tend to overestimate exposures in receptors that have a large home range and that may not be exposed at the Site most of the time.

The following listing summarizes uncertainties and their effect on risk conclusions related to specific exposure assumptions used in the SLERA.

- **Uptake factors**. Literature-derived uptake factors are for a variety of organisms and conditions and typically do not consider that only a finite mass of each chemical is available for the receptors. Lack of data specific to local diets may overestimate exposure and risk.
- **Bioaccumulation factors**. BAFs are estimates of the potential uptake from media to food items (e.g., sediment to invertebrates). Often, the BAF is derived by determining the geometric mean of values reported in studies. Part of the difficulty and, hence, the uncertainty, is the selection and appropriateness of data to include in the BAF calculation. The BAF for organics between sediment and plants modeled by the equation provided by Travis and Arms (1988) has recently been rejected for general application, for example in the development of the Eco SSLs (EPA 2005). A new relationship has been proposed for organic chemicals with a K_{ow} between 3 and 8. For chemicals outside this range, no recommendations currently exist and, typically, a default value of 1 would be used. In this SLERA, the Travis and Arms relationship was applied to these chemicals, resulting in sediment to plant BAFs that consistently exceed 1. Therefore, the use of the Travis and Arms relationship tends to produce higher risk estimates than default values and is likely to overestimate risk.
- **Home Ranges**. The foraging or home ranges applied in the SLERA were derived based on available literature. In general, the most conservative estimates of the home range were applied in the SLERA. This approach returns an exposure estimate that likely overestimates exposure and ultimately risk for a given receptor. Where applicable, an average range was applied to reduce this overestimate. However, given variability in regional and habitat-specific home ranges for a given species, and the extent of other attractive habitat nearby, the selected home range may over- or under-estimate potential exposure and risk. Existence of highly attractive habitat nearby is likely to result in less Site presence for mobile receptors, with a consequent overestimation of risk.
- **Bioavailability**. The toxicity of an ingested compound depends on how much is absorbed from the gastrointestinal tract into the body. However, the actual extent of absorption from ingested media (e.g., soil, sediment, and food) is usually not known. The hazard from an ingested dose is estimated by comparing the dose to an ingested dose that is believed to be safe, based on tests in a laboratory setting. Thus, if the absorption is the same in the laboratory test and exposure at the Site, then the prediction of hazard will be accurate. However, if the absorption of a compound from a given medium is different (usually lower) than occurred in the laboratory study, then the hazard estimate will be incorrect (usually biased high). In this SLERA, estimates of wildlife exposure assumed a relative bioavailability of 100 percent for all compounds in all media. Assuming bioavailability of 100 percent will overestimate the potential exposure to receptors.

  The bioavailability of divalent metals was specifically assessed in the SLERA by collection and evaluation of SEM-AVS data. The SEM/AVS model can be used to identify sediment samples as either nontoxic or toxic relative to trace SEM metal concentrations. The model is useful in predicting nontoxic (i.e., $\sum$SEM/AVS<1) and potentially toxic sediment. All locations evaluated had a $\sum$SEM/AVS<1, suggesting that there is no potential for unacceptable risk from SEM metals. Although SEM-AVS data were not obtained at every sediment location, the data collected are considered representative and uncertainty associated with applying these data generally across the exposure area is low. Overall, the use of these data minimizes the uncertainty associated with application of probable (high) sediment screening levels alone.
- **Ecological effects of compounds**. Extrapolation between toxicological endpoints (e.g., NOAEL and LOAEL) and/or study duration endpoints (e.g., chronic, subchronic) adds

uncertainty that may overestimate or underestimate resulting risk estimates. For example, extrapolation of subchronic duration endpoints (e.g., subchronic LOAEL) to chronic duration endpoints (e.g., chronic NOAEL) for laboratory test species introduces uncertainty into the determination of potential impacts, as the distribution of exposure and effect within these bounds is not known. There is higher confidence in toxicological values derived from studies where the full distribution of exposure and effect are bounded (i.e., chronic NOAEL bounded by a chronic LOAEL) as defined in the study design. Uncertainty also remains with respect to interspecies extrapolation. Laboratory or test species and wildlife species differ with respect to absorption, metabolism, distribution, and excretion of constituents. These variables are addressed by applying additional factors to the chronic or subchronic duration and/or toxicity endpoint to account for uncertainty due to species-to-species extrapolation and other treatment of toxicity data. In the absence of sufficient data to support the use of a species-to-species extrapolation factor, no factor was applied for this evaluation. The use of modifying (uncertainty) factors results in uncertainty in the toxicity data applied and may result in an over- or under-estimation of risk.

6.3.4 Uncertainties Associated with Toxicity Assessment and Risk Characterization

Adverse effects to individuals do not necessarily imply adverse effects at the population or community level. In general, the goal of ERA is to protect communities and populations, and not each individual in that population (except in the case of threatened and endangered species). A common endpoint, which unfortunately is very difficult to operationally define, is a population level EC-20 (i.e., the concentration or dose that results in an adverse effect to 20 percent of the population). However, almost all toxicity reference values for dose-based evaluations are based on individual-level adverse effects. Risk estimates based on individual risk (as represented by Step 2 HQ and the Step 3A upper bound risk estimate) overstates risk to the appropriate population level.

Most toxicity benchmark values are derived from high dosing regimen lab studies of the adverse effects of a single constituent. However, exposures to ecological receptors usually involve multiple constituents, where additive, synergistic, or antagonistic interactions could occur. However, data generally are not adequate to permit any quantitative adjustment in toxicity values or risk calculations based on inter-chemical interactions. In accordance with EPA ecological risk guidance, effects from different compounds are not considered additive (i.e. a HI is not calculated, except in the case of PAHs were the additive effect is recognized). This may result in overestimated or underestimated risks if in fact additive or antagonistic effects are present for the mixture of COPECs.

In field-collected samples, PAHs typically occur as complex mixtures of co-varying compounds and thus adverse effects result from cumulative effects of multiple PAHs (Schwartz 1999). Application of the total PAH probable (high) sediment screen per MacDonald et al. (2000) provides a means to account for PAH mixtures and more accurately provides an assessment of actual or expected toxicity.

Assessment endpoints for the receptors at this Site are based on the sustainability of exposed populations, and adverse effects on individuals in a population may occur even when the population is healthy and stable. However, even if it is possible to accurately characterize the distribution of risks or effects across the members of the exposed population, estimating the impact of those effects on the population generally is difficult and uncertain. The relationship between adverse effects on individuals and effects on the population is complex, depending on the demographic and life history characteristics of the receptor being considered, as well as the nature, magnitude, and frequency of the chemical stresses and associated adverse effects. Thus, the actual risks that will lead to population-level adverse effects will vary from receptor to receptor and risk conclusions based on individual-level toxicity data may under- or overestimate risk.

The pesticide chlordane, a termiticide, was widely used in the U.S. for agricultural and residential applications from the 1940s through 1988 when its use was banned by EPA. Its persistence in the environment has resulted in its detection in multiple media (soil, sediment, water and air) throughout

the U.S. Chlordane cycling between media in the environment has been studied in Connecticut soil and air (Eitzer 2003, 2001; Mattina et al. 2001). Connecticut Department of Public Health is currently investigating widespread detection of chlordane in groundwater wells in the nearby town of Stamford. Given its persistence, low level detection of chlordane (in excess of screening concentration) in the most upstream surface water sample (AS10) suggests potential influence unrelated to the Site. Therefore, surface water (and sediment) concentrations observed in West Brothers Brook may be, in part, due to off-site sources and/or Site sources unrelated to fill material (chlordane was also detected in Site soil). Potential aquatic risk from chlordane originating from Site sources is unknown.

7.0 Risk Conclusions

The results of the SLERA were considered along with associated uncertainties to draw conclusions for all receptors and ecological habitats identified with residual Step 3A risk at the Greenwich High School site.

The SLERA evaluated eight assessment endpoints and addressed exposures to sediment, surface water and food, and groundwater transition zones considering the entire site-related reach of West Brothers Brook. The exposure areas assessed included the West Brothers Brook, which includes Cider Mill Pond, and Cider Mill Pond alone.

- **West Brothers Brook (Site Wide)**. This aquatic exposure area traverses the Site and is composed of four distinct segments: an engineered concrete-lined reach (AOC 11A), natural bed substrate reach (AOC 11B), natural widening and ponding in the dammed Cider Mill Pond (AOC 12), and Post Pond that receives outflow from Cider Mill Pond via two constructed falls). The brook system is a typical urban stream (of low to moderate quality ecological habitat), has perennial flow, and a marginally developed riparian zone. Based on desktop evaluation and Site observations the brook appears to support typical small stream biota, including small fish, invertebrates, and likely amphibians and turtles. Presence of these biota originate from upstream areas as significant natural and constructed barriers to upstream movement (falls and dams are present) preclude upstream migration of biota from downstream of the Site.
- **Cider Mill Pond**. This exposure area occupies a shallow depression near the southeast corner of the Site and occupies approximately 0.77 acre under most flow conditions. Water depth in the pond varies from about 1 to 3 feet in depth and is controlled by a constructed dam at its southern end, where two outfall areas are present. The pond contains macrophytes and algae populations and is also the recipient of some anthropogenic debris (tires, trash), and although not observed likely supports a limited population of small fish, amphibians and reptiles. The area around the pond is wooded by deciduous trees, as well as some shrubs and herbaceous cover, providing limited cover/canopy for the pond. This area lies between the school and East Putnam Avenue and is in close proximity to the on-site tennis courts and court access/walking trail.

The aquatic-feeding mammals and birds evaluated in this SLERA for these areas are probably present, although due to urban setting, Site presence is likely diminished and it is doubtful the brook could provide sustained resources for larger piscivores (e.g., mink, great blue heron). Surface water data at the upstream property boundary suggests that the brook is potentially influenced by upstream sources for some inorganic and organic compounds. The SLERA conclusions have a higher relevance for assumed resident (i.e., non-migratory) wildlife receptors (e.g., mink, muskrat) and limited mobility sediment invertebrate communities.

Conclusions about SLERA risk in West Brothers Brook/Cider Mill Pond are summarized below:

Assessment Endpoint	Risk Drivers	Comments
Aquatic Life (and Transition Zone Groundwater) (surface water exposure)	Metals: barium PAHs: pyrene Pesticides: chlordane and total DDx	Exceed applicable screening criteria. With the exception of pyrene and total DDx, all other COPECs were detected at the property boundary/upstream location (AS10) at levels comparable to those observed elsewhere in the brook. Detection at this upstream location suggests potential off-site sources. Only barium was noted with exceedance for groundwater transition zone.
Sediment Biota (sediment exposure)	PCBs: Total PCBs Pesticides: chlordane	Total PCBs and chlordane exceed sediment probable (high) screening level indicating a potential for adverse effects. PCB exceedance is localized to a single location (D-28). Potential risk from barium and vanadium is unlikely, however remains unknown as local background and/or freshwater toxicity-based screening data are not available.
Larval Amphibians	None	--
Herbivorous Birds	None	--
Piscivorous Birds	None	--
Piscivorous Mammals	None	--
Herbivorous Mammals	None	--
Omnivorous Mammals	None	--

West Brothers Brook is also the recipient of groundwater migration from the Site. However, evaluation of the transition zone groundwater and West Brothers Brook surface water concentrations indicates that Site groundwater does not significantly contribute barium to surface water.

In conclusion, West Brothers Brook surface water appears impacted with several chemicals that may have off-site (upstream) natural and/or anthropogenic origin. The majority of impacts for sediment and surface water are noted in Cider Mill Pond from chlordane, which also impacts several locations in West Brothers Brook upstream of the pond. Chlordane impacts to surface water and sediment may be related, at least in part, to off-site anthropogenic sources and/or Site sources unrelated to fill material. PCB risk to sediment biota is localized to a single location in Cider Mill Pond. Post Pond, which is located at the southern property boundary, receives outflow water from Cider Mill Pond and is not significantly impacted: point exceedances were noted for barium in surface water, and exceedance of literature background levels only for barium and vanadium in sediment.

8.0 Use of the Risk Assessment

The SLERA has evaluated available Site data in order to provide estimates for potential adverse risk to ecological receptors from exposure to sediment and water associated with West Brothers Brook and Cider Mill Pond. The overall investigation process includes:

- **Remedial Investigation** – to identify the nature and extent of contamination present at the Site;
- **Human Health Risk Assessment** – to identify the potential for unacceptable risk to human health at the Site;
- **Ecological Risk Assessment** – to identify the potential for unacceptable risk to the environment (ecological resources) at the Site; and
- **Feasibility Study** – to define final remedial goals and evaluate remedial options for implementation at the Site.

The FS will inform decisions regarding final remedy selection, design, and implementation of the final remedy (or remedies) to be applied at the Site.

The SLERA fulfills, in part, the second step of this process, and provides the necessary information to allow risk management decisions for the Site. The results of the SLERA are intended to inform the FS and subsequent steps of the process.

8.1 Preliminary Remediation Goals

To address the potential for unacceptable risk identified for COPEC-receptor pairs in the exposure media discussed above, PRGs that are protective of aquatic and benthic organisms are defined. The PRGs are defined for risk drivers, which are COPECs identified with the potential for unacceptable risk in the Step 3A evaluation. For community level receptors (i.e., aquatic and benthic communities), medium-specific community level benchmarks serve as the PRG metric to identify areas of the Site requiring a response action and serve as a point of departure for defining a final target PRG. Selection of appropriate final remedial goals, subsequent to the SLERA, also takes into account human health PRGs and other considerations (e.g., promulgated standards, feasibility, costs).

The following ecological PRGs based on surface water criteria and probable effect sediment levels are defined for the Site:

- Surface Water PRG: Chlordane (0.0043 µg/L); and
- Sediment PRGs: Total PCBs (676 micrograms per kilogram [µg/kg]) and Chlordane (17.6 µg/kg).

PRGs are not provided for surface water barium, total DDX or pyrene as concentrations of these COPECs in surface water are uncertain and definitive conclusions regarding potential risk cannot be assessed at this time. Additional consideration for all potential risk drivers is provided below.

8.2 Recommended Next Steps

Further study of impacts by risk drivers affecting West Brothers Brook and Cider Mill Pond is warranted. Although the potential for unacceptable risk is present for these risk drivers, the potential source(s) of these compounds is not yet fully defined. Prior to consideration and implementation of remedial action, the following information should be obtained to better inform remedial decisions.

- Upstream/Background Data. As noted in Section 6.0, upstream (background) data in West Brothers Brook are an important line of evidence to assess the levels of both inorganic and organic COPECs observed in the brook. Determination of background levels will allow identification of potential current/on-going sources of impacts to the site-related reach of West Brothers Brook from upstream sources. Evaluation of metals, pesticides, PAHs and PCBs is warranted.

Decisions regarding remedial action should be contingent upon these additional data such that any remedial action addresses both the potential source and the defined impacts. No further study in a full BERA is recommended. These data should be considered within the context of final remedy selection, design, and implementation.

9.0 References

AECOM. 2012a. Draft Remedial Investigation Report, Greenwich High School, Greenwich, CT. Prepared by AECOM for Town of Greenwich, Department of Public Works. October 2012.

_____. 2012b. Human Health Risk Assessment Report, Greenwich High School, Greenwich, CT. Prepared by AECOM for Town of Greenwich, Department of Public Works. October 2012.

ATSDR. 2007. Toxicological Profile for Barium and Barium Compounds. Agency for Toxic Substances and Disease Registry (ATSDR), Division of Toxicology and Environmental Medicine/Applied Toxicology Branch.

Bechtel-Jacobs Company LLC. 1998a. *Empirical Models for the Uptake of Inorganic Chemicals by Plants*. Bechtel-Jacobs Company LLC, Oak Ridge, Tennessee. BJC/OR-133. Bechtel-Jacobs Company LLC.

_____. 1998b. *Biota Sediment Accumulation Factors for Invertebrates: Review and Recommendations for the Oak Ridge Reservation*. Bechtel-Jacobs Company LLC, Oak Ridge, Tennessee. BJC/OR-112

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

CT DEEP. 2011. Numerical Water Quality Criteria for Chemical Constituents. State of Connecticut Department of Environmental Protection. Bureau of Water Protection and Land Reuse Planning and Standards Division, 2011 Connecticut Water Quality Standards (CWQS).

CT DEEP. 1996. Surface-water Protection Criteria for Substances in Ground Water. State Of Connecticut Regulation of Department of Environmental Protection, Appendix D to Sections 22a-133k-1 through 22a-133k-3 of the Regulations of Connecticut State Agencies. January 1996.

Di Toro, D.M. and J.A. McGrath. 2000. "Technical Basis for Narcotic Chemicals and Polycyclic Aromatic Hydrocarbon Criteria. II. Mixtures and Sediments". *Environ Toxicol Chem* 19 (2000): 1971-1982.

Di Toro, D.M., McGrath, J.A., and D.J. Hansen. 2000. "Technical Basis for Narcotic Chemicals and Polycyclic Aromatic Hydrocarbon Criteria. I. Water and Tissue". *Environ Toxicol Chem* 19 (2000): 1951-1970.

Eitzer, B.D., Iannucci-Berger, W., Mattina, M.J.I. 2003. Volatilization of Weathered Chiral and Achiral Residues from Soil. Environ. Sci. Technol. 37:4887-4893.

Eitzer, B.D., Mattina, M.J., Iannucci-Berger, W., I. 2001.Compositional and Chiral Profiles of Weathered Chlordane Residues in Soil. Environmental Toxicology and Chemistry, 2001, 20, 2198-2204.

ED_002022B_00026752-00048

Long, E.R., D.D. MacDonald, J.C. Cubbage, and C.G. Ingersoll. 1998. Predicting the Toxicity of Sediment-Associated Trace Metals with Simultaneously Extracted Trace Metal: Acid-Volatile Sulfide Concentrations and Dry Weight-Normalized Concentrations: A Critical Comparison. Environmental Toxicology and Chemistry, (17) 5: 972-974.

MacDonald, D.D., C.G Ingersoll, and T.A. Berger. 2000. "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems." Archives of Environmental Contamination and Toxicology. Vol. 39. pp 20-31.

Mattina, M.J.I., White, J., Eitzer, B., and Iannucci-Berger, W. 2002. Cycling of weathered chlordane residues in the environment: Compositional and chiral profiles in contiguous soil, vegetation, and air compartments. Environ. Toxicol. Chem. 21:281-288.

McGrath, J.A., P.R. Paquin, and D.M. Di Toro. 2002. Use of the SEM and AVS Approach in Predicting Metal Toxicity in Sediments. International Council on Mining and Metals (ICMM). Fact Sheet on Environmental Risk Assessment, Chapter 10 (1-7).

OEHHA. 2012. Technical Support Document for Exposure Assessment and Stochastic Analysis, FINAL. California Office of Environmental Health Assessment. August, 2012. Internet website: oehha.ca.gov/air/hot_spots/pdf/apenh.pdf.

Patton, J.F., and M.P. Dieter. 1980. "Effects of Petroleum Hydrocarbons on Hepatic Function in the Duck." *Comparative Biochemistry and Physiology C*, Vol. 65C(1): 33-36.

Sample, B. E., D. M. Opresko, and G. W. Suter II. 1996. *Toxicological Benchmarks for Wildlife: 1996 Revision*. ES/ER/TM-86/R3. Office of Environmental Management, U.S. Department of Energy. Health Sciences Research Division, Oak Ridge National Laboratory Risk Assessment Program, Oak Ridge, TN. June.

Schwartz, R.C. 1999. "Sediment Quality Guidelines for Polycyclic Aromatic Hydrocarbon Mixtures." Environmental Toxicology and Chemistry, Vol. 18, No. 4, pp. 780-787.

Travis, C.C. and Arms, A.D. 1988. "Bioconcentration of Organics in Beef, Milk and Vegetation," *Environmental Science and Technology*, 22:271-274.EPA 1993.

United States Environmental Protection Agency (EPA). 2012a. *Biota-Sediment Accumulation Factor Data Set (BSAF)*. Office of Research and Development with OSWER support. Available online at: http://www.epa.gov/med/prods_pubs.htm.

_____. 2011a. Estimations Programs Interface for Windows (EPI Suite) v. 4.1. BCFBAF Interface. Developed by the EPA's Office of Pollution Prevention Toxics and Syracuse Research Corporation (SRC). January 2011. Available online at: http://www.epa.gov/oppt/exposure/pubs/episuitedl.htm.

_____. 2011b. ProUCL Statistical Software: Version 4.1.00. Technical Support Center for Monitoring and Site Characterization. National Exposure Research Lab, EPA, Las Vegas, Nevada. Software available on the internet website: http://www.epa.gov/nerlesd1/tsc/software.htm. February 28.

_____. 2010. National Recommended Water Quality Criteria: 2010. United States Environmental Protection Agency, Office of Water and Office of Science and Technology (4304T).

ED_002022B_00026752-00049

_____. 2005. *Guidance for Developing Ecological Soil Screening Levels*. Office of Emergency and Remedial Response. Washington D.C. November 2003, Revised February 2005. Includes 2007 and 2008 updates.

_____. 2004. *The Incidence and Severity of Sediment Contamination in Surface Waters of the United States. National Sediment Quality Survey: Second Edition*. Table C-1. Office of Science and Technology, Washington, D.C. EPA-823-R-04-007. November.

_____. 2002. Calculating the Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. Office of Emergency and Remedial Response. OSWER 9285.6-10. December 2002.

_____. 2001. *The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments*. ECO Update. Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency. EPA 540/F-01/014. June.

_____. 1999. *Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities (Volume Three).* EPA 530-D-99-001A. Washington D.C.: United States Environmental Protection Agency, Office of Solid Waste. August 1999.

_____. 1998. *Guidelines for Ecological Risk Assessment, Final*. U.S. Environmental Protection Agency Washington, DC, Risk Assessment Forum. EPA 630-R-95-002F. April.

_____. 1997a. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final*. Environmental Response Team, U.S. Environmental Protection Agency. Edison, NJ.

_____. 1994. Evaluating and Identifying Contaminants of Concern for Human Health. Region 8, Superfund Technical Guidance. U.S. Environmental Protection Agency, Hazardous Waste Management Division, Superfund Management Branch, Technical Section. September 1994.

_____. 1993. *Wildlife Exposure Factors Handbook*. Office of Research and Development, U.S. Environmental Protection Agency (EPA), Washington, D.C. EPA/600/R-93/187a.

ED_002022B_00026752-00050

Tables

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Table 2-1
Habitat and Exposure Areas

Greenwich High School
10 Hillside Road
Greenwich, CT

Area/Description	Area of Concern	Included in Assessment?	Justification	Receptor Type
West Brothers Brook - concrete lined/channelized reach	AOC 11A	Yes	Current ecological habitat	Stream: aquatic organisms, amphibians (larval), birds and mammals.
West Brothers Brook - natural substrate/channelized reach	AOC 11B	Yes	Current ecological habitat	Stream: Aquatic vegetation, aquatic/benthic organisms, amphibians (larval), birds and mammals.
Cider Mill Pond	AOC 12	Yes	Current ecological habitat	Pond: Aquatic vegetation, aquatic/benthic organisms, amphibians (larval), birds and mammals.
West Brothers Brook - marsh/meadow reach below pond	AOC 11C	Yes	Current ecological habitat	Marsh/Stream: Aquatic vegetation, aquatic/benthic organisms, amphibians (larval), birds and mammals.
Upland/Terrestrial: School areas	AOCs 1 through AOC 10; and AOC 14 and AOC 15	No	Urban/School Yard: Does not represent significant ecological habitat	NA
Upland/Terrestrial: Undisturbed school areas	AOC 13	No	Not impacted by historical fill operations	NA

Notes:

Four areas of concern (AOCs) were identified in the Remedial Investigation associated with the West Brothers Brook aquatic system as identified above. Sediments in West Brothers Brook (AOC 11) were subdivided into three AOCs: AOC 11A (concrete-lined reach), AOC 11B (natural reach), and AOC 11C (marsh/meadow reach below pond); and sediments in Cider Mill Pond are defined as AOC 12. Surface water, common to both the brook and the pond, were designated as AOC 15.

NA = not applicable

AOC = area of concern

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Table 3-1
Representative Species and Exposure Pathways

Greenwich High School
10 Hillside Road
Greenwich, CT

Community or Receptor Guild [1]	Key Species Noted or Expected	Exposure Media	Pathway Evaluated? [2]	Rationale [3]	Representative Species
Aquatic Community	Aquatic zooplankton and macroinvertebrates (isopods, amphipods, cladocera), macrophytes, phytoplankton	Surface water	Pathway Evaluated	Vegetation (emergent, submerged, and phytoplankton) have been observed in association with West Brothers Brook. Zooplankton is assumed present, although not specifically observed.	Aquatic Community
Benthic Invertebrate Community	Benthic invertebrates (oligochaetes, insect larvae, mulloscs)	Sediment	Pathway Evaluated	A varied benthic community is expected in the natural substrate reaches of West Brothers Brook, including Cider Mills Pond. A diverse and abundant sediment community is not expected in the channelized concrete-lined reach of West Brothers Brook due to channelization and the general absence of significant sediment accumulation.	Benthic Invertebrates
Fish Community	Bass (*Micropterus* spp.), sunfish (*Centrarchidae* family), carp (*Cyprinus* spp.)	Sediment, Biota, Surface Water	Pathway Evaluated	A fish community is expected to occur in association with all site-related reaches of West Brothers Brook, although fish have not been specifically observed.	Carp, Bass, Sunfish
Aquatic Piscivorous Birds	Great Blue Heron (*Ardea herodias*), Green Heron (*Butorides virescens*)	Sediment, Biota, Surface Water	Pathway Evaluated	Herons are common to the area and are expected to utilize site-related reaches (including Cider Mills Pond) of West Brothers Brook. Other avian piscivores (e.g., kingfisher, green heron) may be expected to occur in the area. The great blue heron was selected as representative of the feeding guild.	Great Blue Heron
Aquatic Omnivorous Birds	Mallard (*Anas platyrhyncnos*), blue-winged teal (*Anas discors*) and wood duck (*Aix sponsa*).	Sediment, Biota, Surface Water	Pathway Evaluated	Various duck species are expected to occur in the area and are likely to utilize West Brothers Brook. Mallards, teals, and wood ducks are seasonal or year-round residents common in the area. The mallard is ubiquitous and selected as representative of the feeding guild.	Mallard
Aquatic Piscivorous Mammal	Mink (*Neovison vison*),	Sediment, Fish, Surface Water	Pathway Evaluated	Although not observed, mink are expected to occur in association with West Brothers Brook. The mink is selected as a representative aquatic-feeding mammalian receptor.	Mink
Aquatic Herbivorous Mammals	Muskrat (*Ondatra zibethicus*)	Sediment, Biota, Surface Water	Pathway Evaluated	Muskrat are common to the area and are likely to occur in association with West Brothers Brook. Muskrats were selected to represent the feeding guild.	Muskrat
Aquatic Omnivorous Mammals	Raccoon (*Procyon lotor*)	Sediment, Biota, Surface Water	Pathway Evaluated	Raccoons are ubiquitous inhabitants of a variety of habitats including but not limited to forest, marsh, riparian and disturbed/urban habits and are common to the area. The raccoon was selected to represent aquatic omnivorous mammals as this species is known to obtain resources from both terrestrial and aquatic habitats and ample life history data are available. The evaluation assumes that the raccoon obtains all food resources from aquatic sources.	Raccoon

Notes:

[1] Receptor guilds (or ecological guilds) are any group of species that exploit the same dietary resources. Guilds are limited to those identified by site observations or via desktop site survey.

[2] Refers to whether a given pathway is proposed for evaluation in the ERA.

[3] The SLERA is focused on aquatic resources associated with West Brothers Brook. Three primary aquatic habitat types are associated with the West Brothers Brook: stream, pond and marsh, all of which supports aquatic and benthic communities, including fish.

AECOM

Table 3-2
Exposure Pathways

Greenwich High School
10 Hillside Road
Greenwich, CT

			West Brothers Brook				Cider Mill Pond			
		Media	Surface Water	Transition zone Groundwater	Sediment		Surface Water	Transition zone Groundwater	Sediment	
Representative Receptor [1]	Feeding Guild	Biota Ingestion	Uptake and Direct Contact[2]	Direct contact in gw-sw interface	Uptake and Direct Contact[2]	Incidental Ingestion	Uptake and Direct Contact[2]	Direct contact in interface	Uptake and Direct Contact[2]	Incidental Ingestion
Aquatic Receptors										
Aquatic Community	Aquatic Community		x	x			x	x		
Fish (pelagic)			x	x		x	x	x		x
Plants [3]			x	x			x	x		
Invertebrates			x	x			x	x		
Amphibians (as larvae)			x	x			x	x		
Benthic Community	Benthic Community			x	x	x		x	x	x
Fish (benthic)				x	x	x		x	x	x
Invertebrates					x				x	
Mink	Aquatic Piscivorous Mammal	x	x		x	x	x		x	x
Raccoon	Aquatic Omnivorous Mammal	x	x		x	x	x		x	x
Muskrat	Aquatic Herbivorous Mammal	x	x		x	x	x		x	x
Mallard	Aquatic Omnivorous Bird	x	x		x	x	x		x	x
Great Blue Heron	Aquatic Piscivorous Bird	x	x		x	x	x		x	x

Notes:

[1] Representative receptors were selected based on site relevance (from observed/expected species) and may be represented by surrogate species for which adequate life history data are available.

[2] For the purposes of the ecological risk assessment, only direct contact with media is applicable to community level receptors. Wildlife receptors are assessed based on uptake via biota from applicable media, uptake of water (drinking), and incidental ingestion of soil or sediment as indicated.

[3] Both rooted (benthic) and free-floating plants are evaluated as part of the aquatic plant community.

x = Primary exposure route addressed quantitatively in the Ecological Risk Assessment.

Shaded rows indicates receptors forming part of the indicated ecological community. These receptors are presented for reference only, as the evaluation in the ERA is based on the ecological community as a whole.

Table 3-3
Assessment and Measurement Endpoints

Assessment Endpoint (What is being protected?)		Risk Questions	Representative Receptor	Exposure Areas [1]	Assessment Measure (What is being measured to assess environmental effects?)	Risk Criteria (How are the measurements related to assessment?)
1	Aquatic Community (Plants and Invertebrates) and Fish Survival	Is the aquatic community subject to significant toxicity from impacted surface water?	**Aquatic Invertebrates** (zooplankton and aquatic insects), **Aquatic Plants** (rooted and free-floating); **Fish**	West Brothers Brook; and transition zone groundwater	Comparison of water concentrations to generic freshwater screening levels	**Step 2** Comparison of MDC to screening levels. **Step 3** Comparison of EPC (where available) to screening levels combined with weight-of-evidence sitespecific evaluation and consideration of background (if available). Transition zone groundwater evaluated via comparison to generic freshwater screening levels
2	Amphibian (larvae) Survival	Are amphibian larvae subject to significant toxicity from impacted surface water ?	**Amphibian larvae** (tadpoles)	West Brothers Brook; and transition zone groundwater	Comparison of media concentrations to generic freshwater amphibian-specific screening levels for tadpoles	**Step 2** Comparison of MDC to screening levels. **Step 3** Comparison of EPC (where available) to screening levels combined with weight-of-evidence site-specific evaluation and consideration of background (if available). Transition zone groundwater evaluated via comparison to amphibian-specific screening levels
3	Benthic Invertebrate Community Survival	Are benthic invertebrates subject to significant toxicity from impacted sediment?	**Benthic Invertebrates**	West Brothers Brook	Comparison of media concentrations to generic freshwater screening levels for benthic invertebrates	**Step 2** Comparison of MDC to threshold (low) screening levels. **Step 3** Comparison of EPC to threshold (low) and probable (high) screening levels, including consideration of background if available.
4	Aquatic Omnivorous Bird Population Productivity	Is the productivity[3] of this guild preserved?	Plant/Invertebrate-eating birds: **Mallard**	West Brothers Brook	Estimated toxicity from sediment, biota, and water exposure	**Step 2** Acceptable[2] ingested dose based on MDC, Step 2 screening level exposure assumptions of COPEC from biota, water, and sediment; and NOAEL TRV **Step 3** Acceptable[2] ingested dose based on EPC, Step 3 exposure assumptions of COPEC from biota, water, sediment; and NOAEL and LOAEL TRV
5	Aquatic Piscivorous Bird Population Productivity	Is the productivity[3] of this guild preserved?	Fish-eating birds: **Great Blue Heron**	West Brothers Brook	Estimated toxicity from sediment, biota, and water exposure	**Step 2** Acceptable[2] ingested dose based on MDC, Step 2 screening level exposure assumptions of COPEC from biota, water, and sediment; and NOAEL TRV **Step 3** Acceptable[2] ingested dose based on EPC, Step 3 exposure assumptions of COPEC from biota, water, sediment; and NOAEL and LOAEL TRV
6	Aquatic Piscivorous Mammal Population Productivity	Is the productivity[3] of this guild preserved?	Fish-eating mammals: **Mink**	West Brothers Brook	Estimated toxicity from sediment, biota, and water exposure	**Step 2** Acceptable[2] ingested dose based on MDC, Step 2 screening level exposure assumptions of COPEC from biota, water, and sediment; and NOAEL TRV **Step 3** Acceptable[2] ingested dose based on EPC, Step 3 exposure assumptions of COPEC from biota, water, sediment; and NOAEL and LOAEL TRV
7	Aquatic Omnivorous Mammal Population Productivity	Is the productivity[3] of this guild preserved?	Plant/Invertebrate-eating mammals: **Raccoon**	West Brothers Brook	Estimated toxicity from sediment, biota, and water exposure	**Step 2** Acceptable[2] ingested dose based on MDC, Step 2 screening level exposure assumptions of COPEC from biota, water, and sediment; and NOAEL TRV **Step 3** Acceptable[2] ingested dose based on EPC, Step 3 exposure assumptions of COPEC from biota, water, sediment; and NOAEL and LOAEL TRV

Table 3-3
Assessment and Measurement Endpoints

Assessment Endpoint (What is being protected?)		Risk Questions	Representative Receptor	Exposure Areas [1]	Assessment Measure (What is being measured to assess environmental effects?)	Risk Criteria (How are the measurements related to assessment?)
8	Aquatic Herbivorous Mammal Population Productivity	Is the productivity[3] of this guild preserved?	Plant-eating mammals: **Muskrat**	West Brothers Brook	Estimated toxicity from sediment, biota, and water exposure	**Step 2** Acceptable[2] ingested dose based on MDC, Step 2 screening level exposure assumptions of COPEC from biota, water, and sediment; and NOAEL TRV **Step 3** Acceptable[2] ingested dose based on EPC, Step 3 exposure assumptions of COPEC from biota, water, sediment; and NOAEL and LOAEL TRV

Notes:

[1] Ecological exposure is limited to West Brothers Brook, which includes all site-related reaches of the brook including Cider Mill Pond.

[2] In general, if less than a population-level EC20 (i.e., effective concentration where 20% of population is effected for given toxicological endpoint) is observed, the productivity is considered preserved if the EC20 is a chronic value that includes long-term exposure and sublethal effects (e.g., reproduction). Population-level endpoints are difficult to measure directly and are evaluated via surrogate values.

[3] For the purposes of evaluating potential risk to wildlife, productivity is defined as the combined measure of population-level endpoints, which include impairments to survival, growth, and reproduction, and are evaluated through calculation of risk-based dose levels under NOAEL- or LOAEL-based assumptions.

COPEC = contaminant of potential ecological concern
EPC = exposure point concentration
LOAEL = lowest observed adverse effect level
MDC = maximum detected concentration
NOAEL = no observed adverse effect level
SL = screening level evaluation
Step 2 = screening level assessment
Step 3A= refinement of COPEC
TRV = toxicity reference value

AECOM

Table 3-4
Datasets[1] Used in the Risk Assessment

Greenwich High School
10 Hillside Road
Greenwich, CT

AOC	Location Name	Sample Date	Depth Interval (ft)		Matrix[2], [3]	Notes
AOC-11A-SE	AQ9-SED38	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	AL8-SED36	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	AG7-SED34	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	AB6-SED32	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	W5-SED30	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	U4-SED29	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	P7-SED27	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	O11-SED24	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	O14-SED24	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	Q16-SED23	29-Dec-2011	0	0.5	SE	
AOC-11A-SE	S17-SED22	28-Dec-2011	0	0.5	SE	
AOC-11A-SE	U18-SED21	28-Dec-2011	0	0.5	SE	
AOC-11B-SE	U21-SED20	28-Dec-2011	0	0.5	SE	
AOC-11B-SE	T20-SED	19-Jul-2012	0	0.83	SE	Sediment core sample (to refusal) collected at this location. Surficial sediment only included for quantiative evaluation
AOC-11B-SE	R22-SED19	28-Dec-2011	0	0.5	SE	
AOC-11B-SE	P23-SED18	28-Dec-2011	0	0.5	SE	
AOC-11B-SE	N24-SED	19-Jul-2012	0	0.83	SE	Sediment core sample (to refusal) collected at this location. Surficial sediment only included for quantiative evaluation
AOC-11B-SE	N24-SED17	28-Dec-2011	0	0.5	SE	
AOC-11B-SE	L25-SED16	28-Dec-2011	0	0.5	SE	
AOC-11B-SE	I26-SED15	28-Dec-2011	0	0.5	SE	
AOC-12-SE	H27-SED11	28-Dec-2011	0	0.5	SE	
AOC-12-SE	G27-SED12	28-Dec-2011	0	0.5	SE	
AOC-12-SE	H28-SED06	28-Dec-2011	0	0.5	SE	
AOC-12-SE	F27-SED13	28-Dec-2011	0	0.5	SE	
AOC-12-SE	G28-SED07	28-Dec-2011	0	0.5	SE	
AOC-12-SE	F28-SED08	28-Dec-2011	0	0.5	SE	
AOC-12-SE	F28A-SED	19-Jul-2012	0	1.1	SE	Sediment core sample (to refusal) collected at this location. Surficial sediment only included for quantiative evaluation
AOC-12-SE	G29-SED01	28-Dec-2011	0	0.5	SE	
AOC-12-SE	D28-SED08	28-Dec-2011	0	0.5	SE	
AOC-12-SE	E29-SED	19-Jul-2012	0	1.2	SE	Sediment core sample (to refusal) collected at this location. Surficial sediment only included for quantiative evaluation
AOC-12-SE	F29-SED02	28-Dec-2011	0	0.5	SE	
AOC-12-SE	D27-SED14	27-Dec-2011	0	0.5	SE	

Table 3-4
Datasets[1] Used in the Risk Assessment

AOC	Location Name	Sample Date	Depth Interval (ft)		Matrix[2], [3]	Notes
AOC-12-SE	D29-SED03	28-Dec-2011	0	0.5	SE	
AOC-12-SE	E30-SED	19-Jul-2012	0	0.5	SE	
AOC-12-SE	C28-SED10	27-Dec-2011	0	0.5	SE	
AOC-12-SE	C31-SED	19-Jul-2012	0	0.5	SE	
AOC-12-SE	C29-SED04	27-Dec-2011	0	0.5	SE	
AOC-12-SE	B29-SED05	27-Dec-2011	0	0.5	SE	
AOC-12-SE	A29-SED	19-Jul-2012	0	0.5	SE	
AOC-11C-SED	B31-SED	19-Jul-2012	0	0.5	SE	
AOC-11C-SED	OUT-NEW-SED	19-Jul-2012	0	0.5	SE	
AOC-15-SW	AS10-SW12	19-Jul-2012			SW	
AOC-15-SW	AL9-SW11	19-Jul-2012			SW	
AOC-15-SW	AL8-SW06	29-Dec-2011			SW	
AOC-15-SW	W5A-SW10	19-Jul-2012			SW	
AOC-15-SW	W5-SW05	29-Dec-2011			SW	
AOC-15-SW	O14-SW04	29-Dec-2011			SW	
AOC-15-SW	O14A-SW09	19-Jul-2012			SW	
AOC-15-SW	T20-SW08	19-Jul-2012			SW	
AOC-15-SW	N24-SW07	19-Jul-2012			SW	
AOC-15-SW	G27-SW03	28-Dec-2011			SW	
AOC-15-SW	G27A-SW06	19-Jul-2012			SW	
AOC-15-SW	F28-SW01	28-Dec-2011			SW	
AOC-15-SW	F28A-SW05	19-Jul-2012			SW	
AOC-15-SW	C28-SW02	27-Dec-2011			SW	
AOC-15-SW	C31-SW03	18-Jul-2012			SW	
AOC-15-SW	A29-SW04	18-Jul-2012			SW	
AOC-15-SW	OUT-30-SW02	18-Jul-2012			SW	
AOC-15-SW	OUT-32-SW01	18-Jul-2012			SW	
--	MW-AP11	NA			GW	Dry, no data obtained for 2012 (January, February, April or July) sampling events; presented for reference only
--	MW-AE8	23-Feb-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-AE8	19-Apr-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-AE8	25-Jul-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-P7	23-Feb-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-P7	19-Apr-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA

Table 3-4
Datasets[1] Used in the Risk Assessment

AOC	Location Name	Sample Date	Depth Interval (ft)		Matrix[2], [3]	Notes
--	MW-P7	24-Jul-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-P11-SB413	24-Jul-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-S15-SB237	12-Jan-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-S15-SB237	23-Feb-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-S15-SB237	19-Apr-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-S15-SB237	25-Jul-2012			GW	Located adjacent to concrete-line portion of West Brothers Brook; evaluated qualitatively in the ERA
--	MW-V18-SB380	25-Jul-2012			GW	
--	MW-R20-SB423	26-Jul-2012			GW	
--	MW-L25	26-Jul-2012			GW	
--	MW-28-SB319	20-Apr-2012			GW	
--	MW-28-SB319	26-Jul-2012			GW	

Notes:

[1] The dataset(s) included are specific to ecologically relevant media and areas, and includes data associated with West Brothers Brook sediment (AOCs 11A, 11B, 11C and 12) and surface water (AOC 15).
[2] The sediment dataset considers all available data collected for the ecologically relevant aerobic sediment zone (upper 10 centimeters) where sediment communities reside.
[3] Groundwater data is evaluated to describe potential surface water-groundwater transition zone conditions only; i.e., as a potential source of groundwater to West Brothers Brook.

AOC = area of concern
SE = sediment
WG = groundwater
WS = surface water
-- = Not specifically identified as an AOC. For groundwater locations adjacent to West Brothers Brook, AOC 15 is assumed.

Table 3-5
Screening Levels and Benchmarks

					Surface Water				Groundwater		Sediment	
Analyte	CAS Number	Class	Subclass	BCC	Aquatic Life Screening Level (ug/L)	Source	Amphibian Screening Level (ug/L)	Source	Surface Water Protection (GW) (ug/L)	Source	Sediment Threshold Screening Level (mg/kg)	Source
Aviation Fuel	AVIAT FUEL	Fuel	CT-ETPH									
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	Fuel	CT-ETPH									
Gasoline	PHCG	Fuel	CT-ETPH									
Motor Oil	Motor Oil	Fuel	CT-ETPH									
Other Oil	OTHEROIL	Fuel	CT-ETPH									
PHC as Fuel Oil #2	PHCFO2	Fuel	CT-ETPH									
PHC as Fuel Oil #4	PHCFO4	Fuel	CT-ETPH									
PHC as Fuel Oil #6	PHCFO6	Fuel	CT-ETPH									
Total Petroleum Hydrocarbons	TPH	Fuel	CT-ETPH									
Unidentified	UNIND	Fuel	CT-ETPH									
Antimony	7440-36-0	Inorganic			30	NAWQC	300	Schuytema et al. 1996	86000	CDEP 1996, GWPC	0.16	Buchman 2008, bkg
Arsenic	7440-38-2	Inorganic			150	CDEP 2011, CWQS	2900	Sparling et al., 2000	4	CDEP 1996, GWPC	9.79	Buchman 2008, TEC
Barium	7440-39-3	Inorganic			3.9	EPA 1996, ET			3.9	EPA 1996, ET	0.7	Buchman 2008, bkg
Beryllium	7440-41-7	Inorganic			0.66	Suter and Tsao, 1996 Tier II SCV	690	Sparling et al., 2000	4	CDEP 1996, GWPC		
Cadmium	7440-43-9	Inorganic			0.125	CDEP 2011, CWQS*	180	Sparling et al., 2000	6	CDEP 1996, GWPC	0.99	Buchman 2008, TEC
Chromium	7440-47-3	Inorganic			11	CDEP 2011, CWQS	560	Sparling et al., 2000	11	CDEP 2011, CWQS	43.4	Buchman 2008, TEC
Copper	7440-50-8	Inorganic			4.8	CDEP 2011, CWQS*	15	Sparling et al., 2000	48	CDEP 1996, GWPC	31.6	Buchman 2008, TEC
Cyanide	57-12-5	Inorganic			5.2	CDEP 2011, CWQS			52	CDEP 1996, GWPC	0.1	BTAG RIII 2006, SLV
Lead	7439-92-1	Inorganic			1.2	CDEP 2011, CWQS*	310	Sparling et al., 2000	13	CDEP 1996, GWPC	35.8	Buchman 2008, TEC
Mercury	7439-97-6	Inorganic		x	0.77	CDEP 2011, CWQS	30	Sparling et al., 2000	0.4	CDEP 1996, GWPC	0.18	Buchman 2008, TEC
Nickel	7440-02-0	Inorganic			28.9	CDEP 2011, CWQS*	9600	Sparling et al., 2000	880	CDEP 1996, GWPC	22.7	Buchman 2008, TEC
Selenium	7782-49-2	Inorganic			5	CDEP 2011, CWQS	680	Sparling et al., 2000	50	CDEP 1996, GWPC	2	BTAG RIII 2006, SLV
Silver	7440-22-4	Inorganic			0.36	Suter and Tsao, 1996 Tier II SCV	2.6	Sparling et al., 2000	12	CDEP 1996, GWPC	1	BTAG RIII 2006, SLV
Thallium	7440-28-0	Inorganic			12	Suter and Tsao, 1996 Tier II SCV	72	Sparling et al., 2000	63	CDEP 1996, GWPC		
Vanadium	7440-62-2	Inorganic			19	EPA 1996, ET			19	EPA 1996, ET	50	Buchman 2008, bkg
Zinc	7440-66-6	Inorganic			65	CDEP 2011, CWQS*	72	Sparling et al., 2000	123	CDEP 1996, GWPC	121	Buchman 2008, TEC
1-Methylnaphthalene	90-12-0	PAH	LPAH		2.1	Buchman 2008, CCC			2.1	Buchman 2008, CCC		
2-Methylnaphthalene	91-57-6	PAH	LPAH		4.7	BTAG RIII 2006, SLV			4.7	BTAG RIII 2006, SLV	0.202	BTAG RIII 2006, SLV
Acenaphthene	83-32-9	PAH	LPAH		23	EPA 1996, ET			23	EPA 1996, ET	0.0067	BTAG RIII 2006, SLV
Acenaphthylene	208-96-8	PAH	LPAH						0.3	CDEP 1996, GWPC	0.0059	BTAG RIII 2006, SLV
Anthracene	120-12-7	PAH	LPAH		0.73	EPA 1996, ET	25	Schuytema et al. 1996	1100000	CDEP 1996, GWPC	0.0572	Buchman 2008, TEC
Benzo(a)anthracene	56-55-3	PAH	HPAH	x	0.027	Suter and Tsao, 1996 Tier II SCV			0.3	CDEP 1996, GWPC	0.108	Buchman 2008, TEC
Benzo(a)pyrene	50-32-8	PAH	HPAH	x	0.014	Suter and Tsao, 1996 Tier II SCV	12.5	Schuytema et al. 1996	0.3	CDEP 1996, GWPC	0.15	Buchman 2008, TEC
Benzo(b)fluoranthene	205-99-2	PAH	HPAH	x	9.1	EPA 2003, R5 ESL			0.3	CDEP 1996, GWPC	10.4	EPA 2003, R5 ESL
Benzo(g,h,i)perylene	191-24-2	PAH	HPAH	x							0.17	BTAG RIII 2006, SLV
Benzo(k)fluoranthene	207-08-9	PAH	HPAH	x					0.3	CDEP 1996, GWPC	0.0272	Buchman 2008, TEL-H
Chrysene	218-01-9	PAH	HPAH	x							0.166	Buchman 2008, TEC
Dibenzo(a,h)anthracene	53-70-3	PAH	HPAH	x							0.033	Buchman 2008, TEC
Fluoranthene	206-44-0	PAH	LPAH		8.1	EPA 1996, ET	90	Schuytema et al. 1996	3700	CDEP 1996, GWPC	0.423	Buchman 2008, TEC
Fluorene	86-73-7	PAH	LPAH		3.9	EPA 1996, ET			140000	CDEP 1996, GWPC	0.0774	Buchman 2008, TEC
Indeno(1,2,3-cd)pyrene	193-39-5	PAH	HPAH	x	4.3	EPA 2003, R5 ESL			4.3	EPA 2003, R5 ESL	0.0173	Buchman 2008, TEL-H
Naphthalene	91-20-3	PAH	LPAH		24	EPA 1996, ET	2100	Schuytema et al. 1996	24	EPA 1996, ET	0.176	Buchman 2008, TEC
Phenanthrene	85-01-8	PAH	LPAH		6.3	EPA 1996, ET			0.077	CDEP 1996, GWPC	0.204	Buchman 2008, TEC
Pyrene	129-00-0	PAH	HPAH	x	0.025	BTAG RIII 2006, SLV	140	Schuytema et al. 1996	110000	CDEP 1996, GWPC	0.195	Buchman 2008, TEC
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	HPAH	x							0.193	Buchman 2008, TEL-H
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	LPAH								0.07642	Buchman 2008, TEL-H
Total PAHs	RACALC-PAH	PAH		x							1.6	Buchman 2008, TEC
Aroclor 1016	12674-11-2	PCB		x			6.2	Sparling et al., 2000				
Aroclor 1221	11104-28-2	PCB		x								
Aroclor 1232	11141-16-5	PCB		x								
Aroclor 1242	53469-21-9	PCB		x			2.1	Sparling et al., 2000				
Aroclor 1248	12672-29-6	PCB		x								
Aroclor 1254	11097-69-1	PCB		x			1	Sparling et al., 2000			0.06	Buchman 2008, TEL
Aroclor 1260	11096-82-5	PCB		x								
Aroclor 1262	37324-23-5	PCB		x								
Aroclor 1268	11100-14-4	PCB		x								
Total PCB Aroclors	RACALC-PCB	PCB		x	0.014	CDEP 2011, CWQS			0.5	CDEP 1996, GWPC	0.0598	Buchman 2008, TEC
Decachlorobiphenyl	2051-24-3	PCB		x								
Dichlorobiphenyl	25512-42-9	PCB		x								
Heptachlorobiphenyl	28655-71-2	PCB		x								
Hexachlorobiphenyl	26601-64-9	PCB		x								
Monochlorobiphenyl	27323-18-8	PCB		x								
Nonachlorobiphenyl	53742-07-7	PCB		x								
Octachlorobiphenyl	55722-26-4	PCB		x								

Table 3-5
Screening Levels and Benchmarks

					Surface Water				Groundwater		Sediment	
Analyte	CAS Number	Class	Subclass	BCC	Aquatic Life Screening Level (ug/L)	Source	Amphibian Screening Level (ug/L)	Source	Surface Water Protection (GW) (ug/L)	Source	Sediment Threshold Screening Level (mg/kg)	Source
Pentachlorobiphenyl	25429-29-2	PCB		x								
Tetrachlorobiphenyl	26914-33-0	PCB		x								
Trichlorobiphenyl	25323-68-6	PCB		x								
Total PCB Homologues	RACALC-PCB-H	PCB		x	0.014	CDEP 2011, CWQS			0.5	CDEP 1996, GWPC	0.0598	Buchman 2008, TEC
2,2-Dichloropropionic acid	75-99-0	Pesticide	Herbicide									
2,4,5-T	93-76-5	Pesticide	Herbicide		36	Buchman 2008, CCC			36	Buchman 2008, CCC	12.3	BTAG RIII 2006, SLV
2,4,5-TP (Silvex)	93-72-1	Pesticide	Herbicide		30	BTAG RIII 2006, SLV			30	BTAG RIII 2006, SLV	0.675	BTAG RIII 2006, SLV
2,4-DB	94-82-6	Pesticide	Herbicide									
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	Pesticide	Herbicide		4	Buchman 2008, CCC			4	Buchman 2008, CCC	1.273	EPA 2003, R5 ESL
4,4-DDD (p,p)	72-54-8	Pesticide	Insecticide	x	0.011	Suter and Tsao, 1996 Tier II SCV			0.011	Suter and Tsao, 1996 Tier II SCV	0.00488	Buchman 2008, TEC
4,4-DDE (p,p)	72-55-9	Pesticide	Insecticide	x	105	Buchman 2008, CCC			105	Buchman 2008, CCC	0.00316	Buchman 2008, TEC
4,4-DDT (p,p)	50-29-3	Pesticide	Insecticide	x	0.0005	Buchman 2008, CCC	150	Sparling et al., 2000	0.0005	Buchman 2008, CCC	0.00416	Buchman 2008, TEC
Alachlor	15972-60-8	Pesticide	Herbicide									
Aldrin	309-00-2	Pesticide	Insecticide	x	3	BTAG RIII 2006, SLV	150	Sparling et al., 2000	3	BTAG RIII 2006, SLV	0.002	BTAG RIII 2006, SLV
alpha-Chlordane	5103-71-9	Pesticide	Insecticide	x	0.0022	Buchman 2008, CCC	500	Schuytema et al. 1996	0.0022	Buchman 2008, CCC		
Camphechlor	8001-35-2	Pesticide	Insecticide	x	0.0002	Buchman 2008, CCC	34	Schuytema et al. 1996	1	CDEP 1996, GWPC	0.028	EPA 1996, ET
Chlordane	57-74-9	Pesticide	Insecticide	x	0.0043	CDEP 2011, CWQS			0.0043	CDEP 2011, CWQS	0.00324	Buchman 2008, TEC
delta-BHC	319-86-8	Pesticide	Insecticide	x	141	BTAG RIII 2006, SLV			141	BTAG RIII 2006, SLV	6.4	BTAG RIII 2006, SLV
Dicamba	1918-00-9	Pesticide	Herbicide		10	Buchman 2008, CCC			10	Buchman 2008, CCC		
Dichloroprop	120-36-5	Pesticide	Herbicide									
Dieldrin	60-57-1	Pesticide	Insecticide	x	0.056	CDEP 2011, CWQS	100	Sparling et al., 2000	0.1	CDEP 1996, GWPC	0.0019	Buchman 2008, TEC
Dinitrobutyl phenol	88-85-7	Pesticide	Herbicide		0.05	Buchman 2008, CCC					0.0145	EPA 2003, R5 ESL
Endosulfan I	959-98-8	Pesticide	Insecticide		0.056	CDEP 2011, CWQS	1.8	Schuytema et al. 1996	0.056	CDEP 2011, CWQS	0.0029	EPA 1996, ET
Endosulfan II	33213-65-9	Pesticide	Insecticide		0.056	CDEP 2011, CWQS	1.8	Schuytema et al. 1996	0.056	CDEP 2011, CWQS	0.014	EPA 1996, ET
Endosulfan sulfate	1031-07-8	Pesticide	Insecticide		2.22	Buchman 2008, CCC					0.0054	BTAG RIII 2006, SLV
Endrin	72-20-8	Pesticide	Insecticide		0.036	CDEP 2011, CWQS	10	Sparling et al., 2000	0.1	CDEP 1996, GWPC	0.00222	Buchman 2008, TEC
Endrin aldehyde	7421-93-4	Pesticide	Insecticide									
Endrin ketone	53494-70-5	Pesticide	Insecticide									
gamma-Chlordane	5103-74-2	Pesticide	Insecticide	x								
Heptachlor	76-44-8	Pesticide	Insecticide		0.0038	CDEP 2011, CWQS	435	Schuytema et al. 1996	0.05	CDEP 1996, GWPC	0.068	BTAG RIII 2006, SLV
Heptachlor epoxide	1024-57-3	Pesticide	Insecticide		0.0038	CDEP 2011, CWQS			0.05	CDEP 1996, GWPC	0.00247	Buchman 2008, TEC
Hexachlorocyclohexane, alpha	319-84-6	Pesticide	Insecticide	x	2.2	Buchman 2008, CCC					0.006	BTAG RIII 2006, SLV
Hexachlorocyclohexane, beta	319-85-7	Pesticide	Insecticide	x	2.2	Buchman 2008, CCC					0.005	BTAG RIII 2006, SLV
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	Pesticide	Insecticide	x	0.08	Buchman 2008, CCC	2700	Sparling et al., 2000	0.08	Buchman 2008, CCC	0.00237	Buchman 2008, TEC
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	Pesticide	Herbicide		2.6	Buchman 2008, CCC						
MCPB	94-81-5	Pesticide	Herbicide									
MCPP	93-65-2	Pesticide	Herbicide									
Methoxychlor	72-43-5	Pesticide	Insecticide		0.03	Buchman 2008, CCC	80	Schuytema et al. 1996	0.03	Buchman 2008, CCC	0.019	EPA 1996, ET
Total DDx	RACALC-DDx	Pesticide	Insecticide	x	0.001	CDEP 2011, CWQS	150	Sparling et al., 2000	0.001	CDEP 2011, CWQS	0.00528	Buchman 2008, TEC
Total Endosulfans	RACALC-ENDO	Pesticide	Insecticide		0.056	CDEP 2011, CWQS	1.8	Schuytema et al. 1996	0.056	CDEP 2011, CWQS	0.0029	EPA 1996, ET
Dissolved Organic Carbon	DOC	Physical										
Fractional % Sieve #10 (4750-2000um)	SIEVE10	Physical										
Fractional % Sieve #100 (250-150um)	SIEVE100	Physical										
Fractional % Sieve #20 (2000-850um)	SIEVE20	Physical										
Fractional % Sieve #200 (150-75um)	SIEVE200	Physical										
Fractional % Sieve #230 (less than 75um)	SIEVE230	Physical										
Fractional % Sieve #4 (>4750um)	SIEVE4	Physical										
Fractional % Sieve #40 (850-425um)	SIEVE40	Physical										
Fractional % Sieve #60 (425-250um)	SIEVE60	Physical										
Solids	SOLIDS, PERCENT	Physical										
Total Organic Carbon	TOC	Physical										
Total Suspended Solids	TSS	Physical										
2,4,5-Trichlorophenol	95-95-4	SVOC										
2,4,6-Trichlorophenol	88-06-2	SVOC			4.9	BTAG RIII 2006, SLV	1200	Schuytema et al. 1996	4.9	BTAG RIII 2006, SLV	0.213	BTAG RIII 2006, SLV
2,4-Dichlorophenol	120-83-2	SVOC			11	BTAG RIII 2006, SLV			15800	CDEP 1996, GWPC	0.117	BTAG RIII 2006, SLV
2,4-Dimethylphenol	105-67-9	SVOC									0.029	BTAG RIII 2006, SLV
2,4-Dinitrophenol	51-28-5	SVOC									0.00621	EPA 2003, R5 ESL
2,4-Dinitrotoluene	121-14-2	SVOC			44	BTAG RIII 2006, SLV			44	BTAG RIII 2006, SLV	0.0416	BTAG RIII 2006, SLV
2,6-Dinitrotoluene	606-20-2	SVOC			81	BTAG RIII 2006, SLV			81	BTAG RIII 2006, SLV	0.0398	EPA 2003, R5 ESL
2-Chloronaphthalene	91-58-7	SVOC									0.417	EPA 2003, R5 ESL
2-Chlorophenol	95-57-8	SVOC			24	BTAG RIII 2006, SLV			24	BTAG RIII 2006, SLV	0.0312	BTAG RIII 2006, SLV
2-Methylphenol	95-48-7	SVOC			13	Suter and Tsao, 1996 Tier II SCV			13	Suter and Tsao, 1996 Tier II SCV	0.0554	EPA 2003, R5 ESL
2-Nitroaniline	88-74-4	SVOC										
2-Nitrophenol	88-75-5	SVOC			1920	BTAG RIII 2006, SLV			1920	BTAG RIII 2006, SLV		

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					Surface Water				Groundwater		Sediment	
Analyte	CAS Number	Class	Subclass	BCC	Aquatic Life Screening Level (ug/L)	Source	Amphibian Screening Level (ug/L)	Source	Surface Water Protection (GW) (ug/L)	Source	Sediment Threshold Screening Level (mg/kg)	Source
3,3-Dichlorobenzidine	91-94-1	SVOC			4.5	BTAG RIII 2006, SLV			4.5	BTAG RIII 2006, SLV	0.127	BTAG RIII 2006, SLV
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	SVOC									0.432	EPA 2003, R5 ESL
3-Nitroaniline	99-09-2	SVOC										
4,6-Dinitro-2-methylphenol	534-52-1	SVOC									0.104	EPA 2003, R5 ESL
4-Bromophenyl phenyl ehter	101-55-3	SVOC			1.5	EPA 1996, ET			1.5	EPA 1996, ET	1.23	BTAG RIII 2006, SLV
4-Chloro-3-methylphenol	59-50-7	SVOC									0.388	EPA 2003, R5 ESL
4-Chlorophenyl phenyl ehter	7005-72-3	SVOC										
4-Methylphenol	106-44-5	SVOC			543	BTAG RIII 2006, SLV			543	BTAG RIII 2006, SLV	0.67	BTAG RIII 2006, SLV
4-Nitrophenol	100-02-7	SVOC			60	BTAG RIII 2006, SLV			60	BTAG RIII 2006, SLV	0.0133	EPA 2003, R5 ESL
Aniline	62-53-3	SVOC			2.2	Buchman 2008, CCC			2.2	Buchman 2008, CCC	0.00031	EPA 2003, R5 ESL
Azobenzene	103-33-3	SVOC										
Benzidine	92-87-5	SVOC			3.9	Buchman 2008, CCC			3.9	Buchman 2008, CCC		
Benzoic acid	65-85-0	SVOC			42	Buchman 2008, CCC			42	Buchman 2008, CCC	0.65	BTAG RIII 2006, SLV
Benzyl alcohol	100-51-6	SVOC			8.6	Buchman 2008, CCC			8.6	Buchman 2008, CCC	0.00104	EPA 2003, R5 ESL
Benzyl butyl phthalate	85-68-7	SVOC			19	BTAG RIII 2006, SLV			19	BTAG RIII 2006, SLV	11	EPA 1996, ET
Bis(2-chloroethoxy)methane	111-91-1	SVOC										
Bis(2-chloroethyl)ether	111-44-4	SVOC							42	CDEP 1996, GWPC		
Bis(2-chloroisopropyl)ether	108-60-1	SVOC							3400000	CDEP 1996, GWPC		
Bis(2-ethylhexyl)phthalate	117-81-7	SVOC			32	EPA 1996, ET			59	CDEP 1996, GWPC	0.18	BTAG RIII 2006, SLV
Carbazole	86-74-8	SVOC										
Dibenzofuran	132-64-9	SVOC			3.7	BTAG RIII 2006, SLV			3.7	BTAG RIII 2006, SLV	2	EPA 1996, ET
Diethy phthalate	84-66-2	SVOC			220	EPA 1996, ET			220	EPA 1996, ET	0.63	EPA 1996, ET
Dimethyl phthalate	131-11-3	SVOC										
Di-n-butyl phthalate	84-74-2	SVOC			19	BTAG RIII 2006, SLV			120000	CDEP 1996, GWPC	11	EPA 1996, ET
Di-n-octyl phthalate	117-84-0	SVOC			22	BTAG RIII 2006, SLV	3880	Schuytema et al. 1996	22	BTAG RIII 2006, SLV		
Hexachlorobenzene	118-74-1	SVOC		x	0.0003	BTAG RIII 2006, SLV			0.077	CDEP 1996, GWPC	0.02	BTAG RIII 2006, SLV
Hexachlorocyclopentadiene	77-47-4	SVOC		x								
Hexachloroethane	67-72-1	SVOC			12	EPA 1996, ET	2440	Schuytema et al. 1996	89	CDEP 1996, GWPC	1	EPA 1996, ET
Methanamine, n-methyl-n-nitroso	62-75-9	SVOC										
Nitrobenzene	98-95-3	SVOC					640	Sparling et al., 2000				
N-Nitroso-di-n-propylamine	621-64-7	SVOC										
N-Nitrosodiphenylamine	86-30-6	SVOC			210	Suter and Tsao, 1996 Tier II SCV	2300	Schuytema et al. 1996	210	Suter and Tsao, 1996 Tier II SCV	2.68	BTAG RIII 2006, SLV
p-Chlororaniline	106-47-8	SVOC			232	BTAG RIII 2006, SLV			232	BTAG RIII 2006, SLV		
Pentachlornitrobenzene	82-68-8	SVOC										
Pentachlorophenol	87-86-5	SVOC			15	CDEP 2011, CWQS	32	Schuytema et al. 1996	15	CDEP 2011, CWQS	0.504	BTAG RIII 2006, SLV
Phenol	108-95-2	SVOC			4	BTAG RIII 2006, SLV	40	Schuytema et al. 1996	92000000	CDEP 1996, GWPC	0.42	BTAG RIII 2006, SLV
p-Nitroaniline	100-01-6	SVOC										
Pyridine	110-86-1	SVOC			2380	BTAG RIII 2006, SLV			2380	BTAG RIII 2006, SLV	0.106	EPA 2003, R5 ESL
1,1,1,2-Tetrachloroethane	630-20-6	VOC										
1,1,1-Trichloroethane	71-55-6	VOC			62	EPA 1996, ET			62000	CDEP 1996, GWPC	0.17	EPA 1996, ET
1,1,2,2-Tetrachloroethane	79-34-5	VOC			420	EPA 1996, ET			110	CDEP 1996, GWPC	0.94	EPA 1996, ET
1,1,2-Trichloroethane	79-00-5	VOC			1200	Suter and Tsao, 1996 Tier II SCV			1260	CDEP 1996, GWPC	1.24	BTAG RIII 2006, SLV
1,1-Dichloroethane	75-34-3	VOC			47	Suter and Tsao, 1996 Tier II SCV			47	Suter and Tsao, 1996 Tier II SCV		
1,1-Dichloroethylene	75-35-4	VOC	cVOC		25	Suter and Tsao, 1996 Tier II SCV			96	CDEP 1996, GWPC	0.031	BTAG RIII 2006, SLV
1,1-Dichloropropene	563-58-6	VOC										
1,2,3-Trichlorobenzene	87-61-6	VOC			8	BTAG RIII 2006, SLV			8	BTAG RIII 2006, SLV	0.858	BTAG RIII 2006, SLV
1,2,3-Trichloropropane	96-18-4	VOC										
1,2,4,5-Tetrachlorobenzene	95-94-3	VOC			50	Buchman 2008, CCC			50	Buchman 2008, CCC	1.09	BTAG RIII 2006, SLV
1,2,4-Trichlorobenzene	120-82-1	VOC			24	BTAG RIII 2006, SLV			24	BTAG RIII 2006, SLV	9.2	EPA 1996, ET
1,2,4-Trimethylbenzene	95-63-6	VOC										
1,2-Dibromo-3-chloropropane	96-12-8	VOC										
1,2-Dibromoethane	106-93-4	VOC										
1,2-Dichlorobenzene	95-50-1	VOC			14	EPA 1996, ET	5560	Schuytema et al. 1996	170000	CDEP 1996, GWPC	0.34	EPA 1996, ET
1,2-Dichloroethane	107-06-2	VOC			910	Suter and Tsao, 1996 Tier II SCV			2970	CDEP 1996, GWPC		
1,2-Dichloropropane	78-87-5	VOC					63000	Schuytema et al. 1996				
1,3,5-Trichlorobenzene	108-70-3	VOC										
1,3,5-Trimethylbenzene	108-67-8	VOC										
1,3-Dichloropropane	142-28-9	VOC										
1,4-Dichlorobenzene	106-46-7	VOC			15	EPA 1996, ET	5560	Schuytema et al. 1996	15	EPA 1996, ET	0.35	EPA 1996, ET
1,4-Dioxane	123-91-1	VOC										
2,2-Dichloropropane	594-20-7	VOC										
2-Butanone (MEK)	78-93-3	VOC			14000	BTAG RIII 2006, SLV			14000	BTAG RIII 2006, SLV		
2-Hexanone	591-78-6	VOC			99	Suter and Tsao, 1996 Tier II SCV			99	Suter and Tsao, 1996 Tier II SCV		
Acetone	67-64-1	VOC			1500	Suter and Tsao, 1996 Tier II SCV			1500	Suter and Tsao, 1996 Tier II SCV		

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					Surface Water				Groundwater		Sediment	
Analyte	CAS Number	Class	Subclass	BCC	Aquatic Life Screening Level (ug/L)	Source	Amphibian Screening Level (ug/L)	Source	Surface Water Protection (GW) (ug/L)	Source	Sediment Threshold Screening Level (mg/kg)	Source
Acrylonitrile	107-13-1	VOC			2600	Buchman 2008, CCC			20	CDEP 1996, GWPC	0.0012	EPA 2003, R5 ESL
Benzene	71-43-2	VOC			46	EPA 1996, ET	3660	Sparling et al., 2000	710	CDEP 1996, GWPC	0.142	EPA 2003, R5 ESL
Bromobenzene	108-86-1	VOC										
Bromochlormethane	74-97-5	VOC										
Bromodichloromethane	75-27-4	VOC										
Bromoform	75-25-2	VOC			320	BTAG RIII 2006, SLV			10800	CDEP 1996, GWPC	0.654	BTAG RIII 2006, SLV
Bromomethane	74-83-9	VOC			19	EPA 1996, ET			19	EPA 1996, ET	0.00137	EPA 2003, R5 ESL
Carbon disulfide	75-15-0	VOC			0.92	Suter and Tsao, 1996 Tier II SCV			0.92	Suter and Tsao, 1996 Tier II SCV	0.000851	BTAG RIII 2006, SLV
Carbon tetrachloride	56-23-5	VOC			240	EPA 1996, ET	900	Schuytema et al. 1996	132	CDEP 1996, GWPC	0.0642	BTAG RIII 2006, SLV
Chlorobenzene	108-90-7	VOC			130	EPA 1996, ET	1150	Schuytema et al. 1996	420000	CDEP 1996, GWPC	0.82	EPA 1996, ET
Chloroethane	75-00-3	VOC							2538	CDEP 1996, GWPC		
Chloroform	67-66-3	VOC			28	Suter and Tsao, 1996 Tier II SCV	270	Schuytema et al. 1996	14100	CDEP 1996, GWPC	0.121	EPA 2003, R5 ESL
Chloromethane	74-87-3	VOC										
cis-1,2-Dichloroethylene	156-59-2	VOC	cVOC		590	Suter and Tsao, 1996 Tier II SCV			590	Suter and Tsao, 1996 Tier II SCV		
cis-1,3-Dichloropropene	10061-01-5	VOC			23	Suter and Tsao, 1996 Tier II SCV			23	Suter and Tsao, 1996 Tier II SCV	0.0000509	BTAG RIII 2006, SLV
Dibromochloromethane	124-48-1	VOC							1020	CDEP 1996, GWPC		
Dichlorodifluoromethane	75-71-8	VOC										
Diisopropyl ether (DIPE)	108-20-3	VOC										
Ethanol	64-17-5	VOC										
Ethyl ether	60-29-7	VOC										
Ethylbenzene	100-41-4	VOC			290	EPA 1996, ET			580000	CDEP 1996, GWPC	3.6	EPA 1996, ET
Ethyl-t-butyl ether (ETBE)	637-92-3	VOC										
Freon 113	76-13-1	VOC										
Hexachloro-1,3-butadiene	87-68-3	VOC			1.3	BTAG RIII 2006, SLV			1.3	BTAG RIII 2006, SLV	0.0268	EPA 2003, R5 ESL
Isopropylbenzene	98-82-8	VOC			2.6	BTAG RIII 2006, SLV			2.6	BTAG RIII 2006, SLV	0.086	BTAG RIII 2006, SLV
m,p-Xylene	1330-20-7-M,P	VOC					3530	Sparling et al., 2000	702	CDEP 1996, GWPC	0.0252	BTAG RIII 2006, SLV
m-Dichlorobenzene	541-73-1	VOC			71	EPA 1996, ET	5560	Schuytema et al. 1996	26000	CDEP 1996, GWPC	1.7	EPA 1996, ET
Methyl Isobutyl Ketone	108-10-1	VOC			170	BTAG RIII 2006, SLV			170	BTAG RIII 2006, SLV		
Methyl Tert Butyl Ether (MTBE)	1634-04-4	VOC			11070	BTAG RIII 2006, SLV			11070	BTAG RIII 2006, SLV		
Methylene bromide	74-95-3	VOC										
Methylene chloride	75-09-2	VOC			2200	Suter and Tsao, 1996 Tier II SCV	17780	Schuytema et al. 1996	48000	CDEP 1996, GWPC	0.159	EPA 2003, R5 ESL
n-Butylbenzene	104-51-8	VOC										
n-Propylbenzene	103-65-1	VOC										
o-Chlorotoluene	95-49-8	VOC										
o-Xylene	95-47-6	VOC			13	Suter and Tsao, 1996 Tier II SCV			702	CDEP 1996, GWPC		
p-Chlorotoluene	106-43-4	VOC										
p-Isopropyltoluene	99-87-6	VOC										
sec-Butylbenzene	135-98-8	VOC										
Styrene	100-42-5	VOC			72	BTAG RIII 2006, SLV			72	BTAG RIII 2006, SLV	0.559	BTAG RIII 2006, SLV
tert-Amyl Methyl Ether (TAME)	994-05-8	VOC										
Tert-butyl alcohol	75-65-0	VOC							100	CDEP 1996, GWPC		
tert-butylbenzene	98-06-6	VOC										
Tetrachloroethylene	127-18-4	VOC	cVOC		120	EPA 1996, ET			88	CDEP 1996, GWPC	0.53	EPA 1996, ET
Tetrahydrofuran	109-99-9	VOC										
Toluene	108-88-3	VOC			9.8	EPA 1996, ET	390	Sparling et al., 2000	4000000	CDEP 1996, GWPC	0.67	EPA 1996, ET
Total Xylenes	RACALC-XYL	VOC			13	EPA 1996, ET	3530	Sparling et al., 2000	13	EPA 1996, ET	0.433	EPA 2003, R5 ESL
trans-1,2-Dichloroethylene	156-60-5	VOC	cVOC		970	BTAG RIII 2006, SLV			970	BTAG RIII 2006, SLV	1.05	BTAG RIII 2006, SLV

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					Surface Water				Groundwater		Sediment	
Analyte	CAS Number	Class	Subclass	BCC	Aquatic Life Screening Level (ug/L)	Source	Amphibian Screening Level (ug/L)	Source	Surface Water Protection (GW) (ug/L)	Source	Sediment Threshold Screening Level (mg/kg)	Source
trans-1,3-Dichloropropene	10061-02-6	VOC									0.0000509	BTAG RIII 2006, SLV
Trans-1,4-Dichloro-2-Butene	110-57-6	VOC										
Trichloroethene	79-01-6	VOC	cVOC		21	Buchman 2008, CCC			2340	CDEP 1996, GWPC	1.6	EPA 1996, ET
Trichlorofluoromethane	75-69-4	VOC										
Vinyl chloride	75-01-4	VOC	cVOC		930	BTAG RIII 2006, SLV			15750	CDEP 1996, GWPC	0.202	EPA 2003, R5 ESL

Notes:

µg/L = micrograms per liter

mg/kg = milligrams per kilogram

NA = not available

* - indicates that given metal is hardness dependent. Data are screened with default hardness; subsequent analysis of surface incorporates site-specific hardness.

BCC = bioaccumulative compound; BCCs (except for PAHs) include any chemical that has the potential to cause adverse effects after release to surface waters due to bioaccumulation in aquatic organisms (the bioaccumulation factor must be greater than 1000, after considering metabolism and other physicochemical properties) per EPA 1995. High molecular weight PAHs are as benzo(a)pyrene is included as a priority persistent bioacculmaulative and toxic chemical per EPA 2012 (http://www.epa.gov/pbt/index.htm).

References:

Surface Water

1. CT DEEP 2011. Numerical Water Quality Crieteria for Chemical Constituents. State of Connecticut Department of Environmental Protection. Bureau of Water Protection and Land Reuse Planning and Standards Division, 2011 Connecticut Water Quality Standards (CWQS). Continuous (4-day average) chronic criteria (CCC) for freshwater.
2. Buchman, M.F, 2008. NOAA Screening Quick Reference (SQuiRT) Tables, NOAA OR&R Report 08-1, Seattle, WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages. Continuous chronic criteria (CCC) for fresh waters (National Ambient Water Quality Criteria are preferred).
3. Suter and Tsao. 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota, 1996 Revision Tier II Secondary Chronic Values (Tier II SCV)
4. EPA 1996. Ecotox Thresholds (ET). United States Environmental Protection Agency. Office of Solid Waste and Emergency Response. Intermittent Bulletin, Vol 3(2). EPA540/F-95/038. January. Table 2 (Tier II values)
5. EPA 2006. Screening Level Values (SLVs) for Freshwater and Marine Sediment and Freshwater and Marine Water to be Used at Superfund Sites. Region III Biological Technical Assistance Group (BTAG). July/August 2006.
6. EPA 2003. RCRA Corrective Action Ecological Screening Levels (ESLs). EPA, Region 5. August 22, 2003. (Water ESL)
7. Schuytema et al. 1996. "Amphibian Toxicity Data for Water Quality Criteria Chemicals". *EPA/600/R-96/124. Corvallis, Oregon*
8. Sparling et al., 2000. Ecotoxicology of Amphibians and Reptiles. SETAC Press.

Sediment

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

Sediment - hierarchy of selection (in order of preference): A. Threshold Effect Concentration (TEC); B. Threshold Effect Level (TEL); C. ARCS Threshold Effect Level (*Hyalella azteca*) (TEL-H)

2. EPA 1996. Ecotox Thresholds. United States Environmental Protection Agency. Office of Solid Waste and Emergency Response. Intermittent Bulletin, Vol 3(2). EPA540/F-95/038. January. Table 2 (SQB)
3. EPA 2006. Screening Level Values (SLV) for Freshwater and Marine Sediment and Freshwater and Marine Water to be Used at Superfund Sites. Region III Biological Technical Assistance Group (BTAG). July/August 2006.
4. EPA 2003. RCRA Corrective Action Ecological Screening Levels (ESLs). U.S EPA, Region 5. August 22, 2003. (Sediment ESL)

In the absence of toxicity-based values from the above sources, the sediment "background" value (bkg) presented in Bucman 2008 was applied.

Groundwater

1. CT DEEP 1996. Surface-Water Protection Criteria for Substances in Ground Water (GWPC). State Of Connecticut Regulation of Department of Environmental Protection, Appendix D to Sections 22a-133k-1 through 22a-133k-3 of the Regulations of Connecticut State Agencies. January 1996. In the absence of CT DEEP 1996 values, the hierarchy applied for surface water was followed.

Other

EPA 1995. Final Water Quality Guidance for the Great Lakes System. 60 Federal Register: 15365 (March 23, 1995). Table 6.

AECOM

Table 3-6
Summary of Surface Water Chemicals of Potential Ecological Concern

Greenwich High School
10 Hillside Road
Greenwich, CT

Analyte	CAS No	Class	BCC	MDC > SL?	Other Reason for COPEC Selection
Detected COPECs					
Barium	7440-39-3	Inorganic		YES	
Pyrene	129-00-0	PAH	x	YES	
Total High Molecular Weight PAHs	HPAH	PAH	x		YES - Detected and BCC
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH			YES - SLNA and TRV available
Total PAHs	RACALC-PAH	PAH	x		YES - Detected and BCC
Chlordane	57-74-9	Pesticide	x	YES	
Total DDx	RACALC-DDx	Pesticide	x	YES	
Non-Detected COPECs (maximum reporting limit exceeds screening levels)					
Metals	*5 (beryllium, cadmium, lead, selenium and silver)*				
PAHs	*2 individual PAHs (benzo(a)anthracene and benzo(a)pyrene)*				
VOCs	*1 chlorinated VOC and 1 non-chlorinated VOCs*				
SVOCs	*4 chlorinated SVOCs and 5 non-chlorinated SVOCs*				
Pesticides	*2 pesticides: p,p-DDT and camphechlor (toxaphene)*				
PCBs	*Total PCB homologues and Total PCB Arochlors*				

Notes:

Refer to Appendix D for the complete summary of COPECs

COPEC are based on exceedance of the surface water screening criteria and/or the amphibian screening benchmark

Detected COPEC are evaluated quantitatively; non-detected COPEC evaluated in the uncertatiny analysis

Surface water includes all surface water within the West Brothers Brook system defined as AOC 15.

MDC = maximum detected concentration

SL = screening level

BCC = bioaccumulative chemical compound

PAHs = polyaromatic hydrocarbons

PCBs = polychlorinated biphenyls

VOCs = volatile organic compound

SVOCs = semivolatile organic compound

AECOM

Table 3-7
Summary of Sediment Chemicals of Potential Ecological Concern

Greenwich High School
10 Hillside Road
Greenwich, CT

Analyte	CAS No	Class	BCC	MDC > SL?	Other Reason for COPEC Selection
Detected COPECs					
Arsenic	7440-38-2	Inorganic		YES	
Barium	7440-39-3	Inorganic		YES	
Cadmium	7440-43-9	Inorganic		YES	
Chromium	7440-47-3	Inorganic		YES	
Copper	7440-50-8	Inorganic		YES	
Lead	7439-92-1	Inorganic		YES	
Mercury	7439-97-6	Inorganic	x	YES	
Nickel	7440-02-0	Inorganic		YES	
Vanadium	7440-62-2	Inorganic		YES	
Zinc	7440-66-6	Inorganic		YES	
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	x	YES	
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH		YES	
Total PAHs	RACALC-PAH	PAH	x	YES	
Total PCB Aroclors	RACALC-PCB	PCB	x	YES	
Chlordane	57-74-9	Pesticide	x	YES	
Total DDx	RACALC-DDx	Pesticide	x	YES	
Acetone	67-64-1	VOC			YES - SLNA and TRV available
2-Butanone (MEK)	78-93-3	VOC			YES - SLNA and TRV available
Non-Detected COPECs (maximum reporting limit exceeds screening levels)					
Inorganics	*3 metals (antimony, selenium, silver), and cyanide*				
PAHs	*1 hPAH (dibenzo(a,h)anthracene), and 3 lPAHs (acenaphthene, acenaphthalene, fluorene and naphthalene)*				
VOCs	*17 chlorinated VOCs and 9 non-chlorinated VOCs*				
SVOCs	*9 chlorinated SVOCs and 18 non-chlorinated SVOCs*				
Pesticides	*2 pesticides: p,p-DDT and camphechlor (toxaphene)*				
PCBs	*1 Aroclor (Aroclor 1254)*				

Notes:

Refer to Appendix D for the complete summary of COPECs

COPEC are based on exceedance of the sediment (threshold) screening criteria

Detected COPEC are evaluated quantitatively; non-detected COPEC evaluated in the uncertatiny analysis

Sediment includes all surface sediment data located within the West Brothers Brook system including: AOC11A, AOC11B, AOC11C and AOC12.

BCC = bioaccumulative chemical compound

MDC = maximum detected concentration

PAHs = polyaromatic hydrocarbons

PCBs = polychlorinated biphenyls

RL = reporting limit

SL = screening level

SVOCs = semivolatile organic compound

VOCs = volatile organic compound

SLNA = screening level not available

AECOM

Table 3-8
Summary of Transition Zone Groundwater Chemicals of Potential Ecological Concern

Greenwich High School
10 Hillside Road
Greenwich, CT

Analyte	CAS Number	Class	BCC	MDC > SL?	Other Reason for COPEC Selection
Detected COPCs					
Barium	7440-39-3	Inorganic		YES	
Non-Detected COPECs (maximum reporting limit exceeds screening levels)					
Inorganics	*None*				
PAHs	*3 lPAHs (1-methylnaphthalene, acenaphthalene and phenanthrene) and 5 hPAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene and indeno(1,2,3-cd)pyrene)*				
VOCs	*2 chlorinated VOCs (carbon disulfide and hexachloro-1,3-butadiene)*				
SVOCs	*4 chlorinated SVOCs, and 4 non-chlorinated SVOCs*				
Pesticides	*2 pesticides: chlordane and total DDx (p,p-DDT)*				
PCBs	*None*				

Notes:

Refer to Appendix D for the complete summary of COPECs.

COPEC are based on exceedance of the groundwater screening level protective of aquatic resources.

Transition zone groundwater includes groundwater data from temporary and/or permanent monitoring wells in close proximity to West Brothers Brook (AOC15) that may discharge to surface water.

BCC = bioaccumulative chemical compound

MDC = maximum detected concentration

PAHs = polyaromatic hydrocarbons

PCBs = polychlorinated biphenyls

RL = reporting limit

SL = screening level

SVOCs = semivolatile organic compound

VOCs = volatile organic compound

Table 4-1
Ecological Risk Assessment Assumptions[1]

Parameter	Step 2 Screening Level Assessment	Step 3A Refinement of COPEC
Exposure		
Area Use Factors	100%	Species-specific, per site observations and estimates for future land use, as appropriate.
Bioavailability	100%	Assumed 100% in the absence of quantitative data. Specific site and COPEC bioavailability data is discussed qualitatively as applicable.
Life History	Per Receptor Exposure Parameters	Per Receptor Exposure Parameters
Dietary Composition	100% of diet consists of most dominant food item [2]	Species-specific typical dietary composition, as listed in Receptor Exposure Parameters
Dietary Uptake factors (BAFs)	Literature data, per Receptor Exposure Parameters. The 90th percentile (upper bound) value is used where available.	Literature data, the central tendency value is used.
Exposure Point Concentrations		
Media Concentration	Maximum Detected Concentration (MDC) for exposure area.	Cental tendency value of exposure area concentrations (95% upper confidence limit, UCL)
Toxicity Values		
Toxicity Reference Value (TRV)	Chronic NOAEL	Chronic NOAEL[3] and Chronic LOAEL (surrogate for EC20 population level effect)

Notes:

[1] Assumptions presented are based on EPA guidance (EPA 2001; EPA 1997)

[2] Most dominant food item: the "preferred" diet item assumed to supply 100% of diet

[3] Step 3 (refinement of COPECs) provides a risk estimate bounded by toxicity study duration endpoints, providing an upper bound (NOAEL-based) and lower bound (LOAEL-based) risk estimate.

COPEC = chemical of potential ecological concern

EC20 = 20% effect concentration

LOAEL = lowest observable adverse effect level

NOAEL = no observable adverse effect level

BAF = bioaccumulation factor

References:

EPA. 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final. Environmental Response Team, U.S. Environmental Protection Agency. Edison, NJ.

EPA. 2001. The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments. ECO Update. Office of Solid Waste and Emergency Response,

Table 4-2
Bioaccumulation Factors

			Soil/Sediment-to-Plant (mg/kg tissue dwt)/(mg/kg soil/sed dwt)			Sediment-to-Benthic Invertebrate (mg/kg tissue dwt)/(mg/kg sed dwt)			Water-to-Fish (mg/kg tissue wwt)/(mg/L water)			Sediment-to-Fish (mg/kg tissue dwt)/(mg/L water)		
COPEC	CAS	Class	BAFplant [1]	90th Percentile [1] BAFplant	Comment/ Reference	BAFinv [1]/BSAF	90th Percentile [1] BAFinv	Comment/ Reference	BAF fish (mean)	BAF fish (max)	Comment/ Reference	BSAF fish	90th Percentile BAFfish	Comment/ Reference
Volatile Organic Compounds (8260B)														
2-Butanone	78-93-3	VOC	26.3	NA	Travis and Arms (1988)	1.0	NA	Default	1.0	1.0	BCFwin, EPA (2011)	1	NA	Default (EPA 2004)
Acetone	67-64-1	VOC	53.3	NA	Travis and Arms (1988)	1.0	NA	Default	1.0	1.0	BCFwin, EPA (2011)	1	NA	Default (EPA 2004)
PAHs (8270C)														
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	ln(Cp)=0.975*Ln(Cs)-2.0615	NA	BaP used as surrogate, EPA (2005)	0.14	0.18	Mean/90th percentile of hPAH BSAFs	3106	5846	Mean/Maximum of hPAH BAFs per BCFwin, EPA (2011)	0.26	NA	Mean of hPAH BSAFs per EPA (2012) [5]
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	ln(Cp)=0.7784*Ln(Cs)-0.9887	NA	Anthracene used as surrogate, EPA (2005)	0.14	0.18	Mean/90th percentile of lPAH BSAFs	614	691	Mean/Maximum of lPAH BAFs per BCFwin, EPA (2011)	2.8	NA	Mean of lPAH BSAFs per EPA (2012) [5]
Total PAHs [3]	RACALC-PAH	PAH	ln(Cp)=0.7912*Ln(Cs)-1.1442	NA	EPA (2005)	0.14	0.18	Mean/90th percentile of PAH BSAFs	1860	3268	Mean/Maximum of PAH BAFs per BCFwin, EPA (2011)	1.5	NA	Mean of PAH BSAFs per EPA (2012) [5]
Metals and Cyanide (6010B/6020, 7470A/7471A, 9010/9012A)														
Arsenic	7440-38-2	Metal	0.038	1.103	Bechtel-Jacobs (1998a)	0.14	0.69	Bechtel-Jacobs (1998b)	17	NA	OEHHA (2012)	NA	NA	[6]
Barium	7440-39-3	Metal	0.156	0.477	Bechtel-Jacobs (1998a)	0.091	0.16	Bechtel-Jacobs (1998b)	5.2	NA	WDOE (1996)	NA	NA	[6]
Beryllium	7440-41-7	Metal	ln(Cp)=0.7345*Ln(Cs)-0.5361	NA	Bechtel-Jacobs (1998a)	0.77	3.72	Bechtel-Jacobs (1998b)	40	NA	OEHHA (2012)	NA	NA	[6]
Cadmium	7440-43-9	Metal	ln(Cp)=0.546*Ln(Cs)-0.475	NA	Bechtel-Jacobs (1998a)	0.60	7.99	Bechtel-Jacobs (1998b)	40	NA	OEHHA (2012)	NA	NA	[6]
Chromium	7440-47-3	Metal	0.041	0.083	Bechtel-Jacobs (1998a)	0.10	0.47	Bechtel-Jacobs (1998b)	21	NA	OEHHA (2012)	NA	NA	[6]
Copper	7440-50-8	Metal	ln(Cp)=0.394*Ln(Cs)+0.668	NA	Bechtel-Jacobs (1998a)	1.57	5.25	Bechtel-Jacobs (1998b)	36	NA	NRWQC (HH), EPA (2002)	NA	NA	[6]
Lead	7439-92-1	Metal	ln(Cp)=0.561*Ln(Cs)-1.328	NA	Bechtel-Jacobs (1998a)	0.071	0.61	Bechtel-Jacobs (1998b)	12	NA	OEHHA (2012)	NA	NA	[6]
Nickel	7440-02-0	Metal	ln(Cp)=0.784*Ln(Cs)-2.223	NA	Bechtel-Jacobs (1998a)	0.49	2.32	Bechtel-Jacobs (1998b)	21	NA	OEHHA (2012)	NA	NA	[6]
Vanadium	7440-62-2	Metal	0.00485	0.010	Bechtel-Jacobs (1998a)	0.042	0.088	Soil invertebrate value used as surrogate	1	NA	Default	NA	NA	[6]
Zinc	7440-66-6	Metal	ln(Cp)=0.554*Ln(Cs)+1.575	NA	Bechtel-Jacobs (1998a)	1.94	7.53	Bechtel-Jacobs (1998b)	47	NA	NRWQC (HH), EPA (2002)	NA	NA	[6]
Mercury (7470A)	7439-97-6	Metal	ln(Cp)=0.544*Ln(Cs)-0.996	NA	Bechtel-Jacobs (1998a)	1.13	2.87	Bechtel-Jacobs (1998b)	84	NA	OEHHA (2012)	NA	NA	[6]
Pesticides (8081)														
Total DDx	RACALC-DDx	Pest	ln(Cp)=0.7524*Ln(Cs)-2.5119	NA	EPA (2005)	ln(Cp)=0.8561*Ln(Cs)+2.1287	NA	EPA (2005)	1,594,333	2,315,000	BCFwin (DDT), EPA (2011)	24.7	NA	Mean of 4,4-DDT, -DDE and DDD BSAFs per EPA (2012) [5]
Chlordane	57-74-9	Pest	0.18	NA	EPA (2005) [2]	4.1	NA	Mean of alpha- and gamma-chlordane BSAFs per EPA (2012) [5]	1,737,067	3,205,000	BCFwin, EPA (2011)	4.9	NA	Mean of alpha- and gamma-chlordane BSAFs per EPA (2012) [5]
Polychlorinated biphenyls (8082)														
Total PCBs	RECALC-PCBs	PCB	0.17	NA	EPA (2005)	10.7	NA	Aroclor 1260 surrogate, EPA (2012) [4]	1,249,467	2,100,000	BCFwin, EPA (2011)	112.8	NA	Aroclor 1260 surrogate, EPA (2012) [5]

Notes:

[1] The central tendency value is represented by the median, unless otherwise noted. The median value is used for the refined screening level evaluation, (RSLERA) and 90th percentile values, where available, are used for screening level evaluations (RSLERA).

[2] Estimated plant uptake values (constants) were computed using the following relationship for analytes having a log Kow between 3 and 8: Log BAFsoil to plant = 1.781 - 0.4057 * log Kow, per EPA (2005). For those analytes, with Log Kows outside of this range the relationship presented by

Travis and Arms (1988) was used: Log BAF soil to plant =1.588-0.578 * Log Kow

[3] The total PAH value is the mean of the data presented for the 16 priority PAHs (also includes 1- and 2-methylnaphthalene)

[4] The fish BSAF is modified from the reported value that is given in organic carbon-lipid normalized units (kg-sediment-oc / kg-lipid-fish). The BSAF is modified using the following relationship: modified BSAF (kg-sediment / kg-fish tissue wwt) = BSAF (kg-sediment-oc / kg-lipid-fish) x Fish lipid content (unitless) / Sediment OC (unitless), where lipid content is conservatively assumed to be 7 percent and organic carbon assumed a total organic carbon of 1 percent (foc=0.01). The value is further modified to be presented in dry weight units assuming 75 percent moisture (i.e., modified BSAF / 0.25).

[5] The invertebrate BSAF is modified from the reported value that is given in organic carbon-lipid normalized units (kg-sediment-oc / kg-lipid-invertebrate). The BSAF is modified using the following relationship: modified BSAF (kg-sediment / kg-invertebrate tissue wwt) = BSAF (kg-sediment-oc / kg-lipid-invertebrate) x Invertebrate lipid content (unitless) / Sediment OC (unitless), where lipid content is conservatively assumed to be 1.3% (freshwater molluscs and worms per USCOE 2009) and a total organic carbon of 1 percent (foc=0.01). The value is further modified to be presented in dry weight units assuming 80 percent moisture (i.e., modified BSAF / 0.2).

[6] Use of BSAFs for inorganics is not appropriate; therefore, inorganics were not evaluated (ODEQ 2007; USCOE 2009)

NA = Value not available

dwt = dry weight basis

wwt = wet weight basis

NRAWQC = national recommended ambient water quality criteria

Table 4-2
Bioaccumulation Factors

References:

Bechtel-Jacobs Company LLC. 1998a. *Empirical Models for the Uptake of Inorganic Chemicals by Plants*. Bechtel-Jacobs Company LLC, Oak Ridge, Tennessee. BJC/OR-133. Bechtel-Jacobs Company LLC.

Bechtel-Jacobs Company LLC. 1998b. *Biota Sediment Accumulation Factors for Invertebrates: Review and Recommendations for the Oak Ridge Reservation. Bechtel-Jacobs Company LLC, Oak Ridge, Tennessee. BJC/OR-112*

Travis, C.C. and Arms, A.D., 1988. "Bioconcentration of Organics in Beef, Milk and Vegetation," *Environmental Science and Technology*, 22:271-274.

EPA. 2002. National Recommended Water Quality Criteria: 2002 Human Health Criteria Calculation Matrix. United States Environmental Protection Agency, Office of Water (4304T), EPA-822-R-02-012, November 2002.

EPA. 2004. The Incidence and Severity of Sediment Contamination in Surface Waters of the United States, National Sediment Quality Survey: Second Edition. Office of Science and Technology, Washington, D.C. EPA-823-R-04-007. November. Table C-1.

EPA 2005. Ecological Soil Screening Level Guidance. Washington D.C.: Office of Emergency and Remedial Response. November 2003, Revised February 2005.

EPA. 2011. Estimations Programs Interface for Windows (EPI Suite) v. 4.1. BCFBAF Interface. Developed by the EPA's Office of Pollution Prevention Toxics and Syracuse Research Corporation (SRC). January 2011. Available online at: http://www.epa.gov/oppt/exposure/pubs/episuitedl.htm

EPA. 2012. Biota-Sediment Accumulation Factor Data Set (BSAF). Office of Research and Development with OSWER support. Available online at: http://www.epa.gov/med/prods_pubs.htm. Accessed September 7, 2012.

WDOE. 1996. Washington State Department of Ecology, Toxics Cleanup Program.

OEHHA. 2012. Technical Support Document for Exposure Assessment and Stochastic Analysis, FINAL. California Office of Environmental Health Assessment. August, 2012. Available at: oehha.ca.gov/air/hot_spots/pdf/apenh.pdf

ODEQ. 2007. Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment, April 17 and April 19, 2007 Public Workshop. Oregon Department of Environmental Quality. Available online at: http://www.deq.state.or.us/lq/pubs/Bioaccumtraining07041

USCOE. 2009. BSAF Database. U.S. Army Corps of Engineers. Technical Point of Contact, Mr. Charlie Lutz. Accessed online January 21, 2009 at: http://el.erdc.usace.army.mil/bsaf/bsaf.html

Table 4-3
Life History Parameters and Exposure Factors

Parameter	Great Blue Heron (*Ardea herodis*)			
	Value	Unit	Comment	Source
Feeding Guild	Aquatic Carnivorous Bird			
Food Ingestion (FI)	0.097	kg/d (DW)	Calculated based on food ingestion rate and the mean of adult female/male body weight presented by Quinney (1982).	Calculated
Body Weight (BW)	2.229	kg	Mean female/male body weight per Quinney (1982).	EPA 1993
Food Ingestion Rate (FIR)	0.044	kg (DW)/Kg (BW)/d	Value based on allometric equation for wading birds per Kulshan (1978) [1], as cited in EPA (1993,) and the mean female/male body weight presented by Quinney (1982) and expressed on dry weight basis based on assumed diet containing 75% moisture (conversion factor, 4.0).	EPA 1993
Water Ingestion (WI)	0.1	L/d	Calculated using allometric equation per Calder and Braun (1983) based on the adult female body weight presented by Quinney (1982). [2]	Calculated
Water Ingestion Rate (WIR)	0.045	L/Kg (BW)/d	Calculated using allometric equation per Calder and Braun (1983) based on the adult male body weight presented by Quinney (1982). [2]	Calculated
Diet Composition (Pi)				
Plants	None			
Invertebrates	0.02	Proportion of diet	Invertebrate ingestion is primarily composed of crustaceans and amphibians per Alexander (1977).	EPA 1993
Birds	None			
Reptiles	None			
Small Mammals	None			
Fish	0.98	Proportion of diet	Fish ingestion is primarily composed of open-water fish per Alexander (1977).	EPA 1993
Incidental Soil Ingestion (Ps)	0.05	Proportion of whole diet	Surrogate (red-tailed hawk) parameterized value per the Eco-SSL wildlife exposure model, assuming 100% small mammal diet. Expressed on a dry weight basis. Value for the heron is likely lower due to primarily piscivorous diet.	EPA 2005
Soil Ingestion (SI)	0.0048	kg (DW)/d	Calculated based on soil ingestion (Kg/day) and proportion of diet: FI x Ps	Calculated
Soil Ingestion Rate (SIR)	0.0022	kg (DW)/Kg (BW)/d	Calculated based on soil ingestion rate (kg/kg-d) and proportion of diet: FIR *x* Ps	Calculated
Home/Feeding Range				
Range (lower limit)	0.6	ha	Value is the mean foraging range for adult birds in a freshwater marsh habitat per Bayer (1978).	EPA 1993
Range (upper limit)	8.4	ha	Value is the mean foraging range for adult birds in a estuary habitat per Bayer (1978).	EPA 1993
Area Use Factor (Site-Wide)	1	ha	West Brothers Brook traverses the Site and in total encompasses approximately 2.4 acres (0.98 hectares) of aquatic habitat, which falls within the expected home foraging range for the heron. The area use factor (AUF) is based on the mean home range (4.5 ha) and the area of West Brothers Brook (AOC 15). Future use of Site resources by the great blue heron is assumed to remain unchanged from current use.	Calculated
Area Use Factor (Cider Mill Pond)	0.52	ha	Cider Mill Pond encompasses approximately 0.77 acres (0.31 hectares), which falls outside of the expected home foraging range for the heron. The area use factor (AUF) is based on the median/mean home range (4.5 ha) and the area of Cider Mill Pond (AOC 12). Future use of Site resources by the great blue heron is assumed to remain unchanged from current use.	Calculated

Notes:

[1] Allometric equation (as cited in EPA 1993) for the estimation of food intake (FI) in wading birds: Log(FI) = 0.966 Log(BW) - 0.640 (g), where FI = food intake (g/day-wet weight) and BW = body weight (g)

[2] Allometric equation (as cited in EPA, 1993) for the estimation of water intake for all birds is WI=0.059*BW0.67 (kg), where WI = water ingestion (L/day).
Water ingestion rate (WIR) = WI/BW (l/kg-BW/day).

Table 4-3
Life History Parameters and Exposure Factors

Parameter	Mallard (*Anas platyrhyncos*)			
	Value	Unit	Comment*	Source*
Feeding Guild	Aquatic Omnivorous Bird			
Food Ingestion (FI)	0.0523	Kg/day (DW)	Estimated using allometric equation per Nagy (2001) [1] based on the adult male body weight of per Nelson and Martin (1953) as cited in US EPA (1993). Value expressed on a dry weight basis.	Nagy, 2001
Body Weight (BW)	1.043	kg	Mean adult female body weight (male, 1.225 kg) per Nelson and Martin (1953) as cited in US EPA (1993).	EPA 1993
Food Ingestion Rate (FIR)	0.0501	kg (DW)/Kg (BW)/day	Estimated using allometric equation per Nagy (2001) [1] based on the mean adult female body weight of per Nelson and Martin (1953) as cited in US EPA (1993). Value expressed on a dry weight basis.	Calculated
Water Ingestion (WI)	0.061	L/day	Calculated using allometric equation for all birds per Calder and Braun (1983) and the female body weight of Nelson and Martin (1953). [2]	EPA 1993
Water Ingestion Rate (WIR)	0.0582	L/Kg (BW)/day	Calculated using allometric equation per Calder and Braun (1983) and the female body weight of Nelson and Martin (1953). [2]	Calculated
Diet Composition (Pi)				
Plants	0.253	Proportion of diet	Plant ingestion derived from breeding adult female data per Swanson (1985). Value is the mean of spring-time values (April, May, and June).	EPA 1993
Invertebrates	0.747	Proportion of diet	Invertebrate ingestion derived from breeding adult female data per Swanson (1985). Value is the mean of spring-time values (April, May, and June).	EPA 1993
Birds	none	Proportion of diet		
Reptiles	none	Proportion of diet		
Small Mammals	none	Proportion of diet		
Fish	none	Proportion of diet		
Incidental Soil Ingestion (Ps)	0.02	Proportion of whole diet	Percent soil/sediment in diet estimated from acid-soluble ash of scat	EPA 1993
Soil Ingestion (SI)	0.0010	Kg/day	Calculated based on soil fraction in diet (2.0% of whole diet, per EPA 1993) and food ingestion (Kg/dayay)	Calculated
Soil Ingestion Rate (SIR)	0.00100	kg (DW)/Kg (BW)/day	Calculated based on soil fraction in diet (2.0% of whole diet, per EPA 1993) and food ingestion rate (kg/kg-\BW/day)	Calculated
Home/Feeding Range				
Range (lower limit)	307	ha	Lower range limit given for adult female (non-breeding) per Dwyer et al. (1979). Laying female range is considerably smaller: 38 -240 ha.	EPA 1993
Range (upper limit)	719	ha	Upper range limit given for adult female (non-breeding) per Dwyer et al. (1979). Laying female range is considerably smaller: 38 -240 ha.	EPA 1993
Area Use Factor (Site-Wide)	0.0032	ha	Home range exceeds the area of the site-related reach of West Brothers Brook (0.98 ha). To remain conservative, the lower limit of the laying female range is applied to calculate the AUF. Future use of Site resources by the mallard is assumed to remain unchanged from current use.	Calculated
Area Use Factor (Cider Mill Pond)	0.001	ha	Home range exceeds the area of the Cider Mill Pond (0.31 ha). To remain conservative, the lower limit of the laying female range is applied to calculate the AUF. Future use of Site resources by the mallard is assumed to remain unchanged from current use.	Calculated

Notes:

[1] Allometric equation (Nagy 2001) for the estimation of food intake for all birds is : $FI = 0.638 * BW(g)^{0.885}$, where FI = food intake (kg-DW/day).
Food ingestion rate (FIR) = FI/BW (kg/kg-BW/day).

[2] Allometric equation (as cited in EPA 1993) for the estimation of water intake for all birds is $WI=0.059*BW(g)^{0.67}$, where WI = water ingestion (l/day).
Water ingestion rate (WIR) = WI/BW (l/kg-BW/day).

* Source refers to the document from which life history parameters were obtained. All references (primary and secondary) including those listed in "Comments" field are located on the last page.

Table 4-3
Life History Parameters and Exposure Factors

Parameter	Mink (*Mustela vison*)			
	Value	Unit	Comment*	Source*
Feeding Guild	Aquatic Carnivorous Mammal			
Food Ingestion (FI)	0.031	Kg/day (DW)	Calculated based on food ingestion rate and the mean of adult female body weight presented by Mitchell (1961).	Calculated
Body Weight (BW)	0.568	kg	Adult mean female body weight of fall and summer values (male, 1.137 kg) per Mitchell (1961).	EPA 1993
Food Ingestion Rate (FIR)	0.0541	kg (DW)/Kg (BW)/day	Value for female ingestion rate (Bleavins and Aulderich, 1981) expressed on dry weight basis based on study-specific diet containing 66.2% moisture (conversion factor, 3.0).	EPA 1993
Water Ingestion (WI)	0.0595	L/day	Calculated based on water ingestion rate and the mean of adult female body weight per Micthell (1961).	Calculated
Water Ingestion Rate (WIR)	0.105	L/Kg (BW)/day	Calculated using allometric equation per Calder and Braun (1983) and the mean of adult female body weight presented by Mitchell (1961). [1]	Calculated
Diet Composition (Pi)			Dietary composition consists of year-round values from a river habitat per Alexander (1977).	EPA 1993
Plants	0.02	Proportion of diet	Value based on percent of stomach contents (wet weight) and includes 50% contribution from unidentified ingesta per Alexander (1977).	EPA 1993
Invertebrates	0.04 (0.13)	Proportion of diet	Value based on percent of stomach contents (wet weight) per Alexander (1977) and consists largely of crustaceans. Value in parenthesis representes the value applied in the ERA. The dietary proportion derived from mammals, birds and amphibians is accounted for by invertebrates.	EPA 1993
Birds	0.03 (0)	Proportion of diet	Value based on percent of stomach contents (wet weight) per Alexander (1977). Birds assumed to be taken equally to mammals. Value in parenthesis representes the value applied in the ERA. The dietary proportion derived from birds is accounted for by invertebrates.	EPA 1993
Reptiles / Amphibians	0.03 (0)	Proportion of diet	Value based on percent of stomach contents (wet weight) per Alexander (1977) and consists of both amphibians and reptiles. Value in parenthesis representes the value applied in the ERA. The dietary proportion derived from reptiles and amphibians is accounted for by invertebrates.	EPA 1993
Small Mammals	0.03 (0)	Proportion of diet	Value based on percent of stomach contents (wet weight) per Alexander (1977). Small mammals assumed to be taken equally to birds. The dietary proportion derived from small mammals is accounted for by invertebrates.	EPA 1993
Fish	0.85	Proportion of diet	Value based on percent of stomach contents (wet weight) per Alexander (1977).	EPA 1993
Incidental Soil Ingestion (Ps)	0.094	Proportion of diet	Percent soil/sediment in diet estimated from acid-soluble ash of scat of surrogate species used (raccoon) per Beyer et al. (1994).	EPA 1993
Soil Ingestion (SI)	0.0029	Kg/day	Calculated based on food intake and incidental soil ingestion: SI = FI x Ps	Calculated
Soil Ingestion Rate (SIR)	0.0051	kg (DW)/Kg (BW)/day	Calculated based soil fraction in diet (9.4% of whole diet, per Beyer et al. 1994) and food ingestion rate: SIR = FIR x Ps	Calculated
Home/Feeding Range			Male home ranges are generally larger than females, especially during mating season (up to 1000 ha)	
Range (lower limit)	7.8	ha	Lower range limit is the adult female limit for heavy vegetation in a riparian habitat per Mitchell (1961).	EPA 1993
Range (upper limit)	20.4	ha	Upper range limit is the adult female limit for sparse vegetation in a riparian habitat per Mitchell (1961).	EPA 1993
Area Use Factor (Site-Wide)	0.13	ha	Home range exceeds the area of the site-related reach of West Brothers Brook (0.98 ha). To remain conservative, the lower limit of the adult female range is applied to calculate the AUF. Future use of Site resources by the mink is assumed to remain unchanged from current use.	Calculated
Area Use Factor (Cider Mill Pond)	0.04	ha	Home range exceeds the area of the Cider Mill Pond (0.31 ha). To remain conservative, the lower limit of the adult female range is applied to calculate the AUF. Future use of Site resources by the mink is assumed to remain unchanged from current use.	Calculated

Notes:

[1] Allometric equation (as cited in EPA 1993) for estimation of water consumption for all mammals is: $WI = 0.099\ BW^{0.90}$ (kg), where WI = water ingestion (L/day).

Water ingestion rate (WIR) = WI/BW (L/kg-BW/day).

* Source refers to the document from which life history parameters were obtained. All references (primary and secondary) including those listed in "Comments" field are located on the last page.

Table 4-3
Life History Parameters and Exposure Factors

Parameter	Raccoon (*Procyon lotor*)[3]			
	Value	Unit	Comment*	Source*
Feeding Guild	Terrestrial Omnivorous Mammal			
Food Ingestion (FI)	0.152765755	kg/d (DW)	Calculated using allometric equation per Nagy (2001) for omnivorous mammalsand the body weight presented by Nagel (1943). [1]	Nagy 2001
Body Weight (BW)	5.74	kg	Mean adult female body weight (male, 6.76 kg) per Nagel (1943).	EPA 1993
Food Ingestion Rate (FIR)	0.026614243	kg (DW)/Kg (BW)/d	Calculated using the FI computed per Nagy (2001) and the body weight presented by Nagel (1943).	Calculated
Water Ingestion (WI)	0.4772	L/d	Calculated using allometric equation per Calder and Braun (1983) and the female body weight presented by Nagel (1943). [2]	Calculated
Water Ingestion Rate (WIR)	0.08313	L/Kg (BW)/d	Calculated using allometric equation per Calder and Braun (1983) and the female body weight presented by Nagel (1943). [2]	Calculated
Diet Composition (Pi)				
Plants	0.3915	Proportion of diet	Value estimated based on the mean year-round ingestion given as percent found in digestive tract, wet volume (Llewellyn and Uhler, 1952). Plant material may contribute closer to 75 percent of whole diet during the fall.	EPA 1993
Invertebrates	0.464 (0.58)	Proportion of diet	Value based on the mean year-round ingestion given as percent found indigestive tract, wet volume (Llewellyn and Uhler 1952). Value in parenthesis represents the value applied in the ERA: the dietary proportion derived from mammals and amphibians is accounted for as invertebrates.	EPA 1993
Birds	None			
Reptiles / Amphibians	0.0615 (0)	Proportion of diet	Value based on the mean year-round ingestion given as percent found indigestive tract, wet volume (Llewellyn and Uhler 1952). Value in parenthesis represents the value applied in the ERA: the dietary proportion derived from mammals and amphibians is accounted for as invertebrates.	EPA 1993
Small Mammals	0.054 (0)	Proportion of diet	Value based on the mean year-round ingestion given as percent found indigestive tract, wet volume (Llewellyn and Uhler 1952). Value in parenthesis represents the value applied in the ERA: the dietary proportion derived from mammals and amphibians is accounted for as invertebrates.	EPA 1993
Fish	0.029	Proportion of diet	Value based on the mean year-round ingestion given as percent found indigestive tract, wet volume (Llewellyn and Uhler 1952).	EPA 1993
Incidental Soil Ingestion (Ps)	0.094	Proportion of diet	Percent soil/sediment in diet estimated from acid-soluble ash of scat per Beyer et al. (1994).	EPA 1993
Soil Ingestion (SI)	0.02716	Kg/d	Calculated based on food intake and incidental soil ingestion: SI = FI x Ps	Calculated
Soil Ingestion Rate (SIR)	0.00473	kg (DW)/Kg (BW)/d	Calculated based soil fraction in diet (9.4 percent of whole diet, per Beyer et al. 1994) and food ingestion rate: SIR = FIR x Ps	Calculated
Home/Feeding Range			Home range of males are generally greater than females (18.2 - 814 ha)	
Range (lower limit)	5.3	ha	Lower range limit for adult female in a riparian habitat (Stuewer 1943). Male range encompasses 18.2 - 814 ha.	EPA 1993
Range (upper limit)	376	ha	Upper range limit for adult female in a riparian habitat (Stuewer 1943). Male range encompasses 18.2 - 814 ha.	EPA 1993
Area Use Factor (Site-Wide)	0.18	ha	Home range exceeds the area of the site-related reach of West Brothers Brook (0.98 ha). To remain conservative, the lower limit of the adult female range is applied to calculate the AUF. Future use of Site resources by the raccoon is assumed to remain unchanged from current use.	Calculated
Area Use Factor (Cider Mill Pond)	0.06	ha	Home range exceeds the area of the Cider Mill Pond (0.31 ha). To remain conservative, the lower limit of the adult female range is applied to calculate the AUF. Future use of Site resources by the raccoon is assumed to remain unchanged from current use.	Calculated

Notes:

[1] Allometric equation (as cited in Nagy 2001) for estimation of food ingestion for all mammals is: $FI = 0.0687\ BW^{0.727}$ (kg), where FI = food ingestion (kg/day). Food ingestion rate (FIR) = FI/BW (kg/kg-BW/day).

[2] Allometric equation (as cited in EPA 1993) for estimation of water consumption for all mammals is: WI = 0.099 BW0.99 (kg), where WI = water ingestion (L/day). Water ingestion rate (WIR) = WI/BW (L/kg-BW/day).

* Source refers to the document from which life history parameters were obtained. All references (primary and secondary) including those listed in "Comments" field are located on the last page.

Table 4-3
Life History Parameters and Exposure Factors

Parameter	Muskrat (*Odata zibethicus*)			
	Value	Unit	Comment*	Source*
Feeding Guild	Aquatic Herbivorc	Feeding Guild		
Food Ingestion (FI)	0.060	kg/d (DW)	Calculated based on an exclusive diet of greens (Svihla and Svihla,1931) and the body weight of Reeves and Williams (1956).	
Body Weight (BW)	0.837	kg	Adult (springtime) mean female body weight (male, 0.909 kg) per Reeves and Williams (1956).	EPA 1993
Food Ingestion Rate (FIR)	0.0714	kg (DW)/Kg (BW)/d	Value based on an exclusive diet of greens (grasses) per (Svihla and Svihla 1931) and expressed as dry weight based on estimated moisture content of 79 percent (mean moisture for young grasses per EPA 1993): a conversion factor of 4.8 was applied. [1]	EPA 1993
Water Ingestion (WI)	0.084	L/d	Calculated using allometric equation per Calder and Braun (1983) and the female body weight presented by Reeves and Williams, 1956). [2]	EPA 1993
Water Ingestion Rate (WIR)	0.101	L/Kg (BW)/d	Calculated using allometric equation per Calder and Braun (1983) and the female body weight presented by Reeves and Williams, 1956). [2]	Calculated
Diet Composition (Pi)				
Plants	1	Proportion of diet	Muskrat are exclusive (obligate) herbivores (Willner et al., 1975), feeding on aquatic vegetation.	EPA 1993
Invertebrates		none		
Birds		none		
Reptiles		none		
Small Mammals		none		
Fish		none		
Incidental Soil Ingestion (Ps)	0.0056559	Proportion of diet	Calculated based on food ingestion rate and soil ingestion rate: Ps = SIR/FIR	Calculated
Soil Ingestion (SI)	0.000537	Kg/d	Calculated based on food intake and incidental soil ingestion: SI = FI x Ps	Calculated
Soil Ingestion Rate (SIR)	0.000641	kg (DW)/Kg (BW)/d	Value (Beyer et al. 1994) expressed on a dry weight basis. Soil fraction of diet is less than 1 percent (0.57 percent) of whole diet (calculated).	EPA 1999
Home/Feeding Range			Muskrat have relatively small home ranges, preferring to stay close to their nests.	
Range (upper/lower limit)	0.17	ha	No range given. Value is the mean home range of both juvenile and adult animals in a marsh habitat (Neal 1968).	EPA 1993
Area Use Factor (Site-Wide)	1	ha	Home range falls within the area of the site-related reach of West Brothers Brook (0.98 ha). The muskrat area use is assumed equivalent to 100 percent (AUF=1). Future use of Site resources by the muskrat is assumed to remain unchanged from current use.	
Area Use Factor (Cider Mill Pond)	1	ha	Home range falls within the area of the site-related reach of West Brothers Brook (0.31 ha). The muskrat area use is assumed equivalent to 100 percent (AUF=1). Future use of Site resources by the muskrat is assumed to remain unchanged from current use.	

Notes:

[1] Food intake is expressed on a dry weight basis (i.e., kg food (dry weight) per kg body weight) and was converted to dry weight, when necessary, by applying moisture content of diet per values presented in EPA (1993). A conservative conversion estimate of 4.8 was used (falls within EPA recommended conversion factor range: 1 kg (dry weight) = 3 to 10 kg (wet weight).

[2] Allometric equation (as cited in EPA 1993) for estimation of water consumption for all mammals is: WI = 0.099 BW0.99 (kg), where WI = water ingestion (L/day). Water ingestion rate (WIR) = WI/BW (L/kg-BW/day).

* Source refers to the document from which life history parameters were obtained. All references (primary and secondary) including those listed in "Comments" field are located on the last page.

Kg = kilogram
DW = dry weight
ha = hectares
L = liter
BW = body weight
AUF = area use factor

***Source:**

Nagy. 2001. "Food Requirements of Wild Animals: Predictive Equations for Free-Living Mammals, Reptiles, and Birds'*Nutrition Abstracts and Reviews;* . Series B: Livestock Feeds and Feeding. Vol.71(10). October.

EPA. 1993. Wildlife Exposure Factors Handbook (Volume 1). EPA 600-R-93-187A. Washington D.C.:Office of Research and Development. December 1993

EPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities (Volume One). EPA 530-D-99-001A. Washington D.C. August 1999

EPA. 2005. Guidance for Developing Ecological Soil Screening Levels. Office of Emergency and Remedial Response. Washington D.C. November 2003, Revised February 2005.

Primary References Cited:

Alexander, G.R. 1977. Food of Vertebrate Predators on Trout waters in North Central Lower Michigan. Michigan Academician. 10: 181-195

Bayer, R. D. (1978) Aspects of an Oregon estuarine great blue heron population. In: Sprunt, A.; Ogden, J.; Winckler, S., eds. Wading birds. Natl. Audubon Soc. Res. Rep. 7; pp. 213-217.

Beyer, N.W., Connor, E.E., Gerould, S. 1994. Estimates of Soil Ingestion by Wildlife. The Journal of Wildlife Management, Vol. 58, No. 2 (Apr., 1994), pp. 375-382

Bleavins, M.R., Aulerich, R.J. 1981. Feed Consumption and Food Passage in Mink*(Mustel vison)* and European Ferrets*(Mustel putorious furo)*. Lab. Animal Sci. 31: 268-269

Calder, W.A., Braun, E.J.,1983. Scaling of Osmotic Regulation in Mammals and Birds. Am. J Physio. 244: R601-R606

Dwyer, T. J.; Krapu, G. L.; Janke, D. M. (1979) Use of prairie pothole habitat by breeding mallards. J. Wildl. Manage. 43: 526-531.

Kushlan, J. A. (1978) Feeding ecology of wading birds. In: Sprunt, A.; Ogden, J.; Winckler, S., eds. Wading birds. Natl. Audubon Soc. Res. Rep. 7; pp. 249-296.

Llewellyn, L. M.; Uhler, F. M., 1952. The foods of fur animals of the Patuxent Research Refuge, Maryland. Am. Midl. Nat. 48: 193-203.

Mitchell, J.L. 1961. Mink Movements and Population on a Montana River. J Wildl. Manage. 25: 48-54

Nagel, W. O., 1943. How big is a 'coon. Missouri Conservationist 6-7.

Neal, T. J. (1968) A comparison of two muskrat populations. Iowa State J. Sci. 43: 193-210.

Nelson, A.L., Martin, A.C. 1953. Gamebird Weights. J. Wildl. Manage. 17:36-42

Quinney, T. E. (1982) Growth, diet, and mortality of nestling great blue herons. Wilson Bull. 94: 571-577.

Reeves, H. M.; Williams, R. M. (1956) Reproduction, size, and mortality in Rocky Mountain muskrat. J. Mammal. 37: 494-500.

Stuewer, F. W., 1943. Raccoons: their habits and management in Michigan. Ecol. Monogr. 13: 203-257.

Svihla, A.; Svihla, R. D. (1931) The Louisiana muskrat. J. Mammal. 12: 12-28.

Swanson, G.A. Meyer, M.I., Adomatis, V.A. 1985. Foods Consumed by Breeding Mallards on Wetlands of South-Central North Dakota. J Wildl. Magage. 49: 197-203.

Willner, G. R.; Chapman, J. A.; Goldsberry, J. R. (1975) A study and review of muskrat food habits with special reference to Maryland. Maryland Wildl. Adm. Publ. Wildl. Ecol. 1; 25 pp.

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Table 4-4
Exposure Point Concentrations for Surface Water and Sediment

Greenwich High School
10 Hillside Road
Greenwich, CT

			Sediment (mg/kg) [1]					
			West Brothers Brook - Site-Wide (AOC15)			Cider Mill Pond (AOC12)		
COPEC	CAS	Class	Step 2 (MDC)	Step 3A	Step 3A Basis	Step 2 (MDC)	Step 3A	Step 3A Basis
Arsenic	7440-38-2	Inorganic	17.4	10.4	95% UCL	17.4	12.7	95% UCL
Barium	7440-39-3	Inorganic	476.0	301.1	95% UCL	476.0	457.8	95% UCL
Cadmium	7440-43-9	Inorganic	3.9	1.7	95% UCL	3.9	2.8	95% UCL
Chromium	7440-47-3	Inorganic	281.0	68.7	95% UCL	72.1	68.8	95% UCL
Copper	7440-50-8	Inorganic	213.0	122.8	95% UCL	213.0	187.3	95% UCL
Lead	7439-92-1	Inorganic	340.0	156.9	95% UCL	340.0	204.5	95% UCL
Mercury	7439-97-6	Inorganic	0.55	0.24	95% UCL	0.55	0.35	95% UCL
Nickel	7440-02-0	Inorganic	127.0	41.5	95% UCL	52.4	48.7	95% UCL
Vanadium	7440-62-2	Inorganic	74.1	49.3	95% UCL	74.1	70.2	95% UCL
Zinc	7440-66-6	Inorganic	591.0	344.6	95% UCL	591.0	436.8	95% UCL
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	11.6	2.6	95% UCL	9.2	2.4	95% UCL
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	10.7	2.5	95% UCL	7.4	3.2	95% UCL
Total PAHs	RACALC-PAH	PAH	22.3	4.7	95% UCL	16.5	5.0	95% UCL
Total PCB Aroclors	RACALC-PCB	PCB	1.3	1.3	MDC	1.3	1.3	MDC
Chlordane	57-74-9	Pesticide	0.37	0.093	95% UCL	0.37	0.16	95% UCL
Total DDx	RACALC-DDx	Pesticide	0.38	0.082	95% UCL	0.38	0.11	95% UCL
2-Butanone (MEK)	78-93-3	VOC	0.97	0.97	MDC	0.97	0.97	MDC
Acetone	67-64-1	VOC	2.7	2.7	MDC	2.7	2.7	MDC

			Surface Water (ug/L) [1]					
			West Brothers Brook - Site-Wide (AOC15)			Cider Mill Pond (AOC12)		
COPEC	CAS	Class	Step 2 (MDC)	Step 3A	Step 3A Basis	Step 2 (MDC)	Step 3A	Step 3A Basis
Arsenic	7440-38-2	Inorganic	4	4	MRL	4	4	MRL
Barium	7440-39-3	Inorganic	106	88.61	95% UCL	106	106	MDC
Cadmium	7440-43-9	Inorganic	2.5	2.5	MRL	2.5	2.5	MRL
Chromium	7440-47-3	Inorganic	5	5	MRL	5	5	MRL
Copper	7440-50-8	Inorganic	5	5	MRL	5	5	MRL
Lead	7439-92-1	Inorganic	7.5	7.5	MRL	7.5	7.5	MRL
Mercury	7439-97-6	Inorganic	0.2	0.2	MRL	0.2	0.2	MRL
Nickel	7440-02-0	Inorganic	5	5	MRL	5.0	5.0	MRL
Vanadium	7440-62-2	Inorganic	5	5	MRL	5	5	MRL
Zinc	7440-66-6	Inorganic	6.6	6.6	MDC	6.6	6.6	MDC
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	0.09	0.09	MDC	0.09	0.09	MDC
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	0.12	0.0695	95% UCL	0.12	0.12	MDC
Total PAHs	RACALC-PAH	PAH	0.205	0.0944	95% UCL	0.205	0.205	MDC
Total PCB Homologues	RACALC-PCB-H	PCB	0.0284	0.0284	MRL	0.025	0.025	MRL
Chlordane	57-74-9	Pesticide	0.03	0.0275	95% UCL	0.03	0.03	MDC
Total DDx	RACALC-DDx	Pesticide	0.002	0.002	MDC	0.002	0.002	MDC
2-Butanone (MEK)	78-93-3	VOC	10	10	MRL	10	10	MRL
Acetone	67-64-1	VOC	10	10	MRL	10	10	MRL

Table 4-4
Exposure Point Concentrations for Surface Water and Sediment

Notes:

[1] The COPEC presented as totals (i.e., low/high molecular weight PAHs, PAHs, PCBs and DDx) are the maximum of the sum of the individual constituent parameters for all applicable site locations (e.g., maximum of ΣPAH Location 1, ΣPAH Location 2…). The central tendency estimate (95%UCL) is also derived from these sums.

mg/kg = milligram per kilogram

ug/L = micrograms per liter

PAH = polyaromatic hydrocarbons

PCB = polychlorinated biphenyls

Pest = pesticide

VOC = volatile organic compound

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Table 4-5
Ecological Toxicity Reference Values for Avian Receptors

Greenwich High School
10 Hillside Road
Greenwich, CT

COPEC	CAS	Endpoint Basis	Secondary Endpoint Basis	Test Species	Toxicity Endpoint	Dose[1] (mg/kg-BW/d)	Secondary Dose[1] (mg/kg-BW/d)	UF[2]		TRV_{NOAEL}[2] (mg/kg-BW/d)	TRV_{LOAEL}[3] (mg/kg-BW/d)	Comments and Source[5]
Volatile Organic Compounds (8260B)												
2-Butanone	78-93-3	NA	NA	NA	NA	NA	NA	NA		NA	NA	
Acetone	67-64-1	A LOAEL	NA	coturnix quail	Reproduction	4200	NA	10		420	2100	EPA (1999)
Polycyclic Aromatic Hydrocarbons												
Total High Molecular Weight PAHs	RACALC-HPAH	C LOAEL	NA	mallard	Hepatic effects	136.3	NA	5		27.3	136.3	Total PAHs used as surrogate
Total Low Molecular Weight PAHs	RACALC-LPAH	C LOAEL	NA	mallard	Hepatic effects	136.3	NA	5		27.3	136.3	Total PAHs used as surrogate
PAH (total)	RACALC-HPAH	C LOAEL	NA	mallard	Hepatic effects	136.3	NA	5		27.3	136.3	Patton and Dieter (1980)
Metals												
Arsenic	7440-38-2	C NOAEL	C LOAEL	[4]	Reproduction and Growth	2.2	4.5	1	1	2.2	4.5	EPA (2005b)
Barium	7440-39-3	SC NOAEL	SC LOAEL	chicks	Mortality	208.3	416.5	5	2	41.7	208.3	Sample et al. (1996)
Beryllium	7440-41-7	NA	NA	NA	NA	NA	NA	NA		NA	NA	
Cadmium	7440-43-9	C NOAEL	C LOAEL	[4]	Reproduction and Growth	1.5	6.3	1	1	1.5	6.3	EPA (2005c)
Chromium	7440-47-3	C NOAEL	C LOAEL	[4]	Reproduction and Growth	2.7	8.9	1	1	2.7	8.9	EPA (2005d) [6]
Copper	7440-50-8	C NOAEL	C LOAEL	[4]	Reproduction and Growth	4.1	12.1	1	1	4.1	12.1	EPA (2006)
Lead	7439-92-1	C NOAEL	C LOAEL	[4]	Reproduction and Growth	1.6	3.3	1		1.6	3.3	EPA (2005e)
Nickel	7440-02-0	C NOAEL	C LOAEL	[4]	Reproduction and Growth	6.7	21.4	1	1	6.7	21.4	EPA (2007a)
Vanadium	7440-62-2	C NOAEL	C LOAEL	[4]	Reproduction and Growth	0.34	0.7	1		0.34	0.7	EPA (2005h)
Zinc	7440-66-6	C NOAEL	C LOAEL	[4]	Reproduction and Growth	66.1	188.6	1		66.1	188.6	EPA (2007b)
Mercury	7439-97-6	C NOAEL	C LOAEL	Japanese quail	Reproduction	0.45	0.9	1	1	0.45	0.9	Sample et al. (1996)
Pesticides												
Total DDx	RACALC-DDx	C NOAEL	C LOAEL	[4]	Reproduction and Growth	0.23	2.3	1	1	0.23	2.3	EPA (2007c)
Chlordane	57-74-9	C NOAEL	C LOAEL	blackbird	Mortality	2.1	10.7	1	1	2.1	10.7	Sample et al. (1996)
Polychlorinated biphenyls												
Total PCBs	RECALC-PCBs	C LOAEL	NA	pheasant	Reproduction	1.8	NA	5		0.36	1.8	Sample et al. (1996), Arochlor 1254 used as surrogate

Table 4-5
Ecological Toxicity Reference Values for Avian Receptors

Notes:

[1] Dose values are the reported dose (converted to mg/kg-day, as appropriate) as cited in the listed source without the application of any uncertainty factor(s). Secondary dose refers to the corresponding LOAEL-based value observed in the same study, or derived used to derive the NOAEL (i.e., for toxicity data per EPA 2005).

[2] An uncertainty factor (UF) was used to extrapolate exposure duration and toxicologic endpoint to a chronic NOAEL-based TRV value. This was accomplished by dividing the reported dose by the recommended uncertainty factor. A second UF, if present, was applied to the secondary dose.

[3] An uncertainty factor of 5 (EPA, 1997) was used to extrapolate from a chronic NOAEL-based TRV (TRVNOAEL) to a chronic LOAEL- based TRV (TRVLOAEL) in the absence of a study-derived LOAEL value (i.e., TRVNOAEL * 5 = TRVLOAEL)

[4] Multiple species were used in development of the TRV. Toxicologic or intertaxon extrapolation not applicable.

[5] The source refers to the document (or internet site, as appropriate) from which the endpoint and dose were cited. For complete references refer to the listed source.

[6] Values presented are for trivalent chromium.

LOAEL - Lowest Observed Adverse Effects Level
NA - Not Applicable or No Data Available
C NOAEL - No Observed Adverse Effects Level based on chronic duration exposure
A NOAEL - No Observed Adverse Effects Level based on acute (short-term) duration exposure
SC NOAEL - No Observed Adverse Effects Level based on intermediate (sub chronic) duration exposure
TRV - toxicity reference value
Note that the NOEL endpoint is assumed equivalent to the NOAEL, where indicated.

References:

Patton, J.F., and Dieter, M.P. 1980. "Effects of Petroleum Hydrocarbons on Hepatic Function in the Duck." *Comparative Biochemistry and Physiology C* , vol. 65C(1): 33-36. 1980.

Sample, B.E., D.M. Opresko and G.W. Suter II. 1996. T*oxicological Benchmarks for Wildlife: 1996 Revision* . ES/ER/TM-86/R3. Risk Assessment Program, Health Sciences Research Division, Oak Ridge National Laboratory.

EPA. 1997. EPA Region 10 Supplemental Ecological Risk Assessment Guidance for Superfund. June 1997

EPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities (Volume Three). EPA 530-D-99-001A. Washington D.C.: United States Environmental Protection Agency, Office of Solid Waste. August 1999

EPA. 2005a. Guidance for Developing Ecological Soil Screening Levels. Office of Emergency and Remedial Response. Washington D.C.November 2003, Revised February 2005.

EPA. 2005b. Ecological Soil Screening Levels for Arsenic. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2005c. Ecological Soil Screening Levels for Cadmium. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2005d. Ecological Soil Screening Levels for Chromium. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2005e. Ecological Soil Screening Levels for Lead. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2005h. Ecological Soil Screening Levels for Vanadium. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2006. Ecological Soil Screening Levels for Copper Interim Final. Office of Emergency and Remedial Response. Washington DC. July

EPA. 2007a. Ecological Soil Screening Levels for Nickel Interim Final, OSWER Directive 9285.7-76. U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. March 2007

EPA. 2007b. Ecological Soil Screening Levels for Zinc Interim Final, OSWER Directive 9285.7-73. U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. June 2007

EPA. 2007c. Ecological Soil Screening Levels for DDT and Metabolites Interim Final, OSWER Directive 9285.7-57. U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. April 2007

Table 4-6
Ecological Toxicity Reference Values for Mammalian Receptors

COPEC	CAS	Endpoint Basis	Secondary Endpoint Basis	Test Species	Toxicity Endpoint	Dose[1] (mg/kg-BW/d)	Secondary Dose[1] (mg/kg-BW/d)	UF[2]		TRV_{NOAEL}[2] (mg/kg-BW/d)	TRV_{LOAEL}[3] (mg/kg-BW/d)	Comments and Source[5]
Volatile Organic Compounds												
2-Butanone	78-93-3	C NOAEL	NA	rat	Reproduction	1771.0	NA	1	NA	1771.0	8855	Sample et al. (1996)
Acetone	67-64-1	SC NOAEL	SC LOAEL	rat	Hepatic and renal effects	100.0	500.0	5	2	20.0	250.0	Sample et al. (1996)
Polycyclic Aromatic Hydrocarbons												
Total High Molecular Weight PAHs	RACALC-HPAH	C NOAEL	C LOAEL	[4]	Reproduction and Growth	0.6	3.1	1	1	0.62	3.1	EPA (2007a)
Total Low Molecular Weight PAHs	RACALC-LPAH	C NOAEL	C LOAEL	[4]	Reproduction and Growth	65.6	328	1	1	65.6	328	EPA (2007a)
PAH (total)	RACALC-HPAH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Metals												
Arsenic	7440-38-2	C NOAEL	C LOAEL	[4]	Reproduction and Growth	1.0	1.7	1	NA	1.0	1.7	EPA (2005b)
Barium	7440-39-3	C NOAEL	C LOAEL	[4]	Reproduction and Growth	51.8	119.0	1	NA	51.8	119.0	EPA (2005c)
Beryllium	7440-41-7	C NOAEL	C LOAEL	[4]	Reproduction and Growth	0.53	0.70	1	NA	0.53	0.70	EPA (2005d)
Cadmium	7440-43-9	C NOAEL	C LOAEL	[4]	Reproduction and Growth	0.77	7.1	1	NA	0.77	7.1	EPA (2005e)
Chromium	7440-47-3	C NOAEL	C LOAEL	[4]	Reproduction and Growth	2.4	35.1	1	NA	2.4	35.1	EPA (2005f) [6]
Copper	7440-50-8	C NOAEL	C LOAEL	[4]	Reproduction and Growth	5.6	9.3	1	NA	5.6	9.3	EPA (2006)
Lead	7439-92-1	C NOAEL	C LOAEL	[4]	Reproduction and Growth	4.7	8.9	1	NA	4.7	8.9	EPA (2005g)
Nickel	7440-02-0	C NOAEL	C LOAEL	[4]	Reproduction and Growth	1.7	3.4	1	1	1.7	3.4	EPA (2007b)
Vanadium	7440-62-2	C NOAEL	C LOAEL	[4]	Reproduction and Growth	4.2	8.3	1	NA	4.2	8.3	EPA (2005h)
Zinc	7440-66-6	C NOAEL	C LOAEL	[4]	Reproduction and Growth	75.4	292.1	1	1	75.4	292.1	EPA (2007c)
Mercury	7439-97-6	C NOAEL	NA	mink	Reproduction	1.0	NA	1	NA	1.0	5	Sample et al. (1996)
Pesticides												
Total DDx	RACALC-DDx	C NOAEL	C LOAEL	[4]	Reproduction and Growth	0.15	0.74	1	1	0.15	0.74	EPA (2007d)
Chlordane	57-74-9	C NOAEL	C LOAEL	mouse	Reproduction	4.6	9.2	1	1	4.6	9.2	Sample et al. (1996)
Polychlorinated biphenyls												
Total PCBs	1336-36-3	C NOAEL	C LOAEL	mink	Reproduction	0.14	0.69	1	1	0.14	0.69	Sample et al. (1996), Arochlor 1254 used as surrogate

Table 4-6
Ecological Toxicity Reference Values for Mammalian Receptors

Notes:

[1] Dose values are the reported dose (converted to mg/kg-day, as appropriate) as cited in the listed source without the application of any uncertainty factor(s). Secondary dose refers to the corresponding LOAEL-based value observed in the same study.

[2] An uncertainty factor (UF) was used to extrapolate exposure duration and toxicologic endpoint to a chronic NOAEL-based TRV value. This was accomplished by dividing the reported dose by the recommended uncertainty factor. A second UF, if present, was applied to the secondary dose.

[3] An uncertainty factor of 5 (U.S. EPA, 1997) was used to extrapolate from a chronic NOAEL-based TRV (TRVNOAEL) to a chronic LOAEL- based TRV (TRVLOAEL) in the absence of a study-derived LOAEL value (i.e., TRVNOAEL * 5 = TRVLOAEL)

[4] Multiple species used in development of the TRV. Toxicologic or intertaxon extrapolation not applicable.

[5] The source refers to the document (or internet site, as appropriate) from which the endpoint and dose were cited. For complete references refer to the listed source.

[6] Values presented are for trivalent chromium

NA - Not Applicable or No Data Available

NOAEL - No Observed Adverse Effects Level

TRV - toxicity reference value

Note that the NOEL endpoint is assumed equivalent to the NOAEL, where indicated.

The toxicity values presented are consitent with the approach and sources outlined in ADEC (2000) and general approach presented in Eco-SSL guidance (EPA 2005a).

References:

Sample, B.E., D.M. Opresko and G.W. Suter II, 1996. T*oxicological Benchmarks for Wildlife: 1996 Revision* . ES/ER/TM-86/R3. Risk Assessment Program, Health Sciences Research Division, Oak Ridge National Laboratory.

EPA. 1997. EPA Region 10 Supplemental Ecological Risk Assessment Guidance for Superfund. June 1997

EPA. 2005a. Guidance for Developing Ecological Soil Screening Levels. Office of Emergency and Remedial Response. Washington D.C.November 2003, Revised February 2005.

EPA. 2005b. Ecological Soil Screening Levels for Arsenic. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2005c. Ecological Soil Screening Levels for Barium. Interim Final. Office of Emergency and Remedial Response. Washington DC. February

EPA. 2005d. Ecological Soil Screening Levels for Beryllium. Interim Final. Office of Emergency and Remedial Response. Washington DC. February

EPA. 2005e. Ecological Soil Screening Levels for Cadmium. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2005f. Ecological Soil Screening Levels for Chromium. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2005g. Ecological Soil Screening Levels for Lead. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2005h. Ecological Soil Screening Levels for Vanadium. Interim Final. Office of Emergency and Remedial Response. Washington DC. March

EPA. 2006. Ecological Soil Screening Levels for Copper Interim Final. Office of Emergency and Remedial Response. Washington DC. July

EPA. 2007a. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Final, OSWER Directive 9285.7-78. U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. June 2007

EPA. 2007b. Ecological Soil Screening Levels for Nickel Interim Final, OSWER Directive 9285.7-76. U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. March 2007

EPA. 2007c. Ecological Soil Screening Levels for Zinc Interim Final, OSWER Directive 9285.7-73. U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. June 2007

EPA. 2007d. Ecological Soil Screening Levels for DDT and Metabolites Interim Final, OSWER Directive 9285.7-57. U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. April 2007

AECOM

Table 4-7
Uncertainty Factors for Toxicity Reference Value Development

Greenwich High School
10 Hillside Road
Greenwich, CT

Duration and Toxicological Endpoin	Uncertainty Factor (EPA, 1997)	Comment
Endpoint to chronic NOAEL		All values obtained from EPA Region 10 guidance (EPA 1997) unless otherwise noted.
Chronic NOAEL	1	
Subchronic NOAEL	5 [1]	
Acute NOAEL	10 [2]	
Chronic LOAEL	5	
Subchronic LOAEL	10	
Acute LOAEL	10	
Acute ED50 (LD50)	50	

Notes:

[1] Uncertainty value not available from EPA source. Subchronic NOAEL UF assumed equivalent to Chronic LOAEL UF.

[2] Uncertainty value not available from EPA source. Therefore, UF assumed equivalent to Acute LOAEL.

LOAEL = lowest observable adverse effect level

NOAEL = no observable adverse effect level

ED50 = effective dose

LD50 = lethal dose

References:

EPA. 1997. *EPA Region 10 Supplemental Ecological Risk Assessment Guidance for Superfund* . June 1997

Table 5-1
Surface Water Risk Characterization
Aquatic Biota Assessment Endpoint (detected COPEC)

COPEC	CAS Number	Class	Aquatic Life Screening Level	Amphibian Screening Level	Units	Maximum Detected Concentration	Step 2 Risk cannot be excluded. Carry through to Step 3	EPC (95%UCL of the mean)	ME (EPC/ALSL)	Step 3 Risk Characterization. Is there potential ecological risk?	Comment
Site Wide (AOC 15)											
Barium	7440-39-3	Inorganic	3.9	NA	ug/L	106	YES	88.6	22.7	YES. Area EPC>SL; total of 20 samples, average conc. 84 µg/L. Exceedances observed at all sampled locations.	Detected throughout AOC 15. Concentrations may represent local background (uniform enrichment noted in soil and sediment, and at most upstream location AS-10). The potential for unacceptable risk not expected but cannot be dismissed based on current data.
Pyrene	129-00-0	PAH	0.025	140	ug/L	0.09	YES	use MDC	3.6	YES. Area EPC > SL	Marginal exceedance based on EPC. Elevated detected concentration at three locations: O14A, G27A and F28A. No other locations exceed the SL. The minimum RL exceeds the SL.
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	0.014	NA	ug/L	0.09	YES	use MDC	6.4	YES. Area EPC > SL	Screening level not available: surrogate benzo(a)pyrene assumed.
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	0.73	NA	ug/L	0.115	NO	0.070	0.1	NO. EPC does not exceed initial screening	Screening level not available: surrogate anthracene assumed.
Chlordane	57-74-9	Pest	0.0043		ug/L	0.03	YES	0.0275	6.4	YES. Area EPC > SL. Total of 20 samples, average conc.0.026 µg/L. 8 of 20 samples detected, all 8 detected locations exceed.	Marginal exceedance of SL based on 95% UCL (upstream location AS-10 at property boundary; AL-9, W-5A and O-14A in concrete-line area; T-20 and N-24 in natural substrate area; and G-27A and F-28A in Cider Mill Pond). The minimum RL exceeds the SL at ND locations.
Total DDx	RACALC-DDx	Pest	0.001	150	ug/L	0.002	YES	use MDC	2.0	YES. Area EPC > SL. Total of 20 samples, average conc.0.002 µg/L. 3 of 20 samples detected, all 3 detected locations exceed.	Marginal exceedance of SL based on MDC (AL-9 in concrete-lined area; and G-27A and F-28A in Cider Mill Pond) only. The minimum RL exceeds the SL at other locations.
Cider Mill Pond (AOC 12)											
Barium	7440-39-3	Inorganic	3.9		ug/L	106	YES	use MDC	27.2	YES. Area EPC>SL; total of 9 samples, average conc. 90 µg/L. Exceedances observed at all sampled locations.	Detected throughout AOC 15. Concentrations may represent local background (uniform enrichment noted in soil and sediment and at upstream location AS-10). The potential for unacceptable risk not expected but cannot be dismissed based on current data..
Pyrene	129-00-0	PAH	0.025	140	ug/L	0.09	YES	use MDC	3.6	YES. Area EPC>SL; total of 9 samples, average conc. 0.077 µg/L. 2 of 9 locations detected.	Marginal exceedance based on EPC. Elevated detected concentration at three pond locations G27A and F28A. No other locations exceed the SL. The minimum RL exceeds the SL.
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	0.014		ug/L	0.09	YES	use MDC	6.4	YES. Area EPC > SL. Exceedance driven by detection of pyrene.	Screening level not available: surrogate benzo(a)pyrene assumed.
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	0.73		ug/L	0.115	NO	use MDC	0.2	NO. EPC does not exceed initial screening	Screening level not available: surrogate anthracene assumed.

Table 5-1
Surface Water Risk Characterization
Aquatic Biota Assessment Endpoint (detected COPEC)

COPEC	CAS Number	Class	Aquatic Life Screening Level	Amphibian Screening Level	Units	Maximum Detected Concentration	Step 2 Risk cannot be excluded. Carry through to Step 3	EPC (95%UCL of the mean)	ME (EPC/ALSL)	Step 3 Risk Characterization. Is there potential ecological risk?	Comment
Chlordane	57-74-9	Pest	0.0043		ug/L	0.03	YES	use MDC	7.0	YES. Area EPC>SL; total of 7 samples, average conc. 0.029 µg/L. 2 of 7 locations detected.	Marginal exceedance of SL based on pond MDC in Cider Mill Pond. Two locations exceed based on detected concentrations: at G-27A and F-28A. The minimum RL exceeds the SL at ND locations.
Total DDx	RACALC-DDx	Pest	0.001	150	ug/L	0.002	YES	use MDC	2.0	YES. Area EPC > SL; average conc. 0.002 µg/L. 2 of 7 samples with detected concentrations.	Marginal exceedance of SL based on MDC (G-27A and F-28A) only. The minimum RL exceeds the SL at ND locations.

Notes:
Aquatic life screening levels are as reported in **Table 3-6**
Shading = indicates exceedance of the aquatic life screening level
EPC = exposure point concentration
µg/L = micrograms per liter
ND = non-detected
MDC = maximum detected concentration. Used as EPC where insufficient samples for statistical analysis exist, or where the calculation was not needed.
ME = magnitude of exceedance
SL = screening level
UCL = upper confidence limit

Table 5-2
Sediment Risk Characterization
Benthic Biota Assessment Endpoint

COPEC	CAS Number	Class	Step 2 Sediment Threshold (Low) Level [1] (mg/kg)	Step 3 Sediment Probable (High) Level [2] (mg/kg)	Sediment Probable (High) Level Source/Basis	Maximum Detected Concentration (mg/kg)	Step 2 Risk cannot be excluded. Carry through to Step 3	EPC (mg/kg) (95%UCL of the mean)	ME (EPC/PEL)	Step 3A Risk Characterization. Is there potential ecological risk?	Comments
Site Wide (AOC 15)											
Arsenic	7440-38-2	Inorganic	9.79	33	Buchman 2008, PEC	17.4	YES	10.4	0.3	NO. EPC does not exceed (high) screening	
Barium	7440-39-3	Inorganic	0.7 "background"	NA	Buchman 2008	476	YES	301.1	--	Unknown. Area EPC > "background" level. Potential toxicity cannot be predicted based on background exceedance.	Exceedance based on comparison to sediment "background" value per Buchman 2008, which was used for initial (threshold) screening; threshold (low) and probable (high) levels not available. However, Connecticut soil is enriched in barium, with an average concentration of 400 mg/kg (EPA 2005). Eastern U.S. barium levels range from 10 to 1500 mg/kg (average 420 mg/kg). The observed concentrations of barium are likely attributable to background conditions. The potential for unacceptable risk is not expected but cannot be dismissed based on current data.
Cadmium	7440-43-9	Inorganic	0.99	4.98	Buchman 2008, PEC	3.9	YES	1.7	0.3	NO. EPC does not exceed (high) screening	
Chromium	7440-47-3	Inorganic	43.4	111	Buchman 2008, PEC	281	YES	68.7	0.6	NO. EPC does not exceed (high) screening	
Copper	7440-50-8	Inorganic	31.6	149	Buchman 2008, PEC	213	YES	122.8	0.8	NO. EPC does not exceed (high) screening	
Lead	7439-92-1	Inorganic	35.8	128	Buchman 2008, PEC	340	YES	156.9	1.2	NO. Area EPC > (high) SL. However, AVS-SEM analysis (Table 5-3) indicates that toxicity by SEM metals is not predicted.	Marginal exceedance. Exceedance driven by uniformally distributed, minimally elevated concentrations (<4-fold the high SL) associated with Cider Mill Pond (H28, F-27, G-28, G-29, D-28, E-29, F-29, D-27, D-29, C-28, C-31, C-29, B-29 and A-29) and Post Pond (B-31). However, AVS-SEM analysis indicates that the ratio of ∑SEM/AVS <1 in Cider Mill Pond and Post Pond sediment and toxicity due to SEM metals is not expected.
Mercury	7439-97-6	Inorganic	0.18	1.1	Buchman 2008, PEC	0.553	YES	0.24	0.2	NO. EPC does not exceed (high) screening	
Nickel	7440-02-0	Inorganic	22.7	48.6	Buchman 2008, PEC	127	YES	41.5	0.9	NO. EPC does not exceed (high) screening	
Vanadium	7440-62-2	Inorganic	50 "background"	NA	Buchman 2008	74.1	YES	49.3	--	NO. EPC is comparable to but does not exceed the "background" level	The EPC is comparable to the sediment "background"; threshold (low) and probable (high) levels not available. Connecticut soil background for vanadium has an average concentration of 60 mg/kg (EPA 2005) and eastern U.S. soil concentrations range from 7 to 300 mg/kg (average 66 mg/kg). The potential for unacceptable risk is not expected.
Zinc	7440-66-6	Inorganic	121	459	Buchman 2008, PEC	591	YES	344.6	0.8	NO. EPC does not exceed (high) screening	
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	0.193	6.5	Buchman 2008, UET	11.6	YES	2.6	0.4	NO. EPC does not exceed (high) screening	
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	0.07642	5.3	Buchman 2008, UET	10.7	YES	2.5	0.5	NO. EPC does not exceed (high) screening	
Total PAHs	RACALC-PAH	PAH	1.6	22.8	Buchman 2008, PEC	22.3	YES	4.7	0.2	NO. EPC does not exceed (high) screening	
Total PCB Aroclors	RACALC-PCB	PCB	0.0598	0.676	Buchman 2008, PEC	1.29	YES	1.3	1.9	YES. Area EPC > (high) SL	Marginal exceedance of the probable sediment screening level based on elevated concentration as one location (D-28, associated with Cider Mill Pond). PCB exceedance is co-located with metals and chlordane exceedance. Although localized, the potential for unacceptable risk cannot be discounted at this location.
Chlordane	57-74-9	Pesticide	0.00324	0.0176	Buchman 2008, PEC	0.371	YES	0.0925	5.3	YES. Area EPC > (high) SL	Marginal exceedance. Exceedance driven by uniformally distributed, minimally elevated concentrations (<4-fold the high SL) associated with Cider Mill Pond (H-27, G-27, F-27, G-28, F28, G-29, D-28, E-29, D-27, D-29, C-28 and C-29). Low level point exceedances were also noted in the concrete lined portion (AOC11A, at P7) and the natural portion (AOC11B) of the brook (U-21, T-20, P-23, N-24 and I26). Exceedances (in Cider Mill Pond) are co-located with other exceedances (lead). There is potential for unacceptable risk from chlordane.

Table 5-2
Sediment Risk Characterization
Benthic Biota Assessment Endpoint

COPEC	CAS Number	Class	Step 2 Sediment Threshold (Low) Level [1] (mg/kg)	Step 3 Sediment Probable (High) Level [2] (mg/kg)	Sediment Probable (High) Level Source/Basis	Maximum Detected Concentration (mg/kg)	Step 2 Risk cannot be excluded. Carry through to Step 3	EPC (mg/kg) (95%UCL of the mean)	ME (EPC/PEL)	Step 3A Risk Characterization. Is there potential ecological risk?	Comments
Total DDx	RACALC-DDx	Pesticide	0.00528	0.572	Buchman 2008, PEC	0.382	YES	0.082	0.1	NO. EPC does not exceed (high) screening	
Cider Mill Pond (AOC12)											
Arsenic	,	Inorganic	9.79	33	Buchman 2008, PEC	17.4	YES	12.7	0.4	NO. EPC does not exceed (high) screening	
Barium	7440-39-3	Inorganic	0.7 "background"	NA	Buchman 2008	476	NO	457.8	--	Unknown. Area EPC > "background" level	Exceedance based on comparison to sediment "background" value per Buchman 2008, which was used for initial (threshold) screening; threshold (low) and probable (high) levels not available. However, Connecticut soil is enriched in barium, with an average concentration of 400 mg/kg (EPA 2005). Eastern U.S. barium levels range from 10 to 1500 mg/kg (average 420 mg/kg). The observed concentrations of barium are likely attributable to background conditions. The potential for unacceptable risk is not expected but cannot be dismissed based on current data..
Cadmium	7440-43-9	Inorganic	0.99	4.98	Buchman 2008, PEC	3.9	YES	2.8	0.6	NO. EPC does not exceed (high) screening	
Chromium	7440-47-3	Inorganic	43.4	111	Buchman 2008, PEC	72.1	YES	68.8	0.6	NO. EPC does not exceed (high) screening	
Copper	7440-50-8	Inorganic	31.6	149	Buchman 2008, PEC	213	YES	187.3	1.3	NO. Area EPC > (high) SL. However, AVS-SEM analysis (Table 5-3) indicates that toxicity by SEM metals is not predicted.	Marginal exceedance. Exceedance driven by spatially diverse minimally elevated concentrations (<4-fold the high SL) associated with Cider Mill Pond (H28, G-28, D-28, E-29, D-27, E-30, C-28 and C-31). However, AVS-SEM analysis indicates that the ratio of ∑SEM/AVS <1 and toxicity due to SEM metals is not expected.
Lead	7439-92-1	Inorganic	35.8	128	Buchman 2008, PEC	340	YES	204.5	1.6	NO. Area EPC > (high) SL. However, AVS-SEM analysis (Table 5-3) indicates that toxicity by SEM metals is not predicted.	Marginal exceedance. Exceedance driven by spatially diverse minimally elevated concentrations (<4-fold the high SL) associated with Cider Mill Pond (H28, F-27, G-28, G-29, D-28, E-29, F-29, D27, D-29, C-28, C-31, C-29, B-29 and A-29). However, AVS-SEM analysis indicates that the ratio of ∑SEM/AVS <1 and toxicity due to SEM metals is not expected.
Mercury	7439-97-6	Inorganic	0.18	1.1	Buchman 2008, PEC	0.553	YES	0.35	0.3	NO. EPC does not exceed (high) screening	
Nickel	7440-02-0	Inorganic	22.7	48.6	Buchman 2008, PEC	52.4	YES	48.7	1.0	NO. EPC does not exceed (high) screening	EPC comparable to high SL suggesting the absence of probable effects. Individual point exceedances of the high sediment level are noted but none occur on an area average basis. Exceedances are noted in Cider Mill Pond at: H28, F-27, G-28, D-28, E-29, D-27, D29, C-28, C-31, C-29, B-29 and A-29). All exceedances are are co-located with other metal exceedances (lead, copper). The potential for unacceptable population level risk from nickel is not expected.
Vanadium	7440-62-2	Inorganic	50 "background"	NA	Buchman 2008	74.1	NO	70.2	--	Unknown. Area EPC > "background" level. Potential toxicity cannot be predicted based on background exceedance.	Marginal exceedance based on comparison to sediment (literature) "background"; threshold (low) and probable (high) levels not available. Connecticut soil is enriched in vanadium with an average concentration of 60 mg/kg (EPA 2005) and eastern U.S. soil concentrations range from 7 to 300 mg/kg (average 66 mg/kg) (Shaklette and Boerngen 1984). The potential for unacceptable risk is not expected.
Zinc	7440-66-6	Inorganic	121	459	Buchman 2008, PEC	591	YES	436.8	1.0	NO. EPC does not exceed (high) screening	EPC comparable but below the high SL suggesting the absence of probable effects. Individual point exceedances of the high sediment level are noted but none occur on an area average basis. Exceedances are noted in Cider Mill Pond at: H-28, F-27, D-28, D-27, D-29, C-28 and C-29. All exceedances are are co-located with other metal exceedances (lead, copper). The potential for unacceptable risk from zinc is not expected.
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	0.193	6.5	Buchman 2008, UET	9.15	YES	2.4	0.4	NO. EPC does not exceed (high) screening	
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	0.07642	5.3	Buchman 2008, UET	7.36	YES	3.2	0.6	NO. EPC does not exceed (high) screening	
Total PAHs	RACALC-PAH	PAH	1.6	22.8	Buchman 2008, PEC	16.5	YES	5.0	0.2	NO. EPC does not exceed (high) screening	
Total PCB Aroclors	RACALC-PCB	PCB	0.0598	0.676	Buchman 2008, PEC	1.29	YES	use MDC	1.9	YES. Area EPC > (high) SL	Marginal exceedance of the probable sediment screening level based on elevated concentration as one location (D-28, associated with Cider Mill Pond). PCB exceedance is co-located with metals and chlordane exceedance. Although localized, the potential for unacceptable risk cannot be discounted at this location.
Chlordane	57-74-9	Pesticide	0.00324	0.0176	Buchman 2008, PEC	0.371	YES	0.16	9.3	YES. Area EPC > (high) SL	Marginal exceedance. Exceedance driven by uniformally distributed, minimally elevated concentrations (<4-fold the high SL) associated with Cider Mill Pond (H-27, G-27, F-27, G-28, F-28, G29, D-28, E-29, D-27, D-29, C-28 and C-29). Exceedances are colocated with other exceedances (metals lead, nickel and zinc; and PCBs). There is potential for unacceptable risk from chlordane.

Table 5-2
Sediment Risk Characterization
Benthic Biota Assessment Endpoint

COPEC	CAS Number	Class	Step 2 Sediment Threshold (Low) Level [1] (mg/kg)	Step 3 Sediment Probable (High) Level [2] (mg/kg)	Sediment Probable (High) Level Source/Basis	Maximum Detected Concentration (mg/kg)	Step 2 Risk cannot be excluded. Carry through to Step 3	EPC (mg/kg) (95%UCL of the mean)	ME (EPC/PEL)	Step 3A Risk Characterization. Is there potential ecological risk?	Comments
Total DDx	RACALC-DDx	Pesticide	0.00528	0.572	Buchman 2008, PEC	0.382	YES	0.11	0.2	NO. EPC does not exceed (high) screening	

Notes:

[1] The low screen represents the threshold, or "possible effect" level. Screening values are derived as follows (in order of preference, see also Table 3-5):

TEC = The consensus threshold effect concentration TEC listed in McDonald et al. (2000). This is the preferred screening levels, as they are derived for freshwater biota.
TEL = The TEL or the ARCS TEL listed in Buchman (2008).
LEL = Lowest effect level listed in Buchman (2008)
SQB = Sediment qualtiy benchmark for freshwater sediment per Jones et al (1997).
SLV = Screening Level Values (SLVs) for Freshwater Sediment as listed in EPA Region III Biological Technical Assisstance Group (EPA 2006).
ESL = Ecological screening levels for freshwater sediment as listed in EPA Region 5 Ecological Screening Levels (EPA 2003).

[2] The high screen represents the probable, or "probable effect" level. Screening levels are derived as follows (in order of preference):

PEC = Freshwater concensus probable effecet concentration (PEC) listed in McDonald et al. (2000) as cited by Buchman (2008). This is the preferred screening level.
PEL = Freshwater PEL listed in Buchman (2008).
SEL = secondary effect level listed in Buchman (2008)
UET = Freshwater Washington State Upper Effect Threshold values, as listed in Buchman (2008).
SLV = Screening Level Values (SLVs) for Freshwater Sediment as listed in EPA Region III Biological Technical Assisstance Group (EPA 2006).
ESL = Ecological screening levels for freshwater sediment as listed in EPA Region 5 Ecological Screening Levels (EPA 2003).

Values preceded by "<" indicate non-detected values represented by the reporting limit
AVS = acid voatile sulfide
SEM = simultaneously extracted metals
∑SEM = sum of all simultaneously extracted metals

References:

Buchman, M.F. 2008. *National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRT)* NOAA OR&R Report 08-1, Seattle, WA. Office of Response and Restoriation Division, National Oceanic and Atmoshperic Asministration (NOAA)., 34p

Jones, D.S., G.W. Suter II, and R.N. Hull. 1997. *Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota* Oak Ridge National Laboratory, Oak Ridge TN.

Shaklette and Boerngen, 1984. Element Concnetrations in Soils and Other Surficial Materials of the Conterminous United States. U.S. Geological Survey Professional paper 1270: An account of the concnetrations of 50 chemical elements in samples of soils and other regoliths. July 1984.

EPA. 1996. Ecotox Thresholds. In: ECO Update Intermittent Bulletin Volume 3, Number 2. U.S. EPA Office of Solid Waste Management and Emergency Response (OSWER). EPA 540/F-95/038. January

EPA. 2003. RCRA Corrective Action Ecological Screening Levels (ESLs). U.S EPA Region 5. August 22, 2003. (Sediment ESL)

EPA. 2005. Guidance for Developing Ecological Soil Screening Levels. Office of Emergency and Remedial Response. Washington D.C.November 2003, Revised February 2005.

EPA. 2006. EPA Region III Biological Technical Assisstance Group. Screening Level Values for Freshwater and Marine Sediment and Freshwater and Marine Water to be used at Superfund Sites.July/August 2006.

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Table 5-3
Step 2 Evaluation for Aquatic-Feeding Birds and Mammals

Greenwich High School
10 Hillside Road
Greenwich, CT

			Site Wide (AOC15)									
			Mallard		Great Blue Heron		Muskrat		Mink		Raccoon	
			Sediment, Food and Drinking Water		Sediment, Food and Drinking Water		Sediment, Food and Drinking Water		Sediment, Food and Drinking Water		Sediment, Food and Drinking Water	
COPC	CAS	Class	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)
Arsenic	7440-38-2	Metal	0.62	0.3	0.04	0.0	1.38	1.3	0.093	0.1	0.36	0.3
Barium	7440-39-3	Metal	4.30	0.1	1.08	0.0	16.41	0.3	2.46	0.0	3.22	0.1
Cadmium	7440-43-9	Metal	1.57	1.1	0.41	0.3	0.10	0.1	0.51	0.7	0.84	1.1
Chromium (total)	7440-47-3	Metal	6.88	2.6	0.62	0.2	1.78	0.7	1.43	0.6	4.20	1.8
Copper	7440-50-8	Metal	56.29	13.9	0.48	0.1	1.24	0.2	1.09	0.2	30.28	5.4
Lead	7439-92-1	Metal	10.69	6.7	0.75	0.5	0.64	0.1	1.73	0.4	6.34	1.3
Mercury	7439-97-6	Metal	0.080	0.2	0.00	0.0	0.019	0.0	0.0037	0.0	0.044	0.0
Nickel	7440-02-0	Metal	14.90	2.2	0.28	0.0	0.40	0.2	0.65	0.4	8.16	4.8
Vanadium	7440-62-2	Metal	0.40	1.2	0.16	0.5	0.082	0.0	0.38	0.1	0.36	0.1
Zinc	7440-66-6	Metal	223.67	3.4	1.3	0.0	12.07	0.2	3.02	0.0	119.81	1.6
hPAH (total)	hPAH	PAH	0.12	NA	1.45	NA	0.0047	0.0	1.82	3.0	0.08	0.1
lPAH (total)	lPAH	PAH	0.11	NA	0.15	NA	0.0043	0.0	0.20	0.0	0.08	0.0
PAH (total)	RACALC-HPAH	PAH	0.22	0.0	1.50	0.1	0.0090	NA	1.89	3.0	0.16	0.1
4,4'-DDx	RACALC-DDx	Pesticide	0.025	0.1	0.42	1.8	0.0030	0.0	0.51	3.5	0.01	0.1
Chlordane	57-74-9	Pesticide	0.077	0.0	4.23	2.0	0.0049	0.0	5.20	1.1	0.04	0.0
2-Butanone (MEK)	78-93-3	VOC	0.050	NA	0.003	NA	1.83	0.0	0.0065	0.0	0.03	0.0
Acetone	67-64-1	VOC	0.14	0.0	0.0065	0.0	10.20	0.5	0.015	0.0	0.08	0.0

			Cider Mill Pond (AOC12)									
			Mallard		Great Blue Heron		Muskrat		Mink		Raccoon	
			Sediment, Food and Drinking Water		Sediment, Food and Drinking Water		Sediment, Food and Drinking Water		Sediment, Food and Drinking Water		Sediment, Food and Drinking Water	
COPC	CAS	Class	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)	Exposure Dose (mg/kg-day)	Step 2 HQ (unitless)
Arsenic	7440-38-2	Metal	0.62	0.3	0.041	0.0	1.38	1.3	0.093	0.1	0.36	0.3
Barium	7440-39-3	Metal	4.30	0.1	1.07	0.0	16.41	0.3	2.45	0.0	3.22	0.1
Cadmium	7440-43-9	Metal	1.57	1.1	0.41	0.3	0.10	0.1	0.51	0.7	0.84	1.1
Chromium (total)	7440-47-3	Metal	1.76	0.7	0.16	0.1	0.46	0.2	0.37	0.2	1.08	0.4
Copper	7440-50-8	Metal	56.29	13.9	0.48	0.1	1.24	0.2	1.09	0.2	30.28	5.4
Lead	7439-92-1	Metal	10.69	6.7	0.75	0.5	0.64	0.1	1.73	0.4	6.34	1.3
Mercury	7439-97-6	Metal	0.080	0.2	0.0020	0.0	0.02	0.0	0.0037	0.0	0.044	0.0
Nickel	7440-02-0	Metal	6.15	0.9	0.12	0.0	0.19	0.1	0.27	0.2	3.37	2.0
Vanadium	7440-62-2	Metal	0.40	1.2	0.16	0.5	0.08	0.0	0.38	0.1	0.36	0.1
Zinc	7440-66-6	Metal	223.67	3.4	1.31	0.0	12.07	0.2	3.02	0.0	119.81	1.6
hPAH (total)	hPAH	PAH	0.092	NA	1.15	NA	0.00	0.0	1.43	2.3	0.067	0.1
lPAH (total)	lPAH	PAH	0.074	NA	0.10	NA	0.00	0.0	0.14	0.0	0.054	0.0
PAH (total)	RACALC-HPAH	PAH	0.17	0.0	1.11	0.0	0.01	NA	1.40	2.3	0.12	0.1
4,4'-DDx	RACALC-DDx	Pesticide	0.025	0.1	0.42	1.8	0.00	0.0	0.51	3.5	0.014	0.1
Chlordane	57-74-9	Pesticide	0.077	0.0	3.88	1.8	0.00	0.0	4.77	1.0	0.041	0.0
2-Butanone (MEK)	78-93-3	VOC	0.050	NA	0.0030	NA	1.83	0.0	0.0065	0.0	0.029	0.0
Acetone	67-64-1	VOC	0.14	0.0	0.0065	0.0	10.20	0.5	0.015	0.0	0.079	0.0

Notes:

Total PAH HQ represented by the hazard index (HI) for mammalian receptors - that is, the sum of low molecular weight and high molecular weight PAH HQs.

Shaded cells indicate a HQ>1.

HQ = Hazard Quotient

NA = analyte lacks appropriate TRV to calculate risk.

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Table 5-4
Summary of Sediment Simultaneously Extracted Metals Data

Greenwich High School
10 Hillside Road
Greenwich, CT

			West Brothers Brook: Natural Channel		Cider Mill Pond							Post Pond
		Location Group	AOC-11B-SE	AOC-11B-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-11C-SED	AOC-12-SE	AOC-11C-SED
		Location Name	T20-SED	N24-SED	F28A-SED	F28A-SED	E29-SED	E30-SED	C31-SED	B31-SED	A29-SED	OUT-NEW-SED
		Sample Code	T20-SED-TOP-071912	N24-SED-TOP	F28A-SED-TOP	F28A-SED-TOP-DUP	E29-SED-TOP	E-30-SED-0.5	C-31-SED-0.5	B-31-SED-0.5	A-29-SED-0.5	OUT-NEW-SED-0.5-071912
		Sample Date	7/19/2012	7/19/2012	7/19/2012	7/19/2012	7/19/2012	7/19/2012	7/19/2012	7/19/2012	7/19/2012	7/19/2012
		Start Depth (ft)	0	0	0	0	0	0	0	0	0	0
		End Depth (ft)	0.83	0.83	1.1	1.1	1.2	0.5	0.5	0.5	0.5	0.5
		Sample Type	N	N	N	FD	N	N	N	N	N	N
Analyte	**CAS**	**Units**										
Total Organic Carbon	TOC	mg/kg	**5470**	**5260**	**43600**	**41000**	**50600**	**59600**	**60600**	**68400**	**39600**	**30800**
Sulfide (AVS)	18496-25-8	umol/g	**0.24**	**0.5**	**12**	**15**	**22**	**57**	**66**	**57**	**12**	**14**
Cadmium	7440-43-9	umol/g	< 0.0014	< 0.0014	**0.0041**	**0.0041**	**0.011**	**0.0062**	**0.0067**	**0.0079**	**0.0062**	< 0.0041
Copper	7440-50-8	umol/g	**0.2**	**0.16**	**0.56**	**0.49**	**0.32**	**0.25**	**0.77**	**0.65**	**0.37**	**0.45**
Lead	7439-92-1	umol/g	**0.067**	**0.097**	**0.41**	**0.42**	**1.3**	**0.55**	**0.63**	**0.65**	**0.63**	**0.18**
Nickel	7440-02-0	umol/g	**0.033**	**0.037**	**0.12**	**0.1**	**0.21**	**0.24**	**0.26**	**0.27**	**0.22**	< 0.078
Silver	7440-22-4	umol/g	< 0.0084	-	-	-	-	-	-	-	-	< 0.025
Zinc	7440-66-6	umol/g	**0.36**	**0.5**	**2.1**	**2**	**4.1**	**4**	**4.5**	**4.8**	**3.6**	**1.6**
Total Metals (∑SEM Divalent Metals)		umol/g	0.66	0.794	3.1941	3.0141	5.941	5.0462	6.1667	6.3779	4.8262	2.23
Molar Ratio of SEM:AVS			NA	NA	0.27	0.20	0.27	0.09	0.09	0.11	0.40	0.16

Notes:

Total Metals ∑SEM includes the five divalent metals that preferentially bind to sulfide: copper, cadmium, nickel, lead and zinc (McGrath et al., 2002). Silver is also included as an SEM metal (McGrath et al., 2002), although it stoichiometrically differs: one mole of SEM silver reacts with two moles of AVS. A minimum of 1 µmol ∑SEM is required for binding to occur: presence/absence of toxicity cannot predicted if ∑SEM<1.

For locations T-20 and N24, both the AVS and ∑SEM are less than 1 umol/g precluding calcaultion of a molar ratio (molar ratio calculation requires a minimum ∑SEM=1 1 umole/g and AVS=1 umole/g).

Shaded cells indicate a ∑SEM/AVS ratio greater than 1, suggesting the potential for metal toxicity from excess ∑SEM.

Concentrations presented in bolded text are detected values.

Values preceded by "<" indicate non-detected values represented by the reporting limit.

TOC is presented for reference only.

umol/g = micromole per gram.

- = not analyzed.

AVS = acid volatile sulfide.

NA = not applicable; ∑SEM<1 therefore molar ratio not applicable.

SEM = simultaneously extracted metals.

∑SEM = sum of all simultaneously extracted (divalent) metals.

References:

McGrath, J.A., P.R. Paquin, and D.M. Di Toro. 2002. Use of the SEM and AVS Approach in Predicting Metal Toxicity in Sediments. International Council on Mining and Metals (ICMM). Fact Sheet on Environmental Risk Assessment, Chapter 10 (1-7).

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Table 5-5
Step 3A Evaluation for Aquatic-Feeding Birds and Mammals

Greenwich High School
10 Hillside Road
Grenwich, CT

			Site Wide (AOC15)														
			Mallard			Great Blue Heron			Muskrat			Mink			Raccoon		
			Sediment, Food and Drinking Water			Sediment, Food and Drinking Water			Sediment, Food and Drinking Water			Sediment, Food and Drinking Water			Sediment, Food and Drinking Water		
COPEC	CAS	Class	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)
Arsenic	7440-38-2	Metal	--	--	--	--	--	--	0.033	0.0	0.0	--	--	--	--	--	--
Cadmium	7440-43-9	Metal	0.051	0.0	0.0	--	--	--	--	--	--	--	--	--	0.036	0.0	0.0
Chromium (total)	7440-47-3	Metal	0.36	0.0	0.0	--	--	--	--	--	--	--	--	--	0.31	0.0	0.0
Copper	7440-50-8	Metal	7.49	0.0	0.0	--	--	--	--	--	--	--	--	--	3.41	0.1	0.1
Lead	7439-92-1	Metal	0.63	0.0	0.0	--	--	--	--	--	--	--	--	--	0.61	0.0	0.0
Nickel	7440-02-0	Metal	0.82	0.0	0.0	--	--	--	--	--	--	--	--	--	0.44	0.0	0.0
Vanadium	7440-62-2	Metal	0.13	0.0	0.0	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	7440-66-6	Metal	26.90	0.0	0.0	--	--	--	--	--	--	--	--	--	12.44	0.0	0.0
hPAH (total)	hPAH	PAH	--	--	--	--	--	--	--	--	--	0.10	0.0	0.0	--	--	--
lPAH (total)	lPAH	PAH	--	--	--	--	--	--	--	--	--	0.18	0.0	0.0	--	--	--
PAH (total)	RACALC-HPAH	PAH	--	--	--	--	--	--	--	--	--	0.20	NA	NA	--	--	--
4,4'-DDx	RACALC-DDx	Pesticide	--	--	--	0.11	0.0	0.5	--	--	--	0.12	0.0	0.1	--	--	--
Chlordane	57-74-9	Pesticide	--	--	--	1.13	0.1	0.5	--	--	--	1.21	0.0	0.0	--	--	--

			Cider Mill Pond (AOC12)														
			Mallard			Great Blue Heron			Muskrat			Mink			Raccoon		
			Sediment, Food and Drinking Water			Sediment, Food and Drinking Water			Sediment, Food and Drinking Water			Sediment, Food and Drinking Water			Sediment, Food and Drinking Water		
COPEC	CAS	Class	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)	Exposure Dose (mg/kg-day)	Step 3 HQ (unitless)[1]	Step 3 HQ Upper Bound (unitless)
Arsenic	7440-38-2	Metal	--	--	--	--	--	--	0.04	0.0	0.0	--	--	--	--	--	--
Cadmium	7440-43-9	Metal	--	--	--	--	--	--	--	--	--	--	--	--	0.052	0.0	0.0
Copper	7440-50-8	Metal	11.370	0.0	0.0	--	--	--	--	--	--	--	--	--	5.15	0.0	0.1
Lead	7439-92-1	Metal	0.816	0.0	0.0	--	--	--	--	--	--	--	--	--	0.791	0.0	0.0
Nickel	7440-02-0	Metal	--	--	--	--	--	--	--	--	--	--	--	--	0.511	0.0	0.0
Vanadium	7440-62-2	Metal	0.185	0.0	0.0	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	7440-66-6	Metal	33.896	0.0	0.0	--	--	--	--	--	--	--	--	--	--	--	--
hPAH (total)	hPAH	PAH	--	--	--	--	--	--	--	--	--	0.09	0.0	0.0	--	--	--
lPAH (total)	lPAH	PAH	--	--	--	--	--	--	--	--	--	0.23	0.0	0.0	--	--	--
PAH (total)	RACALC-HPAH	PAH	--	--	--	--	--	--	--	--	--	0.21	NA	NA	--	--	--
4,4'-DDx	RACALC-DDx	Pesticide	--	--	--	0.13	0.0	0.3	--	--	--	0.14	0.0	0.0	--	--	--
Chlordane	57-74-9	Pesticide	--	--	--	1.14	0.1	0.3	--	--	--	1.22	0.0	0.0	--	--	--

Table 5-5
Step 3A Evaluation for Aquatic-Feeding Birds and Mammals

Notes:

Total PAH HQ represented by the hazard index (HI) for mammalian receptors - that is, the sum of detected low molecular weight and high molecular weight PAH HQs.

Shaded cells indicate a HQ>1.

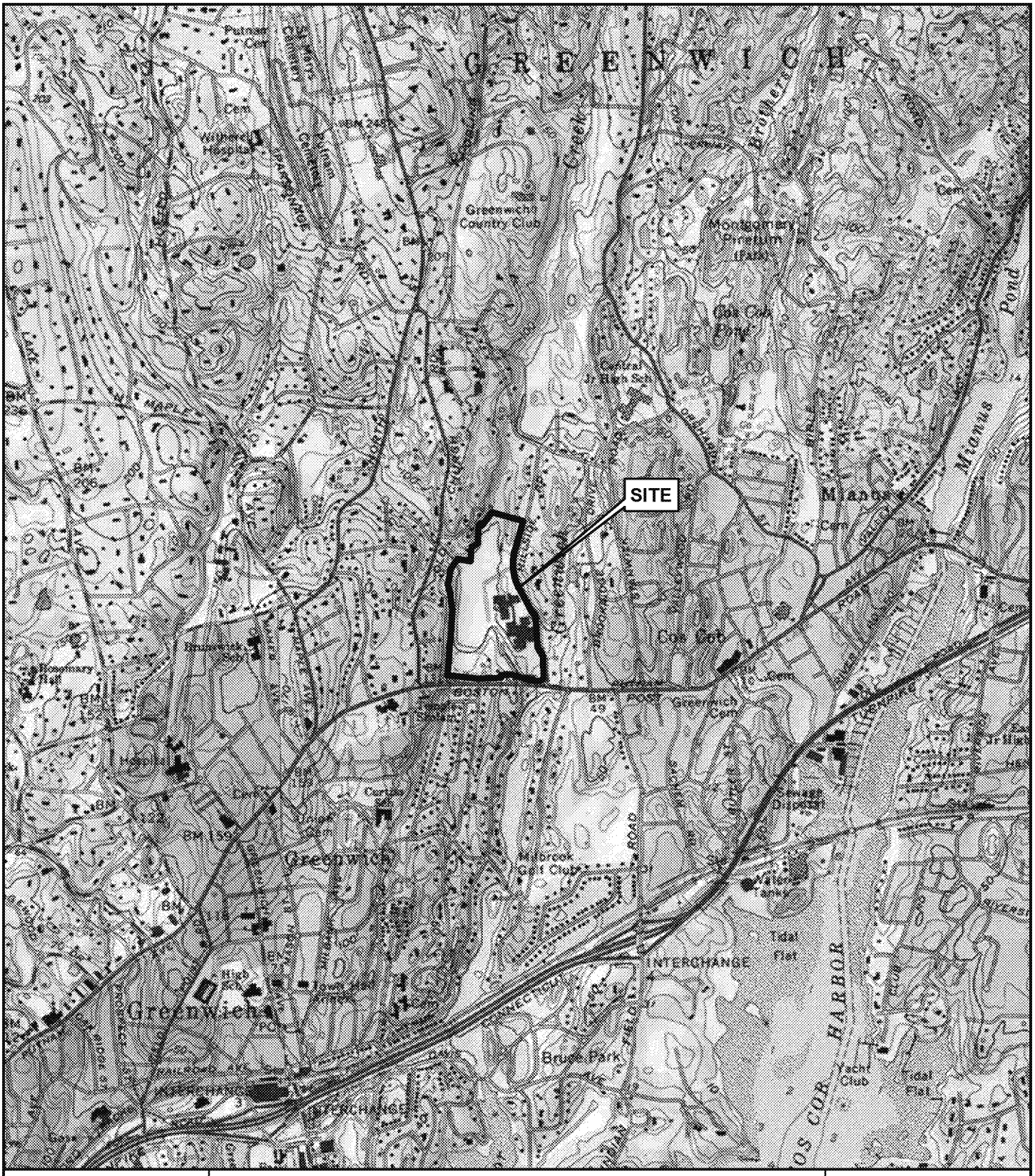
HQ = Hazard Quotient.

-- = Analyte was not identified with Step 2 HQ>1.

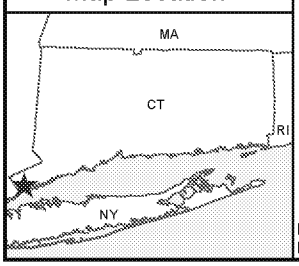
NA = analyte lacks appropriate TRV to calculate risk.

Figures

ED_002022B_00026752-00093



Map Location



SITE LOCUS MAP
GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

0 500 1,000 2,000 3,000 4,000 5,000 6,000 Feet

0 100 200 400 600 800 1,000 1,200 1,400 1,600 Meters

Map Projection: State Plane, NAD 83, Feet.
Image Source: National Geographic Society Quadrangle: Stamford, CT.

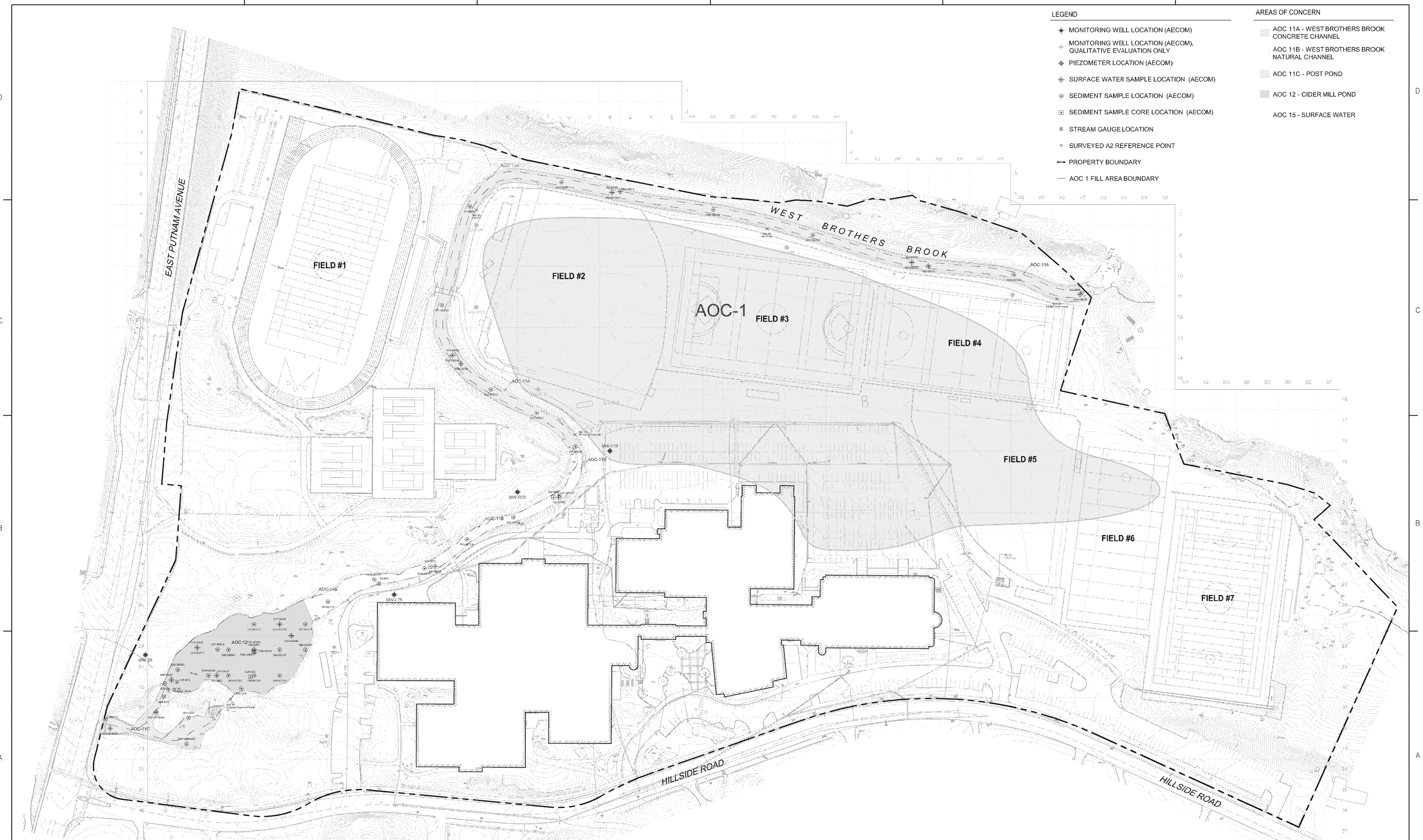
Scale: 1:24,000

AECOM

Figure 1

Date: August 2012

Project #: 60225155.500



AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-3850
www.aecom.com

AECOM

SCALE:
1" = 60'
0 80 160 240
SCALE FEET

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE RD
GREENWICH, CT

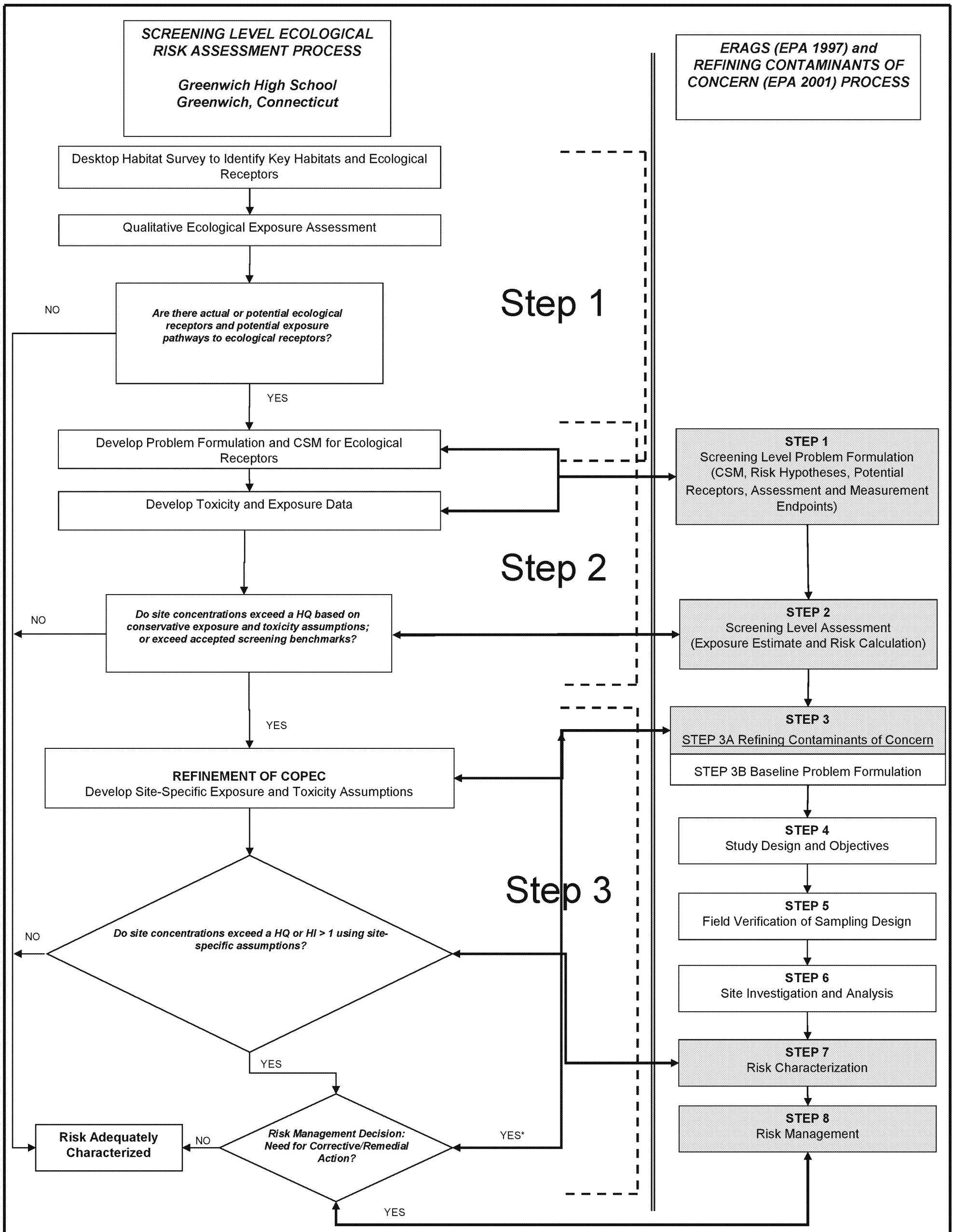
FIGURE 1-2
AQUATIC SAMPLE LOCATIONS FOR THE ECOLOGICAL RISK ASSESSMENT

October 2012

JOB 60225155
FILE NO.
CAD FILE ECOLOGICAL RISK ASSESSMENT
SHEET

PATH/FILENAME: P:\60225155 - GHS\GREENWICH HIGH SCHOOL\ORIGINAL DRAWING FILES\PROJECT\UPDATED\SUPPLEMENTAL DRAWINGS\CUSTOM FIGURES\ECOLOGICAL RISK ASSESSMENT.DWG
LAST UPDATE: Wednesday, September 26, 2012 4:53:01 PM
PLOT DATE: Thursday, October 11, 2012 5:22:27 PM
ARCH D - 3-7-05

ED_002022B_00026752-00095



Notes:

- Dark arrow represents points of correspondence between EPA guidance and tiered approach

- Scientific Management Decision Point

*Risk Management decision indicating additional data needs

Terms:
SLERA – Screening Level Ecological Risk Assessment
COPEC – Chemical of Potential Ecological Concern
CSM –Conceptual Site Model
ERAGS – Ecological Risk Assessment Guidance for Superfund
HQ – Hazard Quotient
ERA – Ecological Risk Assessment

Shaded boxes indicate EPA steps applied in the ERA

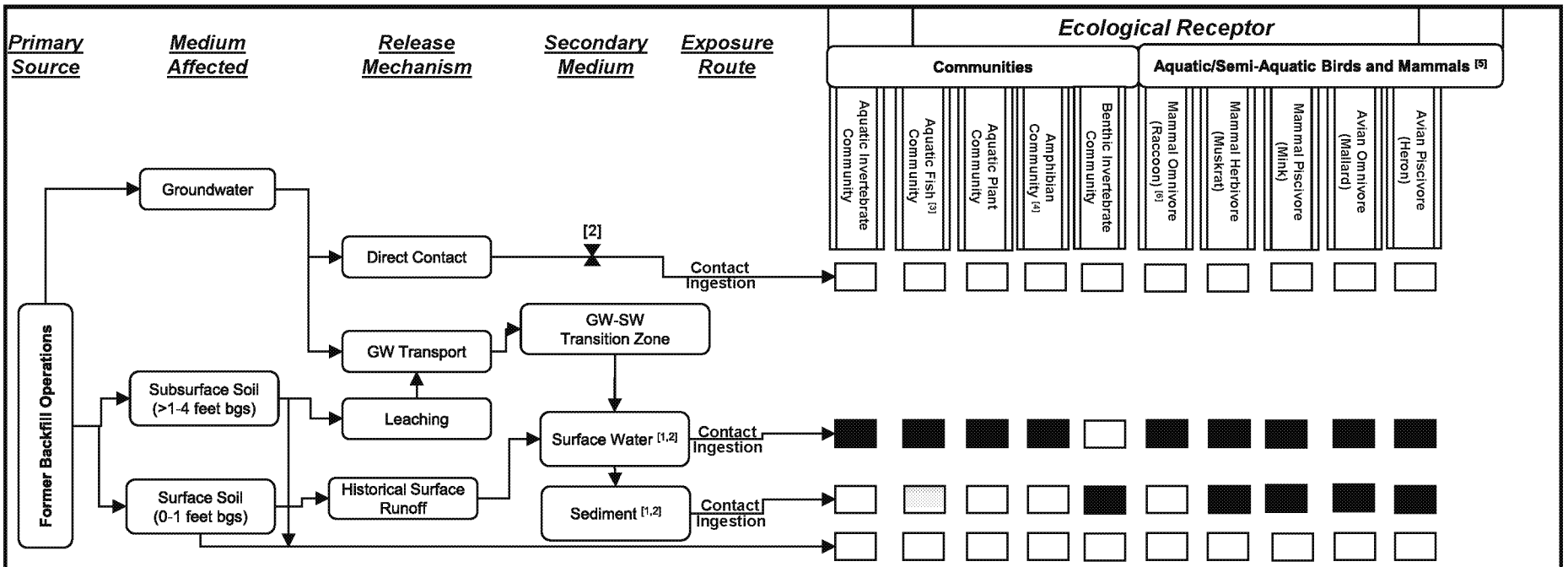
References:

EPA, 1997. Ecological Risk Assessment Guidance for Superfund (ERAGS): Process for Designing and Conducting Ecological Risk Assessments, Interim Final. Environmental Response Team, U.S. Environmental Protection Agency. Edison, NJ

EPA, 2001. The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments. ECO Update. Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency. EPA 540/F-01/014. June.

AECOM

Greenwich High School 10 Hillside Road Greenwich, Connecticut	Ecological Risk Assessment Process
DATE: 02/22/13	FIGURE 1-3



Notes:

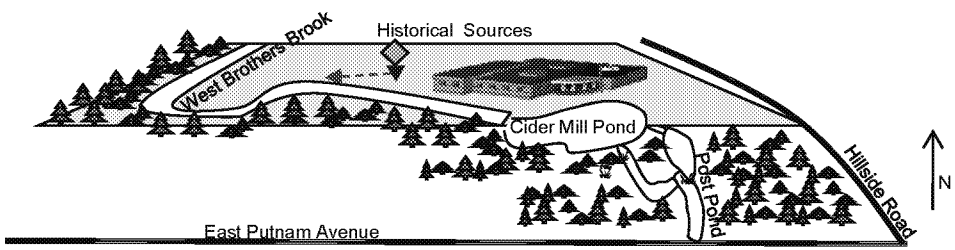
[1] West Brothers Brook enters the site at its northern boundary and flows in a southward direction across the site. A the southeastern corner of the site, the stream widens into a shallow pond (Cider Mill Pond) before continuing flow (via dam/drop outlet) to a secondary pond/marsh area known as Post Pond. Post pond outflow is via a culvert at the property boundary that flows beneath East Putnam Avenue and serves as a tributary to West Brothers Brook that is located to the south of East Putnam Avenue.

[2] Direct contact with groundwater is not a complete pathway. Groundwater transport and expression in transition zones are addressed via the surface water pathway.

[3] Fish occurring in the stream/pond areas are assumed to be exposed to surface water (limnetic feeders) and sediment (benthic feeders). The fish community are evaluated using a weight of evidence evaluation.

[4] Amphibians are likely to occur in association with the West Brothers Brook. Amphibian larvae contact with surface water is thus considered.

[5] For higher trophic order receptors, sediment exposure conservatively includes all available sediment data: including sediment from limited accumulation areas in concrete channel; and natural channel, Cider Mill Pond and Post Pond areas.

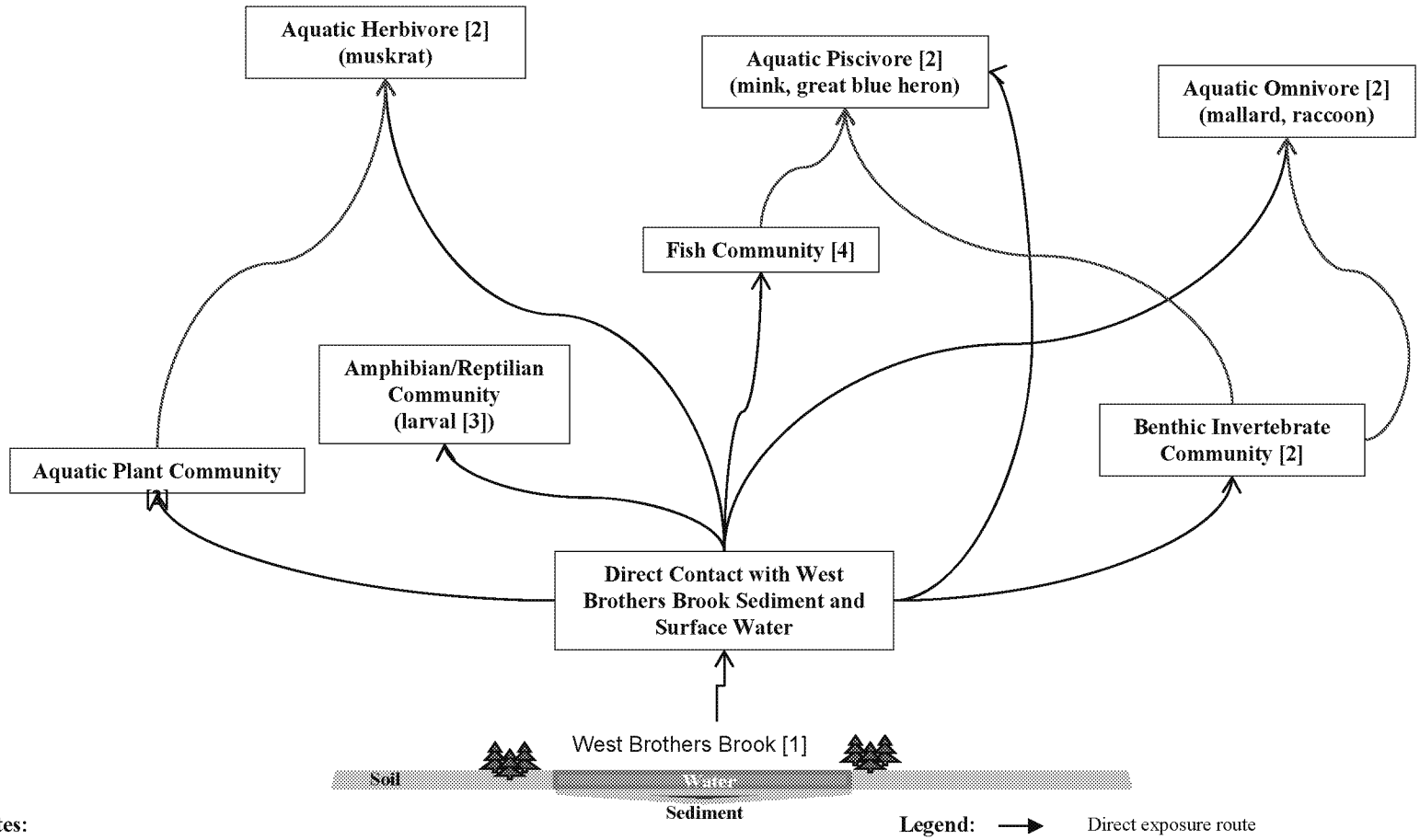


Drawing not to scale

- Complete and Significant Exposure - evaluated qualitatively
- Incomplete Exposure Pathway
- Complete and Significant Exposure - evaluated quantitatively
- Incomplete Pathway or Medium
- Migration to groundwater
- Historical Sources (subsurface soil)

AECOM

Greenwich High School 10 Hillside Road Greenwich, Connecticut	Conceptual Site Model
DATE: 08/24/12	Figure 3-1



Notes:

[1] West Brothers Brook flows generally to the south . The site-related reach terminates at the culvert that flows beneath East Putnam Avenue.

[2] The listed representative receptors are based on review of expected and/or observed wildlife species.

[3] The larval form for amphibians (e.g., frog tadpole) is considered to evaluate amphibian and aquatic reptiles (turtles).

[4] The fish community are evaluated using a weight of evidence evaluation. Fish assumed to be exposed to surface water and sediment and biota in West Brothers Brook.

Legend:

→ Direct exposure route

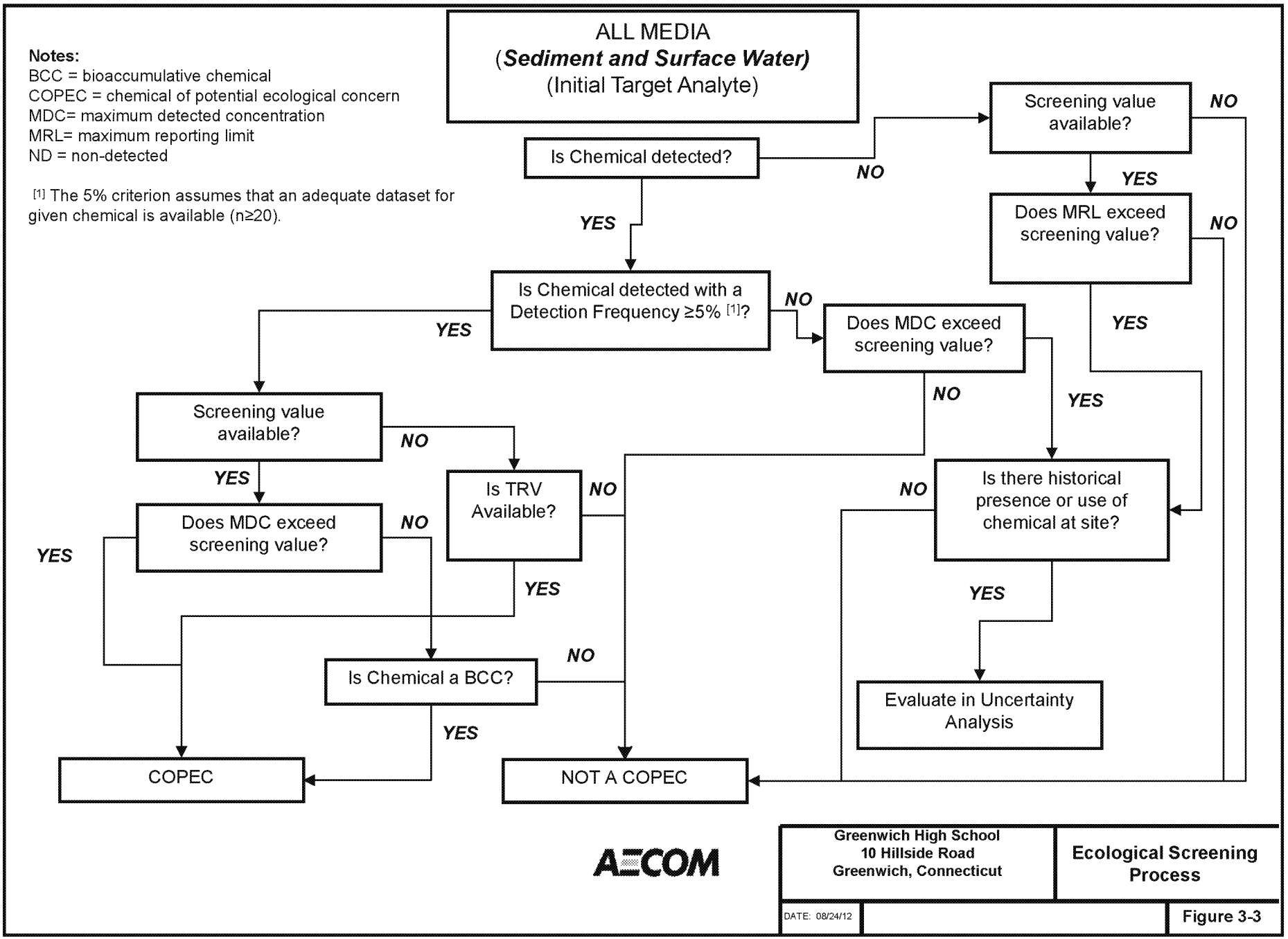
⇢ Indirect exposure route

Sediment Medium Affected

Carnivore Complete and significant pathway/receptor - to be evaluated in ERA

AECOM

Greenwich High School 10 Hillside Road Greenwich, Connecticut	Food Web Model
DATE: 08/24/12	Figure 3-2



AECOM

Greenwich High School 10 Hillside Road Greenwich, Connecticut	Ecological Screening Process
DATE: 08/24/12	Figure 3-3

Appendix A

Photo Documentation

ED_002022B_00026752-00100

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Town of Greenwich, CT	Greenwich High School	

Photo No.	Date:
1	12/2011

Direction Photo Taken:
Northwest

Description:
West Brothers Brook as it enters the Site. Site boundary indicated at fence and beginning of concrete engineered section.

Photo No.	Date:
2	12/2011

Direction Photo Taken:
Southeast

Description:
West Brothers Brook as it leaves the engineered, concrete-lined portion and enters the "natural" bed substrate area.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Town of Greenwich, CT	Greenwich High School	

Photo No.	Date:
3	8/2012

Direction Photo Taken:
Southeast, looking downstream

Description:
Lower "natural" bed substrate section of West Brothers Brook. View is looking downstream from the footbridge.

Photo No.	Date:
4	

Direction Photo Taken:
Northwest, looking upstream

Description:
Lower "natural" bed substrate section of West Brothers Brook. View is looking upstream from the footbridge. Note bedrock outcrops to left of photo.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Town of Greenwich, CT	Greenwich High School	

Photo No.	Date:
5	8/2012

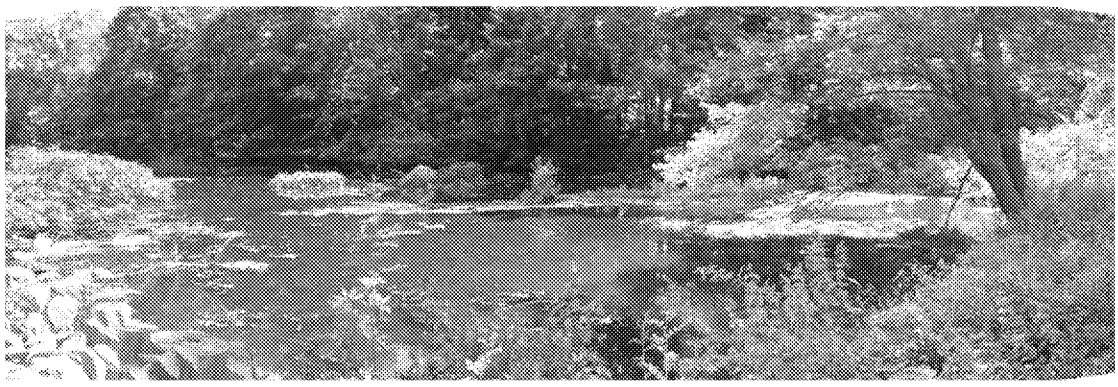
Direction Photo Taken:
Southeast

Description:
Panoramic view of Cider Mill Pond. View from northeast shoreline. Note old tire, two-thirds of way to right and in the vertical center.

Photo No.	Date:
6	8/2012

Direction Photo Taken:
Southwest

Description:
Panoramic view of Cider Mill Pond. View from northeast shoreline.



AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Town of Greenwich, CT	Greenwich High School	

Photo No.	Date:
7	

Direction Photo Taken:
Southwest

Description:
Cider Mill Pond and associated rooted aquatic vegetation (algae). View from northeast shoreline.

Photo No.	Date:
8	8/2012

Direction Photo Taken:
Northeast

Description:
Cider Mill Pond and riparian vegetation near pond dam. View from southwest shoreline. Rocks in foreground appear to be "placed" as part of bank and/or dam stabilization.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Town of Greenwich, CT	Greenwich High School	

Photo No.	Date:
9	8/2012

Direction Photo Taken:
Northwest

Description:
Cider Mill Pond from the downstream dam area. Note large tire in foreground of flower plant cluster. Note also presence of non-rooted (bright green) aquatic vegetation (duck weed) in foreground.

Photo No.	Date:
10	8/2012

Direction Photo Taken:
North

Description:
Cider Mill Pond outfall 1 (on west side) and "plunge pool".

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Town of Greenwich, CT	Greenwich High School	

Photo No.	Date:
11	8/2012

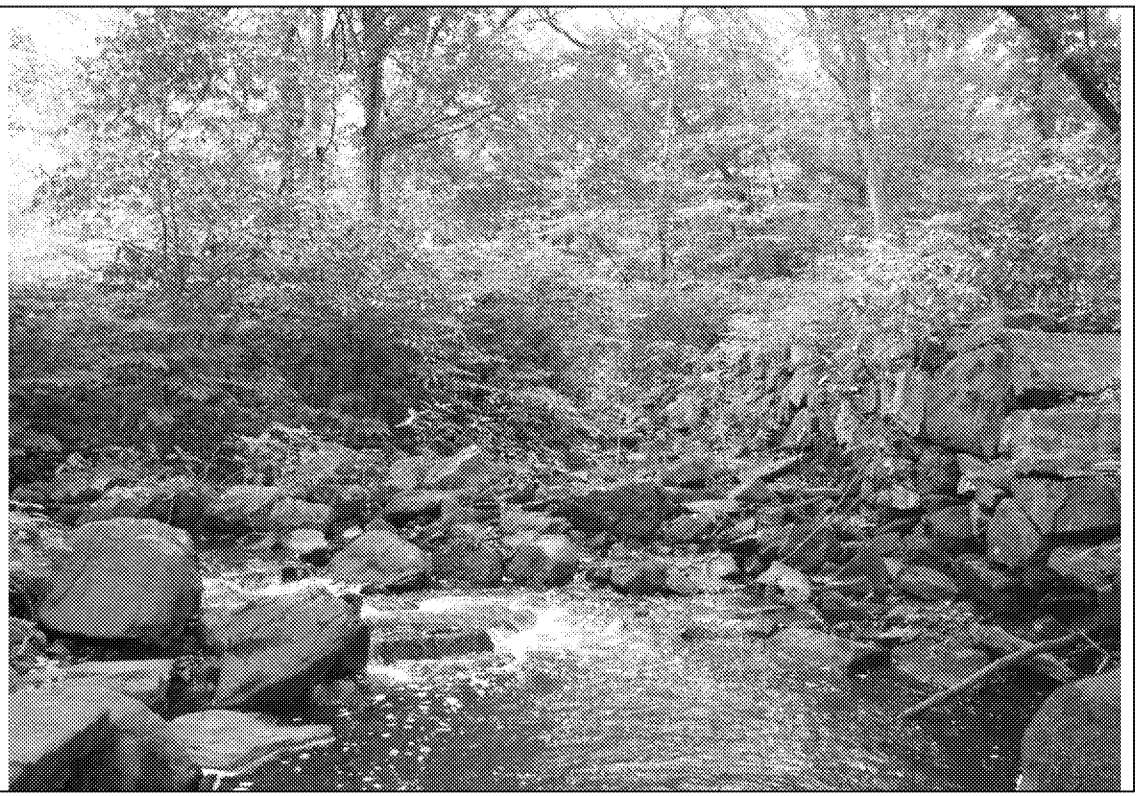
Direction Photo Taken:
Northwest

Description:
Cider Mill Pond dam wall break/outfall 2. Damage to the pond dam allows water flow and form small stream. Stream eventually is confluent with outfall 1 at "Post Pond".

Photo No.	Date:
12	8/2012

Direction Photo Taken:
North

Description:
Confluence of outfall 1 (left of photo) and outfall 2 from Cider Mill Pond. The pool formed is referred to as "Post Pond".



Appendix B

Threatened and Endangered Species and National Wetland Inventory Documentation

ED_002022B_00026752-00107

Table B-1 Summary of Threatened and Endangered Species[1] for Fairfield County, Connecticut

Group	Common Name	Scientific Name	State Status	Federal Status	Preferred Habitat	Source[2]	Potential Habitat Status
Species With State Concerns Identified by Connecticut Department of Environmental Protection							
Amphibian	Blue-spotted salamander	*Ambystoma laterale*	E/SC		Found in forested wetland, riparian, scrub-shrub wetland and temporary pool habitats. In New England and New Jersey, generally associated with lowland swamps and marshes and surrounding uplands with sandy or loamy soils. Adults usually found beneath objects or underground. Eggs are attached to submerged sticks or bottom of shallow forest ponds and pools.	[a]	Habitat suitable for breeding, nesting and foraging is not consistent with the habitat associated with the site. Significant site presence is not expected.
Amphibian	Northern slimy salamander	*Plethodon glutinosus*	T		Occurs on wooded slopes, ravines, floodplains, shalebanks, and cave entrances; most often in hardwood forest, sometimes in pinelands. Generally under or in rotting logs, stumps, or leaf litter, or under rocks, during the day. Goes underground during dry or freezing weather. Eggs are laid in rotting logs, underground, or in rock crevices.	[a]	Primarily occurs in terrestrial habitat. Habitat suitable for breeding, nesting and foraging is not consistent with the habitat associated with the site. Significant site presence is not expected.
Bird	Great egret	*Ardea alba*	T		Occurs in forested wetland, riparian, herbaceous wetland and scrub-shrub wetland; and herbaceous/grassland upland (terrestrial) habitats. Prefers marshes, swampy woods, tidal estuaries, lagoons, mangroves, streams, lakes, and ponds; also fields and meadows. Nests primarily in tall trees, usually with other colonial water birds; in woods or thickets near water.	[a]	Potential habitat may be present, although spatially limited, in association with the site. Significant site presence is not expected.
Bird	Upland sandpiper	*Bartramia longicauda*	E		Occur in bog/fen and upland habitats (cropland/hedgerow, grassland/herbaceous, old field). Prefer open tracts of short grassland habitat for breeding and nest in native prairie, dry meadows, pastures, domestic hayfields, short-grass savanna, plowed fields, along highway rights-of-way and on airfields.	[a]	Primarily occurs in terrestrial habitat. Habitat suitable for breeding, nesting and foraging is not consistent with the habitat associated with the site. Significant site presence is not expected.
Bird	American bittern	*Botaurus lentiginosus*	E		Occur in herbaceous wetland and riparian habitat. Primarily large freshwater and (less frequently) brackish marshes, including lake and pond edges where cattails, sedges, or bulrushes are plentiful; and marshes where there are areas of open water and aquatic-bed vegetation. Also occurs in other areas with dense herbaceous cover, such as shrubby marshes, bogs, wet meadows, and occasionally hayfields. Readily uses wetlands created by impoundments: wetlands of 2.5 ha or more may support nesting; smaller wetlands may serve as alternate foraging sites.	[a]	Potential habitat may be present at or near the site, although suitable habitat at the site is limited. Significant site presence is not expected.
Bird	Snowy egret	*Egretta thula*	T		Occurs in marsh, lake, pond, lagoon, mangrove, and shallow coastal habitats. Nests in trees or shrubs or, in some areas, on ground or in marsh vegetation. Often nests with other colonial water birds. Nests typically built over water or on ground.	[a]	Potential habitat may be present at or near the site, although suitable habitat at the site is limited. Significant site presence is not expected.

Table B-1 Summary of Threatened and Endangered Species[1] for Fairfield County, Connecticut

Group	Common Name	Scientific Name	State Status	Federal Status	Preferred Habitat	Source[2]	Potential Habitat Status
Bird	Common moorhen	*Gallinula chloropus*	E		Prefers habitat simlar to that of other rails: freshwater or braskish marshes with tall emergent vegetation; also found in ponds, canals and rice fields. Primarily a grainivore feeding on seeds of aquatic grasses and sedges. Also consume invertebrates (e.g., snails) gleaned from vegetation.	[b]	Potential habitat may be present, although spatially limited, in association with the site. Significant site presence is not expected.
Bird	Bald eagle	*Haliaeetus leucocephalus*	T		Found near water bodies, including rivers, reservoirs and lakes. Nest in large trees with open crowns, especially in cottonwood and white pine trees along riparian areas.	[a]	Potential habitat may be present nearby. However, on site nesting and foraging habitat is spatially limited. Significant site presence is not expected.
Bird	Least bittern	*Ixobrychus exilis*	T		Prefers freshwater or braskish marshes with tall emergent vegetation. Primarily a pisicivore feeding on small fish and also invertebrates. Constructs nest on ground amidst dense/tall vegetation.	[c]	Habitat suitable for nesting and foraging is not consistent with the habitat associated with the site. Significant site presence is not expected.
Bird	Black rail	*Laterallus jamaicensis*	E		Prefers salt, brackish, and freshwater marshes, grassy swamps, pond borders and wet meadows breeding and non-breeding. Secretive, but may emerge from cover in early morning. Nests in or along edge of marsh, in area with saturated or shallowly flooded soils and dense vegetation, usually in nest site hidden by marsh grass or at base of *Salicornia* (in brackish/salt marshes); also nests on damp ground, on mat of previous year's dead grasses, or over very shallow water. Diet is omnivirous consisting of small invertebrates and seeds.	[a]	Habitat suitable for nesting and foraging is not consistent with the habitat associated with the site. Significant site presence is not expected.
Bird	Pied-billed grebe	*Podilymbus podiceps*	E		Breeds in association with seasonal or permanent ponds with dense stands of emergent vegetation, bays and sloughs. Nests are typically built in shallow water surrounded by dense vegetation, especially cattail (*Typha spp*.) and bulrush (*Scirpus spp*.). Uses most types of wetlands during winter. Primarily feeds on fishes, crustaceans, insects; also amphibians, other invertebrates, and some plant material.	[a]	Potential habitat may be present nearby. However, on site nesting and foraging habitat is spatially limited. Significant site presence is not expected.
Bird	King rail	*Rallus elegans*	E		Prefers freshwater marshes, upland-wetland marsh edges, ricefields or similar flooded farmland, and shrub swamps; also found locally in brackish and coastal salt marshes. Constructs nests in shallow water as an elevated platform of grasses, sedges, or rushes placed in clump of grass just above water, oten with a canopy and ramp. Diet composed of crustaceans, especially crayfish, aquatic insects and small fish.	[a] [d]	Potential habitat may be present nearby. However, on site nesting and foraging habitat is spatially limited. Significant site presence is not expected.
Invertebrate	Northern metalmark	*Calephelis borealis*	E		Prefers habitats that are openings within (terrestrial) forested or wooded areas. Such openings may be natural outcrops,shale or limestone barrens, glades or powerline right of ways. Critical factors are presence of the primary larval foodplant (*Senecio obovatus*, ragwort) and nectar (e.g., orange milkweed, black eyed susan, daisy or fleabane flowers).	[a]	Terrestrial habitat suitable for foraging and reproduction is limited or absent at the Site. Significant site presence is not expected.

Table B-1 Summary of Threatened and Endangered Species[1] for Fairfield County, Connecticut

Group	Common Name	Scientific Name	State Status	Federal Status	Preferred Habitat	Source[2]	Potential Habitat Status
Invertebrate	Tiger spiketail	*Cordulegaster erronea*	T		Data regarding preferred habitat is limited. In New Jersey, typically found along small forested streams. In Michigan, noted to occur in lotic depositional headwater streams. Larvae are found in spring seepages and less frequently encountered in larger streams or at low elevations. Specifically require sandy substrate, silt, detritus, slow gradient, rock and soft substrates.	[e] [f]	Potential habitat may be present at or near the Site. However, the riparian corridor is poorly developed and discontinous suggesting that suitable on site habitat is spatially limited. Significant site presence is not expected.
Invertebrate	Sleepy duskywing	*Erynnis brizo*	T		Found in dry usually scrubby oak barrens, woodlands or dry oak forest. Habitat varies regionally, for example in New England very strongly associated with scrub oak (*Quercus Ilicifolia)* , but uses several oaks in New Jersey and in the southeast.	[a]	Suitable terrestrial habitat suitable is absent at the Site. Significant site presence is not expected.
Invertebrate	Columbine duskywing	*Erynnis lucilius*	E		Occurs in hardwood and mixed savanna forests, and mixed/hardwood woodlands.Prefers wooded areas including glades, barrens, ridgetops as well as gullies and openings that occur in richer woods with an abundance of columbines. Habitat needs other than abundance of coulmbines are not fully defined.	[a]	Suitable terrestrial habitat suitable is absent at the Site. Significant site presence is not expected.
Plant	Appalachian blue	*Celastrina neglectamajor*	T		Usually occurs within a rich, moist forest community matrix, such as mixed mesophytic forest, mesic oak-hickory forest, or cove forest. Within these settings, plants generally occur in partially open to open sites generated naturally and/or by human disturbance. These sites include streambanks, floodplains, serpentine barrens, glades, clearings, forest edges, roadsides, old railroad grades, dirt roads, trailsides, old fields, pastures, lawns, and parks. In habitats that are kept open by mowing, there seems to be an optimal mowing frequency that promotes the species' persistence.	[a]	Habitat suitable is limited or absent associated with the site. Significant site presence is not expected.
Reptile	Bog turtle	*Glyptemys muhlenbergii*	T		Preferred habitat includesslow, shallow, muck-bottomed rivulets of sphagnum bogs, calcareous fens, marshy/sedge-tussock meadows, spring seeps, wet cow pastures, and shrub swamps; the habitat usually contains an abundance of sedges or mossy cover. The turtles depend on a mosaic of microhabitats for foraging, nesting, basking, hibernation, and shelter. Other wildlife (beaver, deer, and cattle) may be important in maintaining the essential open-canopy wetlands.	[a]	Habitat suitable for nesting and foraging is not consistent with the habitat associated with the site. Significant site presence is not expected.

Table B-1 Summary of Threatened and Endangered Species[1] for Fairfield County, Connecticut

Group	Common Name	Scientific Name	State Status	Federal Status	Preferred Habitat	Source[2]	Potential Habitat Status
Species With Federal Concerns Identified by USFWS							
Reptiles	Bog turtle	*Glyptemys muhlenbergii*		T	Preferred habitat includesslow, shallow, muck-bottomed rivulets of sphagnum bogs, calcareous fens, marshy/sedge-tussock meadows, spring seeps, wet cow pastures, and shrub swamps; the habitat usually contains an abundance of sedges or mossy cover. The turtles depend on a mosaic of microhabitats for foraging, nesting, basking, hibernation, and shelter. Other wildlife (beaver, deer, and cattle) may be important in maintaining the essential open-canopy wetlands.	[a]	Habitat suitable for nesting and foraging is not consistent with the habitat associated with the site. Significant site presence is not expected.

Notes:

[1] The table presents threatened and endangered aquatic and aquatic-feeding species identified by Connecticut DEP (http://www.ct.gov/dep/cwp/view.asp?a=2702&q=323486) and United States Fish and Wildlife Service (USFWS). Terrestrial, marine and state-listed special conern species are not presented.

[2] Includes data obtained from Connecticut DEP interactive website (http://www.ct.gov/dep/cwp/view.asp?a=2702&q=323486) and additional species-specific data per NatureServe (2009). All other data obtained from site-specific inqueries to United State Fish and Wildlife Service (USFWS) and other sources, as noted.

E = endangered
T = threatened
SC = special concern

References:

[a] NatureServe 2012. NatureServe Explorer. Interactive Database. Accessed August 27, 2012 at: http://www.natureserve.org/explorer/

[b] Bannor, B. K., and E. Kiviat. 2002. Common Moorhen (Gallinula chloropus). In The Birds of North America, No. 685 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA. As cited at: http://www.allaboutbirds.org/guide/Common_Moorhen/lifehistory. Accessed on line October 2, 2012.

[c] Gibbs, J. P., F. A. Reid, and S. M. Melvin. Least Bittern (Ixobrychus exilis). In The Birds of North America, No. 17 (A. Poole, P. Stettenheim, and F. Gill, eds.). Philadelphia: The Academy of Natural Sciences; Washington, DC: The American Ornithologists' Union. As cited at: http://www.allaboutbirds.org/guide/Least_Bittern/lifehistory. Accessed on line October 2, 2012.

[d] Meanley, B. 1992. King Rail (Rallus elegans). In The Birds of North America, No. 3 (A. Poole, P. Stettenheim, and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, DC.: The American Ornithologists Union. As cited at: http://www.allaboutbirds.org/guide/King_Rail/lifehistory. Accessed on line October 2, 2012.

[e] MNFI 2012. Michigan Natural Features Inventory. Michigan State university Extension. Accessed on line October 2, 2012 at:http://mnfi.anr.msu.edu/explorer/species.cfm?id=12063

[f] NJODES 2012. Tiger Spiketail (Cordulegaster erronea). New Jersey Odonates Enthusiasts. Accessed on line October 2, 2012 at: http://www.njodes.com/Speciesaccts/spiketails/spik-tige.asp

A County Report of
Connecticut's Endangered, Threatened and Special Concern

Fairfield County

Amphibians

Scientific Name	Common Name	Protection Status
Ambystoma jeffersonianum	Jefferson salamander "complex"	SC
Ambystoma laterale	Blue-spotted salamander	E/SC
Plethodon glutinosus	Northern slimy salamander	T

Birds

Scientific Name	Common Name	Protection Status
Accipiter striatus	Sharp-shinned hawk	E
Aegolius acadicus	Northern saw-whet owl	SC
Ammodramus caudacutus	Saltmarsh sharp-tailed sparrow	SC
Ammodramus henslowii	Henslow's sparrow	SC*
Ammodramus maritimus	Seaside sparrow	T
Ammodramus savannarum	Grasshopper sparrow	E
Ardea alba	Great egret	T
Asio flammeus	Short-eared owl	T
Asio otus	Long-eared owl	E
Bartramia longicauda	Upland sandpiper	E
Botaurus lentiginosus	American bittern	E
Buteo platypterus	Broad-winged hawk	SC
Charadrius melodus	Piping plover	T
Circus cyaneus	Northern harrier	E
Cistothorus platensis	Sedge wren	E
Dolichonyx oryzivorus	Bobolink	SC
Egretta caerulea	Little blue heron	SC
Egretta thula	Snowy egret	T

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Birds

Scientific Name	Common Name	Protection Status
Eremophila alpestris	Horned lark	E
Falco peregrinus	Peregrine falcon	T
Falco sparverius	American kestrel	T
Gallinula chloropus	Common moorhen	E
Gavia immer	Common loon	SC
Haematopus palliatus	American oystercatcher	T
Haliaeetus leucocephalus	Bald eagle	T
Icteria virens	Yellow-breasted chat	E
Ixobrychus exilis	Least bittern	T
Laterallus jamaicensis	Black rail	E
Melanerpes erythrocephalus	Red-headed woodpecker	E
Nyctanassa violacea	Yellow-crowned night-heron	SC
Passerculus sandwichensis	Savannah sparrow	SC
Passerculus sandwichensis ssp. princeps	Ipswich sparrow	SC
Plegadis falcinellus	Glossy ibis	SC
Podilymbus podiceps	Pied-billed grebe	E
Pooecetes gramineus	Vesper sparrow	E
Progne subis	Purple martin	T
Rallus elegans	King rail	E
Sterna dougallii	Roseate tern	E
Sterna hirundo	Common tern	SC
Sternula antillarum	Least tern	T
Toxostoma rufum	Brown thrasher	SC
Tyto alba	Barn owl	E

Fish

Scientific Name	Common Name	Protection Status
Acipenser oxyrinchus oxyrinchus	Atlantic sturgeon	T

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Fairfield County

Fish

Scientific Name	Common Name	Protection Status
Alosa aestivalis	Blueback herring	SC

Invertebrates

Scientific Name	Common Name	Protection Status
Badister transversus	Ground beetle	SC
Bembidion lacunarium	Ground beetle	SC
Bembidion pseudocautum	Ground beetle	SC
Bembidion semicinctum	Ground beetle	SC
Calephelis borealis	Northern metalmark	E
Celastrina neglectamajor	Appalachian blue	T
Chlosyne harrisii	Harris' checkerspot	SC*
Cicindela formosa generosa	Pine barrens tiger beetle	SC
Cicindela marginata	Tiger beetle	SC
Cicindela tranquebarica	Dark bellied tiger beetle	SC
Citheronia regalis	Regal moth	SC*
Cordulegaster erronea	Tiger spiketail	T
Eacles imperialis imperialis	Imperial moth	SC*
Erynnis brizo	Sleepy duskywing	T
Erynnis lucilius	Columbine duskywing	E
Euphyes dion	Sedge skipper	SC
Fossaria rustica	Lymnaeid snail	SC
Lycaena hyllus	Bronze copper	SC
Margaritifera margaritifera	Eastern pearl shell	SC
Meropleon ambifuscum	Newman's brocade	SC
Procambarus acutus	Whiteriver crayfish	SC
Satyrodes eurydice	Eyed brown	SC
Stygobromus tenuis tenuis	Piedmont groundwater amphipod	SC
Valvata tricarinata	Turret snail	SC

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Fairfield County

Mammals

Scientific Name	Common Name	Protection Status
Lasiurus borealis	Red bat	SC

Plants

Scientific Name	Common Name	Protection Status
Acalypha virginica	Virginia copperleaf	SC
Agastache nepetoides	Yellow giant hyssop	E
Agastache scrophulariifolia	Purple giant hyssop	E
Ageratina aromatica	Small white snakeroot	E
Andromeda polifolia var. glaucophylla	Bog rosemary	T
Anemone canadensis	Canada anemone	T
Angelica venenosa	Hairy angelica	SC*
Antennaria howellii ssp. petaloidea	Field pussytoes	SC*
Aplectrum hyemale	Puttyroot	SC*
Arethusa bulbosa	Arethusa	SC*
Aristida longespica	Needlegrass	SC
Aristida purpurascens	Arrowfeather	SC
Aristida tuberculosa	Beach needle grass	E
Aristolochia serpentaria	Virginia snakeroot	SC
Asclepias purpurascens	Purple milkweed	SC
Asplenium ruta-muraria	Wallrue spleenwort	T
Atriplex glabriuscula	Orache	SC
Betula pumila	Swamp birch	SC
Bidens beckii	Water-marigold	T
Bolboschoenus maritimus ssp. paludosus	Bayonet grass	SC
Bolboschoenus novae-angliae	Salt marsh bulrush	SC
Bouteloua curtipendula	Side-oats grama-grass	E
Cardamine douglassii	Purple cress	SC
Carex aestivalis	Summer sedge	SC

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Plants

Scientific Name	Common Name	Protection Status
Carex alata	Broadwing sedge	E
Carex alopecoidea	Foxtail sedge	T
Carex barrattii	Barratt's sedge	E
Carex bushii	Sedge	SC
Carex buxbaumii	Brown bog sedge	E
Carex davisii	Davis' sedge	T
Carex hitchcockiana	Hitchcock's sedge	SC
Carex prairea	Prairie sedge	SC
Carex squarrosa	Sedge	SC
Carex sterilis	Dioecious sedge	SC
Carex trichocarpa	Sedge	SC
Carex tuckermanii	Tuckerman's sedge	SC
Carex typhina	Sedge	SC
Castilleja coccinea	Indian paintbrush	T
Chamaelirium luteum	Devil's-bit	E
Chenopodium rubrum	Coast blite	SC*
Coeloglossum viride	Long-bracted green orchid	E
Corallorhiza trifida	Early coral root	SC
Cryptogramma stelleri	Slender cliff-brake	E
Cuphea viscosissima	Blue waxweed	SC*
Cuscuta coryli	Hazel dodder	SC*
Cynoglossum virginianum	Wild comfrey	SC*
Cypripedium parviflorum	Yellow lady's-slipper	SC
Desmodium glabellum	Dillenius' tick-trefoil	SC
Dichanthelium xanthophysum	Panic grass	SC*
Diplazium pycnocarpon	Narrow-leaved glade fern	E
Draba reptans	Whitlow-grass	SC
Dryopteris goldiana	Goldie's fern	SC

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Plants

Scientific Name	Common Name	Protection Status
Eleocharis quadrangulata var. crassior	Spike-rush	E
Elymus wiegandii	Wiegand's wild rye	SC
Equisetum pratense	Meadow horsetail	E
Eriocaulon parkeri	Parker's pipewort	E
Eurybia x herveyi	Hervey's aster	SC
Floerkea proserpinacoides	False mermaid-weed	E
Gaylussacia dumosa var. bigeloviana	Dwarf huckleberry	T
Gentianella quinquefolia	Stiff gentian	E
Hasteola suaveolens	Sweet-scented Indian-plantain	E
Heteranthera reniformis	Kidneyleaf mud-plantain	SC*
Honckenya peploides	Seabeach sandwort	SC
Hottonia inflata	Featherfoil	SC
Hudsonia tomentosa	False beach-heather	T
Hydrastis canadensis	Golden seal	E
Hydrophyllum virginianum	Virginia waterleaf	SC
Hypericum ascyron	Great St. John's-wort	SC
Isotria medeoloides	Small whorled pogonia	E
Juncus debilis	Weak rush	SC*
Krigia biflora	Two-flowered cynthia	SC
Leptochloa fusca ssp. fascicularis	Saltpond Grass	E
Lespedeza repens	Creeping bush-clover	SC
Liatris scariosa var. novae-angliae	Blazing-star	SC
Limosella australis	Mudwort	SC
Linum sulcatum	Yellow flax	E
Liquidambar styraciflua	Sweet gum	SC
Lyonia mariana	Stagger-bush	SC*
Malaxis unifolia	Green adder's-mouth	E

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Plants

Scientific Name	Common Name	Protection Status
Nuphar advena	Large yellow pond lily	SC*
Nuphar microphylla	Small yellow pond lily	SC
Oenothera fruticosa	Sundrops	SC*
Onosmodium virginianum	Gravel-weed	E
Opuntia humifusa	Eastern prickly pear	SC
Orontium aquaticum	Golden club	SC
Orthilia secunda	One-sided pyrola	SC*
Panax quinquefolius	American ginseng	SC
Panicum amarum	Panic grass	T
Paronychia fastigiata	Hairy forked chickweed	SC*
Phaseolus polystachios var. polystachios	Wild kidney bean	SC*
Pityopsis falcata	Sickle-leaved golden aster	E
Platanthera ciliaris	Yellow-fringed orchid	T
Platanthera flava var. herbiola	Pale green orchid	SC
Platanthera hookeri	Hooker's orchid	SC*
Podostemum ceratophyllum	Threadfoot	SC
Polygala cruciata	Field milkwort	E
Polygala senega	Seneca snakeroot	E
Potentilla arguta	Tall cinquefoil	SC
Prunus alleghaniensis	Alleghany plum	SC*
Ranunculus ambigens	Water-plantain spearwort	E
Ranunculus pensylvanicus	Bristly buttercup	SC*
Ribes rotundifolium	Wild currant	SC
Rotala ramosior	Toothcup	T
Sabatia stellaris	Marsh pink	E
Sagittaria subulata	Arrowleaf	SC
Salix pedicellaris	Bog willow	E
Salix petiolaris	Slender willow	SC

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Plants

Scientific Name	Common Name	Protection Status
Salix serissima	Autumn willow	SC
Saururus cernuus	Lizard's tail	E
Schoenoplectus acutus	Hard-stemmed bulrush	T
Scleria triglomerata	Nutrush	E
Senna hebecarpa	Wild senna	SC
Silene stellata	Starry champion	T
Sporobolus clandestinus	Rough dropseed	E
Sporobolus cryptandrus	Sand dropseed	T
Sporobolus neglectus	Small dropseed	E
Stellaria borealis	Northern stitchwort	SC
Symphyotrichum prenanthoides	Crooked-stem aster	SC*
Taenidia integerrima	Yellow pimpernel	E
Thuja occidentalis	Northern white cedar	T
Triosteum angustifolium	Narrow-leaved horse gentian	E
Verbena simplex	Narrow-leaved vervain	SC*
Viburnum nudum	Possum haw	SC*
Viburnum prunifolium	Smooth black-haw	SC
Viola brittoniana	Coast violet	E
Viola hirsutula	Southern wood violet	SC*
Viola nephrophylla	Northern bog violet	SC
Vitis x novae-angliae	New England grape	SC
Waldsteinia fragarioides	Barren strawberry	E
Xyris montana	Northern yellow-eyed grass	T
Zizia aptera	Golden Alexanders	E

Reptiles

Scientific Name	Common Name	Protection Status
Caretta caretta	Loggerhead	T

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Fairfield County

Reptiles

Scientific Name	Common Name	Protection Status
Chelonia mydas	Atlantic green turtle	T
Crotalus horridus	Timber rattlesnake	E
Dermochelys coriacea	Leatherback	E
Glyptemys insculpta	Wood turtle	SC
Glyptemys muhlenbergii	Bog turtle	E
Heterodon platirhinos	Eastern hognose snake	SC
Lepidochelys kempii	Atlantic ridley	E
Liochlorophis vernalis	Smooth green snake	SC
Terrapene carolina carolina	Eastern box turtle	SC
Thamnophis sauritus	Eastern ribbon snake	SC

E = Endangered, T = Threatened, SC = Special Concern, * Believed Extirpated

State of Connecticut
Department of Energy and Environmental Protection
Bureau of Natural Resources, Wildlife Division
79 Elm St., Hartford, CT 06106

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Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Stage
Birds	Piping Plover (Charadrius	except Great Lakes watershed	Threatened	Office Of The Regional Director	Great Lakes & Northern Great	Final
Birds	Piping Plover (Charadrius	except Great Lakes watershed	Threatened	Office Of The Regional Director	Piping Plover Atlantic Coast	Final Revision 1
Reptiles	Hawksbill sea turtle		Endangered	North Florida Ecological	Recovery Plan for the Hawksbill	Final Revision 1
Reptiles	Hawksbill sea turtle		Endangered	North Florida Ecological	Recovery Plan for U.S. Pacific	Final Revision 1
Reptiles	Leatherback sea turtle		Endangered	North Florida Ecological	Recovery Plan for U.S. Pacific	Final Revision 1
Reptiles	Leatherback sea turtle		Endangered	North Florida Ecological	Recovery Plan for Leatherback	Final Revision 1
Reptiles	Green sea turtle (Chelonia	except where endangered	Threatened	North Florida Ecological	Recovery Plan for U.S. Pacific	Final Revision 1
Reptiles	Green sea turtle (Chelonia	except where endangered	Threatened	North Florida Ecological	Recovery Plan for U.S.	Final Revision 1
Reptiles	Bog (=Muhlenberg) turtle	northern	Threatened	Assistant Regional Director-	Recovery Plan for the Bog	Final

U.S. Fish and Wildlife Service

National Wetlands Inventory

Greenwich High School Site

Aug 27, 2012

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Status

- Digital
- Scan
- Non-Digital
- No Data

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

Cider Mill Pond designated as PUBHh

PUBH/PUBHh – Cider Mill Pond is approximately 0.77 acres (0.31 hectares) in size and is designated as PUBHh per NWI Mapper (accessed on line August 27, 2012 at: http://www.fws.gov/wetlands/Data/Mapper.html) . Other hydraulically connected off-site and downstream water bodies include the unnamed pond adjacent to the Millbrook County Club that carries the same NWI designation. A small pond (ca 0.31 acres, PUBH) associated with East Brothers Brook (not hydraulically connected to West Brothers Brook) is present above the confluence of site-related West Brothers Brook with East Brothers Brook (just to south of East Putnam Avenue).

P System **PALUSTRINE**: The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, emergents, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are also included if they exhibit all of the following characteristics: 1. are less than 8 hectares (20 acres); 2. do not have an active wave-formed or bedrock shoreline feature; 3. have at low water a depth less than 2 meters (6.6 feet) in the deepest part of the basin; 4. have a salinity due to ocean-derived salts of less than 0.5 ppt.

Subsystem :

UB Class **UNCONSOLIDATED BOTTOM**: Includes all wetlands and deepwater habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.

Subclass :

Modifier(s):

H WATER REGIME **Permanently Flooded**: Water covers the land surface throughout the year in all years.

h SPECIAL MODIFIER **Diked/Impounded**: These wetlands have been created or modified by a man-made barrier or dam which obstructs the inflow or outflow of water. The descriptors 'diked' and 'impounded' have been combined into a single modifier since the observed effect on wetlands is similar. They have been combined here due to image interpretation limitations. For clarification of the extent of impoundment see discussion of Lacustrine System limits.

Appendix C

Analytical Data Summary

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Table C-1
Summary of Surface Water Analytical Data

				AOC	AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW	
				Location Name	AS10-SW12		AL9-SW11		AL8-SW06		W5A-SW10		W5-SW05		O14-SW04		O14A-SW09		T20-SW08		N24-SW07		G27-SW03	
				Sample Name	AS10-SW-12		AL9-SW-11		AL8-SW06-0.5-122911		W5A-SW-10		W5-SW05-0.6-122911		O14-SW04-0.6-122911		O14A-SW-09		T-20-SW-08		N-24-SW-07		G27-SW03-0.6-122811	
				Sample Date	7/19/2012		7/19/2012		12/29/2011		7/19/2012		12/29/2011		12/29/2011		7/19/2012		7/19/2012		7/19/2012		12/28/2011	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**																				
Vanadium	7440-62-2	ug/l	6010B	D	< 5.0		< 5.0		NA		< 5.0		NA		NA		< 5.0		< 5.0		< 5.0		NA	
PH	PH	ug/l	A423	T	**7.29**		**7.25**		NA		**7.1**		NA		NA		**6.95**		**6.8**		**6.72**		NA	
Dissolved Organic Carbon	DOC	ug/l	A5310B	T	NA		NA		**3390**	J-	NA		**3200**	J	**3360**	J-	NA		NA		NA		**3420**	J-
Decachlorobiphenyl (PCB-209)	2051-24-3	ug/l	E680	N	< 0.0284		< 0.025		NA		< 0.0269		NA		NA		< 0.025		< 0.025		< 0.025		NA	
Dichlorobiphenyl	25512-42-9	ug/l	E680	N	< 0.00568	J	< 0.005	J	NA		< 0.00538	J	NA		NA		< 0.005	J	< 0.005	J	< 0.005	J	NA	
Heptachlorobiphenyl	28655-71-2	ug/l	E680	N	< 0.017		< 0.015		NA		< 0.0161		NA		NA		< 0.015		< 0.015		< 0.015		NA	
Hexachlorobiphenyl	26601-64-9	ug/l	E680	N	< 0.0114		< 0.01		NA		< 0.0108		NA		NA		< 0.01		< 0.01		< 0.01		NA	
Monochlorobiphenyl	27323-18-8	ug/l	E680	N	< 0.00568	J	< 0.005	J	NA		< 0.00538	J	NA		NA		< 0.005	J	< 0.005	J	< 0.005	J	NA	
Nonachlorobiphenyl	53742-07-7	ug/l	E680	N	< 0.0284		< 0.025		NA		< 0.0269		NA		NA		< 0.025		< 0.025		< 0.025		NA	
Octachlorobiphenyl	55722-26-4	ug/l	E680	N	< 0.017		< 0.015		NA		< 0.0161		NA		NA		< 0.015		< 0.015		< 0.015		NA	
Pentachlorobiphenyl	25429-29-2	ug/l	E680	N	< 0.0114		< 0.01		NA		< 0.0108		NA		NA		< 0.01		< 0.01		< 0.01		NA	
Tetrachlorobiphenyl	26914-33-0	ug/l	E680	N	< 0.0114		< 0.01		NA		< 0.0108		NA		NA		< 0.01		< 0.01		< 0.01		NA	
Total PCB	1336-36-3	ug/l	E680	N	< 0.0284		< 0.025		NA		< 0.0269		NA		NA		< 0.025		< 0.025		< 0.025		NA	
Total PCB Homologues	RACALC-PCB-H	ug/l	E680	N	< 0.0284		< 0.025		NA		< 0.0269		NA		NA		< 0.025		< 0.025		< 0.025		NA	
Trichlorobiphenyl	25323-68-6	ug/l	E680	N	< 0.00568		< 0.005		NA		< 0.00538		NA		NA		< 0.005		< 0.005		< 0.005		NA	
Total Suspended Solids	TSS	ug/l	SM2540D	T	NA		NA		**6000**		NA		< 5000		< 5000		NA		NA		NA		**8000**	
Total Organic Carbon	TOC	ug/l	SM5310B	T	NA		NA		**3460**	J-	NA		**3500**	J-	**3380**	J-	NA		NA		NA		**3940**	
Antimony	7440-36-0	ug/l	SW6010	D	< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0	
Antimony	7440-36-0	ug/l	SW6010	T	< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0	
Arsenic	7440-38-2	ug/l	SW6010	D	< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0	
Arsenic	7440-38-2	ug/l	SW6010	T	< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0	
Barium	7440-39-3	ug/l	SW6010	D	**79.8**		**79.8**		**71.6**		**77.2**		**72**		**72.7**		**85.8**		**80.3**		**80.4**		**73**	
Barium	7440-39-3	ug/l	SW6010	T	**83.6**		**83.7**		**73.9**		**82.2**		**72.2**		**73.4**		**85.2**		**85.2**		**88.2**		**80.2**	
Beryllium	7440-41-7	ug/l	SW6010	D	< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0	
Beryllium	7440-41-7	ug/l	SW6010	T	< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0	
Cadmium	7440-43-9	ug/l	SW6010	D	< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5	
Cadmium	7440-43-9	ug/l	SW6010	T	< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5	
Chromium	7440-47-3	ug/l	SW6010	D	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Chromium	7440-47-3	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Copper	7440-50-8	ug/l	SW6010	D	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Copper	7440-50-8	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		**5.4**		< 5.0		< 5.0		< 5.0	
Lead	7439-92-1	ug/l	SW6010	D	< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5	
Lead	7439-92-1	ug/l	SW6010	T	< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5	
Nickel	7440-02-0	ug/l	SW6010	D	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Nickel	7440-02-0	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Selenium	7782-49-2	ug/l	SW6010	D	< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0	
Selenium	7782-49-2	ug/l	SW6010	T	< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0	
Silver	7440-22-4	ug/l	SW6010	D	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Silver	7440-22-4	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Thallium	7440-28-0	ug/l	SW6010	D	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Thallium	7440-28-0	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Vanadium	7440-62-2	ug/l	SW6010	D	NA		NA		< 5.0		NA		< 5.0		< 5.0		NA		NA		NA		< 5.0	
Vanadium	7440-62-2	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Zinc	7440-66-6	ug/l	SW6010	D	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		**6**	
Zinc	7440-66-6	ug/l	SW6010	T	< 5.0		< 5.0		**8.2**		< 5.0		**7.6**		**5.9**		< 5.0		< 5.0		< 5.0		**12.7**	
Mercury	7439-97-6	ug/l	SW7470A	D	< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20	
Mercury	7439-97-6	ug/l	SW7470A	T	< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20	
4,4-DDD (p,p)	72-54-8	ug/l	SW8081	N	< 0.004		< 0.004		NA		< 0.004		NA		NA		< 0.004		< 0.004		< 0.004		NA	
4,4-DDE (p,p)	72-55-9	ug/l	SW8081	N	< 0.002		**0.002**		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
4,4-DDT (p,p)	50-29-3	ug/l	SW8081	N	< 0.004		< 0.004		NA		< 0.004		NA		NA		< 0.004		< 0.004		< 0.004		NA	
Alachlor	15972-60-8	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
Aldrin	309-00-2	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
alpha-Chlordane	5103-71-9	ug/l	SW8081	N	< 0.002		**0.003**		NA		< 0.002		NA		NA		< 0.002		< 0.002		**0.003**		NA	
Camphechlor	8001-35-2	ug/l	SW8081	N	< 0.054		< 0.053		NA		< 0.054		NA		NA		< 0.053		< 0.052		< 0.053		NA	
Chlordane	57-74-9	ug/l	SW8081	N	**0.027**		**0.027**		NA		**0.027**		NA		NA		**0.018**		**0.021**		**0.027**		NA	
delta-BHC	319-86-8	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
Dieldrin	60-57-1	ug/l	SW8081	N	< 0.002		**0.002**		NA		**0.002**		NA		NA		**0.002**		< 0.002		< 0.002		NA	
Endosulfan I	959-98-8	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
Endosulfan II	33213-65-9	ug/l	SW8081	N	< 0.004		< 0.004		NA		< 0.004		NA		NA		< 0.004		< 0.004		< 0.004		NA	
Endosulfan sulfate	1031-07-8	ug/l	SW8081	N	< 0.004		< 0.004		NA		< 0.004		NA		NA		< 0.004		< 0.004		< 0.004		NA	
Endrin	72-20-8	ug/l	SW8081	N	< 0.004		< 0.004		NA		< 0.004		NA		NA		< 0.004		< 0.004		< 0.004		NA	
Endrin aldehyde	7421-93-4	ug/l	SW8081	N	< 0.004		< 0.004		NA		< 0.004		NA		NA		< 0.004		< 0.004		< 0.004		NA	
Endrin ketone	53494-70-5	ug/l	SW8081	N	< 0.004		< 0.004		NA		< 0.004		NA		NA		< 0.004		< 0.004		< 0.004		NA	
gamma-Chlordane	5103-74-2	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
Heptachlor	76-44-8	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
Heptachlor epoxide	1024-57-3	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
Hexachlorocyclohexane, alpha	319-84-6	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
Hexachlorocyclohexane, beta	319-85-7	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	ug/l	SW8081	N	< 0.002		< 0.002		NA		< 0.002		NA		NA		< 0.002		< 0.002		< 0.002		NA	
Methoxychlor	72-43-5	ug/l	SW8081	N	< 0.004		< 0.004		NA		< 0.004		NA		NA		< 0.004		< 0.004		< 0.004		NA	
Total DDx	RACALC-DDx	ug/l	SW8081	N	< 0.004		**0.002**		NA		< 0.004		NA		NA		< 0.004		< 0.004		< 0.004		NA	

Table C-1
Summary of Surface Water Analytical Data

				AOC	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW
				Location Name	AS10-SW12	AL9-SW11	AL8-SW06	W5A-SW10	W5-SW05	O14-SW04	O14A-SW09	T20-SW08	N24-SW07	G27-SW03
				Sample Name	AS10-SW-12	AL9-SW-11	AL8-SW06-0.5-122911	W5A-SW-10	W5-SW05-0.6-122911	O14-SW04-0.6-122911	O14A-SW-09	T-20-SW-08	N-24-SW-07	G27-SW03-0.6-122811
				Sample Date	7/19/2012	7/19/2012	12/29/2011	7/19/2012	12/29/2011	12/29/2011	7/19/2012	7/19/2012	7/19/2012	12/28/2011
				Sample Type	N	N	N	N	N	N	N	N	N	N
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**										
Total Endosulfans	RACALC-ENDO	ug/l	SW8081	N	< 0.004	< 0.004	NA	< 0.004	NA	NA	< 0.004	< 0.004	< 0.004	NA
Aroclor 1016	12674-11-2	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
Aroclor 1221	11104-28-2	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
Aroclor 1232	11141-16-5	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
Aroclor 1242	53469-21-9	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
Aroclor 1248	12672-29-6	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
Aroclor 1254	11097-69-1	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
Aroclor 1260	11096-82-5	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
Aroclor 1262	37324-23-5	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
Aroclor 1268	11100-14-4	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
Total PCB Aroclors	RACALC-PCB	ug/l	SW8082	N	NA	NA	< 0.211	NA	< 0.211	< 0.208	NA	NA	NA	< 0.213
1,1,1,2-Tetrachloroethane	630-20-6	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,1,1-Trichloroethane	71-55-6	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,1,2,2-Tetrachloroethane	79-34-5	ug/l	SW8260	N	< 0.50	< 0.50	NA	< 0.50	NA	NA	< 0.50	< 0.50	< 0.50	NA
1,1,2-Trichloroethane	79-00-5	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,1-Dichloroethane	75-34-3	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,1-Dichloroethylene	75-35-4	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,1-Dichloropropene	563-58-6	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,2,3-Trichlorobenzene	87-61-6	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,2,3-Trichloropropane	96-18-4	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,2,4-Trimethylbenzene	95-63-6	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,2-Dibromo-3-chloropropane	96-12-8	ug/l	SW8260	N	< 2.00	< 2.00	NA	< 2.00	NA	NA	< 2.00	< 2.00	< 2.00	NA
1,2-Dibromoethane	106-93-4	ug/l	SW8260	N	< 0.50	< 0.50	NA	< 0.50	NA	NA	< 0.50	< 0.50	< 0.50	NA
1,2-Dichlorobenzene	95-50-1	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,2-Dichloroethane	107-06-2	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,2-Dichloropropane	78-87-5	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,3,5-Trichlorobenzene	108-70-3	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,3,5-Trimethylbenzene	108-67-8	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,3-Dichloropropane	142-28-9	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,4-Dichlorobenzene	106-46-7	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
1,4-Dioxane	123-91-1	ug/l	SW8260	N	< 20.0	< 20.0	NA	< 20.0	NA	NA	< 20.0	< 20.0	< 20.0	NA
2,2-Dichloropropane	594-20-7	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00 J	< 1.00	< 1.00	NA
2-Butanone (MEK)	78-93-3	ug/l	SW8260	N	< 10.0	< 10.0	NA	< 10.0	NA	NA	< 10.0	< 10.0	< 10.0	NA
2-Hexanone	591-78-6	ug/l	SW8260	N	< 10.0	< 10.0	NA	< 10.0	NA	NA	< 10.0	< 10.0	< 10.0	NA
Acetone	67-64-1	ug/l	SW8260	N	< 10.0	< 10.0	NA	< 10.0	NA	NA	< 10.0	< 10.0	< 10.0	NA
Acrylonitrile	107-13-1	ug/l	SW8260	N	< 0.50 J	< 0.50 J	NA	< 0.50 J	NA	NA	< 0.50 J	< 0.50 J	< 0.50 J	NA
Benzene	71-43-2	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Bromobenzene	108-86-1	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Bromochloromethane	74-97-5	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Bromodichloromethane	75-27-4	ug/l	SW8260	N	< 0.50	< 0.50	NA	< 0.50	NA	NA	< 0.50	< 0.50	< 0.50	NA
Bromoform	75-25-2	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Bromomethane	74-83-9	ug/l	SW8260	N	< 2.00	< 2.00	NA	< 2.00	NA	NA	< 2.00	< 2.00	< 2.00	NA
Carbon disulfide	75-15-0	ug/l	SW8260	N	< 2.00	< 2.00	NA	< 2.00	NA	NA	< 2.00	< 2.00	< 2.00	NA
Carbon tetrachloride	56-23-5	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Chlorobenzene	108-90-7	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Chloroethane	75-00-3	ug/l	SW8260	N	< 2.00	< 2.00	NA	< 2.00	NA	NA	< 2.00	< 2.00	< 2.00	NA
Chloroform	67-66-3	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Chloromethane	74-87-3	ug/l	SW8260	N	< 2.00	< 2.00	NA	< 2.00	NA	NA	< 2.00	< 2.00	< 2.00	NA
cis-1,2-Dichloroethylene	156-59-2	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
cis-1,3-Dichloropropene	10061-01-5	ug/l	SW8260	N	< 0.50	< 0.50	NA	< 0.50	NA	NA	< 0.50	< 0.50	< 0.50	NA
Dibromochloromethane	124-48-1	ug/l	SW8260	N	< 0.50	< 0.50	NA	< 0.50	NA	NA	< 0.50	< 0.50	< 0.50	NA
Dichlorodifluoromethane	75-71-8	ug/l	SW8260	N	< 2.00 J	< 2.00 J	NA	< 2.00 J	NA	NA	< 2.00 J	< 2.00 J	< 2.00 J	NA
Diisopropyl ether (DIPE)	108-20-3	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Ethanol	64-17-5	ug/l	SW8260	N	< 400	< 400	NA	< 400	NA	NA	< 400	< 400	< 400	NA
Ethyl ether	60-29-7	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Ethylbenzene	100-41-4	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Ethyl-t-butyl ether (ETBE)	637-92-3	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Freon 113	76-13-1	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8260	N	< 0.50	< 0.50	NA	< 0.50	NA	NA	< 0.50	< 0.50	< 0.50	NA
Isopropylbenzene	98-82-8	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
m,p-Xylenes	1330-20-7-M,P	ug/l	SW8260	N	< 2.00	< 2.00	NA	< 2.00	NA	NA	< 2.00	< 2.00	< 2.00	NA
m-Dichlorobenzene	541-73-1	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Methyl Isobutyl Ketone	108-10-1	ug/l	SW8260	N	< 10.0	< 10.0	NA	< 10.0	NA	NA	< 10.0	< 10.0	< 10.0	NA
Methyl Tert Butyl Ether (MTBE)	1634-04-4	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Methylene bromide	74-95-3	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
Methylene chloride	75-09-2	ug/l	SW8260	N	< 2.00	< 2.00	NA	< 2.00	NA	NA	< 2.00	< 2.00	< 2.00	NA
Naphthalene	91-20-3	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
n-Butylbenzene	104-51-8	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
n-Propylbenzene	103-65-1	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA
o-Chlorotoluene	95-49-8	ug/l	SW8260	N	< 1.00	< 1.00	NA	< 1.00	NA	NA	< 1.00	< 1.00	< 1.00	NA

Table C-1
Summary of Surface Water Analytical Data

				AOC	AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW	
				Location Name	AS10-SW12		AL9-SW11		AL8-SW06		W5A-SW10		W5-SW05		O14-SW04		O14A-SW09		T20-SW08		N24-SW07		G27-SW03	
				Sample Name	AS10-SW-12		AL9-SW-11		AL8-SW06-0.5-122911		W5A-SW-10		W5-SW05-0.6-122911		O14-SW04-0.6-122911		O14A-SW-09		T-20-SW-08		N-24-SW-07		G27-SW03-0.6-122811	
				Sample Date	7/19/2012		7/19/2012		12/29/2011		7/19/2012		12/29/2011		12/29/2011		7/19/2012		7/19/2012		7/19/2012		12/28/2011	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																				
o-Xylene	95-47-6	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
p-Chlorotoluene	106-43-4	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
p-Isopropyltoluene	99-87-6	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
sec-Butylbenzene	135-98-8	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
Styrene	100-42-5	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
tert-Amyl Methyl Ether (TAME)	994-05-8	ug/l	SW8260	N	< 1.00	J	< 1.00	J	NA		< 1.00	J	NA		NA		< 1.00	J	< 1.00	J	< 1.00	J	NA	
Tert-butyl alcohol	75-65-0	ug/l	SW8260	N	< 10.0		< 10.0		NA		< 10.0		NA		NA		< 10.0		< 10.0		< 10.0		NA	
tert-butylbenzene	98-06-6	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
Tetrachloroethylene	127-18-4	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
Tetrahydrofuran	109-99-9	ug/l	SW8260	N	< 2.00		< 2.00		NA		< 2.00		NA		NA		< 2.00		< 2.00		< 2.00		NA	
Toluene	108-88-3	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
Total Xylenes	RACALC-XYL	ug/l	SW8260	N	< 2.00		< 2.00		NA		< 2.00		NA		NA		< 2.00		< 2.00		< 2.00		NA	
trans-1,2-Dichloroethylene	156-60-5	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
trans-1,3-Dichloropropene	10061-02-6	ug/l	SW8260	N	< 0.50		< 0.50		NA		< 0.50		NA		NA		< 0.50		< 0.50		< 0.50		NA	
Trans-1,4-Dichloro-2-Butene	110-57-6	ug/l	SW8260	N	< 5.00		< 5.00		NA		< 5.00		NA		NA		< 5.00		< 5.00		< 5.00		NA	
Trichloroethene	79-01-6	ug/l	SW8260	N	< 1.00		< 1.00		NA		< 1.00		NA		NA		< 1.00		< 1.00		< 1.00		NA	
Trichlorofluoromethane	75-69-4	ug/l	SW8260	N	< 1.00	J	< 1.00	J	NA		< 1.00	J	NA		NA		< 1.00	J	< 1.00	J	< 1.00	J	NA	
Vinyl chloride	75-01-4	ug/l	SW8260	N	< 1.00	J	< 1.00	J	NA		< 1.00	J	NA		NA		< 1.00	J	< 1.00	J	< 1.00	J	NA	
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
1,2-Dichlorobenzene	95-50-1	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
1,4-Dichlorobenzene	106-46-7	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2,4,5-Trichlorophenol	95-95-4	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2,4,6-Trichlorophenol	88-06-2	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2,4-Dichlorophenol	120-83-2	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2,4-Dimethylphenol	105-67-9	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2,4-Dinitrophenol	51-28-5	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2,4-Dinitrotoluene	121-14-2	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2,6-Dinitrotoluene	606-20-2	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2-Chloronaphthalene	91-58-7	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2-Chlorophenol	95-57-8	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2-Methylphenol	95-48-7	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2-Nitroaniline	88-74-4	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
2-Nitrophenol	88-75-5	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
3,3-Dichlorobenzidine	91-94-1	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26	J	< 5.38		< 5.15	J	< 5.15	J	< 5.21	J	< 5.15		< 5.15		< 5.21	J
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
3-Nitroaniline	99-09-2	ug/l	SW8270	N	< 5.21	J	< 5.38	J	< 5.26	J	< 5.38	J	< 5.15	J	< 5.15	J	< 5.21	J	< 5.15	J	< 5.15	J	< 5.21	
4,6-Dinitro-2-methylphenol	534-52-1	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
4-Bromophenyl phenyl ehter	101-55-3	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
4-Chloro-3-methylphenol	59-50-7	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
4-Chlorophenyl phenyl ehter	7005-72-3	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26	J	< 5.38		< 5.15	J	< 5.15	J	< 5.21		< 5.15		< 5.15		< 5.21	J
4-Methylphenol	106-44-5	ug/l	SW8270	N	< 10.4		< 10.8		< 10.5		< 10.8		< 10.3		< 10.3		< 10.4		< 10.3		< 10.3		< 10.4	
4-Nitrophenol	100-02-7	ug/l	SW8270	N	< 20.8		< 21.5		< 21.1	J	< 21.5		< 20.6	J	< 20.6	J	< 20.8		< 20.6		< 20.6		< 20.8	
Aniline	62-53-3	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Azobenzene	103-33-3	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Benzidine	92-87-5	ug/l	SW8270	N	< 5.21	J	< 5.38	J	NA		< 5.38	J	NA		NA		NA		< 5.15	J	< 5.15	J	NA	
Benzoic acid	65-85-0	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26	J	< 5.38		< 5.15	J	< 5.15	J	< 5.21	J	< 5.15		< 5.15		< 5.21	J
Benzyl alcohol	100-51-6	ug/l	SW8270	N	< 5.21	J	< 5.38	J	< 5.26		< 5.38	J	< 5.15		< 5.15		< 5.21	J	< 5.15	J	< 5.15	J	< 5.21	
Benzyl butyl phthalate	85-68-7	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Bis(2-chloroethoxy)methane	111-91-1	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Bis(2-chloroethyl)ether	111-44-4	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Bis(2-chloroisopropyl)ether	108-60-1	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Bis(2-ethylhexyl)phthalate	117-81-7	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Carbazole	86-74-8	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Dibenzofuran	132-64-9	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Diethy phthalate	84-66-2	ug/l	SW8270	N	< 5.21	J	< 5.38	J	< 5.26	J	< 5.38	J	< 5.15	J	< 5.15	J	< 5.21	J	< 5.15	J	< 5.15	J	< 5.21	J
Dimethyl phthalate	131-11-3	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26	J	< 5.38		< 5.15	J	< 5.15	J	< 5.21		< 5.15		< 5.15		< 5.21	
Di-n-butyl phthalate	84-74-2	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Di-n-octyl phthalate	117-84-0	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26	J	< 5.38		< 5.15	J	< 5.15	J	< 5.21		< 5.15		< 5.15		< 5.21	
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26	J	< 5.38		< 5.15	J	< 5.15	J	< 5.21		< 5.15		< 5.15		< 5.21	J
Hexachlorobenzene	118-74-1	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Hexachlorocyclopentadiene	77-47-4	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21	J	< 5.15		< 5.15		< 5.21	
Hexachloroethane	67-72-1	ug/l	SW8270	N	< 5.21	J	< 5.38	J	< 5.26		< 5.38	J	< 5.15		< 5.15		< 5.21	J	< 5.15	J	< 5.15	J	< 5.21	
m-Dichlorobenzene	541-73-1	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Methanamine, n-methyl-n-nitroso	62-75-9	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21	J	< 5.15		< 5.15		< 5.21	
Nitrobenzene	98-95-3	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
N-Nitroso-di-n-propylamine	621-64-7	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
N-Nitrosodiphenylamine	86-30-6	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26	J	< 5.38		< 5.15	J	< 5.15	J	< 5.21		< 5.15		< 5.15		< 5.21	
p-Chloroaniline	106-47-8	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26		< 5.38		< 5.15		< 5.15		< 5.21		< 5.15		< 5.15		< 5.21	
Pentachlornitrobenzene	82-68-8	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26	J	< 5.38		< 5.15	J	< 5.15	J	< 5.21		< 5.15		< 5.15		< 5.21	J
Pentachlorophenol	87-86-5	ug/l	SW8270	N	< 20.8		< 21.5		< 21.1	J	< 21.5		< 20.6	J	< 20.6	J	< 20.8		< 20.6		< 20.6		< 20.8	

Table C-1
Summary of Surface Water Analytical Data

				AOC	AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW	
				Location Name	AS10-SW12		AL9-SW11		AL8-SW06		W5A-SW10		W5-SW05		O14-SW04		O14A-SW09		T20-SW08		N24-SW07		G27-SW03	
				Sample Name	AS10-SW-12		AL9-SW-11		AL8-SW06-0.5-122911		W5A-SW-10		W5-SW05-0.6-122911		O14-SW04-0.6-122911		O14A-SW-09		T-20-SW-08		N-24-SW-07		G27-SW03-0.6-122811	
				Sample Date	7/19/2012		7/19/2012		12/29/2011		7/19/2012		12/29/2011		12/29/2011		7/19/2012		7/19/2012		7/19/2012		12/28/2011	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**																				
Phenol	108-95-2	ug/l	SW8270	N	< 5.21		< 5.38		< 5.26	J	< 5.38		< 5.15	J	< 5.15	J	< 5.21	J	< 5.15		< 5.15		< 5.21	J
p-Nitroaniline	100-01-6	ug/l	SW8270	N	< 20.8		< 21.5		< 21.1		< 21.5		< 20.6		< 20.6		< 20.8		< 20.6		< 20.6		< 20.8	J
Pyridine	110-86-1	ug/l	SW8270	N	< 5.21	J	< 5.38	J	< 5.26	J	< 5.38	J	< 5.15	J	< 5.15	J	< 5.21	J	< 5.15	J	< 5.15	J	< 5.21	J
1-Methylnaphthalene	90-12-0	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	J
2-Methylnaphthalene	91-57-6	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Acenaphthene	83-32-9	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Acenaphthylene	208-96-8	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Anthracene	120-12-7	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Benzo(a)anthracene	56-55-3	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Benzo(a)pyrene	50-32-8	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Benzo(b)fluoranthene	205-99-2	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Benzo(g,h,i)perylene	191-24-2	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Benzo(k)fluoranthene	207-08-9	ug/l	SW8270 SIM	N	< 0.050	J	< 0.050	J	< 0.050		< 0.050	J	< 0.050		< 0.050		< 0.050	J	< 0.050	J	< 0.050	J	< 0.050	
Chrysene	218-01-9	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Dibenzo(a,h)anthracene	53-70-3	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Fluoranthene	206-44-0	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		**0.059**		< 0.050		**0.056**		< 0.050		< 0.050		< 0.050	
Fluorene	86-73-7	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Naphthalene	91-20-3	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Phenanthrene	85-01-8	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Pyrene	129-00-0	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		**0.052**		< 0.050		< 0.050		< 0.050	
Total High Molecular Weight PAHs	RACALC-HPAH	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		**0.052**		< 0.050		< 0.050		< 0.050	
Total Low Molecular Weight PAHs	RACALC-LPAH	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		**0.059**		< 0.050		**0.056**		< 0.050		< 0.050		< 0.050	
Total PAHs	RACALC-PAH	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		**0.059**		< 0.050		**0.11**		< 0.050		< 0.050		< 0.050	

Table C-1
Summary of Surface Water Analytical Data

				AOC	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW
				Location Name	G27-SW03	G27A-SW06	F28-SW01	F28A-SW05	C28-SW02	C31-SW03	C31-SW03	A29-SW04	OUT-30-SW02	OUT-32-SW01
				Sample Name	G27-SW03-0.6-122811-2	G-27A-SW-06	F28-SW01-0.6-122811	F-28A-SW-05	C28-SW02-0.6-122711	C31-SW-03	C31-SW-03 DUP	A29-SW-04	OUT-30-SW-02	OUT-32-SW01
				Sample Date	12/28/2011	7/19/2012	12/28/2011	7/19/2012	12/27/2011	7/18/2012	7/18/2012	7/18/2012	7/18/2012	7/18/2012
				Sample Type	FD	N	N	N	N	N	FD	N	N	N
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**										
Vanadium	7440-62-2	ug/l	6010B	D	NA	< 5.0	NA	< 5.0	NA	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
PH	PH	ug/l	A423	T	NA	**6.57**	NA	**6.57**	NA	**7.35**	**7.35**	**6.88**	**7.02**	**7.13**
Dissolved Organic Carbon	DOC	ug/l	A5310B	T	**3890**	NA	**3980**	NA	**3040**	NA	NA	NA	NA	NA
Decachlorobiphenyl (PCB-209)	2051-24-3	ug/l	E680	N	NA	< 0.025	NA	< 0.025	NA	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Dichlorobiphenyl	25512-42-9	ug/l	E680	N	NA	< 0.005 J	NA	< 0.005 J	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlorobiphenyl	28655-71-2	ug/l	E680	N	NA	< 0.015	NA	< 0.015	NA	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015
Hexachlorobiphenyl	26601-64-9	ug/l	E680	N	NA	< 0.01	NA	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Monochlorobiphenyl	27323-18-8	ug/l	E680	N	NA	< 0.005 J	NA	< 0.005 J	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nonachlorobiphenyl	53742-07-7	ug/l	E680	N	NA	< 0.025	NA	< 0.025	NA	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Octachlorobiphenyl	55722-26-4	ug/l	E680	N	NA	< 0.015	NA	< 0.015	NA	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015
Pentachlorobiphenyl	25429-29-2	ug/l	E680	N	NA	< 0.01	NA	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorobiphenyl	26914-33-0	ug/l	E680	N	NA	< 0.01	NA	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PCB	1336-36-3	ug/l	E680	N	NA	< 0.025	NA	< 0.025	NA	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Total PCB Homologues	RACALC-PCB-H	ug/l	E680	N	NA	< 0.025	NA	< 0.025	NA	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Trichlorobiphenyl	25323-68-6	ug/l	E680	N	NA	< 0.005	NA	< 0.005	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Suspended Solids	TSS	ug/l	SM2540D	T	**7000**	NA	**5000**	NA	**8000**	NA	NA	NA	NA	NA
Total Organic Carbon	TOC	ug/l	SM5310B	T	**3990**	NA	**3930**	NA	**3330**	NA	NA	NA	NA	NA
Antimony	7440-36-0	ug/l	SW6010	D	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Antimony	7440-36-0	ug/l	SW6010	T	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Arsenic	7440-38-2	ug/l	SW6010	D	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Arsenic	7440-38-2	ug/l	SW6010	T	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Barium	7440-39-3	ug/l	SW6010	D	**71.1**	**103**	**71**	**86.9**	**93.6**	**106**	**105**	**95**	**92.4**	**93.4**
Barium	7440-39-3	ug/l	SW6010	T	**80.6**	**94.8**	**77.5**	**93.8**	**89.4**	**119**	**116**	**102**	**97.6**	**96.1**
Beryllium	7440-41-7	ug/l	SW6010	D	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Beryllium	7440-41-7	ug/l	SW6010	T	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Cadmium	7440-43-9	ug/l	SW6010	D	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Cadmium	7440-43-9	ug/l	SW6010	T	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Chromium	7440-47-3	ug/l	SW6010	D	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium	7440-47-3	ug/l	SW6010	T	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Copper	7440-50-8	ug/l	SW6010	D	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Copper	7440-50-8	ug/l	SW6010	T	< 5.0	**5.2**	< 5.0	**5.8**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Lead	7439-92-1	ug/l	SW6010	D	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5
Lead	7439-92-1	ug/l	SW6010	T	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5	< 7.5
Nickel	7440-02-0	ug/l	SW6010	D	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Nickel	7440-02-0	ug/l	SW6010	T	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Selenium	7782-49-2	ug/l	SW6010	D	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0
Selenium	7782-49-2	ug/l	SW6010	T	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0	< 15.0
Silver	7440-22-4	ug/l	SW6010	D	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Silver	7440-22-4	ug/l	SW6010	T	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Thallium	7440-28-0	ug/l	SW6010	D	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Thallium	7440-28-0	ug/l	SW6010	T	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vanadium	7440-62-2	ug/l	SW6010	D	< 5.0	NA	< 5.0	NA	< 5.0	NA	NA	NA	NA	NA
Vanadium	7440-62-2	ug/l	SW6010	T	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Zinc	7440-66-6	ug/l	SW6010	D	**5.1**	< 5.0	**6.6**	< 5.0	< 5.0	< 5.0	< 5.0	< 10.0	< 5.0	< 5.0
Zinc	7440-66-6	ug/l	SW6010	T	**6.1**	< 5.0	**6**	< 5.0	**6.7**	**11.8**	**11.2**	**5.6**	**7.4**	**5.8**
Mercury	7439-97-6	ug/l	SW7470A	D	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Mercury	7439-97-6	ug/l	SW7470A	T	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4,4-DDD (p,p)	72-54-8	ug/l	SW8081	N	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
4,4-DDE (p,p)	72-55-9	ug/l	SW8081	N	NA	**0.002**	NA	**0.002**	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
4,4-DDT (p,p)	50-29-3	ug/l	SW8081	N	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
Alachlor	15972-60-8	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Aldrin	309-00-2	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
alpha-Chlordane	5103-71-9	ug/l	SW8081	N	NA	< 0.002	NA	**0.003**	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Camphechlor	8001-35-2	ug/l	SW8081	N	NA	< 0.052	NA	< 0.054	NA	< 0.057	< 0.055	< 0.056	< 0.056	< 0.056
Chlordane	57-74-9	ug/l	SW8081	N	NA	**0.027**	NA	**0.03**	NA	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
delta-BHC	319-86-8	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Dieldrin	60-57-1	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Endosulfan I	959-98-8	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Endosulfan II	33213-65-9	ug/l	SW8081	N	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
Endosulfan sulfate	1031-07-8	ug/l	SW8081	N	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
Endrin	72-20-8	ug/l	SW8081	N	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
Endrin aldehyde	7421-93-4	ug/l	SW8081	N	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
Endrin ketone	53494-70-5	ug/l	SW8081	N	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
gamma-Chlordane	5103-74-2	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Heptachlor	76-44-8	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Heptachlor epoxide	1024-57-3	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Hexachlorocyclohexane, alpha	319-84-6	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Hexachlorocyclohexane, beta	319-85-7	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	ug/l	SW8081	N	NA	< 0.002	NA	< 0.002	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Methoxychlor	72-43-5	ug/l	SW8081	N	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
Total DDx	RACALC-DDx	ug/l	SW8081	N	NA	**0.002**	NA	**0.002**	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004

Table C-1
Summary of Surface Water Analytical Data

				AOC	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW
				Location Name	G27-SW03	G27A-SW06	F28-SW01	F28A-SW05	C28-SW02	C31-SW03	C31-SW03	A29-SW04	OUT-30-SW02	OUT-32-SW01
				Sample Name	G27-SW03-0.6-122811-2	G-27A-SW-06	F28-SW01-0.6-122811	F-28A-SW-05	C28-SW02-0.6-122711	C31-SW-03	C31-SW-03 DUP	A29-SW-04	OUT-30-SW-02	OUT-32-SW01
				Sample Date	12/28/2011	7/19/2012	12/28/2011	7/19/2012	12/27/2011	7/18/2012	7/18/2012	7/18/2012	7/18/2012	7/18/2012
				Sample Type	FD	N	N	N	N	N	FD	N	N	N
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**										
Total Endosulfans	RACALC-ENDO	ug/l	SW8081	N	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
Aroclor 1016	12674-11-2	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
Aroclor 1221	11104-28-2	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
Aroclor 1232	11141-16-5	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
Aroclor 1242	53469-21-9	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
Aroclor 1248	12672-29-6	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
Aroclor 1254	11097-69-1	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
Aroclor 1260	11096-82-5	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
Aroclor 1262	37324-23-5	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
Aroclor 1268	11100-14-4	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
Total PCB Aroclors	RACALC-PCB	ug/l	SW8082	N	< 0.208	NA	< 0.220	NA	< 0.208	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	630-20-6	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,1,1-Trichloroethane	71-55-6	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,1,2,2-Tetrachloroethane	79-34-5	ug/l	SW8260	N	NA	< 0.50	NA	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-Trichloroethane	79-00-5	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,1-Dichloroethane	75-34-3	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,1-Dichloroethylene	75-35-4	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,1-Dichloropropene	563-58-6	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2,3-Trichlorobenzene	87-61-6	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2,3-Trichloropropane	96-18-4	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2,4-Trimethylbenzene	95-63-6	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2-Dibromo-3-chloropropane	96-12-8	ug/l	SW8260	N	NA	< 2.00	NA	< 2.00	NA	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
1,2-Dibromoethane	106-93-4	ug/l	SW8260	N	NA	< 0.50	NA	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	95-50-1	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2-Dichloroethane	107-06-2	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2-Dichloropropane	78-87-5	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3,5-Trichlorobenzene	108-70-3	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3,5-Trimethylbenzene	108-67-8	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3-Dichloropropane	142-28-9	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,4-Dichlorobenzene	106-46-7	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,4-Dioxane	123-91-1	ug/l	SW8260	N	NA	< 20.0	NA	< 20.0	NA	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0
2,2-Dichloropropane	594-20-7	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00 J	< 1.00 J	< 1.00 J	< 1.00 J	< 1.00 J
2-Butanone (MEK)	78-93-3	ug/l	SW8260	N	NA	< 10.0	NA	< 10.0	NA	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
2-Hexanone	591-78-6	ug/l	SW8260	N	NA	< 10.0	NA	< 10.0	NA	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Acetone	67-64-1	ug/l	SW8260	N	NA	< 10.0	NA	< 10.0	NA	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Acrylonitrile	107-13-1	ug/l	SW8260	N	NA	< 0.50 J	NA	< 0.50 J	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzene	71-43-2	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bromobenzene	108-86-1	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bromochloromethane	74-97-5	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bromodichloromethane	75-27-4	ug/l	SW8260	N	NA	< 0.50	NA	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	75-25-2	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bromomethane	74-83-9	ug/l	SW8260	N	NA	< 2.00	NA	< 2.00	NA	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
Carbon disulfide	75-15-0	ug/l	SW8260	N	NA	< 2.00	NA	< 2.00	NA	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
Carbon tetrachloride	56-23-5	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Chlorobenzene	108-90-7	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Chloroethane	75-00-3	ug/l	SW8260	N	NA	< 2.00	NA	< 2.00	NA	< 2.00 J	< 2.00 J	< 2.00 J	< 2.00 J	< 2.00 J
Chloroform	67-66-3	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Chloromethane	74-87-3	ug/l	SW8260	N	NA	< 2.00	NA	< 2.00	NA	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
cis-1,2-Dichloroethylene	156-59-2	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
cis-1,3-Dichloropropene	10061-01-5	ug/l	SW8260	N	NA	< 0.50	NA	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	124-48-1	ug/l	SW8260	N	NA	< 0.50	NA	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	75-71-8	ug/l	SW8260	N	NA	< 2.00 J	NA	< 2.00 J	NA	< 2.00 J	< 2.00 J	< 2.00 J	< 2.00 J	< 2.00 J
Diisopropyl ether (DIPE)	108-20-3	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Ethanol	64-17-5	ug/l	SW8260	N	NA	< 400	NA	< 400	NA	< 400	< 400	< 400	< 400	< 400
Ethyl ether	60-29-7	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Ethylbenzene	100-41-4	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Ethyl-t-butyl ether (ETBE)	637-92-3	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00 J	< 1.00 J	< 1.00 J	< 1.00 J	< 1.00 J
Freon 113	76-13-1	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8260	N	NA	< 0.50	NA	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Isopropylbenzene	98-82-8	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
m,p-Xylenes	1330-20-7-M,P	ug/l	SW8260	N	NA	< 2.00	NA	< 2.00	NA	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
m-Dichlorobenzene	541-73-1	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Methyl Isobutyl Ketone	108-10-1	ug/l	SW8260	N	NA	< 10.0	NA	< 10.0	NA	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Methyl Tert Butyl Ether (MTBE)	1634-04-4	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Methylene bromide	74-95-3	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Methylene chloride	75-09-2	ug/l	SW8260	N	NA	< 2.00	NA	< 2.00	NA	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
Naphthalene	91-20-3	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
n-Butylbenzene	104-51-8	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00 J	< 1.00 J	< 1.00 J	< 1.00 J	< 1.00 J
n-Propylbenzene	103-65-1	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
o-Chlorotoluene	95-49-8	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

Table C-1
Summary of Surface Water Analytical Data

				AOC	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW
				Location Name	G27-SW03	G27A-SW06	F28-SW01	F28A-SW05	C28-SW02	C31-SW03	C31-SW03	A29-SW04	OUT-30-SW02	OUT-32-SW01
				Sample Name	G27-SW03-0.6-122811-2	G-27A-SW-06	F28-SW01-0.6-122811	F-28A-SW-05	C28-SW02-0.6-122711	C31-SW-03	C31-SW-03 DUP	A29-SW-04	OUT-30-SW-02	OUT-32-SW01
				Sample Date	12/28/2011	7/19/2012	12/28/2011	7/19/2012	12/27/2011	7/18/2012	7/18/2012	7/18/2012	7/18/2012	7/18/2012
				Sample Type	FD	N	N	N	N	N	FD	N	N	N
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**										
o-Xylene	95-47-6	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
p-Chlorotoluene	106-43-4	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
p-Isopropyltoluene	99-87-6	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
sec-Butylbenzene	135-98-8	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Styrene	100-42-5	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
tert-Amyl Methyl Ether (TAME)	994-05-8	ug/l	SW8260	N	NA	< 1.00 J	NA	< 1.00 J	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Tert-butyl alcohol	75-65-0	ug/l	SW8260	N	NA	< 10.0	NA	< 10.0	NA	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
tert-butylbenzene	98-06-6	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Tetrachloroethylene	127-18-4	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Tetrahydrofuran	109-99-9	ug/l	SW8260	N	NA	< 2.00	NA	< 2.00	NA	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
Toluene	108-88-3	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Total Xylenes	RACALC-XYL	ug/l	SW8260	N	NA	< 2.00	NA	< 2.00	NA	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
trans-1,2-Dichloroethylene	156-60-5	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
trans-1,3-Dichloropropene	10061-02-6	ug/l	SW8260	N	NA	< 0.50	NA	< 0.50	NA	< 0.50 J	< 0.50 J	< 0.50 J	< 0.50 J	< 0.50 J
Trans-1,4-Dichloro-2-Butene	110-57-6	ug/l	SW8260	N	NA	< 5.00	NA	< 5.00	NA	< 5.00 J	< 5.00 J	< 5.00 J	< 5.00 J	< 5.00 J
Trichloroethene	79-01-6	ug/l	SW8260	N	NA	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Trichlorofluoromethane	75-69-4	ug/l	SW8260	N	NA	< 1.00 J	NA	< 1.00 J	NA	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Vinyl chloride	75-01-4	ug/l	SW8260	N	NA	< 1.00 J	NA	< 1.00 J	NA	< 1.00 J	< 1.00 J	< 1.00 J	< 1.00 J	< 1.00 J
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
1,2-Dichlorobenzene	95-50-1	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
1,4-Dichlorobenzene	106-46-7	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2,4,5-Trichlorophenol	95-95-4	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2,4,6-Trichlorophenol	88-06-2	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2,4-Dichlorophenol	120-83-2	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2,4-Dimethylphenol	105-67-9	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2,4-Dinitrophenol	51-28-5	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10 J	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2,4-Dinitrotoluene	121-14-2	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2,6-Dinitrotoluene	606-20-2	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2-Chloronaphthalene	91-58-7	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2-Chlorophenol	95-57-8	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2-Methylphenol	95-48-7	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2-Nitroaniline	88-74-4	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
2-Nitrophenol	88-75-5	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
3,3-Dichlorobenzidine	91-94-1	ug/l	SW8270	N	< 5.43 J	< 5.15	< 5.32 J	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
3-Nitroaniline	99-09-2	ug/l	SW8270	N	< 5.43	< 5.15 J	< 5.32	< 5.15 J	< 5.10 J	< 5.32 J	< 5.56 J	< 5.38 J	< 5.32 J	< 5.32 J
4,6-Dinitro-2-methylphenol	534-52-1	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
4-Bromophenyl phenyl ehter	101-55-3	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
4-Chloro-3-methylphenol	59-50-7	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
4-Chlorophenyl phenyl ehter	7005-72-3	ug/l	SW8270	N	< 5.43 J	< 5.15	< 5.32 J	< 5.15	< 5.10 J	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
4-Methylphenol	106-44-5	ug/l	SW8270	N	< 10.9	< 10.3	< 10.6	< 10.3	< 10.2	< 10.6	< 11.1	< 10.8	< 10.6	< 10.6
4-Nitrophenol	100-02-7	ug/l	SW8270	N	< 21.7	< 20.6	< 21.3	< 20.6	< 20.4	< 21.3	< 22.2	< 21.5	< 21.3	< 21.3
Aniline	62-53-3	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Azobenzene	103-33-3	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Benzidine	92-87-5	ug/l	SW8270	N	NA	< 5.15 J	NA	< 5.15 J	< 5.10	NA	NA	NA	NA	NA
Benzoic acid	65-85-0	ug/l	SW8270	N	< 5.43 J	< 5.15	< 5.32 J	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Benzyl alcohol	100-51-6	ug/l	SW8270	N	< 5.43	< 5.15 J	< 5.32	< 5.15 J	< 5.10	< 5.32 J	< 5.56 J	< 5.38 J	< 5.32 J	< 5.32 J
Benzyl butyl phthalate	85-68-7	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Bis(2-chloroethoxy)methane	111-91-1	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Bis(2-chloroethyl)ether	111-44-4	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Bis(2-chloroisopropyl)ether	108-60-1	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Bis(2-ethylhexyl)phthalate	117-81-7	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	**10.8**	< 5.56	< 5.38	< 5.32	< 5.32
Carbazole	86-74-8	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Dibenzofuran	132-64-9	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Diethy phthalate	84-66-2	ug/l	SW8270	N	< 5.43 J	< 5.15 J	< 5.32 J	< 5.15 J	< 5.10 J	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Dimethyl phthalate	131-11-3	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Di-n-butyl phthalate	84-74-2	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Di-n-octyl phthalate	117-84-0	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8270	N	< 5.43 J	< 5.15	< 5.32 J	< 5.15	< 5.10 J	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Hexachlorobenzene	118-74-1	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Hexachlorocyclopentadiene	77-47-4	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Hexachloroethane	67-72-1	ug/l	SW8270	N	< 5.43	< 5.15 J	< 5.32	< 5.15 J	< 5.10	< 5.32 J	< 5.56 J	< 5.38 J	< 5.32 J	< 5.32 J
m-Dichlorobenzene	541-73-1	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Methanamine, n-methyl-n-nitroso	62-75-9	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32 J	< 5.56 J	< 5.38 J	< 5.32 J	< 5.32 J
Nitrobenzene	98-95-3	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
N-Nitroso-di-n-propylamine	621-64-7	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
N-Nitrosodiphenylamine	86-30-6	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
p-Chloroaniline	106-47-8	ug/l	SW8270	N	< 5.43	< 5.15	< 5.32	< 5.15	< 5.10	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Pentachlornitrobenzene	82-68-8	ug/l	SW8270	N	< 5.43 J	< 5.15	< 5.32 J	< 5.15	< 5.10 J	< 5.32	< 5.56	< 5.38	< 5.32	< 5.32
Pentachlorophenol	87-86-5	ug/l	SW8270	N	< 21.7	< 20.6	< 21.3	< 20.6	< 20.4 J	< 21.3	< 22.2	< 21.5	< 21.3	< 21.3

Table C-1
Summary of Surface Water Analytical Data

				AOC	AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW		AOC-15-SW	
				Location Name	G27-SW03		G27A-SW06		F28-SW01		F28A-SW05		C28-SW02		C31-SW03		C31-SW03		A29-SW04		OUT-30-SW02		OUT-32-SW01	
				Sample Name	G27-SW03-0.6-122811-2		G-27A-SW-06		F28-SW01-0.6-122811		F-28A-SW-05		C28-SW02-0.6-122711		C31-SW-03		C31-SW-03 DUP		A29-SW-04		OUT-30-SW-02		OUT-32-SW01	
				Sample Date	12/28/2011		7/19/2012		12/28/2011		7/19/2012		12/27/2011		7/18/2012		7/18/2012		7/18/2012		7/18/2012		7/18/2012	
				Sample Type	FD		N		N		N		N		N		FD		N		N		N	
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**																				
Phenol	108-95-2	ug/l	SW8270	N	< 5.43	J	< 5.15		< 5.32	J	< 5.15		< 5.10		< 5.32		< 5.56		< 5.38		< 5.32		< 5.32	
p-Nitroaniline	100-01-6	ug/l	SW8270	N	< 21.7	J	< 20.6		< 21.3	J	< 20.6		< 20.4		< 21.3		< 22.2		< 21.5		< 21.3		< 21.3	
Pyridine	110-86-1	ug/l	SW8270	N	< 5.43	J	< 5.15	J	< 5.32	J	< 5.15	J	< 5.10		< 5.32	J	< 5.56	J	< 5.38	J	< 5.32	J	< 5.32	J
1-Methylnaphthalene	90-12-0	ug/l	SW8270 SIM	N	< 0.050	J	< 0.050		< 0.050	J	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
2-Methylnaphthalene	91-57-6	ug/l	SW8270 SIM	N	**0.068**		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Acenaphthene	83-32-9	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	J	< 0.050	J	< 0.050	J	< 0.050	J	< 0.050	J
Acenaphthylene	208-96-8	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Anthracene	120-12-7	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Benzo(a)anthracene	56-55-3	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Benzo(a)pyrene	50-32-8	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Benzo(b)fluoranthene	205-99-2	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Benzo(g,h,i)perylene	191-24-2	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	J
Benzo(k)fluoranthene	207-08-9	ug/l	SW8270 SIM	N	< 0.050		< 0.050	J	< 0.050		< 0.050	J	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Chrysene	218-01-9	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Dibenzo(a,h)anthracene	53-70-3	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Fluoranthene	206-44-0	ug/l	SW8270 SIM	N	< 0.050		**0.115**		< 0.050		**0.092**		< 0.050		**0.065**		< 0.050		< 0.050		< 0.050		< 0.050	
Fluorene	86-73-7	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Naphthalene	91-20-3	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Phenanthrene	85-01-8	ug/l	SW8270 SIM	N	< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Pyrene	129-00-0	ug/l	SW8270 SIM	N	< 0.050		**0.09**		< 0.050		**0.063**		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Total High Molecular Weight PAHs	RACALC-HPAH	ug/l	SW8270 SIM	N	< 0.050		**0.09**		< 0.050		**0.063**		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050	
Total Low Molecular Weight PAHs	RACALC-LPAH	ug/l	SW8270 SIM	N	**0.068**		**0.115**		< 0.050		**0.092**		< 0.050		**0.065**		< 0.050		< 0.050		< 0.050		< 0.050	
Total PAHs	RACALC-PAH	ug/l	SW8270 SIM	N	**0.068**		**0.205**		< 0.050		**0.16**		< 0.050		**0.065**		< 0.050		< 0.050		< 0.050		< 0.050	

Notes:
NA = not available
µg/L = micrograms per liter
J = estimated
J- = estimated with low bias
Bold = detected concentration

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE
				Location Name	AQ9-SED38	AL8-SED36	AG7-SED34	AB6-SED32	W5-SED30	U4-SED29	P7-SED27	P7-SED27	O11-SED24
				Sample Name	AQ9-SED38-0.5-122911	AL8-SED36-0.5-122911	AG7-SED34-0.5-122911	AB6-SED32-0.5-122911	W5-SED30-0.5-122911	U4-SED29-0.5-122911	P7-SED27-0.5-122911	P7-SED27-0.5-122911-2	O11-SED24-0.5-122911
				Sample Date	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011
				Start Depth	0	0	0	0	0	0	0	0	0
				End Depth	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
				Sample Type	N	N	N	N	N	N	N	FD	N
Analyte	CAS Number	Units	Method	Fraction									
Antimony	7440-36-0	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	7440-38-2	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Barium	7440-39-3	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beryllium	7440-41-7	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	7440-43-9	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	7440-47-3	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper	7440-50-8	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	7439-92-1	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel	7440-02-0	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Selenium	7782-49-2	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	7440-22-4	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sulfide	18496-25-8	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thallium	7440-28-0	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	7440-62-2	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	7440-66-6	umol/g	6010B	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PH	PH	pH units	A423	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aviation Fuel	AVIAT FUEL	mg/kg	CTETPH	N	< 38.7	< 35.8	< 33.0	< 35.1	< 33.6	< 85.6	< 95.6	N/A	< 80.4
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	mg/kg	CTETPH	N	**149**	**37.2**	**74.1**	**162**	**105**	**91.4**	**107**	N/A	**96.8**
Gasoline	PHCG	mg/kg	CTETPH	N	< 38.7	< 35.8	< 33.0	< 35.1	< 33.6	< 85.6	< 95.6	N/A	< 80.4
Motor Oil	Motor Oil	mg/kg	CTETPH	N	< 38.7	< 35.8	< 33.0	< 35.1	< 33.6	< 85.6	< 95.6	N/A	< 80.4
Other Oil	OTHEROIL	mg/kg	CTETPH	N	< 38.7	< 35.8	< 33.0	< 35.1	< 33.6	< 85.6	< 95.6	N/A	< 80.4
PHC as Fuel Oil #2	PHCFO2	mg/kg	CTETPH	N	< 38.7	< 35.8	< 33.0	< 35.1	< 33.6	< 85.6	< 95.6	N/A	< 80.4
PHC as Fuel Oil #4	PHCFO4	mg/kg	CTETPH	N	< 38.7	< 35.8	< 33.0	< 35.1	< 33.6	< 85.6	< 95.6	N/A	< 80.4
PHC as Fuel Oil #6	PHCFO6	mg/kg	CTETPH	N	< 38.7	< 35.8	< 33.0	< 35.1	< 33.6	< 85.6	< 95.6	N/A	< 80.4
Total Petroleum Hydrocarbons	TPH	mg/kg	CTETPH	N	**149**	**37.2**	**74.1**	**162**	**105**	**91.4**	**107**	N/A	**96.8**
Unidentified	UNIND	mg/kg	CTETPH	N	**149**	**37.2**	**74.1**	**162**	**105**	**91.4**	**107**	N/A	**96.8**
PMOIST	PMOIST	%	D2216	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Solids	SOLIDS, PERCENT	%	D2216	N	**67.6**	**72.4**	**80**	**75.3**	**77.5**	**77.3**	**69.2**	**52.8**	**81**
Fractional % Sieve #10 (4750-2000um)	SIEVE10	%	D422	N	N/A	**20.2**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #100 (250-150um)	SIEVE100	%	D422	N	N/A	**3.51**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #20 (2000-850um)	SIEVE20	%	D422	N	N/A	**23.1**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #200 (150-75um)	SIEVE200	%	D422	N	N/A	**0.597**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #230 (less than 75um)	SIEVE230	%	D422	N	N/A	**0.398**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #4 (>4750um)	SIEVE4	%	D422	N	N/A	**12.2**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #40 (850-425um)	SIEVE40	%	D422	N	N/A	**25.9**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #60 (425-250um)	SIEVE60	%	D422	N	N/A	**14.1**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Solids	SOLIDS, PERCENT	%	E160.3	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Organic Carbon	TOC	mg/kg	ETOC.LK	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oxidation/Reduction Potential	ORP	Eh	ORP	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Specific Conductivity	SC	ms/cm	SM2510B	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	7440-36-0	mg/kg	SW6010	N	< 7.25	< 6.38	< 5.81	< 5.62	< 5.75	< 5.87	< 6.73	N/A	< 5.71
Arsenic	7440-38-2	mg/kg	SW6010	N	**2.83**	**2.91**	**4.31**	**2.93**	**1.94**	**2.59**	**2.98**	N/A	**2.06**
Barium	7440-39-3	mg/kg	SW6010	N	**73.5**	**33.5**	**61.3**	**50.9**	**44.8**	**44.6**	**47.8**	N/A	**37.9**
Beryllium	7440-41-7	mg/kg	SW6010	N	< 0.725	< 0.638	< 0.581	< 0.562	< 0.575	< 0.587	< 0.673	N/A	< 0.571
Cadmium	7440-43-9	mg/kg	SW6010	N	< 0.725	< 0.638	< 0.581	< 0.562	< 0.575	< 0.587	< 0.673	N/A	< 0.571
Chromium	7440-47-3	mg/kg	SW6010	N	**9.43**	**6.79**	**281**	**8.68**	**11.2**	**5.8**	**12.7**	N/A	**10.6**
Copper	7440-50-8	mg/kg	SW6010	N	**23.6**	**9.85**	**34.6**	**23.2**	**11.5**	**11.4**	**13.3**	N/A	**10.9**
Lead	7439-92-1	mg/kg	SW6010	N	**10.3**	**9.93**	**8.23**	**9.02**	**8.54**	**6.96**	**22.5**	N/A	**14**
Nickel	7440-02-0	mg/kg	SW6010	N	**6.73**	**5.42**	**127**	**7.49**	**7.58**	**6.1**	**8**	N/A	**7.31**
Selenium	7782-49-2	mg/kg	SW6010	N	< 2.17	< 1.91	< 1.74	< 1.69	< 1.73	< 1.76	< 2.02	N/A	< 1.71
Silver	7440-22-4	mg/kg	SW6010	N	< 2.17	< 1.91	< 1.74	< 1.69	< 1.73	< 1.76	< 2.02	N/A	< 1.71
Thallium	7440-28-0	mg/kg	SW6010	N	< 4.35	< 3.83	< 3.48	< 3.37	< 3.45	< 3.52	< 4.04	N/A	< 3.43
Vanadium	7440-62-2	mg/kg	SW6010	N	**13.8**	**15.7**	**13.2**	**17.5**	**13**	**9.49**	**14.2**	N/A	**13.3**
Zinc	7440-66-6	mg/kg	SW6010	N	**34**	**32.2**	**35.3**	**37.9**	**34.5**	**28**	**51.4**	N/A	**30.3**
Mercury	7439-97-6	mg/kg	SW7470A	N	< 0.0403	< 0.0385	< 0.0374	< 0.0375	< 0.0377	< 0.0382	< 0.0403	N/A	< 0.0366
Mercury	7439-97-6	umol/g	SW7470A	SEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4-DDD (p,p)	72-54-8	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	< 0.0114	N/A	< 0.00952
4,4-DDE (p,p)	72-55-9	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	**0.00648**	< 0.00631	**0.0116**	N/A	< 0.00595
4,4-DDT (p,p)	50-29-3	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	**0.0157**	N/A	< 0.00952
Alachlor	15972-60-8	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
Aldrin	309-00-2	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
alpha-Chlordane	5103-71-9	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	**0.00885**	N/A	< 0.00595
Camphechlor	8001-35-2	mg/kg	SW8081	N	< 0.144	< 0.137	< 0.124	< 0.13	< 0.127	< 0.126	< 0.143	N/A	< 0.119
Chlordane	57-74-9	mg/kg	SW8081	N	< 0.0287	< 0.0274	< 0.0248	< 0.0259	< 0.0253	< 0.0252	**0.0343**	N/A	< 0.0238
delta-BHC	319-86-8	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
Dieldrin	60-57-1	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE
				Location Name	AQ9-SED38	AL8-SED36	AG7-SED34	AB6-SED32	W5-SED30	U4-SED29	P7-SED27	P7-SED27	O11-SED24
				Sample Name	AQ9-SED38-0.5-122911	AL8-SED36-0.5-122911	AG7-SED34-0.5-122911	AB6-SED32-0.5-122911	W5-SED30-0.5-122911	U4-SED29-0.5-122911	P7-SED27-0.5-122911	P7-SED27-0.5-122911-2	O11-SED24-0.5-122911
				Sample Date	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011
				Start Depth	0	0	0	0	0	0	0	0	0
				End Depth	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
				Sample Type	N	N	N	N	N	N	N	FD	N
Analyte	CAS Number	Units	Method	Fraction									
Endosulfan I	959-98-8	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
Endosulfan II	33213-65-9	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	< 0.0114	N/A	< 0.00952
Endosulfan sulfate	1031-07-8	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	< 0.0114	N/A	< 0.00952
Endrin	72-20-8	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	< 0.0114	N/A	< 0.00952
Endrin aldehyde	7421-93-4	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	< 0.0114	N/A	< 0.00952
Endrin ketone	53494-70-5	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	< 0.0114	N/A	< 0.00952
gamma-Chlordane	5103-74-2	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
Heptachlor	76-44-8	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
Heptachlor epoxide	1024-57-3	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
Hexachlorocyclohexane, alpha	319-84-6	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
Hexachlorocyclohexane, beta	319-85-7	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	mg/kg	SW8081	N	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595
Methoxychlor	72-43-5	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	< 0.0114	N/A	< 0.00952
Total DDx	RACALC-DDx	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	**0.00648**	< 0.0101	**0.0273**	N/A	< 0.00952
Total Endosulfans	RACALC-ENDO	mg/kg	SW8081	N	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	< 0.0114	N/A	< 0.00952
Aroclor 1016	12674-11-2	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Aroclor 1221	11104-28-2	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Aroclor 1232	11141-16-5	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Aroclor 1242	53469-21-9	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Aroclor 1248	12672-29-6	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Aroclor 1254	11097-69-1	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Aroclor 1260	11096-82-5	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Aroclor 1262	37324-23-5	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Aroclor 1268	11100-14-4	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Total PCB Aroclors	RACALC-PCB	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
Total PCBs	CALC-PCBs	mg/kg	SW8082	N	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239
2,2-Dichloropropionic acid	75-99-0	mg/kg	SW8151	N	N/A	< 0.00878	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4,5-T	93-76-5	mg/kg	SW8151	N	N/A	< 0.00878	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4,5-TP (Silvex)	93-72-1	mg/kg	SW8151	N	N/A	< 0.00878	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-DB	94-82-6	mg/kg	SW8151	N	N/A	< 0.00878	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	mg/kg	SW8151	N	N/A	< 0.00878	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dicamba	1918-00-9	mg/kg	SW8151	N	N/A	< 0.00878	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dichloroprop	120-36-5	mg/kg	SW8151	N	N/A	< 0.00878	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dinitrobutyl phenol	88-85-7	mg/kg	SW8151	N	N/A	< 0.00878	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	mg/kg	SW8151	N	N/A	< 2.95	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MCPB	94-81-5	mg/kg	SW8151	N	N/A	< 2.95	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MCPP	93-65-2	mg/kg	SW8151	N	N/A	< 2.95	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	630-20-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,1,1-Trichloroethane	71-55-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,1,2-Trichloroethane	79-00-5	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,1-Dichloroethane	75-34-3	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,1-Dichloroethylene	75-35-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,1-Dichloropropene	563-58-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,2,3-Trichlorobenzene	87-61-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,2,3-Trichloropropane	96-18-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,2,4-Trimethylbenzene	95-63-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	96-12-8	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
1,2-Dibromoethane	106-93-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,2-Dichloroethane	107-06-2	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,2-Dichloropropane	78-87-5	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,3,5-Trichlorobenzene	108-70-3	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,3,5-Trimethylbenzene	108-67-8	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,3-Dichloropropane	142-28-9	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,4-Dioxane	123-91-1	mg/kg	SW8260	N	N/A	< 0.182	N/A	N/A	N/A	< 0.176	N/A	N/A	N/A
2,2-Dichloropropane	594-20-7	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
2-Butanone (MEK)	78-93-3	mg/kg	SW8260	N	N/A	< 0.0912	N/A	N/A	N/A	< 0.0882	N/A	N/A	N/A
2-Hexanone	591-78-6	mg/kg	SW8260	N	N/A	< 0.0912	N/A	N/A	N/A	< 0.0882	N/A	N/A	N/A
Acetone	67-64-1	mg/kg	SW8260	N	N/A	< 0.0912	N/A	N/A	N/A	< 0.0882	N/A	N/A	N/A
Acrylonitrile	107-13-1	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Benzene	71-43-2	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Bromobenzene	108-86-1	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Bromochlormethane	74-97-5	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE
				Location Name	AQ9-SED38	AL8-SED36	AG7-SED34	AB6-SED32	W5-SED30	U4-SED29	P7-SED27	P7-SED27	O11-SED24
				Sample Name	AQ9-SED38-0.5-122911	AL8-SED36-0.5-122911	AG7-SED34-0.5-122911	AB6-SED32-0.5-122911	W5-SED30-0.5-122911	U4-SED29-0.5-122911	P7-SED27-0.5-122911	P7-SED27-0.5-122911-2	O11-SED24-0.5-122911
				Sample Date	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011
				Start Depth	0	0	0	0	0	0	0	0	0
				End Depth	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
				Sample Type	N	N	N	N	N	N	N	FD	N
Analyte	CAS Number	Units	Method	Fraction									
Bromodichloromethane	75-27-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Bromoform	75-25-2	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Bromomethane	74-83-9	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
Carbon disulfide	75-15-0	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
Carbon tetrachloride	56-23-5	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Chlorobenzene	108-90-7	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Chloroethane	75-00-3	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
Chloroform	67-66-3	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Chloromethane	74-87-3	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
cis-1,2-Dichloroethylene	156-59-2	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
cis-1,3-Dichloropropene	10061-01-5	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Dibromochloromethane	124-48-1	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Dichlorodifluoromethane	75-71-8	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
Diisopropyl ether (DIPE)	108-20-3	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Ethanol	64-17-5	mg/kg	SW8260	N	N/A	< 3.65	N/A	N/A	N/A	< 3.53	N/A	N/A	N/A
Ethyl ether	60-29-7	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Ethylbenzene	100-41-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Ethyl-t-butyl ether (ETBE)	637-92-3	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Freon 113	76-13-1	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Isopropylbenzene	98-82-8	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
m,p-Xylenes	1330-20-7-M,P	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
m-Dichlorobenzene	541-73-1	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Methyl Isobutyl Ketone	108-10-1	mg/kg	SW8260	N	N/A	< 0.0912	N/A	N/A	N/A	< 0.0882	N/A	N/A	N/A
Methyl Tert Butyl Ether (MTBE)	1634-04-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Methylene bromide	74-95-3	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Methylene chloride	75-09-2	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
Naphthalene	91-20-3	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
n-Butylbenzene	104-51-8	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
n-Propylbenzene	103-65-1	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
o-Chlorotoluene	95-49-8	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
o-Xylene	95-47-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
p-Chlorotoluene	106-43-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
p-Isopropyltoluene	99-87-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
sec-Butylbenzene	135-98-8	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Styrene	100-42-5	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
tert-Amyl Methyl Ether (TAME)	994-05-8	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Tert-butyl alcohol	75-65-0	mg/kg	SW8260	N	N/A	< 0.0912	N/A	N/A	N/A	< 0.0882	N/A	N/A	N/A
tert-butylbenzene	98-06-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Tetrachloroethylene	127-18-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Tetrahydrofuran	109-99-9	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
Toluene	108-88-3	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Total Xylenes	RACALC-XYL	mg/kg	SW8260	N	N/A	< 0.0182	N/A	N/A	N/A	< 0.0176	N/A	N/A	N/A
trans-1,2-Dichloroethylene	156-60-5	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
trans-1,3-Dichloropropene	10061-02-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Trans-1,4-Dichloro-2-Butene	110-57-6	mg/kg	SW8260	N	N/A	< 0.0456	N/A	N/A	N/A	< 0.0441	N/A	N/A	N/A
Trichloroethene	79-01-6	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Trichlorofluoromethane	75-69-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
Vinyl chloride	75-01-4	mg/kg	SW8260	N	N/A	< 0.0091	N/A	N/A	N/A	< 0.0088	N/A	N/A	N/A
1,2,4,5-Tetrachlorobenzene	95-94-3	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1-Methylnaphthalene	90-12-0	mg/kg	SW8270	N	< 0.48	< 0.444	< 0.409	< 0.435	< 0.417	< 0.425	< 0.474	< 0.309	< 0.399
2,4,5-Trichlorophenol	95-95-4	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4,6-Trichlorophenol	88-06-2	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dichlorophenol	120-83-2	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dimethylphenol	105-67-9	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dinitrophenol	51-28-5	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dinitrotoluene	121-14-2	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,6-Dinitrotoluene	606-20-2	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chloronaphthalene	91-58-7	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorophenol	95-57-8	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	91-57-6	mg/kg	SW8270	N	< 0.48	< 0.444	< 0.409	< 0.435	< 0.417	< 0.425	< 0.474	< 0.309	< 0.399
2-Methylphenol	95-48-7	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Nitroaniline	88-74-4	mg/kg	SW8270	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE	
				Location Name	AQ9-SED38		AL8-SED36		AG7-SED34		AB6-SED32		W5-SED30		U4-SED29		P7-SED27		P7-SED27		O11-SED24	
				Sample Name	AQ9-SED38-0.5-122911		AL8-SED36-0.5-122911		AG7-SED34-0.5-122911		AB6-SED32-0.5-122911		W5-SED30-0.5-122911		U4-SED29-0.5-122911		P7-SED27-0.5-122911		P7-SED27-0.5-122911-2		O11-SED24-0.5-122911	
				Sample Date	12/29/2011		12/29/2011		12/29/2011		12/29/2011		12/29/2011		12/29/2011		12/29/2011		12/29/2011		12/29/2011	
				Start Depth	0		0		0		0		0		0		0		0		0	
				End Depth	0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5	
				Sample Type	N		N		N		N		N		N		N		FD		N	
Analyte	CAS Number	Units	Method	Fraction																		
2-Nitrophenol	88-75-5	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
3,3-Dichlorobenzidine	91-94-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
3-Nitroaniline	99-09-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
4,6-Dinitro-2-methylphenol	534-52-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
4-Bromophenyl phenyl ehter	101-55-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
4-Chloro-3-methylphenol	59-50-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
4-Chlorophenyl phenyl ehter	7005-72-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
4-Methylphenol	106-44-5	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
4-Nitrophenol	100-02-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Acenaphthene	83-32-9	mg/kg	SW8270	N	< 0.48	J	< 0.444		< 0.409		< 0.435		< 0.417		< 0.425		< 0.474		< 0.309		< 0.399	
Acenaphthylene	208-96-8	mg/kg	SW8270	N	< 0.48	J	< 0.444		< 0.409	J	< 0.435		< 0.417	J	< 0.425	J	< 0.474	J	< 0.309	J	< 0.399	J
Aniline	62-53-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Anthracene	120-12-7	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		**0.566**		< 0.417		< 0.425		< 0.474		< 0.309		< 0.399	
Azobenzene	103-33-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Benzidine	92-87-5	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Benzo(a)anthracene	56-55-3	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		**1.7**		**0.445**		< 0.425		< 0.474		**0.471**		**0.586**	
Benzo(a)pyrene	50-32-8	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		**1.29**		< 0.417		< 0.425		< 0.474		**0.437**		**0.494**	
Benzo(b)fluoranthene	205-99-2	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		**1.31**		**0.435**		< 0.425		< 0.474		**0.494**		**0.495**	
Benzo(g,h,i)perylene	191-24-2	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		**0.61**		< 0.417		< 0.425		< 0.474		< 0.309		< 0.399	
Benzo(k)fluoranthene	207-08-9	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		**0.858**		< 0.417		< 0.425		< 0.474		**0.357**		**0.439**	
Benzoic acid	65-85-0	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Benzyl alcohol	100-51-6	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Benzyl butyl phthalate	85-68-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Bis(2-chloroethoxy)methane	111-91-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Bis(2-chloroethyl)ether	111-44-4	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Bis(2-chloroisopropyl)ether	108-60-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Bis(2-ethylhexyl)phthalate	117-81-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Carbazole	86-74-8	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Chrysene	218-01-9	mg/kg	SW8270	N	< 0.48		< 0.444	J	< 0.409		**1.31**		**0.471**		< 0.425		< 0.474		**0.517**		**0.602**	
Dibenzo(a,h)anthracene	53-70-3	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		< 0.435		< 0.417		< 0.425		< 0.474		< 0.309		< 0.399	
Dibenzofuran	132-64-9	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Diethy phthalate	84-66-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dimethyl phthalate	131-11-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Di-n-butyl phthalate	84-74-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Di-n-octyl phthalate	117-84-0	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Fluoranthene	206-44-0	mg/kg	SW8270	N	**0.85**		**0.608**		**0.622**		**3.4**		**1.01**		< 0.425		**0.995**		**1.29**		**1.44**	
Fluorene	86-73-7	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		< 0.435		< 0.417		< 0.425		< 0.474		< 0.309		< 0.399	
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Hexachlorobenzene	118-74-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Hexachlorocyclopentadiene	77-47-4	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Hexachloroethane	67-72-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		**0.646**		< 0.417		< 0.425		< 0.474		< 0.309		< 0.399	
m-Dichlorobenzene	541-73-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Methanamine, n-methyl-n-nitroso	62-75-9	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Naphthalene	91-20-3	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		< 0.435		< 0.417		< 0.425		< 0.474		< 0.309		< 0.399	
Nitrobenzene	98-95-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
N-Nitroso-di-n-propylamine	621-64-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
N-Nitrosodiphenylamine	86-30-6	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
p-Chlororaniline	106-47-8	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Pentachlornitrobenzene	82-68-8	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Pentachlorophenol	87-86-5	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Phenanthrene	85-01-8	mg/kg	SW8270	N	< 0.48		< 0.444		< 0.409		**1.77**		< 0.417		< 0.425		< 0.474		**0.579**		**0.811**	
Phenol	108-95-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
p-Nitroaniline	100-01-6	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Pyrene	129-00-0	mg/kg	SW8270	N	**0.694**		**0.648**	J	**0.513**		**2.68**		**0.862**		< 0.425		**0.855**		**1.07**		**1.19**	
Pyridine	110-86-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Total High Molecular Weight PAHs	RACALC-HPAH	mg/kg	SW8270	N	**0.694**		**0.648**		**0.513**		**10.4**		**2.21**		< 0.425		**0.855**		**3.35**		**3.81**	
Total Low Molecular Weight PAHs	RACALC-LPAH	mg/kg	SW8270	N	**0.85**		**0.608**		**0.622**		**5.74**		**1.01**		< 0.425		**0.995**		**1.87**		**2.25**	
Total PAHs	CALC-PAHs	mg/kg	SW8270	N	**1.544**		**1.256**		**1.135**		**16.14**		**3.223**		< 0.425		**1.85**		**5.215**		**6.057**	
Total PAHs	RACALC-PAH	mg/kg	SW8270	N	**1.54**		**1.26**		**1.13**		**16.1**		**3.22**		< 0.425		**1.85**		**5.21**		**6.06**	
Cyanide	57-12-5	mg/kg	SW9012	N	N/A		< 1.31		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	SW9060	N	N/A		**7490**		N/A		**3830**		N/A		**4830**		**6050**		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	TOCLLOYDKAHN	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE	
				Location Name	O14-SED24		Q16-SED23		S17-SED22		U18-SED21		U21-SED20		T20-SED		T20-SED		R22-SED19		P23-SED18		N24-SED	
				Sample Name	O14-SED24-0.5-122911		Q16-SED23-0.5-122911		S17-SED22-0.5-122811		U18-SED21-0.5-122811		U21-SED20-0.5-122811		T20-SED-TOP		T20-SED-BOTTOM		R22-SED19-0.5-122811		P23-SED18-0.5-122811		N24-SED-TOP	
				Sample Date	12/29/2011		12/29/2011		12/28/2011		12/28/2011		12/28/2011		7/19/2012		7/19/2012		12/28/2011		12/28/2011		7/19/2012	
				Start Depth	0		0		0		0		0		0		10		0		0		0	
				End Depth	0.5		0.5		0.5		0.5		0.5		10		20		0.5		0.5		10	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																				
Antimony	7440-36-0	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		< 0.0049		< 0.0050		N/A		N/A		N/A	
Arsenic	7440-38-2	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.011		< 0.0081		N/A		N/A		0.012	
Barium	7440-39-3	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.19		0.1		N/A		N/A		0.26	
Beryllium	7440-41-7	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		< 0.020		< 0.020		N/A		N/A		< 0.020	
Cadmium	7440-43-9	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		< 0.0014		< 0.0014		N/A		N/A		< 0.0014	
Chromium	7440-47-3	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.035		0.025		N/A		N/A		0.052	
Copper	7440-50-8	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.2		0.072		N/A		N/A		0.16	J
Lead	7439-92-1	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.067		0.051		N/A		N/A		0.097	
Nickel	7440-02-0	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.033		< 0.027		N/A		N/A		0.037	
Selenium	7782-49-2	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		< 0.0076		< 0.0077		N/A		N/A		N/A	
Silver	7440-22-4	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		< 0.0084		< 0.0086		N/A		N/A		N/A	
Sulfide	18496-25-8	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.24		0.15		N/A		N/A		0.5	
Thallium	7440-28-0	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		< 0.0029		< 0.0030		N/A		N/A		< 0.0030	
Vanadium	7440-62-2	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.059		0.043		N/A		N/A		0.07	
Zinc	7440-66-6	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.36		0.23		N/A		N/A		0.5	
PH	PH	pH units	A423	N	N/A		N/A		N/A		N/A		N/A		6.89		6.84		N/A		N/A		6.96	
Aviation Fuel	AVIAT FUEL	mg/kg	CTETPH	N	< 97.1		< 38.7		< 38.7		< 39.3		< 38.3		N/A		N/A		< 37.6		< 36.5		N/A	
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	mg/kg	CTETPH	N	125		99.7	J-	165		205		281		N/A		N/A		370		122		N/A	
Gasoline	PHCG	mg/kg	CTETPH	N	< 97.1		< 38.7		< 38.7		< 39.3		< 38.3		N/A		N/A		< 37.6		< 36.5		N/A	
Motor Oil	Motor Oil	mg/kg	CTETPH	N	< 97.1		< 38.7		< 38.7		< 39.3		< 38.3		N/A		N/A		< 37.6		< 36.5		N/A	
Other Oil	OTHEROIL	mg/kg	CTETPH	N	< 97.1		< 38.7		< 38.7		< 39.3		< 38.3		N/A		N/A		< 37.6		< 36.5		N/A	
PHC as Fuel Oil #2	PHCFO2	mg/kg	CTETPH	N	< 97.1		< 38.7		< 38.7		< 39.3		< 38.3		N/A		N/A		< 37.6		< 36.5		N/A	
PHC as Fuel Oil #4	PHCFO4	mg/kg	CTETPH	N	< 97.1		< 38.7		< 38.7		< 39.3		< 38.3		N/A		N/A		< 37.6		< 36.5		N/A	
PHC as Fuel Oil #6	PHCFO6	mg/kg	CTETPH	N	< 97.1		< 38.7		< 38.7		< 39.3		< 38.3		N/A		N/A		< 37.6		< 36.5		N/A	
Total Petroleum Hydrocarbons	TPH	mg/kg	CTETPH	N	125		99.7		165		205		281		N/A		N/A		370		122		N/A	
Unidentified	UNIND	mg/kg	CTETPH	N	125		99.7		165		205		281		N/A		N/A		370		122		N/A	
PMOIST	PMOIST	%	D2216	N	N/A		N/A		N/A		N/A		N/A		17		18		N/A		N/A		18	
Solids	SOLIDS, PERCENT	%	D2216	N	67.9		67.4		68.1		66.5		67.8		84.8		78.2		69.3		70.9		82.7	
Fractional % Sieve #10 (4750-2000um)	SIEVE10	%	D422	N	N/A		26		N/A		N/A		N/A		16.9		17.2		N/A		N/A		11.4	
Fractional % Sieve #100 (250-150um)	SIEVE100	%	D422	N	N/A		2.79		N/A		N/A		N/A		2.6		3.97		N/A		N/A		2.48	
Fractional % Sieve #20 (2000-850um)	SIEVE20	%	D422	N	N/A		21.6		N/A		N/A		N/A		31.9		31.2		N/A		N/A		36	
Fractional % Sieve #200 (150-75um)	SIEVE200	%	D422	N	N/A		0.747		N/A		N/A		N/A		1.19		1.37		N/A		N/A		1.65	
Fractional % Sieve #230 (less than 75um)	SIEVE230	%	D422	N	N/A		0.299		N/A		N/A		N/A		0.742		0.39		N/A		N/A		1.34	
Fractional % Sieve #4 (>4750um)	SIEVE4	%	D422	N	N/A		14.5		N/A		N/A		N/A		2.82		7.15		N/A		N/A		1.4	
Fractional % Sieve #40 (850-425um)	SIEVE40	%	D422	N	N/A		22.7		N/A		N/A		N/A		34.6		28.4		N/A		N/A		36.6	
Fractional % Sieve #60 (425-250um)	SIEVE60	%	D422	N	N/A		11.3		N/A		N/A		N/A		9.28		10.3		N/A		N/A		9.05	
Solids	SOLIDS, PERCENT	%	E160.3	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		83	
Total Organic Carbon	TOC	mg/kg	ETOC.LK	N	N/A		N/A		N/A		N/A		N/A		5470		4450		N/A		N/A		N/A	
Oxidation/Reduction Potential	ORP	Eh	ORP	N	N/A		N/A		N/A		N/A		N/A		545		544		N/A		N/A		529	
Specific Conductivity	SC	ms/cm	SM2510B	N	N/A		N/A		N/A		N/A		N/A		101		102		N/A		N/A		74.7	
Antimony	7440-36-0	mg/kg	SW6010	N	< 6.51		< 6.52		< 7.17		< 7.04		< 7.36		< 5.67		< 6.22		< 6.47		< 6.56		< 5.37	
Arsenic	7440-38-2	mg/kg	SW6010	N	2.9		2.05		< 2.15		< 2.11		2.78		2.94	J	2.05	J	< 1.94		< 1.97		2.38	
Barium	7440-39-3	mg/kg	SW6010	N	71.9		54.6		36.6		41.7		70.8		90.7	J-	47.9	J-	47.1		25.8		49.5	
Beryllium	7440-41-7	mg/kg	SW6010	N	< 0.651		< 0.652		< 0.717		< 0.704		< 0.736		< 0.567		< 0.622		< 0.647		< 0.656		< 0.537	
Cadmium	7440-43-9	mg/kg	SW6010	N	< 0.651		< 0.652		< 0.717		< 0.704		0.817		< 0.567		< 0.622		< 0.647		< 0.656		< 0.537	
Chromium	7440-47-3	mg/kg	SW6010	N	16		14.8		7.81		10.3		10.4		13.9	J	12.8	J	9.03		5.79		12.9	
Copper	7440-50-8	mg/kg	SW6010	N	12.5		13		9.49		10.3		11.6		44.6	J	16.6	J	7.01		10.3		21.3	
Lead	7439-92-1	mg/kg	SW6010	N	13.7		12.6	J	10.6	J+	14.2	J+	14.6	J+	15.2	J	16.2	J	11.3	J+	9.03	J+	24.5	
Nickel	7440-02-0	mg/kg	SW6010	N	10.6		15.9		6.26		7.43		31.6		10.4	J	8.73	J	5.81		6.64		7.75	
Selenium	7782-49-2	mg/kg	SW6010	N	< 1.95		< 1.96		< 2.15		< 2.11		< 2.21		< 1.70		< 1.87		< 1.94		< 1.97		< 1.61	
Silver	7440-22-4	mg/kg	SW6010	N	< 1.95		< 1.96		< 2.15		< 2.11		< 2.21		< 1.70	J	< 1.87	J	< 1.94		< 1.97		< 1.61	
Thallium	7440-28-0	mg/kg	SW6010	N	< 3.91		< 3.91		< 4.30		< 4.22		< 4.42		< 3.40		< 3.73		< 3.88		< 3.93		< 3.22	
Vanadium	7440-62-2	mg/kg	SW6010	N	16.3		14.1		12.6		14.3		13.8		18.1	J	14.8	J	11		7.92		14	
Zinc	7440-66-6	mg/kg	SW6010	N	49.4		36.1	J	40.6		44.2		55.2		45.4	J	35.2	J	42.9		28.9		42.3	
Mercury	7439-97-6	mg/kg	SW7470A	N	< 0.0426		< 0.0427		< 0.0391		< 0.0416		< 0.0421		< 0.0323		< 0.0349		< 0.0419		< 0.0401		< 0.0347	
Mercury	7439-97-6	umol/g	SW7470A	SEM	N/A		N/A		N/A		N/A		N/A		< 0.000030		< 0.000030		N/A		N/A		N/A	
4,4-DDD (p,p)	72-54-8	mg/kg	SW8081	N	< 0.0118		< 0.0119	J	< 0.0113		< 0.0120		< 0.0117		< 0.00923		0.0311		< 0.0111		< 0.0111		< 0.00950	
4,4-DDE (p,p)	72-55-9	mg/kg	SW8081	N	0.00893		0.00941	J	< 0.00706		< 0.00751		0.00997		0.00747		0.0125		0.00806		0.00712		0.0123	
4,4-DDT (p,p)	50-29-3	mg/kg	SW8081	N	0.013		< 0.0119	J	< 0.0113		< 0.0120		0.0136		< 0.00923		< 0.0101		< 0.0111		< 0.0111		< 0.00950	
Alachlor	15972-60-8	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
Aldrin	309-00-2	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
alpha-Chlordane	5103-71-9	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		0.0076	
Camphechlor	8001-35-2	mg/kg	SW8081	N	< 0.147		< 0.148	J	< 0.141		< 0.15		< 0.146		< 0.115		< 0.127		< 0.139		< 0.139		< 0.119	
Chlordane	57-74-9	mg/kg	SW8081	N	< 0.0294		< 0.0296	J	< 0.0283		< 0.0300		0.0685		0.0231		0.0361		< 0.0278		0.0522		0.0315	
delta-BHC	319-86-8	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
Dieldrin	60-57-1	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE	
				Location Name	O14-SED24		Q16-SED23		S17-SED22		U18-SED21		U21-SED20		T20-SED		T20-SED		R22-SED19		P23-SED18		N24-SED	
				Sample Name	O14-SED24-0.5-122911		Q16-SED23-0.5-122911		S17-SED22-0.5-122811		U18-SED21-0.5-122811		U21-SED20-0.5-122811		T20-SED-TOP		T20-SED-BOTTOM		R22-SED19-0.5-122811		P23-SED18-0.5-122811		N24-SED-TOP	
				Sample Date	12/29/2011		12/29/2011		12/28/2011		12/28/2011		12/28/2011		7/19/2012		7/19/2012		12/28/2011		12/28/2011		7/19/2012	
				Start Depth	0		0		0		0		0		0		10		0		0		0	
				End Depth	0.5		0.5		0.5		0.5		0.5		10		20		0.5		0.5		10	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**																				
Endosulfan I	959-98-8	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
Endosulfan II	33213-65-9	mg/kg	SW8081	N	< 0.0118		< 0.0119	J	< 0.0113		< 0.0120		< 0.0117		< 0.00923		< 0.0101		< 0.0111		< 0.0111		< 0.00950	
Endosulfan sulfate	1031-07-8	mg/kg	SW8081	N	< 0.0118		< 0.0119	J	< 0.0113		< 0.0120		< 0.0117		< 0.00923		< 0.0101		< 0.0111		< 0.0111		< 0.00950	
Endrin	72-20-8	mg/kg	SW8081	N	< 0.0118		< 0.0119	J	< 0.0113		< 0.0120		< 0.0117		< 0.00923		< 0.0101		< 0.0111		< 0.0111		< 0.00950	
Endrin aldehyde	7421-93-4	mg/kg	SW8081	N	< 0.0118		< 0.0119	J	< 0.0113		< 0.0120		< 0.0117		< 0.00923		< 0.0101		< 0.0111		< 0.0111		< 0.00950	
Endrin ketone	53494-70-5	mg/kg	SW8081	N	< 0.0118		< 0.0119	J	< 0.0113		< 0.0120		< 0.0117		< 0.00923		< 0.0101		< 0.0111		< 0.0111		< 0.00950	
gamma-Chlordane	5103-74-2	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
Heptachlor	76-44-8	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
Heptachlor epoxide	1024-57-3	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
Hexachlorocyclohexane, alpha	319-84-6	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
Hexachlorocyclohexane, beta	319-85-7	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	mg/kg	SW8081	N	< 0.00735		< 0.00741	J	< 0.00706		< 0.00751		< 0.00732		< 0.00577		< 0.00634		< 0.00694		< 0.00695		< 0.00594	
Methoxychlor	72-43-5	mg/kg	SW8081	N	< 0.0118		< 0.0119	J	< 0.0113		< 0.0120		< 0.0117		< 0.00923		< 0.0101		< 0.0111		< 0.0111		< 0.00950	
Total DDx	RACALC-DDx	mg/kg	SW8081	N	**0.0219**		**0.00941**		< 0.0113		< 0.0120		**0.0236**		**0.00747**		**0.0436**		**0.00806**		**0.00712**		**0.0123**	
Total Endosulfans	RACALC-ENDO	mg/kg	SW8081	N	< 0.0118		< 0.0119		< 0.0113		< 0.0120		< 0.0117		< 0.00923		< 0.0101		< 0.0111		< 0.0111		< 0.00950	
Aroclor 1016	12674-11-2	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0460		< 0.0239		< 0.0269		< 0.0278		< 0.0461	
Aroclor 1221	11104-28-2	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0460		< 0.0239		< 0.0269		< 0.0278		< 0.0461	
Aroclor 1232	11141-16-5	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0460		< 0.0239		< 0.0269		< 0.0278		< 0.0461	
Aroclor 1242	53469-21-9	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0460		< 0.0239		< 0.0269		< 0.0278		< 0.0461	
Aroclor 1248	12672-29-6	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0460		< 0.0239		< 0.0269		< 0.0278		< 0.0461	
Aroclor 1254	11097-69-1	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0230		< 0.0239		< 0.0269		< 0.0278		< 0.0230	
Aroclor 1260	11096-82-5	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0230		< 0.0239		< 0.0269		< 0.0278		< 0.0230	
Aroclor 1262	37324-23-5	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0230		< 0.0239		< 0.0269		< 0.0278		< 0.0230	
Aroclor 1268	11100-14-4	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0230		< 0.0239		< 0.0269		< 0.0278		< 0.0230	
Total PCB Aroclors	RACALC-PCB	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0460		< 0.0239		< 0.0269		< 0.0278		< 0.0461	
Total PCBs	CALC-PCBs	mg/kg	SW8082	N	< 0.0276		< 0.0284		< 0.0277		< 0.0292		< 0.0281		< 0.0460		< 0.0239		< 0.0269		< 0.0278		< 0.0461	
2,2-Dichloropropionic acid	75-99-0	mg/kg	SW8151	N	N/A		< 0.00938		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4,5-T	93-76-5	mg/kg	SW8151	N	N/A		< 0.00938		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4,5-TP (Silvex)	93-72-1	mg/kg	SW8151	N	N/A		< 0.00938		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4-DB	94-82-6	mg/kg	SW8151	N	N/A		< 0.00938		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	mg/kg	SW8151	N	N/A		< 0.00938		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dicamba	1918-00-9	mg/kg	SW8151	N	N/A		< 0.00938		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dichloroprop	120-36-5	mg/kg	SW8151	N	N/A		< 0.00938		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dinitrobutyl phenol	88-85-7	mg/kg	SW8151	N	N/A		< 0.00938		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	mg/kg	SW8151	N	N/A		< 3.15		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPB	94-81-5	mg/kg	SW8151	N	N/A		< 3.15		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPP	93-65-2	mg/kg	SW8151	N	N/A		< 3.15		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
1,1,1,2-Tetrachloroethane	630-20-6	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,1,1-Trichloroethane	71-55-6	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,1,2-Trichloroethane	79-00-5	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,1-Dichloroethane	75-34-3	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,1-Dichloroethylene	75-35-4	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,1-Dichloropropene	563-58-6	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,2,3-Trichlorobenzene	87-61-6	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,2,3-Trichloropropane	96-18-4	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,2,4-Trimethylbenzene	95-63-6	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,2-Dibromo-3-chloropropane	96-12-8	mg/kg	SW8260	N	N/A		< 0.0341		N/A		N/A		N/A		< 0.0153		< 0.0125		N/A		N/A		< 0.0143	
1,2-Dibromoethane	106-93-4	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,2-Dichloroethane	107-06-2	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	J
1,2-Dichloropropane	78-87-5	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,3,5-Trichlorobenzene	108-70-3	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,3,5-Trimethylbenzene	108-67-8	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,3-Dichloropropane	142-28-9	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,4-Dioxane	123-91-1	mg/kg	SW8260	N	N/A		< 0.341		N/A		N/A		N/A		< 0.153		< 0.125		N/A		N/A		< 0.143	J
2,2-Dichloropropane	594-20-7	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
2-Butanone (MEK)	78-93-3	mg/kg	SW8260	N	N/A		< 0.17		N/A		N/A		N/A		< 0.0767		< 0.0627		N/A		N/A		< 0.0713	J
2-Hexanone	591-78-6	mg/kg	SW8260	N	N/A		< 0.17		N/A		N/A		N/A		< 0.0767		< 0.0627		N/A		N/A		< 0.0713	
Acetone	67-64-1	mg/kg	SW8260	N	N/A		< 0.17		N/A		N/A		N/A		**0.391**	J	< 0.0627		N/A		N/A		**0.186**	J
Acrylonitrile	107-13-1	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	J
Benzene	71-43-2	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Bromobenzene	108-86-1	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Bromochlormethane	74-97-5	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE	
				Location Name	O14-SED24		Q16-SED23		S17-SED22		U18-SED21		U21-SED20		T20-SED		T20-SED		R22-SED19		P23-SED18		N24-SED	
				Sample Name	O14-SED24-0.5-122911		Q16-SED23-0.5-122911		S17-SED22-0.5-122811		U18-SED21-0.5-122811		U21-SED20-0.5-122811		T20-SED-TOP		T20-SED-BOTTOM		R22-SED19-0.5-122811		P23-SED18-0.5-122811		N24-SED-TOP	
				Sample Date	12/29/2011		12/29/2011		12/28/2011		12/28/2011		12/28/2011		7/19/2012		7/19/2012		12/28/2011		12/28/2011		7/19/2012	
				Start Depth	0		0		0		0		0		0		10		0		0		0	
				End Depth	0.5		0.5		0.5		0.5		0.5		10		20		0.5		0.5		10	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																				
Bromodichloromethane	75-27-4	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Bromoform	75-25-2	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Bromomethane	74-83-9	mg/kg	SW8260	N	N/A		< 0.0341	J	N/A		N/A		N/A		< 0.0153		< 0.0125		N/A		N/A		< 0.0143	
Carbon disulfide	75-15-0	mg/kg	SW8260	N	N/A		N/A		N/A		N/A		N/A		< 0.0153		< 0.0125		N/A		N/A		< 0.0143	
Carbon tetrachloride	56-23-5	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Chlorobenzene	108-90-7	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Chloroethane	75-00-3	mg/kg	SW8260	N	N/A		< 0.0341	J	N/A		N/A		N/A		< 0.0153		< 0.0125		N/A		N/A		< 0.0143	
Chloroform	67-66-3	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Chloromethane	74-87-3	mg/kg	SW8260	N	N/A		< 0.0341	J	N/A		N/A		N/A		< 0.0153		< 0.0125		N/A		N/A		< 0.0143	J
cis-1,2-Dichloroethylene	156-59-2	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
cis-1,3-Dichloropropene	10061-01-5	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Dibromochloromethane	124-48-1	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Dichlorodifluoromethane	75-71-8	mg/kg	SW8260	N	N/A		< 0.0341	J	N/A		N/A		N/A		< 0.0153	J	< 0.0125	J	N/A		N/A		< 0.0143	J
Diisopropyl ether (DIPE)	108-20-3	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	J
Ethanol	64-17-5	mg/kg	SW8260	N	N/A		< 6.81		N/A		N/A		N/A		< 3.07		< 2.51		N/A		N/A		< 2.85	J
Ethyl ether	60-29-7	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Ethylbenzene	100-41-4	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Ethyl-t-butyl ether (ETBE)	637-92-3	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	J
Freon 113	76-13-1	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Isopropylbenzene	98-82-8	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
m,p-Xylenes	1330-20-7-M,P	mg/kg	SW8260	N	N/A		< 0.0341		N/A		N/A		N/A		< 0.0153		< 0.0125		N/A		N/A		< 0.0143	
m-Dichlorobenzene	541-73-1	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Methyl Isobutyl Ketone	108-10-1	mg/kg	SW8260	N	N/A		< 0.17		N/A		N/A		N/A		< 0.0767		< 0.0627		N/A		N/A		< 0.0713	
Methyl Tert Butyl Ether (MTBE)	1634-04-4	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Methylene bromide	74-95-3	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Methylene chloride	75-09-2	mg/kg	SW8260	N	N/A		< 0.0341	J	N/A		N/A		N/A		< 0.0153		< 0.0125		N/A		N/A		< 0.0143	
Naphthalene	91-20-3	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
n-Butylbenzene	104-51-8	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
n-Propylbenzene	103-65-1	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
o-Chlorotoluene	95-49-8	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
o-Xylene	95-47-6	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
p-Chlorotoluene	106-43-4	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
p-Isopropyltoluene	99-87-6	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		**0.0195**		< 0.0063		N/A		N/A		< 0.0071	
sec-Butylbenzene	135-98-8	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Styrene	100-42-5	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
tert-Amyl Methyl Ether (TAME)	994-05-8	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Tert-butyl alcohol	75-65-0	mg/kg	SW8260	N	N/A		< 0.17		N/A		N/A		N/A		< 0.0767		< 0.0627		N/A		N/A		< 0.0713	J
tert-butylbenzene	98-06-6	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Tetrachloroethylene	127-18-4	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Tetrahydrofuran	109-99-9	mg/kg	SW8260	N	N/A		< 0.0341		N/A		N/A		N/A		< 0.0153		< 0.0125		N/A		N/A		< 0.0143	
Toluene	108-88-3	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		**0.0582**		< 0.0063		N/A		N/A		< 0.0071	
Total Xylenes	RACALC-XYL	mg/kg	SW8260	N	N/A		< 0.0341		N/A		N/A		N/A		< 0.0153		< 0.0125		N/A		N/A		< 0.0143	
trans-1,2-Dichloroethylene	156-60-5	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
trans-1,3-Dichloropropene	10061-02-6	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Trans-1,4-Dichloro-2-Butene	110-57-6	mg/kg	SW8260	N	N/A		< 0.0852		N/A		N/A		N/A		< 0.0384		< 0.0314		N/A		N/A		< 0.0357	
Trichloroethene	79-01-6	mg/kg	SW8260	N	N/A		< 0.0170		N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Trichlorofluoromethane	75-69-4	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
Vinyl chloride	75-01-4	mg/kg	SW8260	N	N/A		< 0.0170	J	N/A		N/A		N/A		< 0.0077		< 0.0063		N/A		N/A		< 0.0071	
1,2,4,5-Tetrachlorobenzene	95-94-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
1-Methylnaphthalene	90-12-0	mg/kg	SW8270	N	< 0.482		< 0.48		< 0.48		< 0.976		< 0.951		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
2,4,5-Trichlorophenol	95-95-4	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
2,4,6-Trichlorophenol	88-06-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
2,4-Dichlorophenol	120-83-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
2,4-Dimethylphenol	105-67-9	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
2,4-Dinitrophenol	51-28-5	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93	J	< 0.417	J	N/A		N/A		< 1.99	J
2,4-Dinitrotoluene	121-14-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
2,6-Dinitrotoluene	606-20-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
2-Chloronaphthalene	91-58-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
2-Chlorophenol	95-57-8	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
2-Methylnaphthalene	91-57-6	mg/kg	SW8270	N	< 0.482		< 0.48		< 0.48		< 0.976		< 0.951		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
2-Methylphenol	95-48-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
2-Nitroaniline	88-74-4	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11A-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE	
				Location Name	O14-SED24		Q16-SED23		S17-SED22		U18-SED21		U21-SED20		T20-SED		T20-SED		R22-SED19		P23-SED18		N24-SED	
				Sample Name	O14-SED24-0.5-122911		Q16-SED23-0.5-122911		S17-SED22-0.5-122811		U18-SED21-0.5-122811		U21-SED20-0.5-122811		T20-SED-TOP		T20-SED-BOTTOM		R22-SED19-0.5-122811		P23-SED18-0.5-122811		N24-SED-TOP	
				Sample Date	12/29/2011		12/29/2011		12/28/2011		12/28/2011		12/28/2011		7/19/2012		7/19/2012		12/28/2011		12/28/2011		7/19/2012	
				Start Depth	0		0		0		0		0		0		10		0		0		0	
				End Depth	0.5		0.5		0.5		0.5		0.5		10		20		0.5		0.5		10	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																				
2-Nitrophenol	88-75-5	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
3,3-Dichlorobenzidine	91-94-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
3-Nitroaniline	99-09-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
4,6-Dinitro-2-methylphenol	534-52-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93	J	< 0.417	J	N/A		N/A		< 1.99	J
4-Bromophenyl phenyl ehter	101-55-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
4-Chloro-3-methylphenol	59-50-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
4-Chlorophenyl phenyl ehter	7005-72-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
4-Methylphenol	106-44-5	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
4-Nitrophenol	100-02-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 7.73	J	< 1.67	J	N/A		N/A		< 7.95	J
Acenaphthene	83-32-9	mg/kg	SW8270	N	< 0.482		< 0.48		< 0.48		< 0.976		< 0.951		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Acenaphthylene	208-96-8	mg/kg	SW8270	N	< 0.482	J	< 0.48		< 0.48		< 0.976		< 0.951		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Aniline	62-53-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93	J	< 0.417	J	N/A		N/A		< 1.99	J
Anthracene	120-12-7	mg/kg	SW8270	N	< 0.482		< 0.48		< 0.48		< 0.976		**1.03**		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Azobenzene	103-33-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
Benzidine	92-87-5	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93	J	< 0.417	J	N/A		N/A		< 1.99	J
Benzo(a)anthracene	56-55-3	mg/kg	SW8270	N	**0.744**		< 0.48		< 0.48		< 0.976		**1.79**		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Benzo(a)pyrene	50-32-8	mg/kg	SW8270	N	**0.714**		< 0.48		< 0.48		< 0.976		**1.29**		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Benzo(b)fluoranthene	205-99-2	mg/kg	SW8270	N	**0.642**		< 0.48		< 0.48		< 0.976		**1.34**		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Benzo(g,h,i)perylene	191-24-2	mg/kg	SW8270	N	< 0.482		< 0.48		< 0.48		< 0.976		< 0.951		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Benzo(k)fluoranthene	207-08-9	mg/kg	SW8270	N	**0.763**		< 0.48	J	< 0.48		< 0.976		**1.43**		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Benzoic acid	65-85-0	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93	J	< 0.417	J	N/A		N/A		< 1.99	J
Benzyl alcohol	100-51-6	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93	J	< 0.417	J	N/A		N/A		< 1.99	J
Benzyl butyl phthalate	85-68-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
Bis(2-chloroethoxy)methane	111-91-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
Bis(2-chloroethyl)ether	111-44-4	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977	J	< 0.211	J	N/A		N/A		< 1.01	J
Bis(2-chloroisopropyl)ether	108-60-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977	J	< 0.211	J	N/A		N/A		< 1.01	J
Bis(2-ethylhexyl)phthalate	117-81-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
Carbazole	86-74-8	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
Chrysene	218-01-9	mg/kg	SW8270	N	**0.843**		< 0.48	J	< 0.48		< 0.976		**1.91**		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Dibenzo(a,h)anthracene	53-70-3	mg/kg	SW8270	N	< 0.482		< 0.48		< 0.48		< 0.976		< 0.951		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Dibenzofuran	132-64-9	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
Diethy phthalate	84-66-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
Dimethyl phthalate	131-11-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
Di-n-butyl phthalate	84-74-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
Di-n-octyl phthalate	117-84-0	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
Fluoranthene	206-44-0	mg/kg	SW8270	N	**1.92**		< 0.48		< 0.48		< 0.976		**5.27**		< 0.977		< 0.211		**1.29**		< 0.453		**1.76**	J
Fluorene	86-73-7	mg/kg	SW8270	N	< 0.482		< 0.48		< 0.48		< 0.976		< 0.951		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977	J	< 0.211	J	N/A		N/A		< 1.01	J
Hexachlorobenzene	118-74-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
Hexachlorocyclopentadiene	77-47-4	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
Hexachloroethane	67-72-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977	J	< 0.211	J	N/A		N/A		< 1.01	J
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	SW8270	N	< 0.482		< 0.48		< 0.48		< 0.976		< 0.951		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
m-Dichlorobenzene	541-73-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
Methanamine, n-methyl-n-nitroso	62-75-9	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977	J	< 0.211	J	N/A		N/A		< 1.01	J
Naphthalene	91-20-3	mg/kg	SW8270	N	< 0.482		< 0.48		< 0.48		< 0.976		< 0.951		< 0.977		< 0.211		< 0.932		< 0.453		< 1.01	J
Nitrobenzene	98-95-3	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
N-Nitroso-di-n-propylamine	621-64-7	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
N-Nitrosodiphenylamine	86-30-6	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
p-Chlororaniline	106-47-8	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977		< 0.211		N/A		N/A		< 1.01	J
Pentachlornitrobenzene	82-68-8	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
Pentachlorophenol	87-86-5	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93	J	< 0.417	J	N/A		N/A		< 1.99	J
Phenanthrene	85-01-8	mg/kg	SW8270	N	**0.773**		< 0.48		< 0.48		< 0.976		**4.44**		< 0.977		< 0.211		< 0.932		< 0.453		**1.07**	J
Phenol	108-95-2	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93		< 0.417		N/A		N/A		< 1.99	J
p-Nitroaniline	100-01-6	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 0.977	J	< 0.211	J	N/A		N/A		< 1.01	J
Pyrene	129-00-0	mg/kg	SW8270	N	**1.52**		< 0.48	J	< 0.48		< 0.976		**3.85**		< 0.977		< 0.211		< 0.932		< 0.453		**1.43**	J
Pyridine	110-86-1	mg/kg	SW8270	N	N/A		N/A		N/A		N/A		N/A		< 1.93	J	< 0.417	J	N/A		N/A		< 1.99	J
Total High Molecular Weight PAHs	RACALC-HPAH	mg/kg	SW8270	N	**5.23**		< 0.48		< 0.48		< 0.976		**11.6**		< 0.977		< 0.211		< 0.932		< 0.453		**1.43**	
Total Low Molecular Weight PAHs	RACALC-LPAH	mg/kg	SW8270	N	**2.69**		< 0.48		< 0.48		< 0.976		**10.7**		< 0.977		< 0.211		**1.29**		< 0.453		**2.83**	
Total PAHs	CALC-PAHs	mg/kg	SW8270	N	**7.919**		< 0.48		< 0.48		< 0.976		**22.35**		< 0.977		< 0.211		**1.29**		< 0.453		**4.26**	
Total PAHs	RACALC-PAH	mg/kg	SW8270	N	**7.92**		< 0.48		< 0.48		< 0.976		**22.3**		< 0.977		< 0.211		**1.29**		< 0.453		**4.26**	
Cyanide	57-12-5	mg/kg	SW9012	N	N/A		< 1.40		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	SW9060	N	N/A		**5890**		N/A		N/A		N/A		N/A		N/A		**8400**		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	TOCLLOYDKAHN	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		**5260**	

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE	
				Location Name	N24-SED		N24-SED17		L25-SED16		I26-SED15		H27-SED11		G27-SED12		H28-SED06		F27-SED13		G28-SED07		F28-SED08	
				Sample Name	N24-SED-BOTTOM		N24-SED17-0.5-122811		L25-SED16-0.5-122811		I26-SED15-0.5-122811		H27-SED11-0.5-122811		G27-SED12-05-122811		H28-SED06-0.5-122811		F27-SED13-0.5-122811		G28-SED07-0.5-122811		F28-SED08-05-122811	
				Sample Date	7/19/2012		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011	
				Start Depth	10		0		0		0		0		0		0		0		0		0	
				End Depth	20		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																				
Antimony	7440-36-0	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Arsenic	7440-38-2	umol/g	6010B	SEM	**0.014**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Barium	7440-39-3	umol/g	6010B	SEM	**0.31**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Beryllium	7440-41-7	umol/g	6010B	SEM	**0.03**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cadmium	7440-43-9	umol/g	6010B	SEM	< 0.0015		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Chromium	7440-47-3	umol/g	6010B	SEM	**0.047**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Copper	7440-50-8	umol/g	6010B	SEM	**0.086**	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lead	7439-92-1	umol/g	6010B	SEM	**0.071**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Nickel	7440-02-0	umol/g	6010B	SEM	**0.034**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Selenium	7782-49-2	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Silver	7440-22-4	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sulfide	18496-25-8	umol/g	6010B	SEM	**1.3**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Thallium	7440-28-0	umol/g	6010B	SEM	< 0.0032		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Vanadium	7440-62-2	umol/g	6010B	SEM	**0.094**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Zinc	7440-66-6	umol/g	6010B	SEM	**0.32**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
PH	PH	pH units	A423	N	**7.08**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Aviation Fuel	AVIAT FUEL	mg/kg	CTETPH	N	N/A		< 44.1		< 33.8		< 36.2		< 37.9		< 38.1		< 170	J	< 113	J	< 120	J	< 135	J
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	mg/kg	CTETPH	N	N/A		**158**		**129**		**92.8**		**207**		**253**		**2260**	J	**820**	J	**643**		**1300**	J
Gasoline	PHCG	mg/kg	CTETPH	N	N/A		< 44.1		< 33.8		< 36.2		< 37.9		< 38.1		< 170	J	< 113	J	< 120	J	< 135	J
Motor Oil	Motor Oil	mg/kg	CTETPH	N	N/A		< 44.1		< 33.8		< 36.2		< 37.9		< 38.1		< 170	J	< 113	J	< 120	J	< 135	J
Other Oil	OTHEROIL	mg/kg	CTETPH	N	N/A		< 44.1		< 33.8		< 36.2		< 37.9		< 38.1		< 170	J	< 113	J	< 120	J	< 135	J
PHC as Fuel Oil #2	PHCFO2	mg/kg	CTETPH	N	N/A		< 44.1		< 33.8		< 36.2		< 37.9		< 38.1		< 170	J	< 113	J	< 120	J	< 135	J
PHC as Fuel Oil #4	PHCFO4	mg/kg	CTETPH	N	N/A		< 44.1		< 33.8		< 36.2		< 37.9		< 38.1		< 170	J	< 113	J	< 120	J	< 135	J
PHC as Fuel Oil #6	PHCFO6	mg/kg	CTETPH	N	N/A		< 44.1		< 33.8		< 36.2		< 37.9		< 38.1		< 170	J	< 113	J	< 120	J	< 135	J
Total Petroleum Hydrocarbons	TPH	mg/kg	CTETPH	N	N/A		**158**		**129**		**92.8**		**207**		**253**		**2260**	J	**820**	J	**643**		**1300**	J
Unidentified	UNIND	mg/kg	CTETPH	N	N/A		**158**		**129**		**92.8**		**207**		**253**		**2260**	J	**820**	J	**643**		**1300**	J
PMOIST	PMOIST	%	D2216	N	**25**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Solids	SOLIDS, PERCENT	%	D2216	N	**76.4**		**59.4**		**76.8**		**71.8**		**68.9**		**69.1**		**15.6**		**23.2**		**21.7**		**19.7**	
Fractional % Sieve #10 (4750-2000um)	SIEVE10	%	D422	N	**12.5**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		**2.26**	
Fractional % Sieve #100 (250-150um)	SIEVE100	%	D422	N	**4.7**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		**12.7**	
Fractional % Sieve #20 (2000-850um)	SIEVE20	%	D422	N	**25.7**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		**9.89**	
Fractional % Sieve #200 (150-75um)	SIEVE200	%	D422	N	**5.13**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		**16.4**	
Fractional % Sieve #230 (less than 75um)	SIEVE230	%	D422	N	**4.04**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		**24.9**	
Fractional % Sieve #4 (>4750um)	SIEVE4	%	D422	N	**3.53**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		**0.282**	
Fractional % Sieve #40 (850-425um)	SIEVE40	%	D422	N	**32.6**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		**19.5**	
Fractional % Sieve #60 (425-250um)	SIEVE60	%	D422	N	**11.8**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		**14.1**	
Solids	SOLIDS, PERCENT	%	E160.3	N	**76**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	ETOC.LK	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Oxidation/Reduction Potential	ORP	Eh	ORP	N	**532**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Specific Conductivity	SC	ms/cm	SM2510B	N	**83.5**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Antimony	7440-36-0	mg/kg	SW6010	N	< 6.15		< 7.93		< 6.08		< 5.83		< 6.45		< 6.91		< 26.9	J	< 20.9	J	< 20.6	J	< 21.7	J
Arsenic	7440-38-2	mg/kg	SW6010	N	**2.56**		**6.29**		< 1.82		**1.84**		**2.43**		**6.33**		**15**	J	**12.5**	J	**12.7**		**10.6**	J
Barium	7440-39-3	mg/kg	SW6010	N	**111**		**48.6**		**41.7**		**39.4**		**51**		**45.5**		**409**	J	**369**	J	**412**		**283**	J
Beryllium	7440-41-7	mg/kg	SW6010	N	< 0.615		< 0.793		< 0.608		< 0.583		< 0.645		< 0.691		< 2.69	J	< 2.09	J	< 2.06	J	< 2.17	J
Cadmium	7440-43-9	mg/kg	SW6010	N	< 0.615		< 0.793		< 0.608		< 0.583		< 0.645		< 0.691		**3.31**	J	**2.86**	J	**3.15**		< 2.17	J
Chromium	7440-47-3	mg/kg	SW6010	N	**23.5**		**11.9**		**9.41**		**7.16**		**10.7**		**10.7**		**65.8**	J	**56.9**	J	**57.6**		**44.8**	J
Copper	7440-50-8	mg/kg	SW6010	N	**17**		**12**		**11.3**		**10.5**		**12**		**11.6**		**173**	J	**143**	J	**160**		**104**	J
Lead	7439-92-1	mg/kg	SW6010	N	**12**		**16.6**	J+	**8.53**	J+	**13.7**	J+	**15.6**	J+	**17**		**220**	J	**174**	J	**198**	J+	**125**	J
Nickel	7440-02-0	mg/kg	SW6010	N	**12**		**6.72**		**6.58**		**6.47**		**7.86**		**8.58**		**45.1**	J	**41.2**	J	**42.9**		**32**	J
Selenium	7782-49-2	mg/kg	SW6010	N	< 1.84		< 2.38		< 1.82		< 1.75		< 1.94		< 2.07		< 8.06	J	< 6.26	J	< 6.17	J	< 6.52	J
Silver	7440-22-4	mg/kg	SW6010	N	< 1.84		< 2.38		< 1.82		< 1.75		< 1.94		< 2.07		< 8.06	J	< 6.26	J	< 6.17	J	< 6.52	J
Thallium	7440-28-0	mg/kg	SW6010	N	< 3.69		< 4.76		< 3.65		< 3.50		< 3.87		< 4.15		< 16.1	J	< 12.5	J	< 12.3	J	< 13.0	J
Vanadium	7440-62-2	mg/kg	SW6010	N	**24.2**		**16.2**		**11.7**		**9.05**		**12.5**		**12.1**		**67.4**	J	**57.9**	J	**58.9**		**43.9**	J
Zinc	7440-66-6	mg/kg	SW6010	N	**47.1**		**46.2**		**35**		**33**		**52.9**		**60.6**		**507**	J	**471**	J	**457**		**346**	J
Mercury	7439-97-6	mg/kg	SW7470A	N	< 0.0360		< 0.0490		< 0.0373		< 0.0402		< 0.0413		**0.111**		**0.377**	J	**0.332**	J	**0.398**		**0.258**	J
Mercury	7439-97-6	umol/g	SW7470A	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
4,4-DDD (p,p)	72-54-8	mg/kg	SW8081	N	< 0.0101		< 0.0134		< 0.0101		< 0.0109		< 0.0114		< 0.0114		< 0.0507	J	**0.0434**	J	< 0.0364	J	< 0.0389	J
4,4-DDE (p,p)	72-55-9	mg/kg	SW8081	N	**0.00632**		**0.0104**		**0.00759**		**0.00807**		**0.0105**		**0.00995**		< 0.0317	J	**0.0601**	J	**0.05**	J	**0.0442**	J
4,4-DDT (p,p)	50-29-3	mg/kg	SW8081	N	< 0.0101		< 0.0134		< 0.0101		< 0.0109		< 0.0114		< 0.0114		< 0.0507	J	< 0.0341	J	< 0.0364	J	< 0.0389	J
Alachlor	15972-60-8	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
Aldrin	309-00-2	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
alpha-Chlordane	5103-71-9	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	**0.0275**	J	< 0.0227	J	< 0.0243	J
Camphechlor	8001-35-2	mg/kg	SW8081	N	< 0.126		< 0.168		< 0.126		< 0.136		< 0.143		< 0.143		< 0.633	J	< 0.426	J	< 0.454	J	< 0.487	J
Chlordane	57-74-9	mg/kg	SW8081	N	**0.0252**		**0.0412**		< 0.0252		**0.0279**		**0.0596**		**0.0352**		< 0.127	J	**0.14**	J	**0.12**	J	**0.157**	J
delta-BHC	319-86-8	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
Dieldrin	60-57-1	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE	
				Location Name	N24-SED		N24-SED17		L25-SED16		I26-SED15		H27-SED11		G27-SED12		H28-SED06		F27-SED13		G28-SED07		F28-SED08	
				Sample Name	N24-SED-BOTTOM		N24-SED17-0.5-122811		L25-SED16-0.5-122811		I26-SED15-0.5-122811		H27-SED11-0.5-122811		G27-SED12-05-122811		H28-SED06-0.5-122811		F27-SED13-0.5-122811		G28-SED07-0.5-122811		F28-SED08-05-122811	
				Sample Date	7/19/2012		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011	
				Start Depth	10		0		0		0		0		0		0		0		0		0	
				End Depth	20		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																				
Endosulfan I	959-98-8	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
Endosulfan II	33213-65-9	mg/kg	SW8081	N	< 0.0101		< 0.0134		< 0.0101		< 0.0109		< 0.0114		< 0.0114		< 0.0507	J	< 0.0341	J	< 0.0364	J	< 0.0389	J
Endosulfan sulfate	1031-07-8	mg/kg	SW8081	N	< 0.0101		< 0.0134		< 0.0101		< 0.0109		< 0.0114		< 0.0114		< 0.0507	J	< 0.0341	J	< 0.0364	J	< 0.0389	J
Endrin	72-20-8	mg/kg	SW8081	N	< 0.0101		< 0.0134		< 0.0101		< 0.0109		< 0.0114		< 0.0114		< 0.0507	J	< 0.0341	J	< 0.0364	J	< 0.0389	J
Endrin aldehyde	7421-93-4	mg/kg	SW8081	N	< 0.0101		< 0.0134		< 0.0101		< 0.0109		< 0.0114		< 0.0114		< 0.0507	J	< 0.0341	J	< 0.0364	J	< 0.0389	J
Endrin ketone	53494-70-5	mg/kg	SW8081	N	< 0.0101		< 0.0134		< 0.0101		< 0.0109		< 0.0114		< 0.0114		< 0.0507	J	< 0.0341	J	< 0.0364	J	< 0.0389	J
gamma-Chlordane	5103-74-2	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
Heptachlor	76-44-8	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
Heptachlor epoxide	1024-57-3	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
Hexachlorocyclohexane, alpha	319-84-6	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
Hexachlorocyclohexane, beta	319-85-7	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	mg/kg	SW8081	N	< 0.00630		< 0.00839		< 0.00630		< 0.00681		< 0.00713		< 0.00713		< 0.0317	J	< 0.0213	J	< 0.0227	J	< 0.0243	J
Methoxychlor	72-43-5	mg/kg	SW8081	N	< 0.0101		< 0.0134		< 0.0101		< 0.0109		< 0.0114		< 0.0114		< 0.0507	J	< 0.0341	J	< 0.0364	J	< 0.0389	J
Total DDx	RACALC-DDx	mg/kg	SW8081	N	**0.00632**		**0.0104**		**0.00759**		**0.00807**		**0.0105**		**0.00995**		< 0.0507		**0.103**		**0.05**		**0.0442**	
Total Endosulfans	RACALC-ENDO	mg/kg	SW8081	N	< 0.0101		< 0.0134		< 0.0101		< 0.0109		< 0.0114		< 0.0114		< 0.0507		< 0.0341		< 0.0364		< 0.0389	
Aroclor 1016	12674-11-2	mg/kg	SW8082	N	< 0.0243		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
Aroclor 1221	11104-28-2	mg/kg	SW8082	N	< 0.0243		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
Aroclor 1232	11141-16-5	mg/kg	SW8082	N	< 0.0243		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
Aroclor 1242	53469-21-9	mg/kg	SW8082	N	< 0.0243		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
Aroclor 1248	12672-29-6	mg/kg	SW8082	N	**0.101**		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
Aroclor 1254	11097-69-1	mg/kg	SW8082	N	< 0.0243		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
Aroclor 1260	11096-82-5	mg/kg	SW8082	N	< 0.0243		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
Aroclor 1262	37324-23-5	mg/kg	SW8082	N	< 0.0243		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
Aroclor 1268	11100-14-4	mg/kg	SW8082	N	< 0.0243		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
Total PCB Aroclors	RACALC-PCB	mg/kg	SW8082	N	**0.101**		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119		< 0.0852		< 0.0907		< 0.0939	
Total PCBs	CALC-PCBs	mg/kg	SW8082	N	**0.101**		< 0.0313		< 0.0252		< 0.0265		< 0.0279		< 0.0270		< 0.119	J	< 0.0852	J	< 0.0907	J	< 0.0939	J
2,2-Dichloropropionic acid	75-99-0	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 0.00948		N/A		N/A		N/A		< 0.0338	J
2,4,5-T	93-76-5	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 0.00948		N/A		N/A		N/A		< 0.0338	J
2,4,5-TP (Silvex)	93-72-1	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 0.00948		N/A		N/A		N/A		< 0.0338	J
2,4-DB	94-82-6	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 0.00948		N/A		N/A		N/A		< 0.0338	J
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 0.00948		N/A		N/A		N/A		< 0.0338	J
Dicamba	1918-00-9	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 0.00948		N/A		N/A		N/A		< 0.0338	J
Dichloroprop	120-36-5	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 0.00948		N/A		N/A		N/A		< 0.0338	J
Dinitrobutyl phenol	88-85-7	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 0.00948		N/A		N/A		N/A		< 0.0338	J
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 3.18		N/A		N/A		N/A		< 11.3	J
MCPB	94-81-5	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 3.18		N/A		N/A		N/A		< 11.3	J
MCPP	93-65-2	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		< 3.18		N/A		N/A		N/A		< 11.3	J
1,1,1,2-Tetrachloroethane	630-20-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,1,1-Trichloroethane	71-55-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,1,2-Trichloroethane	79-00-5	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,1-Dichloroethane	75-34-3	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,1-Dichloroethylene	75-35-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,1-Dichloropropene	563-58-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,2,3-Trichlorobenzene	87-61-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,2,3-Trichloropropane	96-18-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,2,4-Trimethylbenzene	95-63-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,2-Dibromo-3-chloropropane	96-12-8	mg/kg	SW8260	N	< 0.0209		N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	J
1,2-Dibromoethane	106-93-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,2-Dichloroethane	107-06-2	mg/kg	SW8260	N	< 0.0105	J	N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,2-Dichloropropane	78-87-5	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,3,5-Trichlorobenzene	108-70-3	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,3,5-Trimethylbenzene	108-67-8	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,3-Dichloropropane	142-28-9	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,4-Dioxane	123-91-1	mg/kg	SW8260	N	< 0.209	J	N/A		N/A		N/A		N/A		< 0.202		N/A		N/A		N/A		< 10.2	J
2,2-Dichloropropane	594-20-7	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
2-Butanone (MEK)	78-93-3	mg/kg	SW8260	N	< 0.105	J	N/A		N/A		N/A		N/A		< 0.101		N/A		N/A		N/A		< 5.08	J
2-Hexanone	591-78-6	mg/kg	SW8260	N	< 0.105		N/A		N/A		N/A		N/A		< 0.101		N/A		N/A		N/A		< 5.08	J
Acetone	67-64-1	mg/kg	SW8260	N	< 0.105	J	N/A		N/A		N/A		N/A		< 0.101		N/A		N/A		N/A		< 5.08	J
Acrylonitrile	107-13-1	mg/kg	SW8260	N	< 0.0105	J	N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Benzene	71-43-2	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Bromobenzene	108-86-1	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Bromochlormethane	74-97-5	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE	
				Location Name	N24-SED		N24-SED17		L25-SED16		I26-SED15		H27-SED11		G27-SED12		H28-SED06		F27-SED13		G28-SED07		F28-SED08	
				Sample Name	N24-SED-BOTTOM		N24-SED17-0.5-122811		L25-SED16-0.5-122811		I26-SED15-0.5-122811		H27-SED11-0.5-122811		G27-SED12-05-122811		H28-SED06-0.5-122811		F27-SED13-0.5-122811		G28-SED07-0.5-122811		F28-SED08-05-122811	
				Sample Date	7/19/2012		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011	
				Start Depth	10		0		0		0		0		0		0		0		0		0	
				End Depth	20		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																				
Bromodichloromethane	75-27-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Bromoform	75-25-2	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Bromomethane	74-83-9	mg/kg	SW8260	N	< 0.0209		N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	J
Carbon disulfide	75-15-0	mg/kg	SW8260	N	< 0.0209		N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	J
Carbon tetrachloride	56-23-5	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Chlorobenzene	108-90-7	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Chloroethane	75-00-3	mg/kg	SW8260	N	< 0.0209		N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	J
Chloroform	67-66-3	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Chloromethane	74-87-3	mg/kg	SW8260	N	< 0.0209	J	N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	J
cis-1,2-Dichloroethylene	156-59-2	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
cis-1,3-Dichloropropene	10061-01-5	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Dibromochloromethane	124-48-1	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Dichlorodifluoromethane	75-71-8	mg/kg	SW8260	N	< 0.0209	J	N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	J
Diisopropyl ether (DIPE)	108-20-3	mg/kg	SW8260	N	< 0.0105	J	N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Ethanol	64-17-5	mg/kg	SW8260	N	< 4.19	J	N/A		N/A		N/A		N/A		< 4.04		N/A		N/A		N/A		< 203	J
Ethyl ether	60-29-7	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Ethylbenzene	100-41-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Ethyl-t-butyl ether (ETBE)	637-92-3	mg/kg	SW8260	N	< 0.0105	J	N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Freon 113	76-13-1	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101	J	N/A		N/A		N/A		< 0.508	J
Isopropylbenzene	98-82-8	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
m,p-Xylenes	1330-20-7-M,P	mg/kg	SW8260	N	< 0.0209		N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	J
m-Dichlorobenzene	541-73-1	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Methyl Isobutyl Ketone	108-10-1	mg/kg	SW8260	N	< 0.105		N/A		N/A		N/A		N/A		< 0.101		N/A		N/A		N/A		< 5.08	J
Methyl Tert Butyl Ether (MTBE)	1634-04-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Methylene bromide	74-95-3	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Methylene chloride	75-09-2	mg/kg	SW8260	N	< 0.0209		N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	J
Naphthalene	91-20-3	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
n-Butylbenzene	104-51-8	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
n-Propylbenzene	103-65-1	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
o-Chlorotoluene	95-49-8	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
o-Xylene	95-47-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
p-Chlorotoluene	106-43-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
p-Isopropyltoluene	99-87-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
sec-Butylbenzene	135-98-8	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Styrene	100-42-5	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
tert-Amyl Methyl Ether (TAME)	994-05-8	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Tert-butyl alcohol	75-65-0	mg/kg	SW8260	N	< 0.105	J	N/A		N/A		N/A		N/A		< 0.101		N/A		N/A		N/A		< 5.08	J
tert-butylbenzene	98-06-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Tetrachloroethylene	127-18-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Tetrahydrofuran	109-99-9	mg/kg	SW8260	N	< 0.0209		N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	J
Toluene	108-88-3	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Total Xylenes	RACALC-XYL	mg/kg	SW8260	N	< 0.0209		N/A		N/A		N/A		N/A		< 0.0202		N/A		N/A		N/A		< 1.02	
trans-1,2-Dichloroethylene	156-60-5	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
trans-1,3-Dichloropropene	10061-02-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Trans-1,4-Dichloro-2-Butene	110-57-6	mg/kg	SW8260	N	< 0.0523		N/A		N/A		N/A		N/A		< 0.0505		N/A		N/A		N/A		< 2.54	J
Trichloroethene	79-01-6	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Trichlorofluoromethane	75-69-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
Vinyl chloride	75-01-4	mg/kg	SW8260	N	< 0.0105		N/A		N/A		N/A		N/A		< 0.0101		N/A		N/A		N/A		< 0.508	J
1,2,4,5-Tetrachlorobenzene	95-94-3	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
1-Methylnaphthalene	90-12-0	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		**2.19**	J	< 2.79	J	< 1.49	J	< 2.02	J
2,4,5-Trichlorophenol	95-95-4	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
2,4,6-Trichlorophenol	88-06-2	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
2,4-Dichlorophenol	120-83-2	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
2,4-Dimethylphenol	105-67-9	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
2,4-Dinitrophenol	51-28-5	mg/kg	SW8270	N	< 0.431	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
2,4-Dinitrotoluene	121-14-2	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
2,6-Dinitrotoluene	606-20-2	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
2-Chloronaphthalene	91-58-7	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
2-Chlorophenol	95-57-8	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
2-Methylnaphthalene	91-57-6	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		**2.61**	J	< 2.79	J	< 1.49	J	< 2.02	J
2-Methylphenol	95-48-7	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
2-Nitroaniline	88-74-4	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-11B-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE	
				Location Name	N24-SED		N24-SED17		L25-SED16		I26-SED15		H27-SED11		G27-SED12		H28-SED06		F27-SED13		G28-SED07		F28-SED08	
				Sample Name	N24-SED-BOTTOM		N24-SED17-0.5-122811		L25-SED16-0.5-122811		I26-SED15-0.5-122811		H27-SED11-0.5-122811		G27-SED12-05-122811		H28-SED06-0.5-122811		F27-SED13-0.5-122811		G28-SED07-0.5-122811		F28-SED08-05-122811	
				Sample Date	7/19/2012		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011		12/28/2011	
				Start Depth	10		0		0		0		0		0		0		0		0		0	
				End Depth	20		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5	
				Sample Type	N		N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																				
2-Nitrophenol	88-75-5	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
3,3-Dichlorobenzidine	91-94-1	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
3-Nitroaniline	99-09-2	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
4,6-Dinitro-2-methylphenol	534-52-1	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
4-Bromophenyl phenyl ehter	101-55-3	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
4-Chloro-3-methylphenol	59-50-7	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
4-Chlorophenyl phenyl ehter	7005-72-3	mg/kg	SW8270	N	< 0.431	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
4-Methylphenol	106-44-5	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
4-Nitrophenol	100-02-7	mg/kg	SW8270	N	< 1.72	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 11.9	J	N/A	
Acenaphthene	83-32-9	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Acenaphthylene	208-96-8	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Aniline	62-53-3	mg/kg	SW8270	N	< 0.431	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Anthracene	120-12-7	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Azobenzene	103-33-3	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Benzidine	92-87-5	mg/kg	SW8270	N	< 0.431	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Benzo(a)anthracene	56-55-3	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		**0.964**		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Benzo(a)pyrene	50-32-8	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Benzo(b)fluoranthene	205-99-2	mg/kg	SW8270	N	< 0.218	J	< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	**2.23**	J
Benzo(g,h,i)perylene	191-24-2	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Benzo(k)fluoranthene	207-08-9	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Benzoic acid	65-85-0	mg/kg	SW8270	N	< 0.431	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Benzyl alcohol	100-51-6	mg/kg	SW8270	N	< 0.431	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Benzyl butyl phthalate	85-68-7	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Bis(2-chloroethoxy)methane	111-91-1	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Bis(2-chloroethyl)ether	111-44-4	mg/kg	SW8270	N	< 0.218	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Bis(2-chloroisopropyl)ether	108-60-1	mg/kg	SW8270	N	< 0.218	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Bis(2-ethylhexyl)phthalate	117-81-7	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Carbazole	86-74-8	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Chrysene	218-01-9	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	**2.48**	J
Dibenzo(a,h)anthracene	53-70-3	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Dibenzofuran	132-64-9	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Diethy phthalate	84-66-2	mg/kg	SW8270	N	< 0.431	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Dimethyl phthalate	131-11-3	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Di-n-butyl phthalate	84-74-2	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Di-n-octyl phthalate	117-84-0	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Fluoranthene	206-44-0	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		**2.41**		**2.41**	J	**3.1**	J	**1.56**		**5.32**	J
Fluorene	86-73-7	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8270	N	< 0.218	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Hexachlorobenzene	118-74-1	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Hexachlorocyclopentadiene	77-47-4	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Hexachloroethane	67-72-1	mg/kg	SW8270	N	< 0.218	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
m-Dichlorobenzene	541-73-1	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Methanamine, n-methyl-n-nitroso	62-75-9	mg/kg	SW8270	N	< 0.218	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Naphthalene	91-20-3	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		< 0.946		< 2.11	J	< 2.79	J	< 1.49	J	< 2.02	J
Nitrobenzene	98-95-3	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
N-Nitroso-di-n-propylamine	621-64-7	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
N-Nitrosodiphenylamine	86-30-6	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
p-Chloroaniline	106-47-8	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Pentachlornitrobenzene	82-68-8	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Pentachlorophenol	87-86-5	mg/kg	SW8270	N	< 0.431	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Phenanthrene	85-01-8	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		**1.06**		< 2.11	J	< 2.79	J	< 1.49	J	**2.04**	J
Phenol	108-95-2	mg/kg	SW8270	N	< 0.431		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
p-Nitroaniline	100-01-6	mg/kg	SW8270	N	< 0.218		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1.49	J	N/A	
Pyrene	129-00-0	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		**2.08**		< 2.11	J	< 2.79	J	< 1.49	J	**4.44**	J
Pyridine	110-86-1	mg/kg	SW8270	N	< 0.431	J	N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2.97	J	N/A	
Total High Molecular Weight PAHs	RACALC-HPAH	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		**3.04**		< 2.11		< 2.79		< 1.49		**9.15**	
Total Low Molecular Weight PAHs	RACALC-LPAH	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		**3.47**		**7.21**		**3.1**		**1.56**		**7.36**	
Total PAHs	CALC-PAHs	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		**6.514**		**7.21**		**3.1**		**1.56**		**16.51**	
Total PAHs	RACALC-PAH	mg/kg	SW8270	N	< 0.218		< 0.547		< 0.838		< 0.449		< 0.941		**6.51**		**7.21**		**3.1**		**1.56**		**16.5**	
Cyanide	57-12-5	mg/kg	SW9012	N	N/A		N/A		N/A		N/A		N/A		< 1.31		N/A		N/A		N/A		< 5.36	J
Total Organic Carbon	TOC	mg/kg	SW9060	N	N/A		N/A		N/A		N/A		N/A		**7330**	J	N/A		N/A		N/A		**93900**	J
Total Organic Carbon	TOC	mg/kg	TOCLLOYDKAHN	N	**3170**		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE	
				Location Name	F28A-SED		F28A-SED		F28A-SED		G29-SED01		D28-SED08		E29-SED		E29-SED		F29-SED02		D27-SED14		D27-SED14	
				Sample Name	F28A-SED-TOP		F28A-SED-TOP-DUP		F28A-SED-BOTTOM		G29-SED01-0.5-122811		D28-SED08-0.5-122811		E29-SED-TOP		E29-SED-BOTTOM		F29-SED02-0.5-122811		D27-SED14-0.5-122711		D27-SED14-0.5-122711-2	
				Sample Date	7/19/2012		7/19/2012		7/19/2012		12/28/2011		12/28/2011		7/19/2012		7/19/2012		12/28/2011		12/27/2011		12/27/2011	
				Start Depth	0		0		13		0		0		0		14		0		0		0	
				End Depth	13		13		26		0.5		0.5		14		27		0.5		0.5		0.5	
				Sample Type	N		FD		N		N		N		N		N		N		N		FD	
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**																				
Antimony	7440-36-0	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Arsenic	7440-38-2	umol/g	6010B	SEM	0.02		0.015		0.056		N/A		N/A		< 0.028	J	0.034		N/A		N/A		N/A	
Barium	7440-39-3	umol/g	6010B	SEM	1.1		1		1.6		N/A		N/A		2.4	J	1.6		N/A		N/A		N/A	
Beryllium	7440-41-7	umol/g	6010B	SEM	< 0.041		< 0.035		0.069		N/A		N/A		0.072	J	0.076		N/A		N/A		N/A	
Cadmium	7440-43-9	umol/g	6010B	SEM	0.0041		0.0041		0.0099		N/A		N/A		0.011	J	0.01		N/A		N/A		N/A	
Chromium	7440-47-3	umol/g	6010B	SEM	0.077		0.07		0.22		N/A		N/A		0.15	J	0.2		N/A		N/A		N/A	
Copper	7440-50-8	umol/g	6010B	SEM	0.56	J	0.49	J	1.1	J	N/A		N/A		0.32	J	0.41	J	N/A		N/A		N/A	
Lead	7439-92-1	umol/g	6010B	SEM	0.41		0.42		1.3		N/A		N/A		1.3	J	1.8		N/A		N/A		N/A	
Nickel	7440-02-0	umol/g	6010B	SEM	0.12		0.1		0.19		N/A		N/A		0.21	J	0.21		N/A		N/A		N/A	
Selenium	7782-49-2	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		0.027	J	0.066	J	N/A		N/A		N/A	
Silver	7440-22-4	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sulfide	18496-25-8	umol/g	6010B	SEM	12		15		20		N/A		N/A		22		18		N/A		N/A		N/A	
Thallium	7440-28-0	umol/g	6010B	SEM	< 0.0060		< 0.0052		< 0.0071		N/A		N/A		< 0.010	J	< 0.0065		N/A		N/A		N/A	
Vanadium	7440-62-2	umol/g	6010B	SEM	0.23		0.21		0.51		N/A		N/A		0.51	J	0.57		N/A		N/A		N/A	
Zinc	7440-66-6	umol/g	6010B	SEM	2.1		2		3.5		N/A		N/A		4.1	J	3.1		N/A		N/A		N/A	
PH	PH	pH units	A423	N	6.87		6.85		6.77		N/A		N/A		6.79		6.78		N/A		N/A		N/A	
Aviation Fuel	AVIAT FUEL	mg/kg	CTETPH	N	N/A		N/A		N/A		< 101	J	< 157	J	N/A		N/A		< 116	J	< 68.0	J	< 69.2	J
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	mg/kg	CTETPH	N	N/A		N/A		N/A		646	J	979	J	N/A		N/A		519	J	76	J	111	J
Gasoline	PHCG	mg/kg	CTETPH	N	N/A		N/A		N/A		< 101	J	< 157	J	N/A		N/A		< 116	J	< 68.0	J	< 69.2	J
Motor Oil	Motor Oil	mg/kg	CTETPH	N	N/A		N/A		N/A		< 101	J	< 157	J	N/A		N/A		< 116	J	< 68.0	J	< 69.2	J
Other Oil	OTHEROIL	mg/kg	CTETPH	N	N/A		N/A		N/A		< 101	J	< 157	J	N/A		N/A		< 116	J	< 68.0	J	< 69.2	J
PHC as Fuel Oil #2	PHCFO2	mg/kg	CTETPH	N	N/A		N/A		N/A		< 101	J	< 157	J	N/A		N/A		< 116	J	< 68.0	J	< 69.2	J
PHC as Fuel Oil #4	PHCFO4	mg/kg	CTETPH	N	N/A		N/A		N/A		< 101	J	< 157	J	N/A		N/A		< 116	J	< 68.0	J	< 69.2	J
PHC as Fuel Oil #6	PHCFO6	mg/kg	CTETPH	N	N/A		N/A		N/A		< 101	J	< 157	J	N/A		N/A		< 116	J	< 68.0	J	< 69.2	J
Total Petroleum Hydrocarbons	TPH	mg/kg	CTETPH	N	N/A		N/A		N/A		646	J	979	J	N/A		N/A		519	J	76	J	111	J
Unidentified	UNIND	mg/kg	CTETPH	N	N/A		N/A		N/A		646	J	979	J	N/A		N/A		519	J	76	J	111	J
PMOIST	PMOIST	%	D2216	N	60		53		66		N/A		N/A		76		62		N/A		N/A		N/A	
Solids	SOLIDS, PERCENT	%	D2216	N	52.6		45		30.8		25.8		16.9		23.9		42.1		22.7		19.3		19.1	
Fractional % Sieve #10 (4750-2000um)	SIEVE10	%	D422	N	8.28		6.66		15.6		N/A		N/A		13.3		11.5		N/A		N/A		N/A	
Fractional % Sieve #100 (250-150um)	SIEVE100	%	D422	N	8.56		7.59		9.74		N/A		N/A		8.35		2.73		N/A		N/A		N/A	
Fractional % Sieve #20 (2000-850um)	SIEVE20	%	D422	N	25		24.2		16.5		N/A		N/A		17.2		35.1		N/A		N/A		N/A	
Fractional % Sieve #200 (150-75um)	SIEVE200	%	D422	N	6.98		7.71		10.8		N/A		N/A		13.3		1.66		N/A		N/A		N/A	
Fractional % Sieve #230 (less than 75um)	SIEVE230	%	D422	N	8.19		13		22.2		N/A		N/A		25.8		1.32		N/A		N/A		N/A	
Fractional % Sieve #4 (>4750um)	SIEVE4	%	D422	N	1.86	J	0.234	J	4.19		N/A		N/A		0.983		1.66		N/A		N/A		N/A	
Fractional % Sieve #40 (850-425um)	SIEVE40	%	D422	N	28.8		29		12		N/A		N/A		13.3		36.9		N/A		N/A		N/A	
Fractional % Sieve #60 (425-250um)	SIEVE60	%	D422	N	12.3		11.7		8.93		N/A		N/A		7.86		9.26		N/A		N/A		N/A	
Solids	SOLIDS, PERCENT	%	E160.3	N	42		33		29		N/A		N/A		23		43		N/A		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	ETOC.LK	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Oxidation/Reduction Potential	ORP	Eh	ORP	N	520		505		171		N/A		N/A		148		140		N/A		N/A		N/A	
Specific Conductivity	SC	ms/cm	SM2510B	N	287		316		378		N/A		N/A		373		319		N/A		N/A		N/A	
Antimony	7440-36-0	mg/kg	SW6010	N	< 8.28		< 9.41		< 14.5		< 18.0	J	< 24.8	J	< 20.1	J	< 10.6		< 19.8	J	< 25.1	J	< 25.5	J
Arsenic	7440-38-2	mg/kg	SW6010	N	5.09		5.59		23.7		9.68	J	14.9	J	13.1	J	14.8		9.97	J	11.5	J	13.5	J
Barium	7440-39-3	mg/kg	SW6010	N	146		168		357		321	J	457	J	407	J	261		332	J	427	J	453	J
Beryllium	7440-41-7	mg/kg	SW6010	N	< 0.828		< 0.941		1.45		< 1.80	J	< 2.48	J	< 2.01	J	< 1.06		< 1.98	J	< 2.51	J	< 2.55	J
Cadmium	7440-43-9	mg/kg	SW6010	N	< 0.828		< 0.941		2.35		2.23	J	3.07	J	2.51	J	1.99		2.12	J	3.19	J	3.47	J
Chromium	7440-47-3	mg/kg	SW6010	N	26.5		28.7		71.1		53.3	J	62.7	J	67.3	J	55.7		43.5	J	61.4	J	64.7	J
Copper	7440-50-8	mg/kg	SW6010	N	67.3		80.6		185		109	J	151	J	181	J	141		105	J	180	J	194	J
Lead	7439-92-1	mg/kg	SW6010	N	72.3		84		290		136	J	188	J	324	J	341		129	J	318	J	335	J
Nickel	7440-02-0	mg/kg	SW6010	N	19		21.8		48.9		35.3	J	44.9	J	48.6	J	36.3		30	J	42.3	J	46.9	J
Selenium	7782-49-2	mg/kg	SW6010	N	< 2.48		< 2.82		< 4.35		< 5.40	J	< 7.43	J	< 6.03	J	< 3.18		< 5.95	J	< 7.53	J	< 7.66	J
Silver	7440-22-4	mg/kg	SW6010	N	< 2.48		< 2.82		< 4.35		< 5.40	J	< 7.43	J	< 6.03	J	< 3.18		< 5.95	J	< 7.53	J	< 7.66	J
Thallium	7440-28-0	mg/kg	SW6010	N	< 4.97		< 5.65		< 8.70		< 10.8	J	< 14.9	J	< 12.1	J	< 6.36		< 11.9	J	< 15.1	J	< 15.3	J
Vanadium	7440-62-2	mg/kg	SW6010	N	26.5		30.2		74.3		52.2	J	66.5	J	68.7	J	59.8		43.2	J	60.6	J	66	J
Zinc	7440-66-6	mg/kg	SW6010	N	153		179		365		326	J	511	J	433	J	286		355	J	487	J	527	J
Mercury	7439-97-6	mg/kg	SW7470A	N	0.105		0.203		0.43		0.301	J	0.356	J	0.481	J	0.388		0.193	J	0.491	J	0.537	J
Mercury	7439-97-6	umol/g	SW7470A	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
4,4-DDD (p,p)	72-54-8	mg/kg	SW8081	N	< 0.0146		< 0.0170		< 0.0257		< 0.0305	J	< 0.0470	J	0.182	J	0.0362		< 0.0351	J	< 0.0400	J	< 0.0415	J
4,4-DDE (p,p)	72-55-9	mg/kg	SW8081	N	< 0.00913		< 0.0106		0.0263		0.0355	J	0.0645	J	0.164	J	0.0546	J	0.0356	J	0.0325	J	0.0706	J
4,4-DDT (p,p)	50-29-3	mg/kg	SW8081	N	< 0.0146		< 0.0170		< 0.0257		< 0.0305	J	< 0.0470	J	0.0358	J	< 0.0187		< 0.0351	J	< 0.0400	J	< 0.0415	J
Alachlor	15972-60-8	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J
Aldrin	309-00-2	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J
alpha-Chlordane	5103-71-9	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		0.0442	J	< 0.0294	J	0.0881	J	0.023	J	< 0.0219	J	< 0.0250	J	0.0267	J
Camphechlor	8001-35-2	mg/kg	SW8081	N	< 0.183		< 0.212		< 0.321		< 0.381	J	< 0.588	J	< 0.415	J	< 0.234		< 0.439	J	< 0.5	J	< 0.519	J
Chlordane	57-74-9	mg/kg	SW8081	N	< 0.0365		< 0.0424		< 0.0641		0.154	J	0.141	J	0.371	J	0.123		< 0.0877	J	< 0.1	J	0.161	J
delta-BHC	319-86-8	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J
Dieldrin	60-57-1	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE	
				Location Name	F28A-SED		F28A-SED		F28A-SED		G29-SED01		D28-SED08		E29-SED		E29-SED		F29-SED02		D27-SED14		D27-SED14	
				Sample Name	F28A-SED-TOP		F28A-SED-TOP-DUP		F28A-SED-BOTTOM		G29-SED01-0.5-122811		D28-SED08-0.5-122811		E29-SED-TOP		E29-SED-BOTTOM		F29-SED02-0.5-122811		D27-SED14-0.5-122711		D27-SED14-0.5-122711-2	
				Sample Date	7/19/2012		7/19/2012		7/19/2012		12/28/2011		12/28/2011		7/19/2012		7/19/2012		12/28/2011		12/27/2011		12/27/2011	
				Start Depth	0		0		13		0		0		0		14		0		0		0	
				End Depth	13		13		26		0.5		0.5		14		27		0.5		0.5		0.5	
				Sample Type	N		FD		N		N		N		N		N		N		N		FD	
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**																				
Endosulfan I	959-98-8	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J
Endosulfan II	33213-65-9	mg/kg	SW8081	N	< 0.0146		< 0.0170		< 0.0257		< 0.0305	J	< 0.0470	J	< 0.0332	J	< 0.0187		< 0.0351	J	< 0.0400	J	< 0.0415	J
Endosulfan sulfate	1031-07-8	mg/kg	SW8081	N	< 0.0146		< 0.0170		< 0.0257		< 0.0305	J	< 0.0470	J	< 0.0332	J	< 0.0187		< 0.0351	J	< 0.0400	J	< 0.0415	J
Endrin	72-20-8	mg/kg	SW8081	N	< 0.0146		< 0.0170		< 0.0257		< 0.0305	J	< 0.0470	J	< 0.0332	J	< 0.0187		< 0.0351	J	< 0.0400	J	< 0.0415	J
Endrin aldehyde	7421-93-4	mg/kg	SW8081	N	< 0.0146		< 0.0170		< 0.0257		< 0.0305	J	< 0.0470	J	< 0.0332	J	< 0.0187		< 0.0351	J	< 0.0400	J	< 0.0415	J
Endrin ketone	53494-70-5	mg/kg	SW8081	N	< 0.0146		< 0.0170		< 0.0257		< 0.0305	J	< 0.0470	J	< 0.0332	J	< 0.0187		< 0.0351	J	< 0.0400	J	< 0.0415	J
gamma-Chlordane	5103-74-2	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	**0.0541**	J	**0.0182**		< 0.0219	J	< 0.0250	J	< 0.0259	J
Heptachlor	76-44-8	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J
Heptachlor epoxide	1024-57-3	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J
Hexachlorocyclohexane, alpha	319-84-6	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J
Hexachlorocyclohexane, beta	319-85-7	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	mg/kg	SW8081	N	< 0.00913		< 0.0106		< 0.0160		< 0.0191	J	< 0.0294	J	< 0.0208	J	< 0.0117		< 0.0219	J	< 0.0250	J	< 0.0259	J
Methoxychlor	72-43-5	mg/kg	SW8081	N	< 0.0146		< 0.0170		< 0.0257		< 0.0305	J	< 0.0470	J	< 0.0332	J	< 0.0187		< 0.0351	J	< 0.0400	J	< 0.0415	J
Total DDx	RACALC-DDx	mg/kg	SW8081	N	< 0.0146		< 0.0170		**0.0263**		**0.0355**		**0.0645**		**0.382**		**0.0908**		**0.0356**		**0.0325**		**0.0706**	
Total Endosulfans	RACALC-ENDO	mg/kg	SW8081	N	< 0.0146		< 0.0170		< 0.0257		< 0.0305		< 0.0470		< 0.0332		< 0.0187		< 0.0351		< 0.0400		< 0.0415	
Aroclor 1016	12674-11-2	mg/kg	SW8082	N	< 0.0721		< 0.0850		< 0.118		< 0.0731	J	< 0.115	J	< 0.156	J	< 0.0877		< 0.0807	J	< 0.102	J	< 0.0982	J
Aroclor 1221	11104-28-2	mg/kg	SW8082	N	< 0.0721		< 0.0850		< 0.118		< 0.0731	J	< 0.115	J	< 0.156	J	< 0.0877		< 0.0807	J	< 0.102	J	< 0.0982	J
Aroclor 1232	11141-16-5	mg/kg	SW8082	N	< 0.0721		< 0.0850		< 0.118		< 0.0731	J	< 0.115	J	< 0.156	J	< 0.0877		< 0.0807	J	< 0.102	J	< 0.0982	J
Aroclor 1242	53469-21-9	mg/kg	SW8082	N	< 0.0721		< 0.0850		< 0.118		< 0.0731	J	< 0.115	J	< 0.156	J	< 0.0877		< 0.0807	J	< 0.102	J	< 0.0982	J
Aroclor 1248	12672-29-6	mg/kg	SW8082	N	< 0.0721		< 0.0850		< 0.118		< 0.0731	J	< 0.115	J	< 0.156	J	< 0.0877		< 0.0807	J	< 0.102	J	< 0.0982	J
Aroclor 1254	11097-69-1	mg/kg	SW8082	N	< 0.0361		< 0.0425		< 0.0592		< 0.0731	J	< 0.115	J	< 0.0780	J	< 0.0439		< 0.0807	J	< 0.102	J	< 0.0982	J
Aroclor 1260	11096-82-5	mg/kg	SW8082	N	< 0.0361		< 0.0425		< 0.0592		< 0.0731	J	**1.29**	J	< 0.0780	J	< 0.0439		< 0.0807	J	< 0.102	J	< 0.0982	J
Aroclor 1262	37324-23-5	mg/kg	SW8082	N	< 0.0361		< 0.0425		< 0.0592		< 0.0731	J	< 0.115	J	< 0.0780	J	< 0.0439		< 0.0807	J	< 0.102	J	< 0.0982	J
Aroclor 1268	11100-14-4	mg/kg	SW8082	N	< 0.0361		< 0.0425		< 0.0592		< 0.0731	J	< 0.115	J	< 0.0780	J	< 0.0439		< 0.0807	J	< 0.102	J	< 0.0982	J
Total PCB Aroclors	RACALC-PCB	mg/kg	SW8082	N	< 0.0721		< 0.0850		< 0.118		< 0.0731		**1.29**		< 0.156		< 0.0877		< 0.0807		< 0.102		< 0.0982	
Total PCBs	CALC-PCBs	mg/kg	SW8082	N	< 0.0721		< 0.0850		< 0.118		< 0.0731	J	**1.29**	J	< 0.156	J	< 0.0877		< 0.0807	J	< 0.102		< 0.0982	
2,2-Dichloropropionic acid	75-99-0	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4,5-T	93-76-5	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4,5-TP (Silvex)	93-72-1	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4-DB	94-82-6	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dicamba	1918-00-9	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dichloroprop	120-36-5	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dinitrobutyl phenol	88-85-7	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPB	94-81-5	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPP	93-65-2	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
1,1,1,2-Tetrachloroethane	630-20-6	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,1,1-Trichloroethane	71-55-6	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,1,2-Trichloroethane	79-00-5	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,1-Dichloroethane	75-34-3	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,1-Dichloroethylene	75-35-4	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,1-Dichloropropene	563-58-6	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,2,3-Trichlorobenzene	87-61-6	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,2,3-Trichloropropane	96-18-4	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,2,4-Trimethylbenzene	95-63-6	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362	J	N/A		N/A		N/A	
1,2-Dibromo-3-chloropropane	96-12-8	mg/kg	SW8260	N	< 0.622		< 0.768		< 1.3		N/A		N/A		< 0.0972	J	< 0.725		N/A		N/A		N/A	
1,2-Dibromoethane	106-93-4	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,2-Dichloroethane	107-06-2	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,2-Dichloropropane	78-87-5	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,3,5-Trichlorobenzene	108-70-3	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,3,5-Trimethylbenzene	108-67-8	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,3-Dichloropropane	142-28-9	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,4-Dioxane	123-91-1	mg/kg	SW8260	N	< 31.1		< 38.4		< 13		N/A		N/A		< 0.972	J	< 7.25		N/A		N/A		N/A	
2,2-Dichloropropane	594-20-7	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
2-Butanone (MEK)	78-93-3	mg/kg	SW8260	N	< 3.11		< 3.84		< 6.52		N/A		N/A		**0.972**	J	< 3.62		N/A		N/A		N/A	
2-Hexanone	591-78-6	mg/kg	SW8260	N	< 3.11		< 3.84		< 6.52		N/A		N/A		< 0.486	J	< 3.62		N/A		N/A		N/A	
Acetone	67-64-1	mg/kg	SW8260	N	< 3.11	J	< 3.84	J	< 6.52	J	N/A		N/A		**2.68**	J	< 3.62	J	N/A		N/A		N/A	
Acrylonitrile	107-13-1	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Benzene	71-43-2	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Bromobenzene	108-86-1	mg/kg	SW8260	N	< 0.311	J	< 0.384	J	< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Bromochlormethane	74-97-5	mg/kg	SW8260	N	< 0.311	J	< 0.384	J	< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE	
				Location Name	F28A-SED		F28A-SED		F28A-SED		G29-SED01		D28-SED08		E29-SED		E29-SED		F29-SED02		D27-SED14		D27-SED14	
				Sample Name	F28A-SED-TOP		F28A-SED-TOP-DUP		F28A-SED-BOTTOM		G29-SED01-0.5-122811		D28-SED08-0.5-122811		E29-SED-TOP		E29-SED-BOTTOM		F29-SED02-0.5-122811		D27-SED14-0.5-122711		D27-SED14-0.5-122711-2	
				Sample Date	7/19/2012		7/19/2012		7/19/2012		12/28/2011		12/28/2011		7/19/2012		7/19/2012		12/28/2011		12/27/2011		12/27/2011	
				Start Depth	0		0		13		0		0		0		14		0		0		0	
				End Depth	13		13		26		0.5		0.5		14		27		0.5		0.5		0.5	
				Sample Type	N		FD		N		N		N		N		N		N		N		FD	
Analyte	CAS Number	Units	Method	Fraction																				
Bromodichloromethane	75-27-4	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Bromoform	75-25-2	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Bromomethane	74-83-9	mg/kg	SW8260	N	< 0.622	J	< 0.768	J	< 1.3		N/A		N/A		< 0.0972	J	< 0.725	J	N/A		N/A		N/A	
Carbon disulfide	75-15-0	mg/kg	SW8260	N	< 0.622		< 0.768		< 1.3		N/A		N/A		< 0.0972	J	< 0.725		N/A		N/A		N/A	
Carbon tetrachloride	56-23-5	mg/kg	SW8260	N	< 0.311	J	< 0.384	J	< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Chlorobenzene	108-90-7	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Chloroethane	75-00-3	mg/kg	SW8260	N	< 0.622		< 0.768		< 1.3		N/A		N/A		< 0.0972	J	< 0.725		N/A		N/A		N/A	
Chloroform	67-66-3	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Chloromethane	74-87-3	mg/kg	SW8260	N	< 0.622		< 0.768		< 1.3		N/A		N/A		< 0.0972	J	< 0.725		N/A		N/A		N/A	
cis-1,2-Dichloroethylene	156-59-2	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
cis-1,3-Dichloropropene	10061-01-5	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Dibromochloromethane	124-48-1	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Dichlorodifluoromethane	75-71-8	mg/kg	SW8260	N	< 0.622	J	< 0.768	J	< 1.3		N/A		N/A		< 0.0972	J	< 0.725	J	N/A		N/A		N/A	
Diisopropyl ether (DIPE)	108-20-3	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Ethanol	64-17-5	mg/kg	SW8260	N	< 124		< 154		< 261	J	N/A		N/A		< 19.4	J	< 145	J	N/A		N/A		N/A	
Ethyl ether	60-29-7	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Ethylbenzene	100-41-4	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Ethyl-t-butyl ether (ETBE)	637-92-3	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Freon 113	76-13-1	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8260	N	< 0.311	J	< 0.384	J	< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362	J	N/A		N/A		N/A	
Isopropylbenzene	98-82-8	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
m,p-Xylenes	1330-20-7-M,P	mg/kg	SW8260	N	< 0.622		< 0.768		< 1.3		N/A		N/A		< 0.0972	J	< 0.725		N/A		N/A		N/A	
m-Dichlorobenzene	541-73-1	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362	J	N/A		N/A		N/A	
Methyl Isobutyl Ketone	108-10-1	mg/kg	SW8260	N	< 3.11		< 3.84		< 6.52		N/A		N/A		< 0.486	J	< 3.62		N/A		N/A		N/A	
Methyl Tert Butyl Ether (MTBE)	1634-04-4	mg/kg	SW8260	N	< 0.311	J	< 0.384	J	< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Methylene bromide	74-95-3	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Methylene chloride	75-09-2	mg/kg	SW8260	N	< 0.622		< 0.768		< 1.3		N/A		N/A		< 0.0972	J	< 0.725		N/A		N/A		N/A	
Naphthalene	91-20-3	mg/kg	SW8260	N	< 0.622		< 0.768		< 1.3		N/A		N/A		< 0.0486	J	< 0.725		N/A		N/A		N/A	
n-Butylbenzene	104-51-8	mg/kg	SW8260	N	< 0.311	J	< 0.384	J	< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
n-Propylbenzene	103-65-1	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
o-Chlorotoluene	95-49-8	mg/kg	SW8260	N	< 0.311	J	< 0.384	J	< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
o-Xylene	95-47-6	mg/kg	SW8260	N	< 0.311	J	< 0.384	J	< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
p-Chlorotoluene	106-43-4	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
p-Isopropyltoluene	99-87-6	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
sec-Butylbenzene	135-98-8	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362	J	N/A		N/A		N/A	
Styrene	100-42-5	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
tert-Amyl Methyl Ether (TAME)	994-05-8	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Tert-butyl alcohol	75-65-0	mg/kg	SW8260	N	< 3.11	J	< 3.84	J	< 6.52		N/A		N/A		< 0.486	J	< 3.62	J	N/A		N/A		N/A	
tert-butylbenzene	98-06-6	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362	J	N/A		N/A		N/A	
Tetrachloroethylene	127-18-4	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Tetrahydrofuran	109-99-9	mg/kg	SW8260	N	< 0.622		< 0.768		< 1.3		N/A		N/A		< 0.0972	J	< 0.725	J	N/A		N/A		N/A	
Toluene	108-88-3	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Total Xylenes	RACALC-XYL	mg/kg	SW8260	N	< 0.622		< 0.768		< 1.3		N/A		N/A		< 0.0972		< 0.725		N/A		N/A		N/A	
trans-1,2-Dichloroethylene	156-60-5	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
trans-1,3-Dichloropropene	10061-02-6	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Trans-1,4-Dichloro-2-Butene	110-57-6	mg/kg	SW8260	N	< 1.55		< 1.92		< 3.26	J	N/A		N/A		< 0.243	J	< 1.81		N/A		N/A		N/A	
Trichloroethene	79-01-6	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Trichlorofluoromethane	75-69-4	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652	J	N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
Vinyl chloride	75-01-4	mg/kg	SW8260	N	< 0.311		< 0.384		< 0.652		N/A		N/A		< 0.0486	J	< 0.362		N/A		N/A		N/A	
1,2,4,5-Tetrachlorobenzene	95-94-3	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
1-Methylnaphthalene	90-12-0	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
2,4,5-Trichlorophenol	95-95-4	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
2,4,6-Trichlorophenol	88-06-2	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
2,4-Dichlorophenol	120-83-2	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
2,4-Dimethylphenol	105-67-9	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
2,4-Dinitrophenol	51-28-5	mg/kg	SW8270	N	< 0.618	J	< 0.711	J	< 1.04	J	N/A		N/A		< 1.38	J	< 0.771	J	N/A		< 3.37	J	< 3.43	J
2,4-Dinitrotoluene	121-14-2	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
2,6-Dinitrotoluene	606-20-2	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
2-Chloronaphthalene	91-58-7	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
2-Chlorophenol	95-57-8	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
2-Methylnaphthalene	91-57-6	mg/kg	SW8270	N	< 0.313	J	< 0.36	J	< 0.526	J	< 2.5	J	< 3.89	J	< 0.697	J	< 0.39	J	< 2.87	J	< 1.69	J	< 1.72	J
2-Methylphenol	95-48-7	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
2-Nitroaniline	88-74-4	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE	
				Location Name	F28A-SED		F28A-SED		F28A-SED		G29-SED01		D28-SED08		E29-SED		E29-SED		F29-SED02		D27-SED14		D27-SED14	
				Sample Name	F28A-SED-TOP		F28A-SED-TOP-DUP		F28A-SED-BOTTOM		G29-SED01-0.5-122811		D28-SED08-0.5-122811		E29-SED-TOP		E29-SED-BOTTOM		F29-SED02-0.5-122811		D27-SED14-0.5-122711		D27-SED14-0.5-122711-2	
				Sample Date	7/19/2012		7/19/2012		7/19/2012		12/28/2011		12/28/2011		7/19/2012		7/19/2012		12/28/2011		12/27/2011		12/27/2011	
				Start Depth	0		0		13		0		0		0		14		0		0		0	
				End Depth	13		13		26		0.5		0.5		14		27		0.5		0.5		0.5	
				Sample Type	N		FD		N		N		N		N		N		N		N		FD	
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**																				
2-Nitrophenol	88-75-5	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
3,3-Dichlorobenzidine	91-94-1	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
3-Nitroaniline	99-09-2	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
4,6-Dinitro-2-methylphenol	534-52-1	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
4-Bromophenyl phenyl ehter	101-55-3	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
4-Chloro-3-methylphenol	59-50-7	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
4-Chlorophenyl phenyl ehter	7005-72-3	mg/kg	SW8270	N	< 0.618	J	< 0.711	J	< 1.04	J	N/A		N/A		< 1.38	J	< 0.771	J	N/A		< 3.37	J	< 3.43	J
4-Methylphenol	106-44-5	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
4-Nitrophenol	100-02-7	mg/kg	SW8270	N	< 2.47	J	< 2.84	J	< 4.16	J	N/A		N/A		< 5.51	J	< 3.08	J	N/A		< 13.5	J	< 13.7	J
Acenaphthene	83-32-9	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Acenaphthylene	208-96-8	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Aniline	62-53-3	mg/kg	SW8270	N	< 0.618	J	< 0.711	J	< 1.04	J	N/A		N/A		< 1.38	J	< 0.771	J	N/A		< 3.37	J	< 3.43	J
Anthracene	120-12-7	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Azobenzene	103-33-3	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
Benzidine	92-87-5	mg/kg	SW8270	N	< 0.618	J	< 0.711	J	< 1.04	J	N/A		N/A		< 1.38	J	< 0.771	J	N/A		< 3.37	J	< 3.43	J
Benzo(a)anthracene	56-55-3	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Benzo(a)pyrene	50-32-8	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Benzo(b)fluoranthene	205-99-2	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Benzo(g,h,i)perylene	191-24-2	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Benzo(k)fluoranthene	207-08-9	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Benzoic acid	65-85-0	mg/kg	SW8270	N	< 0.618	J	< 0.711	J	< 1.04	J	N/A		N/A		< 1.38	J	< 0.771	J	N/A		< 3.37	J	< 3.43	J
Benzyl alcohol	100-51-6	mg/kg	SW8270	N	< 0.618	J	< 0.711	J	< 1.04	J	N/A		N/A		< 1.38	J	< 0.771	J	N/A		< 3.37	J	< 3.43	J
Benzyl butyl phthalate	85-68-7	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
Bis(2-chloroethoxy)methane	111-91-1	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
Bis(2-chloroethyl)ether	111-44-4	mg/kg	SW8270	N	< 0.313	J	< 0.36	J	< 0.526	J	N/A		N/A		< 0.697	J	< 0.39	J	N/A		< 1.69	J	< 1.72	J
Bis(2-chloroisopropyl)ether	108-60-1	mg/kg	SW8270	N	< 0.313	J	< 0.36	J	< 0.526	J	N/A		N/A		< 0.697	J	< 0.39	J	N/A		< 1.69	J	< 1.72	J
Bis(2-ethylhexyl)phthalate	117-81-7	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
Carbazole	86-74-8	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
Chrysene	218-01-9	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Dibenzo(a,h)anthracene	53-70-3	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Dibenzofuran	132-64-9	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
Diethy phthalate	84-66-2	mg/kg	SW8270	N	< 0.618	J	< 0.711	J	< 1.04	J	N/A		N/A		< 1.38	J	< 0.771	J	N/A		< 3.37	J	< 3.43	J
Dimethyl phthalate	131-11-3	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
Di-n-butyl phthalate	84-74-2	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
Di-n-octyl phthalate	117-84-0	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
Fluoranthene	206-44-0	mg/kg	SW8270	N	**0.328**		< 0.36		< 0.526		< 2.5	J	**5.11**	J	< 0.697	J	**0.556**		< 2.87	J	< 1.69	J	< 1.72	J
Fluorene	86-73-7	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8270	N	< 0.313	J	< 0.36	J	< 0.526	J	N/A		N/A		< 0.697	J	< 0.39	J	N/A		< 1.69	J	< 1.72	J
Hexachlorobenzene	118-74-1	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
Hexachlorocyclopentadiene	77-47-4	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
Hexachloroethane	67-72-1	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
m-Dichlorobenzene	541-73-1	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
Methanamine, n-methyl-n-nitroso	62-75-9	mg/kg	SW8270	N	< 0.313	J	< 0.36	J	< 0.526	J	N/A		N/A		< 0.697	J	< 0.39	J	N/A		< 1.69	J	< 1.72	J
Naphthalene	91-20-3	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	< 0.39		< 2.87	J	< 1.69	J	< 1.72	J
Nitrobenzene	98-95-3	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
N-Nitroso-di-n-propylamine	621-64-7	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
N-Nitrosodiphenylamine	86-30-6	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
p-Chlororaniline	106-47-8	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
Pentachlornitrobenzene	82-68-8	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
Pentachlorophenol	87-86-5	mg/kg	SW8270	N	< 0.618	J	< 0.711	J	< 1.04	J	N/A		N/A		< 1.38	J	< 0.771	J	N/A		< 3.37	J	< 3.43	J
Phenanthrene	85-01-8	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	**0.398**		< 2.87	J	< 1.69	J	< 1.72	J
Phenol	108-95-2	mg/kg	SW8270	N	< 0.618		< 0.711		< 1.04		N/A		N/A		< 1.38	J	< 0.771		N/A		< 3.37	J	< 3.43	J
p-Nitroaniline	100-01-6	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		N/A		N/A		< 0.697	J	< 0.39		N/A		< 1.69	J	< 1.72	J
Pyrene	129-00-0	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5	J	< 3.89	J	< 0.697	J	**0.467**		< 2.87	J	< 1.69	J	< 1.72	J
Pyridine	110-86-1	mg/kg	SW8270	N	< 0.618	J	< 0.711	J	< 1.04	J	N/A		N/A		< 1.38	J	< 0.771	J	N/A		< 3.37	J	< 3.43	J
Total High Molecular Weight PAHs	RACALC-HPAH	mg/kg	SW8270	N	< 0.313		< 0.36		< 0.526		< 2.5		< 3.89		< 0.697		**0.467**		< 2.87		< 1.69		< 1.72	
Total Low Molecular Weight PAHs	RACALC-LPAH	mg/kg	SW8270	N	**0.328**		< 0.36		< 0.526		< 2.5		**5.11**		< 0.697		**0.954**		< 2.87		< 1.69		< 1.72	
Total PAHs	CALC-PAHs	mg/kg	SW8270	N	**0.328**		< 0.36		< 0.526		< 2.5		**5.11**		< 0.697		**1.421**		< 2.87		< 1.69		< 1.72	
Total PAHs	RACALC-PAH	mg/kg	SW8270	N	**0.328**		< 0.36		< 0.526		< 2.5		**5.11**		< 0.697		**1.42**		< 2.87		< 1.69		< 1.72	
Cyanide	57-12-5	mg/kg	SW9012	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	SW9060	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	TOCLLOYDKAHN	N	**43600**		**41000**		**42000**		N/A		N/A		**50600**	J	**35900**		N/A		N/A		N/A	

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-11C-SED		AOC-11C-SED	
				Location Name	D29-SED03		E30-SED		C28-SED10		C31-SED		C29-SED04		B29-SED05		A29-SED		B31-SED		OUT-NEW-SED	
				Sample Name	D29-SED03-0.5-122811		E-30-SED-0.5		C28-SED10-0.5-122711		C-31-SED-0.5		C29-SED04-0.5-122711		B29-SED05-0.5-122711		A-29-SED-0.5		B-31-SED-0.5		OUT-NEW-SED-0.5	
				Sample Date	12/28/2011		7/19/2012		12/27/2011		7/19/2012		12/27/2011		12/27/2011		7/19/2012		7/19/2012		7/19/2012	
				Start Depth	0		0		0		0		0		0		0		0		0	
				End Depth	0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5	
				Sample Type	N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																		
Antimony	7440-36-0	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 0.015	J
Arsenic	7440-38-2	umol/g	6010B	SEM	N/A		< 0.032	J	N/A		< 0.032	J	N/A		N/A		0.028	J	< 0.033	J	< 0.024	J
Barium	7440-39-3	umol/g	6010B	SEM	N/A		1.5	J	N/A		1.9	J	N/A		N/A		1.4	J	1.9	J	0.67	J
Beryllium	7440-41-7	umol/g	6010B	SEM	N/A		< 0.079	J	N/A		< 0.080	J	N/A		N/A		0.063	J	< 0.082	J	< 0.059	J
Cadmium	7440-43-9	umol/g	6010B	SEM	N/A		0.0062	J	N/A		0.0067	J	N/A		N/A		0.0062	J	0.0079	J	< 0.0041	J
Chromium	7440-47-3	umol/g	6010B	SEM	N/A		0.15	J	N/A		0.22	J	N/A		N/A		0.2	J	0.21	J	0.08	J
Copper	7440-50-8	umol/g	6010B	SEM	N/A		0.25	J	N/A		0.77	J	N/A		N/A		0.37	J	0.65	J	0.45	J
Lead	7439-92-1	umol/g	6010B	SEM	N/A		0.55	J	N/A		0.63	J	N/A		N/A		0.63	J	0.65	J	0.18	J
Nickel	7440-02-0	umol/g	6010B	SEM	N/A		0.24	J	N/A		0.26	J	N/A		N/A		0.22	J	0.27	J	< 0.078	J
Selenium	7782-49-2	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		N/A		0.042	J	0.032	J	< 0.022	J
Silver	7440-22-4	umol/g	6010B	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 0.025	J
Sulfide	18496-25-8	umol/g	6010B	SEM	N/A		57		N/A		66	J	N/A		N/A		12		57		14	J
Thallium	7440-28-0	umol/g	6010B	SEM	N/A		< 0.012	J	N/A		< 0.012	J	N/A		N/A		< 0.0088	J	< 0.012	J	< 0.0086	J
Vanadium	7440-62-2	umol/g	6010B	SEM	N/A		0.39	J	N/A		0.45	J	N/A		N/A		0.44	J	0.49	J	0.19	J
Zinc	7440-66-6	umol/g	6010B	SEM	N/A		4	J	N/A		4.5	J	N/A		N/A		3.6	J	4.8	J	1.6	J
PH	PH	pH units	A423	N	N/A		7.6		N/A		6.95		N/A		N/A		6.93		7.04		7.15	
Aviation Fuel	AVIAT FUEL	mg/kg	CTETPH	N	< 142	J	N/A		< 70.0	J	N/A		< 78.0	J	< 53.9	J	N/A		N/A		N/A	
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	mg/kg	CTETPH	N	1250	J	N/A		87	J	N/A		102	J	92.7	J	N/A		N/A		N/A	
Gasoline	PHCG	mg/kg	CTETPH	N	< 142	J	N/A		< 70.0	J	N/A		< 78.0	J	< 53.9	J	N/A		N/A		N/A	
Motor Oil	Motor Oil	mg/kg	CTETPH	N	< 142	J	N/A		< 70.0	J	N/A		< 78.0	J	< 53.9	J	N/A		N/A		N/A	
Other Oil	OTHEROIL	mg/kg	CTETPH	N	< 142	J	N/A		< 70.0	J	N/A		< 78.0	J	< 53.9	J	N/A		N/A		N/A	
PHC as Fuel Oil #2	PHCFO2	mg/kg	CTETPH	N	< 142	J	N/A		< 70.0	J	N/A		< 78.0	J	< 53.9	J	N/A		N/A		N/A	
PHC as Fuel Oil #4	PHCFO4	mg/kg	CTETPH	N	< 142	J	N/A		< 70.0	J	N/A		< 78.0	J	< 53.9	J	N/A		N/A		N/A	
PHC as Fuel Oil #6	PHCFO6	mg/kg	CTETPH	N	< 142	J	N/A		< 70.0	J	N/A		< 78.0	J	< 53.9	J	N/A		N/A		N/A	
Total Petroleum Hydrocarbons	TPH	mg/kg	CTETPH	N	1250	J	N/A		87	J	N/A		102	J	92.7	J	N/A		N/A		N/A	
Unidentified	UNIND	mg/kg	CTETPH	N	1250	J	N/A		87	J	N/A		102	J	92.7	J	N/A		N/A		N/A	
PMOIST	PMOIST	%	D2216	N	N/A		79		N/A		80		N/A		N/A		72		80		72	
Solids	SOLIDS, PERCENT	%	D2216	N	18.2		26.1		18.5		18.8		16.9		24.3		26.1		16.6		28.7	
Fractional % Sieve #10 (4750-2000um)	SIEVE10	%	D422	N	N/A		9.95		N/A		10.4	J	N/A		N/A		9.17		6.01		10.7	
Fractional % Sieve #100 (250-150um)	SIEVE100	%	D422	N	N/A		14.8		N/A		11.7		N/A		N/A		17		14.4		14.4	
Fractional % Sieve #20 (2000-850um)	SIEVE20	%	D422	N	N/A		17.2		N/A		15		N/A		N/A		13.2		12.9		6.67	
Fractional % Sieve #200 (150-75um)	SIEVE200	%	D422	N	N/A		16.5		N/A		17.9		N/A		N/A		18.3		20.4		16.1	
Fractional % Sieve #230 (less than 75um)	SIEVE230	%	D422	N	N/A		14.3		N/A		20.4		N/A		N/A		20.8		19.8		11.8	
Fractional % Sieve #4 (>4750um)	SIEVE4	%	D422	N	N/A		1.7		N/A		1.11	J	N/A		N/A		0.447		0.901		4.21	
Fractional % Sieve #40 (850-425um)	SIEVE40	%	D422	N	N/A		14.8		N/A		13.7		N/A		N/A		11		14.4		21.6	
Fractional % Sieve #60 (425-250um)	SIEVE60	%	D422	N	N/A		10.7		N/A		9.73		N/A		N/A		10.1		11.1		14.6	
Solids	SOLIDS, PERCENT	%	E160.3	N	N/A		20		N/A		22		N/A		N/A		27		18		N/A	
Total Organic Carbon	TOC	mg/kg	ETOC.LK	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		30800	J
Oxidation/Reduction Potential	ORP	Eh	ORP	N	N/A		530		N/A		528		N/A		N/A		529		430		518	
Specific Conductivity	SC	ms/cm	SM2510B	N	N/A		163		N/A		186		N/A		N/A		181		168		188	
Antimony	7440-36-0	mg/kg	SW6010	N	< 26.3	J	< 16.7	J	< 23.6	J	< 25.4	J	< 25.3	J	< 18.0	J	< 17.7	J	< 27.7	J	< 16.2	J
Arsenic	7440-38-2	mg/kg	SW6010	N	17.4	J	6.83	J	15.2	J	11.2	J	13.8	J	10.6	J	11.1	J	12.8	J	6.63	J
Barium	7440-39-3	mg/kg	SW6010	N	471	J	198	J	476	J	347	J	415	J	332	J	258	J	357	J	174	J
Beryllium	7440-41-7	mg/kg	SW6010	N	< 2.63	J	< 1.67	J	< 2.36	J	< 2.54	J	< 2.53	J	< 1.80	J	< 1.77	J	< 2.77	J	< 1.62	J
Cadmium	7440-43-9	mg/kg	SW6010	N	2.84	J	< 1.67	J	3.9	J	< 2.54	J	2.8	J	2.6	J	< 1.77	J	< 2.77	J	< 1.62	J
Chromium	7440-47-3	mg/kg	SW6010	N	58	J	41.3	J	72.1	J	56.1	J	64.7	J	58.5	J	55	J	63	J	32.3	J
Copper	7440-50-8	mg/kg	SW6010	N	141	J	175	J	213	J	154	J	149	J	149	J	129	J	156	J	79.7	J
Lead	7439-92-1	mg/kg	SW6010	N	169	J	99.5	J	340	J	143	J	179	J	182	J	138	J	162	J	58.2	J
Nickel	7440-02-0	mg/kg	SW6010	N	42.5	J	29.1	J	52.4	J	41.1	J	42.6	J	38.7	J	39.1	J	45.3	J	19.5	J
Selenium	7782-49-2	mg/kg	SW6010	N	< 7.89	J	< 5.01	J	< 7.09	J	< 7.63	J	< 7.58	J	< 5.41	J	< 5.30	J	< 8.30	J	< 4.85	J
Silver	7440-22-4	mg/kg	SW6010	N	< 7.89	J	< 5.01	J	< 7.09	J	< 7.63	J	< 7.58	J	< 5.41	J	< 5.30	J	< 8.30	J	< 4.85	J
Thallium	7440-28-0	mg/kg	SW6010	N	< 15.8	J	< 10.0	J	< 14.2	J	< 15.3	J	< 15.2	J	< 10.8	J	< 10.6	J	< 16.6	J	< 9.70	J
Vanadium	7440-62-2	mg/kg	SW6010	N	62.9	J	41.3	J	74.1	J	59	J	65.9	J	55.3	J	55.9	J	66.4	J	40.1	J
Zinc	7440-66-6	mg/kg	SW6010	N	472	J	274	J	591	J	395	J	475	J	409	J	326	J	442	J	200	J
Mercury	7439-97-6	mg/kg	SW7470A	N	0.284	J	0.164	J	0.553	J	0.262	J	0.205	J	0.29	J	0.241	J	0.268	J	0.115	J
Mercury	7439-97-6	umol/g	SW7470A	SEM	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 0.000088	J
4,4-DDD (p,p)	72-54-8	mg/kg	SW8081	N	< 0.0431	J	< 0.0299	J	0.0473	J	< 0.0407	J	0.0462	J	< 0.0321	J	< 0.0296	J	< 0.0479	J	< 0.0268	J
4,4-DDE (p,p)	72-55-9	mg/kg	SW8081	N	0.0504	J	< 0.0187	J	0.1	J	< 0.0254	J	0.126	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
4,4-DDT (p,p)	50-29-3	mg/kg	SW8081	N	< 0.0431	J	< 0.0299	J	< 0.0430	J	< 0.0407	J	< 0.0453	J	< 0.0321	J	< 0.0296	J	< 0.0479	J	< 0.0268	J
Alachlor	15972-60-8	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Aldrin	309-00-2	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
alpha-Chlordane	5103-71-9	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	0.0298	J	< 0.0254	J	0.0431	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Camphechlor	8001-35-2	mg/kg	SW8081	N	< 0.539	J	< 0.373	J	< 0.538	J	< 0.508	J	< 0.566	J	< 0.401	J	< 0.37	J	< 0.599	J	< 0.335	J
Chlordane	57-74-9	mg/kg	SW8081	N	0.117	J	< 0.0747	J	0.263	J	< 0.102	J	0.306	J	< 0.0803	J	< 0.0740	J	< 0.12	J	< 0.0670	J
delta-BHC	319-86-8	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Dieldrin	60-57-1	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-11C-SED		AOC-11C-SED	
				Location Name	D29-SED03		E30-SED		C28-SED10		C31-SED		C29-SED04		B29-SED05		A29-SED		B31-SED		OUT-NEW-SED	
				Sample Name	D29-SED03-0.5-122811		E-30-SED-0.5		C28-SED10-0.5-122711		C-31-SED-0.5		C29-SED04-0.5-122711		B29-SED05-0.5-122711		A-29-SED-0.5		B-31-SED-0.5		OUT-NEW-SED-0.5	
				Sample Date	12/28/2011		7/19/2012		12/27/2011		7/19/2012		12/27/2011		12/27/2011		7/19/2012		7/19/2012		7/19/2012	
				Start Depth	0		0		0		0		0		0		0		0		0	
				End Depth	0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5	
				Sample Type	N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																		
Endosulfan I	959-98-8	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Endosulfan II	33213-65-9	mg/kg	SW8081	N	< 0.0431	J	< 0.0299	J	< 0.0430	J	< 0.0407	J	< 0.0453	J	< 0.0321	J	< 0.0296	J	< 0.0479	J	< 0.0268	J
Endosulfan sulfate	1031-07-8	mg/kg	SW8081	N	< 0.0431	J	< 0.0299	J	< 0.0430	J	< 0.0407	J	< 0.0453	J	< 0.0321	J	< 0.0296	J	< 0.0479	J	< 0.0268	J
Endrin	72-20-8	mg/kg	SW8081	N	< 0.0431	J	< 0.0299	J	< 0.0430	J	< 0.0407	J	< 0.0453	J	< 0.0321	J	< 0.0296	J	< 0.0479	J	< 0.0268	J
Endrin aldehyde	7421-93-4	mg/kg	SW8081	N	< 0.0431	J	< 0.0299	J	< 0.0430	J	< 0.0407	J	< 0.0453	J	< 0.0321	J	< 0.0296	J	< 0.0479	J	< 0.0268	J
Endrin ketone	53494-70-5	mg/kg	SW8081	N	< 0.0431	J	< 0.0299	J	< 0.0430	J	< 0.0407	J	< 0.0453	J	< 0.0321	J	< 0.0296	J	< 0.0479	J	< 0.0268	J
gamma-Chlordane	5103-74-2	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Heptachlor	76-44-8	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Heptachlor epoxide	1024-57-3	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Hexachlorocyclohexane, alpha	319-84-6	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Hexachlorocyclohexane, beta	319-85-7	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	mg/kg	SW8081	N	< 0.0269	J	< 0.0187	J	< 0.0269	J	< 0.0254	J	< 0.0283	J	< 0.0201	J	< 0.0185	J	< 0.0300	J	< 0.0167	J
Methoxychlor	72-43-5	mg/kg	SW8081	N	< 0.0431	J	< 0.0299	J	< 0.0430	J	< 0.0407	J	< 0.0453	J	< 0.0321	J	< 0.0296	J	< 0.0479	J	< 0.0268	J
Total DDx	RACALC-DDx	mg/kg	SW8081	N	**0.0504**		< 0.0299		**0.147**		< 0.0407		**0.172**		< 0.0321		< 0.0296		< 0.0479		< 0.0268	
Total Endosulfans	RACALC-ENDO	mg/kg	SW8081	N	< 0.0431		< 0.0299		< 0.0430		< 0.0407		< 0.0453		< 0.0321		< 0.0296		< 0.0479		< 0.0268	
Aroclor 1016	12674-11-2	mg/kg	SW8082	N	< 0.103	J	< 0.149	J	< 0.106	J	< 0.204	J	< 0.111	J	< 0.0754	J	< 0.15	J	< 0.23	J	< 0.128	J
Aroclor 1221	11104-28-2	mg/kg	SW8082	N	< 0.103	J	< 0.149	J	< 0.106	J	< 0.204	J	< 0.111	J	< 0.0754	J	< 0.15	J	< 0.23	J	< 0.128	J
Aroclor 1232	11141-16-5	mg/kg	SW8082	N	< 0.103	J	< 0.149	J	< 0.106	J	< 0.204	J	< 0.111	J	< 0.0754	J	< 0.15	J	< 0.23	J	< 0.128	J
Aroclor 1242	53469-21-9	mg/kg	SW8082	N	< 0.103	J	< 0.149	J	< 0.106	J	< 0.204	J	< 0.111	J	< 0.0754	J	< 0.15	J	< 0.23	J	< 0.128	J
Aroclor 1248	12672-29-6	mg/kg	SW8082	N	< 0.103	J	< 0.149	J	< 0.106	J	< 0.204	J	< 0.111	J	< 0.0754	J	< 0.15	J	< 0.23	J	< 0.128	J
Aroclor 1254	11097-69-1	mg/kg	SW8082	N	< 0.103	J	< 0.0743	J	< 0.106	J	< 0.102	J	< 0.111	J	< 0.0754	J	< 0.0749	J	< 0.115	J	< 0.0641	J
Aroclor 1260	11096-82-5	mg/kg	SW8082	N	< 0.103	J	< 0.0743	J	< 0.106	J	< 0.102	J	< 0.111	J	< 0.0754	J	< 0.0749	J	< 0.115	J	< 0.0641	J
Aroclor 1262	37324-23-5	mg/kg	SW8082	N	< 0.103	J	< 0.0743	J	< 0.106	J	< 0.102	J	< 0.111	J	< 0.0754	J	< 0.0749	J	< 0.115	J	< 0.0641	J
Aroclor 1268	11100-14-4	mg/kg	SW8082	N	< 0.103	J	< 0.0743	J	< 0.106	J	< 0.102	J	< 0.111	J	< 0.0754	J	< 0.0749	J	< 0.115	J	< 0.0641	J
Total PCB Aroclors	RACALC-PCB	mg/kg	SW8082	N	< 0.103		< 0.149		< 0.106		< 0.204		< 0.111		< 0.0754		< 0.15		< 0.23		< 0.128	
Total PCBs	CALC-PCBs	mg/kg	SW8082	N	< 0.103	J	< 0.149	J	< 0.106		< 0.204	J	< 0.111		< 0.0754		< 0.15	J	< 0.23	J	< 0.128	J
2,2-Dichloropropionic acid	75-99-0	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4,5-T	93-76-5	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4,5-TP (Silvex)	93-72-1	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4-DB	94-82-6	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dicamba	1918-00-9	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dichloroprop	120-36-5	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dinitrobutyl phenol	88-85-7	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPB	94-81-5	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPP	93-65-2	mg/kg	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
1,1,1,2-Tetrachloroethane	630-20-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,1,1-Trichloroethane	71-55-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,1,2-Trichloroethane	79-00-5	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,1-Dichloroethane	75-34-3	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,1-Dichloroethylene	75-35-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,1-Dichloropropene	563-58-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,2,3-Trichlorobenzene	87-61-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,2,3-Trichloropropane	96-18-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,2,4-Trimethylbenzene	95-63-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,2-Dibromo-3-chloropropane	96-12-8	mg/kg	SW8260	N	N/A		< 1.16	J	N/A		< 2.04	J	N/A		N/A		< 0.0718	J	< 0.118	J	< 0.0569	J
1,2-Dibromoethane	106-93-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,2-Dichloroethane	107-06-2	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,2-Dichloropropane	78-87-5	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,3,5-Trichlorobenzene	108-70-3	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,3,5-Trimethylbenzene	108-67-8	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,3-Dichloropropane	142-28-9	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,4-Dioxane	123-91-1	mg/kg	SW8260	N	N/A		< 11.6	J	N/A		< 20.4	J	N/A		N/A		< 0.718	J	< 1.18	J	< 0.569	J
2,2-Dichloropropane	594-20-7	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
2-Butanone (MEK)	78-93-3	mg/kg	SW8260	N	N/A		< 5.81	J	N/A		< 10.2	J	N/A		N/A		**0.359**	J	**0.7**	J	< 0.284	J
2-Hexanone	591-78-6	mg/kg	SW8260	N	N/A		< 5.81	J	N/A		< 10.2	J	N/A		N/A		< 0.359	J	< 0.588	J	< 0.284	J
Acetone	67-64-1	mg/kg	SW8260	N	N/A		< 5.81	J	N/A		< 10.2	J	N/A		N/A		**1.13**	J	**2.17**	J	< 0.284	J
Acrylonitrile	107-13-1	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Benzene	71-43-2	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Bromobenzene	108-86-1	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Bromochlormethane	74-97-5	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-11C-SED		AOC-11C-SED	
				Location Name	D29-SED03		E30-SED		C28-SED10		C31-SED		C29-SED04		B29-SED05		A29-SED		B31-SED		OUT-NEW-SED	
				Sample Name	D29-SED03-0.5-122811		E-30-SED-0.5		C28-SED10-0.5-122711		C-31-SED-0.5		C29-SED04-0.5-122711		B29-SED05-0.5-122711		A-29-SED-0.5		B-31-SED-0.5		OUT-NEW-SED-0.5	
				Sample Date	12/28/2011		7/19/2012		12/27/2011		7/19/2012		12/27/2011		12/27/2011		7/19/2012		7/19/2012		7/19/2012	
				Start Depth	0		0		0		0		0		0		0		0		0	
				End Depth	0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5	
				Sample Type	N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																		
Bromodichloromethane	75-27-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Bromoform	75-25-2	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Bromomethane	74-83-9	mg/kg	SW8260	N	N/A		< 1.16	J	N/A		< 2.04	J	N/A		N/A		< 0.0718	J	< 0.118	J	< 0.0569	J
Carbon disulfide	75-15-0	mg/kg	SW8260	N	N/A		< 1.16	J	N/A		< 2.04	J	N/A		N/A		< 0.0718	J	< 0.118	J	< 0.0569	J
Carbon tetrachloride	56-23-5	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Chlorobenzene	108-90-7	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Chloroethane	75-00-3	mg/kg	SW8260	N	N/A		< 1.16	J	N/A		< 2.04	J	N/A		N/A		< 0.0718	J	< 0.118	J	< 0.0569	J
Chloroform	67-66-3	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Chloromethane	74-87-3	mg/kg	SW8260	N	N/A		< 1.16	J	N/A		< 2.04	J	N/A		N/A		< 0.0718	J	< 0.118	J	< 0.0569	J
cis-1,2-Dichloroethylene	156-59-2	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
cis-1,3-Dichloropropene	10061-01-5	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Dibromochloromethane	124-48-1	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Dichlorodifluoromethane	75-71-8	mg/kg	SW8260	N	N/A		< 1.16	J	N/A		< 2.04	J	N/A		N/A		< 0.0718	J	< 0.118	J	< 0.0569	J
Diisopropyl ether (DIPE)	108-20-3	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Ethanol	64-17-5	mg/kg	SW8260	N	N/A		< 233	J	N/A		< 407	J	N/A		N/A		< 14.4	J	< 23.5	J	< 11.4	J
Ethyl ether	60-29-7	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Ethylbenzene	100-41-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Ethyl-t-butyl ether (ETBE)	637-92-3	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Freon 113	76-13-1	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Isopropylbenzene	98-82-8	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
m,p-Xylenes	1330-20-7-M,P	mg/kg	SW8260	N	N/A		< 1.16	J	N/A		< 2.04	J	N/A		N/A		< 0.0718	J	< 0.118	J	< 0.0569	J
m-Dichlorobenzene	541-73-1	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Methyl Isobutyl Ketone	108-10-1	mg/kg	SW8260	N	N/A		< 5.81	J	N/A		< 10.2	J	N/A		N/A		< 0.359	J	< 0.588	J	< 0.284	J
Methyl Tert Butyl Ether (MTBE)	1634-04-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Methylene bromide	74-95-3	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Methylene chloride	75-09-2	mg/kg	SW8260	N	N/A		< 1.16	J	N/A		< 2.04	J	N/A		N/A		< 0.0718	J	< 0.118	J	< 0.0569	J
Naphthalene	91-20-3	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 2.04	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
n-Butylbenzene	104-51-8	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
n-Propylbenzene	103-65-1	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
o-Chlorotoluene	95-49-8	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
o-Xylene	95-47-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
p-Chlorotoluene	106-43-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
p-Isopropyltoluene	99-87-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
sec-Butylbenzene	135-98-8	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Styrene	100-42-5	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
tert-Amyl Methyl Ether (TAME)	994-05-8	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Tert-butyl alcohol	75-65-0	mg/kg	SW8260	N	N/A		< 5.81	J	N/A		< 10.2	J	N/A		N/A		< 0.359	J	< 0.588	J	< 0.284	J
tert-butylbenzene	98-06-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Tetrachloroethylene	127-18-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Tetrahydrofuran	109-99-9	mg/kg	SW8260	N	N/A		< 1.16	J	N/A		< 2.04	J	N/A		N/A		< 0.0718	J	< 0.118	J	< 0.0569	J
Toluene	108-88-3	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Total Xylenes	RACALC-XYL	mg/kg	SW8260	N	N/A		< 1.16		N/A		< 2.04		N/A		N/A		< 0.0718		< 0.118		< 0.0569	
trans-1,2-Dichloroethylene	156-60-5	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
trans-1,3-Dichloropropene	10061-02-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Trans-1,4-Dichloro-2-Butene	110-57-6	mg/kg	SW8260	N	N/A		< 2.91	J	N/A		< 5.09	J	N/A		N/A		< 0.179	J	< 0.294	J	< 0.142	J
Trichloroethene	79-01-6	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Trichlorofluoromethane	75-69-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
Vinyl chloride	75-01-4	mg/kg	SW8260	N	N/A		< 0.581	J	N/A		< 1.02	J	N/A		N/A		< 0.0359	J	< 0.0588	J	< 0.0284	J
1,2,4,5-Tetrachlorobenzene	95-94-3	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
1,2,4-Trichlorobenzene	120-82-1	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
1,2-Dichlorobenzene	95-50-1	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
1,4-Dichlorobenzene	106-46-7	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
1-Methylnaphthalene	90-12-0	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
2,4,5-Trichlorophenol	95-95-4	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
2,4,6-Trichlorophenol	88-06-2	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
2,4-Dichlorophenol	120-83-2	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
2,4-Dimethylphenol	105-67-9	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
2,4-Dinitrophenol	51-28-5	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
2,4-Dinitrotoluene	121-14-2	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
2,6-Dinitrotoluene	606-20-2	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
2-Chloronaphthalene	91-58-7	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
2-Chlorophenol	95-57-8	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
2-Methylnaphthalene	91-57-6	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
2-Methylphenol	95-48-7	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
2-Nitroaniline	88-74-4	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J

Table C-2 Summary of Sediment Analytical Data

				AOC	AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-12-SE		AOC-11C-SED		AOC-11C-SED	
				Location Name	D29-SED03		E30-SED		C28-SED10		C31-SED		C29-SED04		B29-SED05		A29-SED		B31-SED		OUT-NEW-SED	
				Sample Name	D29-SED03-0.5-122811		E-30-SED-0.5		C28-SED10-0.5-122711		C-31-SED-0.5		C29-SED04-0.5-122711		B29-SED05-0.5-122711		A-29-SED-0.5		B-31-SED-0.5		OUT-NEW-SED-0.5	
				Sample Date	12/28/2011		7/19/2012		12/27/2011		7/19/2012		12/27/2011		12/27/2011		7/19/2012		7/19/2012		7/19/2012	
				Start Depth	0		0		0		0		0		0		0		0		0	
				End Depth	0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5		0.5	
				Sample Type	N		N		N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction																		
2-Nitrophenol	88-75-5	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
3,3-Dichlorobenzidine	91-94-1	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
3-Nitroaniline	99-09-2	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
4,6-Dinitro-2-methylphenol	534-52-1	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
4-Bromophenyl phenyl ehter	101-55-3	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
4-Chloro-3-methylphenol	59-50-7	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
4-Chlorophenyl phenyl ehter	7005-72-3	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
4-Methylphenol	106-44-5	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
4-Nitrophenol	100-02-7	mg/kg	SW8270	N	N/A		< 4.96	J	N/A		< 6.93	J	< 15.5	J	N/A		< 5.05	J	< 7.75	J	< 4.47	J
Acenaphthene	83-32-9	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Acenaphthylene	208-96-8	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Aniline	62-53-3	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Anthracene	120-12-7	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Azobenzene	103-33-3	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Benzidine	92-87-5	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		N/A		< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Benzo(a)anthracene	56-55-3	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Benzo(a)pyrene	50-32-8	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Benzo(b)fluoranthene	205-99-2	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Benzo(g,h,i)perylene	191-24-2	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Benzo(k)fluoranthene	207-08-9	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Benzoic acid	65-85-0	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Benzyl alcohol	100-51-6	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Benzyl butyl phthalate	85-68-7	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Bis(2-chloroethoxy)methane	111-91-1	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Bis(2-chloroethyl)ether	111-44-4	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Bis(2-chloroisopropyl)ether	108-60-1	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Bis(2-ethylhexyl)phthalate	117-81-7	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Carbazole	86-74-8	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Chrysene	218-01-9	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Dibenzo(a,h)anthracene	53-70-3	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Dibenzofuran	132-64-9	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Diethy phthalate	84-66-2	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Dimethyl phthalate	131-11-3	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Di-n-butyl phthalate	84-74-2	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Di-n-octyl phthalate	117-84-0	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Fluoranthene	206-44-0	mg/kg	SW8270	N	**5.93**	J	**0.81**	J	< 1.74	J	**1.31**	J	< 1.93	J	< 1.34	J	**0.741**	J	**1.56**	J	< 0.566	J
Fluorene	86-73-7	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Hexachloro-1,3-butadiene	87-68-3	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Hexachlorobenzene	118-74-1	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Hexachlorocyclopentadiene	77-47-4	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Hexachloroethane	67-72-1	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
m-Dichlorobenzene	541-73-1	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Methanamine, n-methyl-n-nitroso	62-75-9	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Naphthalene	91-20-3	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Nitrobenzene	98-95-3	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
N-Nitroso-di-n-propylamine	621-64-7	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
N-Nitrosodiphenylamine	86-30-6	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
p-Chloroaniline	106-47-8	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Pentachlornitrobenzene	82-68-8	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Pentachlorophenol	87-86-5	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Phenanthrene	85-01-8	mg/kg	SW8270	N	< 3.53	J	< 0.627	J	< 1.74	J	< 0.877	J	< 1.93	J	< 1.34	J	< 0.639	J	< 0.98	J	< 0.566	J
Phenol	108-95-2	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
p-Nitroaniline	100-01-6	mg/kg	SW8270	N	N/A		< 0.627	J	N/A		< 0.877	J	< 1.93	J	N/A		< 0.639	J	< 0.98	J	< 0.566	J
Pyrene	129-00-0	mg/kg	SW8270	N	**4.69**	J	**0.695**	J	< 1.74	J	**1.14**	J	< 1.93	J	< 1.34	J	**0.648**	J	**1.49**	J	< 0.566	J
Pyridine	110-86-1	mg/kg	SW8270	N	N/A		< 1.24	J	N/A		< 1.73	J	< 3.87	J	N/A		< 1.26	J	< 1.94	J	< 1.12	J
Total High Molecular Weight PAHs	RACALC-HPAH	mg/kg	SW8270	N	**4.69**		**0.695**		< 1.74		**1.14**		< 1.93		< 1.34		**0.648**		**1.49**		< 0.566	
Total Low Molecular Weight PAHs	RACALC-LPAH	mg/kg	SW8270	N	**5.93**		**0.81**		< 1.74		**1.31**		< 1.93		< 1.34		**0.741**		**1.56**		< 0.566	
Total PAHs	CALC-PAHs	mg/kg	SW8270	N	**10.62**		**1.505**		< 1.74		**2.45**		< 1.93		< 1.34		**1.389**		**3.05**		< 0.566	
Total PAHs	RACALC-PAH	mg/kg	SW8270	N	**10.6**		**1.5**		< 1.74		**2.45**		< 1.93		< 1.34		**1.39**		**3.05**		< 0.566	
Cyanide	57-12-5	mg/kg	SW9012	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	SW9060	N	N/A		N/A		**91700**	J	N/A		N/A		**73500**	J	N/A		N/A		N/A	
Total Organic Carbon	TOC	mg/kg	TOCLLOYDKAHN	N	N/A		**59600**	J	N/A		**60600**	J	N/A		N/A		**39600**	J	**68400**	J	N/A	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach															
				Location Name	AE8-SB275		AE8-SB275		AE8-SB275		AE8-SB275		P7-SB239		P7-SB239		P7-SB239	
				Sample Name	MW-AE8-022312-1		MW-AE8 041912-1		MW-AE8-041912-1		MW-AE8-072512-1		MW-P7-022312-1		MW-P7-041912-1		MW-P7-072412-1	
				Sample Date	2/23/2012		4/19/2012		4/19/2012		7/25/2012		2/23/2012		4/19/2012		7/24/2012	
				Sample Type	N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction														
Aviation Fuel	AVIAT FUEL	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
Gasoline	PHCG	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
Motor Oil	Motor Oil	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
Other Oil	OTHEROIL	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
PHC as Fuel Oil #2	PHCFO2	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
PHC as Fuel Oil #4	PHCFO4	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
PHC as Fuel Oil #6	PHCFO6	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
Total Petroleum Hydrocarbons	TPH	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
Unidentified	UNIND	ug/l	CTETPH	N	< 100		< 100		N/A		< 100		< 100		< 100		< 100	
Chloride	16887-00-6	ug/l	E300	T	N/A		N/A		N/A		**21800**		N/A		N/A		**30800**	
Nitrate	14797-55-8	ug/l	E300	T	N/A		N/A		N/A		< 1000		N/A		N/A		**270**	
Nitrite as N	NITRITE AS N	ug/l	E300	T	N/A		N/A		N/A		< 1000		N/A		N/A		**160**	
Sulfate as SO4	SASSO4	ug/l	E300	T	N/A		N/A		N/A		**18500**		N/A		N/A		**36500**	
Decachlorobiphenyl (PCB-209)	2051-24-3	ug/l	E680	N	< 0.0227		N/A		N/A		< 0.025		< 0.0227		N/A		< 0.025	
Dichlorobiphenyl	25512-42-9	ug/l	E680	N	< 0.00518		N/A		N/A		< 0.005		< 0.00518		N/A		< 0.005	
Heptachlorobiphenyl	28655-71-2	ug/l	E680	N	< 0.0199		N/A		N/A		< 0.015		< 0.0199		N/A		< 0.015	
Hexachlorobiphenyl	26601-64-9	ug/l	E680	N	< 0.0149		N/A		N/A		< 0.01		< 0.0149		N/A		< 0.01	
Monochlorobiphenyl	27323-18-8	ug/l	E680	N	< 0.00713		N/A		N/A		< 0.005		< 0.00713		N/A		< 0.005	
Nonachlorobiphenyl	53742-07-7	ug/l	E680	N	< 0.0227		N/A		N/A		< 0.025		< 0.0227		N/A		< 0.025	
Octachlorobiphenyl	55722-26-4	ug/l	E680	N	< 0.0290		N/A		N/A		< 0.015		< 0.0290		N/A		< 0.015	
Pentachlorobiphenyl	25429-29-2	ug/l	E680	N	< 0.0160		N/A		N/A		< 0.01		< 0.0160		N/A		< 0.01	
Tetrachlorobiphenyl	26914-33-0	ug/l	E680	N	< 0.00989		N/A		N/A		< 0.01		< 0.00989		N/A		< 0.01	
Total PCB	1336-36-3	ug/l	E680	N	< 0.0227		N/A		N/A		< 0.025		< 0.0290		N/A		< 0.025	
Total PCB Homologues	RACALC-PCB-H	ug/l	E680	N	< 0.0290		N/A		N/A		< 0.025		< 0.0290		N/A		< 0.025	
Trichlorobiphenyl	25323-68-6	ug/l	E680	N	< 0.00461		N/A		N/A		< 0.005		< 0.00461		N/A		< 0.005	
Dissolved Oxygen	DO	mg/l	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Draw-DTW	DRAW-DTW	ft	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Flowrate	FLOWRATE	ml/min	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Oxidation/Reduction Potential	ORP	millivolts	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
PH	PH	SU	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Specific Conductivity	SC	umhos/cm	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Temperature	TEMP	deg c	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Turbidity	TURBIDITY	ntu	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Bicarbonate Alkalinity	BIC-ALK	ug/l	SM2320B	T	N/A		N/A		N/A		**206000**		N/A		N/A		**106000**	
Carbonate Alkalinity	CARB-ALK	ug/l	SM2320B	T	N/A		N/A		N/A		< 2000		N/A		N/A		< 2000	
Sulfide	18496-25-8	ug/l	SM4500SD	T	N/A		N/A		N/A		< 100		N/A		N/A		< 100	
Antimony	7440-36-0	ug/l	SW6010	T	< 6.0		< 6.0		N/A		< 6.0		< 6.0		< 6.0		< 6.0	
Arsenic	7440-38-2	ug/l	SW6010	T	< 4.0		< 4.0		N/A		**4.6**		< 4.0		< 4.0		< 4.0	
Barium	7440-39-3	ug/l	SW6010	T	**166**		**122**		N/A		**235**		**92.6**		**82**		**81.6**	
Beryllium	7440-41-7	ug/l	SW6010	T	< 2.0		< 2.0		N/A		< 2.0		< 2.0		< 2.0		< 2.0	
Cadmium	7440-43-9	ug/l	SW6010	T	< 2.5		< 2.5		N/A		< 2.5		< 2.5		< 2.5		< 2.5	
Calcium	7440-70-2	ug/l	SW6010	T	N/A		N/A		N/A		**41600**		N/A		N/A		**30900**	
Chromium	7440-47-3	ug/l	SW6010	T	< 5.0		< 5.0		N/A		< 5.0		< 5.0		< 5.0		< 5.0	
Copper	7440-50-8	ug/l	SW6010	T	< 5.0		< 5.0		N/A		< 5.0		< 5.0		< 5.0		< 5.0	
Iron	7439-89-6	ug/l	SW6010	T	N/A		N/A		N/A		**35600**		N/A		N/A		**378**	
Lead	7439-92-1	ug/l	SW6010	T	< 7.5		< 7.5		N/A		< 7.5		< 7.5		< 7.5		< 7.5	
Magnesium	7439-95-4	ug/l	SW6010	T	N/A		N/A		N/A		**12800**		N/A		N/A		**11300**	
Manganese	7439-96-5	ug/l	SW6010	T	N/A		N/A		N/A		**1020**	J-	N/A		N/A		**2810**	J-
Nickel	7440-02-0	ug/l	SW6010	T	< 5.0		< 5.0		N/A		< 5.0		**10.7**		**5.8**		**5.8**	
Potassium	7440-09-7	ug/l	SW6010	T	N/A		N/A		N/A		**8080**		N/A		N/A		**7310**	
Selenium	7782-49-2	ug/l	SW6010	T	< 15.0		< 15.0		N/A		< 15.0		< 15.0		< 15.0		< 15.0	
Silver	7440-22-4	ug/l	SW6010	T	< 5.0		< 5.0		N/A		< 5.0		< 5.0		< 5.0		< 5.0	
Sodium	7440-23-5	ug/l	SW6010	T	N/A		N/A		N/A		**13400**	J-	N/A		N/A		**19800**	J-
Thallium	7440-28-0	ug/l	SW6010	T	< 5.0		< 5.0		N/A		< 5.0		< 5.0		< 5.0		< 5.0	
Vanadium	7440-62-2	ug/l	SW6010	T	< 5.0		< 5.0		N/A		< 5.0		< 5.0		< 5.0		< 5.0	
Zinc	7440-66-6	ug/l	SW6010	T	**6.8**		< 5.0		N/A		< 50.0		< 5.0		< 5.0		< 50.0	
Mercury	7439-97-6	ug/l	SW7470A	T	< 0.20		< 0.20		N/A		< 0.20		< 0.20		< 0.20		< 0.20	
4,4-DDD (p,p)	72-54-8	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach													
				Location Name	AE8-SB275		AE8-SB275		AE8-SB275		AE8-SB275		P7-SB239		P7-SB239		P7-SB239	
				Sample Name	MW-AE8-022312-1		MW-AE8 041912-1		MW-AE8-041912-1		MW-AE8-072512-1		MW-P7-022312-1		MW-P7-041912-1		MW-P7-072412-1	
				Sample Date	2/23/2012		4/19/2012		4/19/2012		7/25/2012		2/23/2012		4/19/2012		7/24/2012	
				Sample Type	N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction														
4,4-DDE (p,p)	72-55-9	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
4,4-DDT (p,p)	50-29-3	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	
Alachlor	15972-60-8	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Aldrin	309-00-2	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
alpha-Chlordane	5103-71-9	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Camphechlor	8001-35-2	ug/l	SW8081	N	N/A		N/A		< 0.055		N/A		N/A		< 0.053		N/A	
Chlordane	57-74-9	ug/l	SW8081	N	N/A		N/A		< 0.007		N/A		N/A		< 0.007		N/A	
delta-BHC	319-86-8	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Dieldrin	60-57-1	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Endosulfan I	959-98-8	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Endosulfan II	33213-65-9	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	
Endosulfan sulfate	1031-07-8	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	
Endrin	72-20-8	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	
Endrin aldehyde	7421-93-4	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	
Endrin ketone	53494-70-5	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	
gamma-Chlordane	5103-74-2	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Heptachlor	76-44-8	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Heptachlor epoxide	1024-57-3	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Hexachlorocyclohexane, alpha	319-84-6	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Hexachlorocyclohexane, beta	319-85-7	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	ug/l	SW8081	N	N/A		N/A		< 0.002		N/A		N/A		< 0.002		N/A	
Methoxychlor	72-43-5	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	
Total DDx	RACALC-DDx	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	
Total Endosulfans	RACALC-ENDO	ug/l	SW8081	N	N/A		N/A		< 0.004		N/A		N/A		< 0.004		N/A	
Aroclor 1016	12674-11-2	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Aroclor 1221	11104-28-2	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Aroclor 1232	11141-16-5	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Aroclor 1242	53469-21-9	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Aroclor 1248	12672-29-6	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Aroclor 1254	11097-69-1	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Aroclor 1260	11096-82-5	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Aroclor 1262	37324-23-5	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Aroclor 1268	11100-14-4	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Total PCB Aroclors	RACALC-PCB	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Total PCBs	CALC-PCBs	ug/l	SW8082	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,2-Dichloropropionic acid	75-99-0	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4,5-T	93-76-5	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4,5-TP (Silvex)	93-72-1	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2,4-DB	94-82-6	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dicamba	1918-00-9	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dichloroprop	120-36-5	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Dinitrobutyl phenol	88-85-7	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPB	94-81-5	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
MCPP	93-65-2	ug/l	SW8151	N	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
1,1,1,2-Tetrachloroethane	630-20-6	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,1,1-Trichloroethane	71-55-6	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,1,2,2-Tetrachloroethane	79-34-5	ug/l	SW8260	N	< 0.5		< 0.5		N/A		< 0.50		< 0.5		< 0.5		< 0.50	
1,1,2-Trichloroethane	79-00-5	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,1-Dichloroethane	75-34-3	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0	J	< 1.0		< 1.00	
1,1-Dichloroethylene	75-35-4	ug/l	SW8260	N	< 1.0	J	< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,1-Dichloropropene	563-58-6	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,2,3-Trichlorobenzene	87-61-6	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,2,3-Trichloropropane	96-18-4	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,2,4-Trimethylbenzene	95-63-6	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,2-Dibromo-3-chloropropane	96-12-8	ug/l	SW8260	N	< 2.0		< 2.0		N/A		< 2.00		< 2.0		< 2.0		< 2.00	
1,2-Dibromoethane	106-93-4	ug/l	SW8260	N	< 0.5		< 0.5		N/A		< 0.50		< 0.5		< 0.5		< 0.50	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach													
				Location Name	AE8-SB275		AE8-SB275		AE8-SB275		AE8-SB275		P7-SB239		P7-SB239		P7-SB239	
				Sample Name	MW-AE8-022312-1		MW-AE8 041912-1		MW-AE8-041912-1		MW-AE8-072512-1		MW-P7-022312-1		MW-P7-041912-1		MW-P7-072412-1	
				Sample Date	2/23/2012		4/19/2012		4/19/2012		7/25/2012		2/23/2012		4/19/2012		7/24/2012	
				Sample Type	N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction														
1,2-Dichlorobenzene	95-50-1	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,2-Dichloroethane	107-06-2	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,2-Dichloropropane	78-87-5	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,3,5-Trichlorobenzene	108-70-3	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,3,5-Trimethylbenzene	108-67-8	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,3-Dichloropropane	142-28-9	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,4-Dichlorobenzene	106-46-7	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
1,4-Dioxane	123-91-1	ug/l	SW8260	N	< 20.0		< 20.0	J	N/A		< 20.0		< 20.0		< 20.0		< 20.0	
2,2-Dichloropropane	594-20-7	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0	J	< 1.00	
2-Butanone (MEK)	78-93-3	ug/l	SW8260	N	< 10.0		< 10.0	J	N/A		< 10.0		< 10.0		< 10.0		< 10.0	
2-Hexanone	591-78-6	ug/l	SW8260	N	< 10.0		< 10.0	J	N/A		< 10.0		< 10.0		< 10.0		< 10.0	
Acetone	67-64-1	ug/l	SW8260	N	< 10.0		< 10.0	J	N/A		< 10.0		< 10.0		< 10.0		< 10.0	
Acrylonitrile	107-13-1	ug/l	SW8260	N	< 0.5	J	< 0.5	J	N/A		< 0.50		< 0.5		< 0.5		< 0.50	
Benzene	71-43-2	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Bromobenzene	108-86-1	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Bromochlormethane	74-97-5	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Bromodichloromethane	75-27-4	ug/l	SW8260	N	< 0.5		< 0.5		N/A		< 0.50		< 0.5		< 0.5		< 0.50	
Bromoform	75-25-2	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0	J	< 1.0		< 1.00	
Bromomethane	74-83-9	ug/l	SW8260	N	< 2.0		< 2.0		N/A		< 2.00		< 2.0		< 2.0		< 2.00	
Carbon disulfide	75-15-0	ug/l	SW8260	N	< 2.0	J	< 2.0		N/A		< 2.00		< 2.0		< 2.0		< 2.00	
Carbon tetrachloride	56-23-5	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Chlorobenzene	108-90-7	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Chloroethane	75-00-3	ug/l	SW8260	N	< 2.0		< 2.0		N/A		< 2.00		< 2.0	J	< 2.0		< 2.00	
Chloroform	67-66-3	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Chloromethane	74-87-3	ug/l	SW8260	N	< 2.0		< 2.0		N/A		< 2.00		< 2.0	J	< 2.0		< 2.00	
cis-1,2-Dichloroethylene	156-59-2	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
cis-1,3-Dichloropropene	10061-01-5	ug/l	SW8260	N	< 0.5		< 0.5		N/A		< 0.50		< 0.5		< 0.5		< 0.50	
Dibromochloromethane	124-48-1	ug/l	SW8260	N	< 0.5		< 0.5		N/A		< 0.50		< 0.5		< 0.5		< 0.50	
Dichlorodifluoromethane	75-71-8	ug/l	SW8260	N	< 2.0		< 2.0		N/A		< 2.00		< 2.0		< 2.0		< 2.00	
Diisopropyl ether (DIPE)	108-20-3	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Ethanol	64-17-5	ug/l	SW8260	N	< 400		< 400	J	N/A		< 400		< 400	J	< 400		< 400	
Ethyl ether	60-29-7	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Ethylbenzene	100-41-4	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Ethyl-t-butyl ether (ETBE)	637-92-3	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0	J	< 1.00	
Freon 113	76-13-1	ug/l	SW8260	N	< 1.0	J	< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8260	N	< 0.5		< 0.5		N/A		< 0.50		< 0.5		< 0.5		< 0.50	
Isopropylbenzene	98-82-8	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
m,p-Xylenes	1330-20-7-M,P	ug/l	SW8260	N	< 2.0		< 2.0		N/A		< 2.00		< 2.0		< 2.0		< 2.00	
m-Dichlorobenzene	541-73-1	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Methyl Isobutyl Ketone	108-10-1	ug/l	SW8260	N	< 10.0		< 10.0	J	N/A		< 10.0		< 10.0		< 10.0		< 10.0	
Methyl Tert Butyl Ether (MTBE)	1634-04-4	ug/l	SW8260	N	< 1.0	J	< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Methylene bromide	74-95-3	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Methylene chloride	75-09-2	ug/l	SW8260	N	< 2.0	J	< 2.0		N/A		< 2.00		< 2.0		< 2.0		< 2.00	
Naphthalene	91-20-3	ug/l	SW8260	N	< 1.0		< 1.0	J	N/A		< 1.00		< 1.0		< 1.0		< 1.00	
n-Butylbenzene	104-51-8	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
n-Propylbenzene	103-65-1	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
o-Chlorotoluene	95-49-8	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
o-Xylene	95-47-6	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
p-Chlorotoluene	106-43-4	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
p-Isopropyltoluene	99-87-6	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
sec-Butylbenzene	135-98-8	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Styrene	100-42-5	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
tert-Amyl Methyl Ether (TAME)	994-05-8	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Tert-butyl alcohol	75-65-0	ug/l	SW8260	N	< 10.0	J	< 10.0	J	N/A		< 10.0		< 10.0		< 10.0		< 10.0	
tert-butylbenzene	98-06-6	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Tetrachloroethylene	127-18-4	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Tetrahydrofuran	109-99-9	ug/l	SW8260	N	< 2.0		< 2.0	J	N/A		< 2.00		< 2.0		< 2.0		< 2.00	
Toluene	108-88-3	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Total Xylenes	RACALC-XYL	ug/l	SW8260	N	< 2.0		< 2.0		N/A		< 2.00		< 2.0		< 2.0		< 2.00	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach													
				Location Name	AE8-SB275		AE8-SB275		AE8-SB275		AE8-SB275		P7-SB239		P7-SB239		P7-SB239	
				Sample Name	MW-AE8-022312-1		MW-AE8 041912-1		MW-AE8-041912-1		MW-AE8-072512-1		MW-P7-022312-1		MW-P7-041912-1		MW-P7-072412-1	
				Sample Date	2/23/2012		4/19/2012		4/19/2012		7/25/2012		2/23/2012		4/19/2012		7/24/2012	
				Sample Type	N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction														
trans-1,2-Dichloroethylene	156-60-5	ug/l	SW8260	N	< 1.0	J	< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
trans-1,3-Dichloropropene	10061-02-6	ug/l	SW8260	N	< 0.5		< 0.5		N/A		< 0.50		< 0.5		< 0.5		< 0.50	
Trans-1,4-Dichloro-2-Butene	110-57-6	ug/l	SW8260	N	< 5.0		< 5.0		N/A		< 5.00		< 5.0		< 5.0		< 5.00	
Trichloroethene	79-01-6	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Trichlorofluoromethane	75-69-4	ug/l	SW8260	N	< 1.0		< 1.0		N/A		< 1.00		< 1.0		< 1.0		< 1.00	
Vinyl chloride	75-01-4	ug/l	SW8260	N	< 1.0		< 1.0	J	N/A		< 1.00		< 1.0	J	< 1.0		< 1.00	
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
1,2-Dichlorobenzene	95-50-1	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
1,4-Dichlorobenzene	106-46-7	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2,4,5-Trichlorophenol	95-95-4	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2,4,6-Trichlorophenol	88-06-2	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2,4-Dichlorophenol	120-83-2	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2,4-Dimethylphenol	105-67-9	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2,4-Dinitrophenol	51-28-5	ug/l	SW8270	N	< 5.49	J	< 5.15		N/A		N/A		< 5.21	J	< 5.32		N/A	
2,4-Dinitrotoluene	121-14-2	ug/l	SW8270	N	< 5.49	J	< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2,6-Dinitrotoluene	606-20-2	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21	J	< 5.32		N/A	
2-Chloronaphthalene	91-58-7	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2-Chlorophenol	95-57-8	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2-Methylphenol	95-48-7	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2-Nitroaniline	88-74-4	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
2-Nitrophenol	88-75-5	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
3,3-Dichlorobenzidine	91-94-1	ug/l	SW8270	N	< 5.49		< 5.15	J	N/A		N/A		< 5.21		< 5.32	J	N/A	
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
3-Nitroaniline	99-09-2	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
4,6-Dinitro-2-methylphenol	534-52-1	ug/l	SW8270	N	< 5.49	J	< 5.15		N/A		N/A		< 5.21	J	< 5.32		N/A	
4-Bromophenyl phenyl ehter	101-55-3	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
4-Chloro-3-methylphenol	59-50-7	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
4-Chlorophenyl phenyl ehter	7005-72-3	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
4-Methylphenol	106-44-5	ug/l	SW8270	N	< 11.0		< 10.3	J	N/A		N/A		< 10.4		< 10.6	J	N/A	
4-Nitrophenol	100-02-7	ug/l	SW8270	N	< 22.0	J	< 20.6	J	N/A		N/A		< 20.8	J	< 21.3	J	N/A	
Aniline	62-53-3	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Azobenzene	103-33-3	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Benzidine	92-87-5	ug/l	SW8270	N	< 5.49	J	N/A		N/A		N/A		< 5.21	J	N/A		N/A	
Benzoic acid	65-85-0	ug/l	SW8270	N	< 5.49	J	< 5.15	J	N/A		N/A		< 5.21	J	< 5.32	J	N/A	
Benzyl alcohol	100-51-6	ug/l	SW8270	N	< 5.49	J	< 5.15	J	N/A		N/A		< 5.21	J	< 5.32	J	N/A	
Benzyl butyl phthalate	85-68-7	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Bis(2-chloroethoxy)methane	111-91-1	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Bis(2-chloroethyl)ether	111-44-4	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Bis(2-chloroisopropyl)ether	108-60-1	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Bis(2-ethylhexyl)phthalate	117-81-7	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Carbazole	86-74-8	ug/l	SW8270	N	< 5.49		< 5.15	J	N/A		N/A		< 5.21		< 5.32	J	N/A	
Dibenzofuran	132-64-9	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Diethy phthalate	84-66-2	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Dimethyl phthalate	131-11-3	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Di-n-butyl phthalate	84-74-2	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Di-n-octyl phthalate	117-84-0	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Hexachlorobenzene	118-74-1	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Hexachlorocyclopentadiene	77-47-4	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Hexachloroethane	67-72-1	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
m-Dichlorobenzene	541-73-1	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Methanamine, n-methyl-n-nitroso	62-75-9	ug/l	SW8270	N	< 5.49	J	< 5.15		N/A		N/A		< 5.21	J	< 5.32		N/A	
Nitrobenzene	98-95-3	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
N-Nitroso-di-n-propylamine	621-64-7	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
N-Nitrosodiphenylamine	86-30-6	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
p-Chloroaniline	106-47-8	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21	J	< 5.32		N/A	
Pentachlornitrobenzene	82-68-8	ug/l	SW8270	N	< 5.49		< 5.15		N/A		N/A		< 5.21		< 5.32		N/A	
Pentachlorophenol	87-86-5	ug/l	SW8270	N	< 22.0		< 20.6	J	N/A		N/A		< 20.8		< 21.3	J	N/A	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach													
				Location Name	AE8-SB275		AE8-SB275		AE8-SB275		AE8-SB275		P7-SB239		P7-SB239		P7-SB239	
				Sample Name	MW-AE8-022312-1		MW-AE8 041912-1		MW-AE8-041912-1		MW-AE8-072512-1		MW-P7-022312-1		MW-P7-041912-1		MW-P7-072412-1	
				Sample Date	2/23/2012		4/19/2012		4/19/2012		7/25/2012		2/23/2012		4/19/2012		7/24/2012	
				Sample Type	N		N		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction														
Phenol	108-95-2	ug/l	SW8270	N	< 5.49	J	< 5.15	J	N/A		N/A		< 5.21	J	< 5.32	J	N/A	
p-Nitroaniline	100-01-6	ug/l	SW8270	N	< 22.0	J	< 20.6		N/A		N/A		< 20.8	J	< 21.3		N/A	
Pyridine	110-86-1	ug/l	SW8270	N	< 5.49	J	< 5.15	J	N/A		N/A		< 5.21	J	< 5.32	J	N/A	
1-Methylnaphthalene	90-12-0	ug/l	SW8270 SIM	N	< 0.050		< 0.050	J	N/A		N/A		< 0.050		< 0.050	J	N/A	
2-Methylnaphthalene	91-57-6	ug/l	SW8270 SIM	N	< 0.050		< 0.050	J	N/A		N/A		< 0.050		< 0.050	J	N/A	
Acenaphthene	83-32-9	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Acenaphthylene	208-96-8	ug/l	SW8270 SIM	N	< 0.050		< 0.050	J	N/A		N/A		< 0.050		< 0.050	J	N/A	
Anthracene	120-12-7	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Benzo(a)anthracene	56-55-3	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Benzo(a)pyrene	50-32-8	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Benzo(b)fluoranthene	205-99-2	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Benzo(g,h,i)perylene	191-24-2	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Benzo(k)fluoranthene	207-08-9	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Chrysene	218-01-9	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Dibenzo(a,h)anthracene	53-70-3	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Fluoranthene	206-44-0	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Fluorene	86-73-7	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Naphthalene	91-20-3	ug/l	SW8270 SIM	N	< 0.050		< 0.050	J	N/A		N/A		< 0.050		< 0.050	J	N/A	
Phenanthrene	85-01-8	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Pyrene	129-00-0	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Total High Molecular Weight PAHs	RACALC-HPAH	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Total Low Molecular Weight PAHs	RACALC-LPAH	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Total PAHs	RACALC-PAH	ug/l	SW8270 SIM	N	< 0.050		< 0.050		N/A		N/A		< 0.050		< 0.050		N/A	
Cyanide	57-12-5	ug/l	SW9012	T	N/A		N/A		N/A		N/A		N/A		N/A		N/A	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach													
				Location Name	P11-SB413		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237	
				Sample Name	MW-P11-072412-1		MW-AS15-SB237-1		MW-S15 041912-1		MW-S15 041912-2		MW-S15-022312-1		MW-S15-022312-2		MW-S15-072512-1	
				Sample Date	7/24/2012		1/12/2012		4/19/2012		4/19/2012		2/23/2012		2/23/2012		7/25/2012	
				Sample Type	N		N		N		FD		N		FD		N	
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**														
Aviation Fuel	AVIAT FUEL	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
Gasoline	PHCG	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
Motor Oil	Motor Oil	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
Other Oil	OTHEROIL	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
PHC as Fuel Oil #2	PHCFO2	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
PHC as Fuel Oil #4	PHCFO4	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
PHC as Fuel Oil #6	PHCFO6	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
Total Petroleum Hydrocarbons	TPH	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
Unidentified	UNIND	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100		< 100	
Chloride	16887-00-6	ug/l	E300	T	**21700**		N/A		N/A		N/A		N/A		N/A		**38800**	
Nitrate	14797-55-8	ug/l	E300	T	**800**		N/A		N/A		N/A		N/A		N/A		< 100	J
Nitrite as N	NITRITE AS N	ug/l	E300	T	< 100		N/A		N/A		N/A		N/A		N/A		**310**	J
Sulfate as SO4	SASSO4	ug/l	E300	T	**41400**		N/A		N/A		N/A		N/A		N/A		**4180**	J-
Decachlorobiphenyl (PCB-209)	2051-24-3	ug/l	E680	N	< 0.025		N/A		N/A		N/A		< 0.0227		< 0.0227		< 0.025	J
Dichlorobiphenyl	25512-42-9	ug/l	E680	N	< 0.005		N/A		N/A		N/A		< 0.00518		< 0.00518		< 0.005	J
Heptachlorobiphenyl	28655-71-2	ug/l	E680	N	< 0.015		N/A		N/A		N/A		< 0.0199		< 0.0199		< 0.015	J
Hexachlorobiphenyl	26601-64-9	ug/l	E680	N	< 0.01		N/A		N/A		N/A		< 0.0149		< 0.0149		< 0.01	J
Monochlorobiphenyl	27323-18-8	ug/l	E680	N	< 0.005		N/A		N/A		N/A		< 0.00713		< 0.00713		< 0.005	J
Nonachlorobiphenyl	53742-07-7	ug/l	E680	N	< 0.025		N/A		N/A		N/A		< 0.0227		< 0.0227		< 0.025	J
Octachlorobiphenyl	55722-26-4	ug/l	E680	N	< 0.015		N/A		N/A		N/A		< 0.0290		< 0.0290		< 0.015	J
Pentachlorobiphenyl	25429-29-2	ug/l	E680	N	< 0.01		N/A		N/A		N/A		< 0.0160		< 0.0160		< 0.01	J
Tetrachlorobiphenyl	26914-33-0	ug/l	E680	N	< 0.01		N/A		N/A		N/A		**0.0607**		**0.0454**		< 0.01	J
Total PCB	1336-36-3	ug/l	E680	N	< 0.025		N/A		N/A		N/A		**0.13**		**0.104**		< 0.025	
Total PCB Homologues	RACALC-PCB-H	ug/l	E680	N	< 0.025		N/A		N/A		N/A		**0.13**		**0.104**		< 0.025	
Trichlorobiphenyl	25323-68-6	ug/l	E680	N	< 0.005		N/A		N/A		N/A		**0.069**		**0.0588**		< 0.005	J
Dissolved Oxygen	DO	mg/l	FIELD	N	N/A		**0.98**		N/A		N/A		N/A		N/A		N/A	
Draw-DTW	DRAW-DTW	ft	FIELD	N	N/A		**7.04**		N/A		N/A		N/A		N/A		N/A	
Flowrate	FLOWRATE	ml/min	FIELD	N	N/A		**100**		N/A		N/A		N/A		N/A		N/A	
Oxidation/Reduction Potential	ORP	millivolts	FIELD	N	N/A		-52.4		N/A		N/A		N/A		N/A		N/A	
PH	PH	SU	FIELD	N	N/A		**6.41**		N/A		N/A		N/A		N/A		N/A	
Specific Conductivity	SC	umhos/cm	FIELD	N	N/A		**426.4**		N/A		N/A		N/A		N/A		N/A	
Temperature	TEMP	deg c	FIELD	N	N/A		**11.6**		N/A		N/A		N/A		N/A		N/A	
Turbidity	TURBIDITY	ntu	FIELD	N	N/A		**8.5**		N/A		N/A		N/A		N/A		N/A	
Bicarbonate Alkalinity	BIC-ALK	ug/l	SM2320B	T	**284000**		N/A		N/A		N/A		N/A		N/A		**198000**	
Carbonate Alkalinity	CARB-ALK	ug/l	SM2320B	T	< 2000		N/A		N/A		N/A		N/A		N/A		< 2000	
Sulfide	18496-25-8	ug/l	SM4500SD	T	< 100		N/A		N/A		N/A		N/A		N/A		< 100	J
Antimony	7440-36-0	ug/l	SW6010	T	< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0	
Arsenic	7440-38-2	ug/l	SW6010	T	< 4.0		< 4.0		**4.6**		**4.3**		< 4.0		**4.4**		**4.6**	
Barium	7440-39-3	ug/l	SW6010	T	**181**		**160**		**158**		**156**		**160**		**162**		**155**	
Beryllium	7440-41-7	ug/l	SW6010	T	< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0	
Cadmium	7440-43-9	ug/l	SW6010	T	< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5	
Calcium	7440-70-2	ug/l	SW6010	T	**77800**		N/A		N/A		N/A		N/A		N/A		**42200**	
Chromium	7440-47-3	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Copper	7440-50-8	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Iron	7439-89-6	ug/l	SW6010	T	**9820**		N/A		N/A		N/A		N/A		N/A		**9500**	
Lead	7439-92-1	ug/l	SW6010	T	< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5	
Magnesium	7439-95-4	ug/l	SW6010	T	**20500**		N/A		N/A		N/A		N/A		N/A		**18000**	
Manganese	7439-96-5	ug/l	SW6010	T	**840**	J-	N/A		N/A		N/A		N/A		N/A		**768**	
Nickel	7440-02-0	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Potassium	7440-09-7	ug/l	SW6010	T	**7720**		N/A		N/A		N/A		N/A		N/A		**7300**	
Selenium	7782-49-2	ug/l	SW6010	T	< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0	
Silver	7440-22-4	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Sodium	7440-23-5	ug/l	SW6010	T	**16700**	J-	N/A		N/A		N/A		N/A		N/A		**25600**	
Thallium	7440-28-0	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Vanadium	7440-62-2	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Zinc	7440-66-6	ug/l	SW6010	T	< 50.0		< 5.6		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Mercury	7439-97-6	ug/l	SW7470A	T	< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20	
4,4-DDD (p,p)	72-54-8	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach													
				Location Name	P11-SB413		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237	
				Sample Name	MW-P11-072412-1		MW-AS15-SB237-1		MW-S15 041912-1		MW-S15 041912-2		MW-S15-022312-1		MW-S15-022312-2		MW-S15-072512-1	
				Sample Date	7/24/2012		1/12/2012		4/19/2012		4/19/2012		2/23/2012		2/23/2012		7/25/2012	
				Sample Type	N		N		N		FD		N		FD		N	
Analyte	CAS Number	Units	Method	Fraction														
4,4-DDE (p,p)	72-55-9	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
4,4-DDT (p,p)	50-29-3	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	
Alachlor	15972-60-8	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Aldrin	309-00-2	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
alpha-Chlordane	5103-71-9	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Camphechlor	8001-35-2	ug/l	SW8081	N	N/A		< 0.054		< 0.053		< 0.053		N/A		N/A		N/A	
Chlordane	57-74-9	ug/l	SW8081	N	N/A		< 0.007		< 0.007		< 0.007		N/A		N/A		N/A	
delta-BHC	319-86-8	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Dieldrin	60-57-1	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Endosulfan I	959-98-8	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Endosulfan II	33213-65-9	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	
Endosulfan sulfate	1031-07-8	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	
Endrin	72-20-8	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	
Endrin aldehyde	7421-93-4	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	
Endrin ketone	53494-70-5	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	
gamma-Chlordane	5103-74-2	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Heptachlor	76-44-8	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Heptachlor epoxide	1024-57-3	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Hexachlorocyclohexane, alpha	319-84-6	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Hexachlorocyclohexane, beta	319-85-7	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	ug/l	SW8081	N	N/A		< 0.002		< 0.002		< 0.002		N/A		N/A		N/A	
Methoxychlor	72-43-5	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	
Total DDx	RACALC-DDx	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	
Total Endosulfans	RACALC-ENDO	ug/l	SW8081	N	N/A		< 0.004		< 0.004		< 0.004		N/A		N/A		N/A	
Aroclor 1016	12674-11-2	ug/l	SW8082	N	N/A		< 0.0650		N/A		N/A		N/A		N/A		N/A	
Aroclor 1221	11104-28-2	ug/l	SW8082	N	N/A		< 0.0650		N/A		N/A		N/A		N/A		N/A	
Aroclor 1232	11141-16-5	ug/l	SW8082	N	N/A		< 0.0650		N/A		N/A		N/A		N/A		N/A	
Aroclor 1242	53469-21-9	ug/l	SW8082	N	N/A		**0.715**		N/A		N/A		N/A		N/A		N/A	
Aroclor 1248	12672-29-6	ug/l	SW8082	N	N/A		< 0.0650		N/A		N/A		N/A		N/A		N/A	
Aroclor 1254	11097-69-1	ug/l	SW8082	N	N/A		< 0.0650		N/A		N/A		N/A		N/A		N/A	
Aroclor 1260	11096-82-5	ug/l	SW8082	N	N/A		< 0.0650		N/A		N/A		N/A		N/A		N/A	
Aroclor 1262	37324-23-5	ug/l	SW8082	N	N/A		< 0.0650		N/A		N/A		N/A		N/A		N/A	
Aroclor 1268	11100-14-4	ug/l	SW8082	N	N/A		< 0.0650		N/A		N/A		N/A		N/A		N/A	
Total PCB Aroclors	RACALC-PCB	ug/l	SW8082	N	N/A		**0.715**		N/A		N/A		N/A		N/A		N/A	
Total PCBs	CALC-PCBs	ug/l	SW8082	N	N/A		**0.715**		N/A		N/A		N/A		N/A		N/A	
2,2-Dichloropropionic acid	75-99-0	ug/l	SW8151	N	N/A		< 0.104		N/A		N/A		N/A		N/A		N/A	
2,4,5-T	93-76-5	ug/l	SW8151	N	N/A		< 0.104		N/A		N/A		N/A		N/A		N/A	
2,4,5-TP (Silvex)	93-72-1	ug/l	SW8151	N	N/A		< 0.104		N/A		N/A		N/A		N/A		N/A	
2,4-DB	94-82-6	ug/l	SW8151	N	N/A		< 0.104		N/A		N/A		N/A		N/A		N/A	
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	ug/l	SW8151	N	N/A		< 0.104		N/A		N/A		N/A		N/A		N/A	
Dicamba	1918-00-9	ug/l	SW8151	N	N/A		< 0.104		N/A		N/A		N/A		N/A		N/A	
Dichloroprop	120-36-5	ug/l	SW8151	N	N/A		< 0.104		N/A		N/A		N/A		N/A		N/A	
Dinitrobutyl phenol	88-85-7	ug/l	SW8151	N	N/A		< 0.104		N/A		N/A		N/A		N/A		N/A	
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	ug/l	SW8151	N	N/A		< 52.1	J	N/A		N/A		N/A		N/A		N/A	
MCPB	94-81-5	ug/l	SW8151	N	N/A		< 52.1	J	N/A		N/A		N/A		N/A		N/A	
MCPP	93-65-2	ug/l	SW8151	N	N/A		< 52.1		N/A		N/A		N/A		N/A		N/A	
1,1,1,2-Tetrachloroethane	630-20-6	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,1,1-Trichloroethane	71-55-6	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,1,2,2-Tetrachloroethane	79-34-5	ug/l	SW8260	N	< 0.50		< 0.5		< 0.5		< 0.5		< 0.5		< 0.5		< 0.50	
1,1,2-Trichloroethane	79-00-5	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,1-Dichloroethane	75-34-3	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0	J	< 1.0	J	< 1.00	
1,1-Dichloroethylene	75-35-4	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0	J	< 1.0		< 1.0		< 1.00	
1,1-Dichloropropene	563-58-6	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,2,3-Trichlorobenzene	87-61-6	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,2,3-Trichloropropane	96-18-4	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,2,4-Trimethylbenzene	95-63-6	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,2-Dibromo-3-chloropropane	96-12-8	ug/l	SW8260	N	< 2.00		< 2.0		< 2.0	J	< 2.0		< 2.0		< 2.0		< 2.00	
1,2-Dibromoethane	106-93-4	ug/l	SW8260	N	< 0.50		< 0.5		< 0.5		< 0.5		< 0.5		< 0.5		< 0.50	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach													
				Location Name	P11-SB413		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237	
				Sample Name	MW-P11-072412-1		MW-AS15-SB237-1		MW-S15 041912-1		MW-S15 041912-2		MW-S15-022312-1		MW-S15-022312-2		MW-S15-072512-1	
				Sample Date	7/24/2012		1/12/2012		4/19/2012		4/19/2012		2/23/2012		2/23/2012		7/25/2012	
				Sample Type	N		N		N		FD		N		FD		N	
Analyte	CAS Number	Units	Method	Fraction														
1,2-Dichlorobenzene	95-50-1	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,2-Dichloroethane	107-06-2	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,2-Dichloropropane	78-87-5	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,3,5-Trichlorobenzene	108-70-3	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,3,5-Trimethylbenzene	108-67-8	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,3-Dichloropropane	142-28-9	ug/l	SW8260	N	< 1.00		< 1.0	J	< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,4-Dichlorobenzene	106-46-7	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
1,4-Dioxane	123-91-1	ug/l	SW8260	N	< 20.0		< 20.0		< 20.0		< 20.0		< 20.0		< 20.0		< 20.0	
2,2-Dichloropropane	594-20-7	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
2-Butanone (MEK)	78-93-3	ug/l	SW8260	N	< 10.0		< 10.0		< 10.0		< 10.0	J	< 10.0		< 10.0		< 10.0	
2-Hexanone	591-78-6	ug/l	SW8260	N	< 10.0		< 10.0		< 10.0		< 10.0		< 10.0		< 10.0		< 10.0	
Acetone	67-64-1	ug/l	SW8260	N	< 10.0		< 10.0		< 10.0	J	< 10.0	J	< 10.0		< 10.0		< 10.0	
Acrylonitrile	107-13-1	ug/l	SW8260	N	< 0.50		< 0.5		< 0.5	J	< 0.5		< 0.5		< 0.5		< 0.50	
Benzene	71-43-2	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Bromobenzene	108-86-1	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Bromochlormethane	74-97-5	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Bromodichloromethane	75-27-4	ug/l	SW8260	N	< 0.50		< 0.5		< 0.5		< 0.5		< 0.5		< 0.5		< 0.50	
Bromoform	75-25-2	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0	J	< 1.0	J	< 1.00	
Bromomethane	74-83-9	ug/l	SW8260	N	< 2.00		< 2.0		< 2.0		< 2.0	J	< 2.0		< 2.0		< 2.00	
Carbon disulfide	75-15-0	ug/l	SW8260	N	< 2.00		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.00	
Carbon tetrachloride	56-23-5	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Chlorobenzene	108-90-7	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Chloroethane	75-00-3	ug/l	SW8260	N	< 2.00		< 2.0		< 2.0		< 2.0	J	< 2.0	J	< 2.0	J	< 2.00	
Chloroform	67-66-3	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Chloromethane	74-87-3	ug/l	SW8260	N	< 2.00		< 2.0	J	< 2.0		< 2.0	J	< 2.0	J	< 2.0	J	< 2.00	
cis-1,2-Dichloroethylene	156-59-2	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
cis-1,3-Dichloropropene	10061-01-5	ug/l	SW8260	N	< 0.50		< 0.5		< 0.5		< 0.5		< 0.5		< 0.5		< 0.50	
Dibromochloromethane	124-48-1	ug/l	SW8260	N	< 0.50		< 0.5		< 0.5		< 0.5		< 0.5		< 0.5		< 0.50	
Dichlorodifluoromethane	75-71-8	ug/l	SW8260	N	< 2.00		< 2.0		< 2.0		< 2.0	J	< 2.0		< 2.0		< 2.00	J
Diisopropyl ether (DIPE)	108-20-3	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Ethanol	64-17-5	ug/l	SW8260	N	< 400		< 400	J	< 400	J	< 400	J	< 400	J	< 400	J	< 400	
Ethyl ether	60-29-7	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Ethylbenzene	100-41-4	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Ethyl-t-butyl ether (ETBE)	637-92-3	ug/l	SW8260	N	< 1.00		< 1.0	J	< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Freon 113	76-13-1	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0	J	< 1.0		< 1.0		< 1.00	
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8260	N	< 0.50		< 0.5		< 0.5		< 0.5		< 0.5		< 0.5		< 0.50	
Isopropylbenzene	98-82-8	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
m,p-Xylenes	1330-20-7-M,P	ug/l	SW8260	N	< 2.00		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.00	
m-Dichlorobenzene	541-73-1	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Methyl Isobutyl Ketone	108-10-1	ug/l	SW8260	N	< 10.0		< 10.0		< 10.0		< 10.0		< 10.0		< 10.0		< 10.0	
Methyl Tert Butyl Ether (MTBE)	1634-04-4	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Methylene bromide	74-95-3	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Methylene chloride	75-09-2	ug/l	SW8260	N	< 2.00		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.00	
Naphthalene	91-20-3	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
n-Butylbenzene	104-51-8	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
n-Propylbenzene	103-65-1	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
o-Chlorotoluene	95-49-8	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
o-Xylene	95-47-6	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
p-Chlorotoluene	106-43-4	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
p-Isopropyltoluene	99-87-6	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
sec-Butylbenzene	135-98-8	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Styrene	100-42-5	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
tert-Amyl Methyl Ether (TAME)	994-05-8	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0	J	< 1.0		< 1.0		< 1.00	
Tert-butyl alcohol	75-65-0	ug/l	SW8260	N	< 10.0		< 10.0	J	< 10.0	J	< 10.0		< 10.0		< 10.0		< 10.0	
tert-butylbenzene	98-06-6	ug/l	SW8260	N	< 1.00		< 1.0	J	< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Tetrachloroethylene	127-18-4	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Tetrahydrofuran	109-99-9	ug/l	SW8260	N	< 2.00		< 2.0		< 2.0	J	< 2.0		< 2.0		< 2.0		< 2.00	
Toluene	108-88-3	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Total Xylenes	RACALC-XYL	ug/l	SW8260	N	< 2.00		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.00	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach													
				Location Name	P11-SB413		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237	
				Sample Name	MW-P11-072412-1		MW-AS15-SB237-1		MW-S15 041912-1		MW-S15 041912-2		MW-S15-022312-1		MW-S15-022312-2		MW-S15-072512-1	
				Sample Date	7/24/2012		1/12/2012		4/19/2012		4/19/2012		2/23/2012		2/23/2012		7/25/2012	
				Sample Type	N		N		N		FD		N		FD		N	
Analyte	CAS Number	Units	Method	Fraction														
trans-1,2-Dichloroethylene	156-60-5	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
trans-1,3-Dichloropropene	10061-02-6	ug/l	SW8260	N	< 0.50		< 0.5		< 0.5		< 0.5		< 0.5		< 0.5		< 0.50	
Trans-1,4-Dichloro-2-Butene	110-57-6	ug/l	SW8260	N	< 5.00		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.00	
Trichloroethene	79-01-6	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Trichlorofluoromethane	75-69-4	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.00	
Vinyl chloride	75-01-4	ug/l	SW8260	N	< 1.00		< 1.0		< 1.0	J	< 1.0	J	< 1.0	J	< 1.0	J	< 1.00	J
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
1,2-Dichlorobenzene	95-50-1	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
1,4-Dichlorobenzene	106-46-7	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2,4,5-Trichlorophenol	95-95-4	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2,4,6-Trichlorophenol	88-06-2	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2,4-Dichlorophenol	120-83-2	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2,4-Dimethylphenol	105-67-9	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2,4-Dinitrophenol	51-28-5	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26	J	< 5.10		< 5.26	J	< 5.21	J	N/A	
2,4-Dinitrotoluene	121-14-2	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2,6-Dinitrotoluene	606-20-2	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26	J	< 5.21	J	N/A	
2-Chloronaphthalene	91-58-7	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2-Chlorophenol	95-57-8	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2-Methylphenol	95-48-7	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2-Nitroaniline	88-74-4	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
2-Nitrophenol	88-75-5	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
3,3-Dichlorobenzidine	91-94-1	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
3-Nitroaniline	99-09-2	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
4,6-Dinitro-2-methylphenol	534-52-1	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26	J	< 5.10		< 5.26	J	< 5.21	J	N/A	
4-Bromophenyl phenyl ehter	101-55-3	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
4-Chloro-3-methylphenol	59-50-7	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
4-Chlorophenyl phenyl ehter	7005-72-3	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
4-Methylphenol	106-44-5	ug/l	SW8270	N	N/A		< 10.5		< 10.5		< 10.2		< 10.5		< 10.4		N/A	
4-Nitrophenol	100-02-7	ug/l	SW8270	N	N/A		< 21.1	J	< 21.1		< 20.4		< 21.1	J	< 20.8	J	N/A	
Aniline	62-53-3	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Azobenzene	103-33-3	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Benzidine	92-87-5	ug/l	SW8270	N	N/A		N/A		< 5.26		< 5.10		< 5.26	J	< 5.21	J	N/A	
Benzoic acid	65-85-0	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26	J	< 5.10		< 5.26	J	< 5.21	J	N/A	
Benzyl alcohol	100-51-6	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26	J	< 5.21	J	N/A	
Benzyl butyl phthalate	85-68-7	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Bis(2-chloroethoxy)methane	111-91-1	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Bis(2-chloroethyl)ether	111-44-4	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Bis(2-chloroisopropyl)ether	108-60-1	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Bis(2-ethylhexyl)phthalate	117-81-7	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Carbazole	86-74-8	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Dibenzofuran	132-64-9	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Diethy phthalate	84-66-2	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Dimethyl phthalate	131-11-3	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Di-n-butyl phthalate	84-74-2	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Di-n-octyl phthalate	117-84-0	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Hexachlorobenzene	118-74-1	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Hexachlorocyclopentadiene	77-47-4	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Hexachloroethane	67-72-1	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
m-Dichlorobenzene	541-73-1	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Methanamine, n-methyl-n-nitroso	62-75-9	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26	J	< 5.21	J	N/A	
Nitrobenzene	98-95-3	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
N-Nitroso-di-n-propylamine	621-64-7	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
N-Nitrosodiphenylamine	86-30-6	ug/l	SW8270	N	N/A		< 5.26		< 5.26		< 5.10		< 5.26		< 5.21		N/A	
p-Chloroaniline	106-47-8	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26	J	< 5.10		< 5.26	J	< 5.21	J	N/A	
Pentachlornitrobenzene	82-68-8	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26		< 5.21		N/A	
Pentachlorophenol	87-86-5	ug/l	SW8270	N	N/A		< 21.1	J	< 21.1	J	< 20.4		< 21.1		< 20.8		N/A	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach													
				Location Name	P11-SB413		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237		S15-SB237	
				Sample Name	MW-P11-072412-1		MW-AS15-SB237-1		MW-S15 041912-1		MW-S15 041912-2		MW-S15-022312-1		MW-S15-022312-2		MW-S15-072512-1	
				Sample Date	7/24/2012		1/12/2012		4/19/2012		4/19/2012		2/23/2012		2/23/2012		7/25/2012	
				Sample Type	N		N		N		FD		N		FD		N	
Analyte	CAS Number	Units	Method	Fraction														
Phenol	108-95-2	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26	J	< 5.21	J	N/A	
p-Nitroaniline	100-01-6	ug/l	SW8270	N	N/A		< 21.1		< 21.1	J	< 20.4		< 21.1	J	< 20.8	J	N/A	
Pyridine	110-86-1	ug/l	SW8270	N	N/A		< 5.26	J	< 5.26		< 5.10		< 5.26	J	< 5.21	J	N/A	
1-Methylnaphthalene	90-12-0	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
2-Methylnaphthalene	91-57-6	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Acenaphthene	83-32-9	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Acenaphthylene	208-96-8	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Anthracene	120-12-7	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Benzo(a)anthracene	56-55-3	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Benzo(a)pyrene	50-32-8	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Benzo(b)fluoranthene	205-99-2	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Benzo(g,h,i)perylene	191-24-2	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Benzo(k)fluoranthene	207-08-9	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Chrysene	218-01-9	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Dibenzo(a,h)anthracene	53-70-3	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Fluoranthene	206-44-0	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Fluorene	86-73-7	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Naphthalene	91-20-3	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Phenanthrene	85-01-8	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Pyrene	129-00-0	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Total High Molecular Weight PAHs	RACALC-HPAH	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Total Low Molecular Weight PAHs	RACALC-LPAH	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Total PAHs	RACALC-PAH	ug/l	SW8270 SIM	N	N/A		< 0.050		< 0.050		< 0.050		< 0.050		< 0.050		N/A	
Cyanide	57-12-5	ug/l	SW9012	T	N/A		< 5.00		N/A		N/A		N/A		N/A		N/A	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach				West Borthers Brook: Adjacent Natural Bed Reach				West Borthers Brook: Adjacent Cider Mill Pond (AOC12)			
				Location Name	S15-SB237		V18-SB380		R20-SB423		L25		28-SB319		28-SB319	
				Sample Name	MW-S15-072512-2		MW-V18-072512-1		MW-R20-072612-1		MW-L25-072612-1		MW-28-042012-1		MW-28-072612-1	
				Sample Date	7/25/2012		7/25/2012		7/26/2012		7/26/2012		4/20/2012		7/26/2012	
				Sample Type	FD		N		N		N		N		N	
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**												
Aviation Fuel	AVIAT FUEL	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
Gasoline	PHCG	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
Motor Oil	Motor Oil	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
Other Oil	OTHEROIL	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
PHC as Fuel Oil #2	PHCFO2	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
PHC as Fuel Oil #4	PHCFO4	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
PHC as Fuel Oil #6	PHCFO6	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
Total Petroleum Hydrocarbons	TPH	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
Unidentified	UNIND	ug/l	CTETPH	N	< 100		< 100		< 100		< 100		< 100		< 100	
Chloride	16887-00-6	ug/l	E300	T	**33800**		**1230000**		**8260**		**123000**		N/A		**51000**	
Nitrate	14797-55-8	ug/l	E300	T	< 100	J	< 2000	J	**1190**		< 100		N/A		< 100	
Nitrite as N	NITRITE AS N	ug/l	E300	T	**290**	J	< 2000	J	< 100	J	**400**	J	N/A		< 100	J
Sulfate as SO4	SASSO4	ug/l	E300	T	**3960**	J-	**16200**	J-	**41600**	J-	**38800**	J-	N/A		**6460**	
Decachlorobiphenyl (PCB-209)	2051-24-3	ug/l	E680	N	< 0.025		< 0.025		< 0.025	J	< 0.025		N/A		< 0.025	
Dichlorobiphenyl	25512-42-9	ug/l	E680	N	< 0.005		< 0.005		< 0.005	J	< 0.005		N/A		**0.00678**	
Heptachlorobiphenyl	28655-71-2	ug/l	E680	N	< 0.015		< 0.015		< 0.015	J	< 0.015		N/A		< 0.015	
Hexachlorobiphenyl	26601-64-9	ug/l	E680	N	< 0.01		< 0.01		< 0.01	J	< 0.01		N/A		< 0.01	
Monochlorobiphenyl	27323-18-8	ug/l	E680	N	< 0.005		< 0.005		< 0.005	J	< 0.005	J	N/A		< 0.005	
Nonachlorobiphenyl	53742-07-7	ug/l	E680	N	< 0.025		< 0.025		< 0.025	J	< 0.025		N/A		< 0.025	
Octachlorobiphenyl	55722-26-4	ug/l	E680	N	< 0.015		< 0.015		< 0.015	J	< 0.015		N/A		< 0.015	
Pentachlorobiphenyl	25429-29-2	ug/l	E680	N	< 0.01		< 0.01		< 0.01	J	< 0.01		N/A		< 0.01	
Tetrachlorobiphenyl	26914-33-0	ug/l	E680	N	**0.0123**		< 0.01		< 0.01	J	< 0.01		N/A		< 0.01	
Total PCB	1336-36-3	ug/l	E680	N	**0.0203**		**0.00631**		< 0.025		< 0.025		N/A		**0.00678**	
Total PCB Homologues	RACALC-PCB-H	ug/l	E680	N	**0.0203**		**0.00631**		< 0.025		< 0.025		N/A		**0.00678**	
Trichlorobiphenyl	25323-68-6	ug/l	E680	N	**0.00803**		**0.00631**		< 0.005	J	< 0.005		N/A		< 0.005	
Dissolved Oxygen	DO	mg/l	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A	
Draw-DTW	DRAW-DTW	ft	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A	
Flowrate	FLOWRATE	ml/min	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A	
Oxidation/Reduction Potential	ORP	millivolts	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A	
PH	PH	SU	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A	
Specific Conductivity	SC	umhos/cm	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A	
Temperature	TEMP	deg c	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A	
Turbidity	TURBIDITY	ntu	FIELD	N	N/A		N/A		N/A		N/A		N/A		N/A	
Bicarbonate Alkalinity	BIC-ALK	ug/l	SM2320B	T	**202000**		**230000**		**129000**		**124000**		N/A		**88800**	
Carbonate Alkalinity	CARB-ALK	ug/l	SM2320B	T	< 2000		< 2000		< 2000		< 2000		N/A		< 2000	
Sulfide	18496-25-8	ug/l	SM4500SD	T	< 100	J	< 100	J	< 100	J	< 100	J	N/A		< 100	
Antimony	7440-36-0	ug/l	SW6010	T	< 6.0		< 6.0		< 6.0		< 6.0		< 6.0		< 6.0	
Arsenic	7440-38-2	ug/l	SW6010	T	**4.7**		< 4.0		< 4.0		< 4.0		< 4.0		< 4.0	
Barium	7440-39-3	ug/l	SW6010	T	**153**		**642**		**119**		**103**		**88.7**		**58.3**	
Beryllium	7440-41-7	ug/l	SW6010	T	< 2.0		< 2.0		< 2.0		< 2.0		< 2.0		< 2.0	
Cadmium	7440-43-9	ug/l	SW6010	T	< 2.5		< 2.5		< 2.5		< 2.5		< 2.5		< 2.5	
Calcium	7440-70-2	ug/l	SW6010	T	**42300**		**205000**		**49000**		**35000**		N/A		**22600**	
Chromium	7440-47-3	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Copper	7440-50-8	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		**6.4**		**5.2**	
Iron	7439-89-6	ug/l	SW6010	T	**9450**		**5940**		**39.5**		**738**		N/A		**648**	J
Lead	7439-92-1	ug/l	SW6010	T	< 7.5		< 7.5		< 7.5		< 7.5		< 7.5		< 7.5	
Magnesium	7439-95-4	ug/l	SW6010	T	**17900**		**41700**		**8590**		**7910**		N/A		**7790**	
Manganese	7439-96-5	ug/l	SW6010	T	**765**		**1570**		**11.6**		**1480**		N/A		**872**	J
Nickel	7440-02-0	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Potassium	7440-09-7	ug/l	SW6010	T	**7240**		**28500**		**5870**		**5970**		N/A		**4370**	J
Selenium	7782-49-2	ug/l	SW6010	T	< 15.0		< 15.0		< 15.0		< 15.0		< 15.0		< 15.0	
Silver	7440-22-4	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	J
Sodium	7440-23-5	ug/l	SW6010	T	**25600**		**592000**		**7270**		**82000**		N/A		**30200**	
Thallium	7440-28-0	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Vanadium	7440-62-2	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		< 5.0		< 5.0		< 5.0	
Zinc	7440-66-6	ug/l	SW6010	T	< 5.0		< 5.0		< 5.0		**8.6**		**5**		**53**	
Mercury	7439-97-6	ug/l	SW7470A	T	< 0.20		< 0.20		< 0.20		< 0.20		< 0.20		< 0.20	
4,4-DDD (p,p)	72-54-8	ug/l	SW8081	N	N/A		N/A		N/A		N/A		< 0.004		N/A	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach		West Borthers Brook: Adjacent Natural Bed Reach		West Borthers Brook: Adjacent Cider Mill Pond (AOC12)	
				Location Name	S15-SB237	V18-SB380	R20-SB423	L25	28-SB319	28-SB319
				Sample Name	MW-S15-072512-2	MW-V18-072512-1	MW-R20-072612-1	MW-L25-072612-1	MW-28-042012-1	MW-28-072612-1
				Sample Date	7/25/2012	7/25/2012	7/26/2012	7/26/2012	4/20/2012	7/26/2012
				Sample Type	FD	N	N	N	N	N
Analyte	CAS Number	Units	Method	Fraction						
4,4-DDE (p,p)	72-55-9	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
4,4-DDT (p,p)	50-29-3	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.004	N/A
Alachlor	15972-60-8	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Aldrin	309-00-2	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
alpha-Chlordane	5103-71-9	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Camphechlor	8001-35-2	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.049	N/A
Chlordane	57-74-9	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.006	N/A
delta-BHC	319-86-8	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Dieldrin	60-57-1	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Endosulfan I	959-98-8	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Endosulfan II	33213-65-9	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.004	N/A
Endosulfan sulfate	1031-07-8	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.004	N/A
Endrin	72-20-8	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.004	N/A
Endrin aldehyde	7421-93-4	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.004	N/A
Endrin ketone	53494-70-5	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.004	N/A
gamma-Chlordane	5103-74-2	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Heptachlor	76-44-8	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Heptachlor epoxide	1024-57-3	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Hexachlorocyclohexane, alpha	319-84-6	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Hexachlorocyclohexane, beta	319-85-7	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.002	N/A
Methoxychlor	72-43-5	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.004	N/A
Total DDx	RACALC-DDx	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.004	N/A
Total Endosulfans	RACALC-ENDO	ug/l	SW8081	N	N/A	N/A	N/A	N/A	< 0.004	N/A
Aroclor 1016	12674-11-2	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1221	11104-28-2	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1232	11141-16-5	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1242	53469-21-9	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1248	12672-29-6	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1254	11097-69-1	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1260	11096-82-5	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1262	37324-23-5	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1268	11100-14-4	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Total PCB Aroclors	RACALC-PCB	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
Total PCBs	CALC-PCBs	ug/l	SW8082	N	N/A	N/A	N/A	N/A	N/A	N/A
2,2-Dichloropropionic acid	75-99-0	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
2,4,5-T	93-76-5	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
2,4,5-TP (Silvex)	93-72-1	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
2,4-DB	94-82-6	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
Dicamba	1918-00-9	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
Dichloroprop	120-36-5	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
Dinitrobutyl phenol	88-85-7	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
MCPB	94-81-5	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
MCPP	93-65-2	ug/l	SW8151	N	N/A	N/A	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	630-20-6	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,1,1-Trichloroethane	71-55-6	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,1,2,2-Tetrachloroethane	79-34-5	ug/l	SW8260	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.5	< 0.50
1,1,2-Trichloroethane	79-00-5	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,1-Dichloroethane	75-34-3	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,1-Dichloroethylene	75-35-4	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,1-Dichloropropene	563-58-6	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,2,3-Trichlorobenzene	87-61-6	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,2,3-Trichloropropane	96-18-4	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,2,4-Trimethylbenzene	95-63-6	ug/l	SW8260	N	< 1.00	< 1.00	< 1.00	< 1.00	< 1.0	< 1.00
1,2-Dibromo-3-chloropropane	96-12-8	ug/l	SW8260	N	< 2.00	< 2.00	< 2.00	< 2.00	< 2.0	< 2.00
1,2-Dibromoethane	106-93-4	ug/l	SW8260	N	< 0.50	< 0.50	< 0.50	< 0.50	< 0.5	< 0.50

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach				West Borthers Brook: Adjacent Natural Bed Reach				West Borthers Brook: Adjacent Cider Mill Pond (AOC12)			
				Location Name	S15-SB237		V18-SB380		R20-SB423		L25		28-SB319		28-SB319	
				Sample Name	MW-S15-072512-2		MW-V18-072512-1		MW-R20-072612-1		MW-L25-072612-1		MW-28-042012-1		MW-28-072612-1	
				Sample Date	7/25/2012		7/25/2012		7/26/2012		7/26/2012		4/20/2012		7/26/2012	
				Sample Type	FD		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction												
1,2-Dichlorobenzene	95-50-1	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
1,2-Dichloroethane	107-06-2	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
1,2-Dichloropropane	78-87-5	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
1,3,5-Trichlorobenzene	108-70-3	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
1,3,5-Trimethylbenzene	108-67-8	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
1,3-Dichloropropane	142-28-9	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
1,4-Dichlorobenzene	106-46-7	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
1,4-Dioxane	123-91-1	ug/l	SW8260	N	< 20.0		< 20.0		< 20.0		< 20.0		< 20.0		< 20.0	
2,2-Dichloropropane	594-20-7	ug/l	SW8260	N	< 1.00		< 1.00	J	< 1.00	J	< 1.00	J	< 1.0		< 1.00	J
2-Butanone (MEK)	78-93-3	ug/l	SW8260	N	< 10.0		< 10.0		< 10.0		< 10.0		< 10.0		< 10.0	
2-Hexanone	591-78-6	ug/l	SW8260	N	< 10.0		< 10.0		< 10.0		< 10.0		< 10.0		< 10.0	
Acetone	67-64-1	ug/l	SW8260	N	< 10.0		< 10.0		< 10.0		< 10.0		< 10.0	J	< 10.0	
Acrylonitrile	107-13-1	ug/l	SW8260	N	< 0.50		< 0.50		< 0.50		< 0.50		< 0.5		< 0.50	
Benzene	71-43-2	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Bromobenzene	108-86-1	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Bromochlormethane	74-97-5	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Bromodichloromethane	75-27-4	ug/l	SW8260	N	< 0.50		< 0.50		< 0.50		< 0.50		< 0.5		< 0.50	
Bromoform	75-25-2	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Bromomethane	74-83-9	ug/l	SW8260	N	< 2.00		< 2.00		< 2.00		< 2.00		< 2.0		< 2.00	
Carbon disulfide	75-15-0	ug/l	SW8260	N	< 2.00		< 2.00		< 2.00		< 2.00		< 2.0		< 2.00	
Carbon tetrachloride	56-23-5	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Chlorobenzene	108-90-7	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Chloroethane	75-00-3	ug/l	SW8260	N	< 2.00		< 2.00		< 2.00		< 2.00		< 2.0		< 2.00	
Chloroform	67-66-3	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Chloromethane	74-87-3	ug/l	SW8260	N	< 2.00		< 2.00		< 2.00		< 2.00		< 2.0		< 2.00	
cis-1,2-Dichloroethylene	156-59-2	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
cis-1,3-Dichloropropene	10061-01-5	ug/l	SW8260	N	< 0.50		< 0.50		< 0.50		< 0.50		< 0.5		< 0.50	
Dibromochloromethane	124-48-1	ug/l	SW8260	N	< 0.50		< 0.50		< 0.50		< 0.50		< 0.5		< 0.50	
Dichlorodifluoromethane	75-71-8	ug/l	SW8260	N	< 2.00	J	< 2.00	J	< 2.00	J	< 2.00	J	< 2.0		< 2.00	J
Diisopropyl ether (DIPE)	108-20-3	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Ethanol	64-17-5	ug/l	SW8260	N	< 400		< 400	J	< 400	J	< 400	J	< 400	J	< 400	J
Ethyl ether	60-29-7	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Ethylbenzene	100-41-4	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Ethyl-t-butyl ether (ETBE)	637-92-3	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Freon 113	76-13-1	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8260	N	< 0.50		< 0.50		< 0.50		< 0.50		< 0.5		< 0.50	
Isopropylbenzene	98-82-8	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
m,p-Xylenes	1330-20-7-M,P	ug/l	SW8260	N	< 2.00		< 2.00		< 2.00		< 2.00		< 2.0		< 2.00	
m-Dichlorobenzene	541-73-1	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Methyl Isobutyl Ketone	108-10-1	ug/l	SW8260	N	< 10.0		< 10.0		< 10.0		< 10.0		< 10.0		< 10.0	
Methyl Tert Butyl Ether (MTBE)	1634-04-4	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Methylene bromide	74-95-3	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Methylene chloride	75-09-2	ug/l	SW8260	N	< 2.00		< 2.00		< 2.00		< 2.00		< 2.0		< 2.00	
Naphthalene	91-20-3	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
n-Butylbenzene	104-51-8	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
n-Propylbenzene	103-65-1	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
o-Chlorotoluene	95-49-8	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
o-Xylene	95-47-6	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
p-Chlorotoluene	106-43-4	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
p-Isopropyltoluene	99-87-6	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
sec-Butylbenzene	135-98-8	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Styrene	100-42-5	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
tert-Amyl Methyl Ether (TAME)	994-05-8	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Tert-butyl alcohol	75-65-0	ug/l	SW8260	N	< 10.0		< 10.0		< 10.0		< 10.0		< 10.0	J	< 10.0	
tert-butylbenzene	98-06-6	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Tetrachloroethylene	127-18-4	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Tetrahydrofuran	109-99-9	ug/l	SW8260	N	< 2.00		< 2.00		< 2.00		< 2.00		< 2.0	J	< 2.00	
Toluene	108-88-3	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Total Xylenes	RACALC-XYL	ug/l	SW8260	N	< 2.00		< 2.00		< 2.00		< 2.00		< 2.0		< 2.00	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach				West Borthers Brook: Adjacent Natural Bed Reach				West Borthers Brook: Adjacent Cider Mill Pond (AOC12)			
				Location Name	S15-SB237		V18-SB380		R20-SB423		L25		28-SB319		28-SB319	
				Sample Name	MW-S15-072512-2		MW-V18-072512-1		MW-R20-072612-1		MW-L25-072612-1		MW-28-042012-1		MW-28-072612-1	
				Sample Date	7/25/2012		7/25/2012		7/26/2012		7/26/2012		4/20/2012		7/26/2012	
				Sample Type	FD		N		N		N		N		N	
Analyte	CAS Number	Units	Method	Fraction												
trans-1,2-Dichloroethylene	156-60-5	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
trans-1,3-Dichloropropene	10061-02-6	ug/l	SW8260	N	< 0.50		< 0.50	J	< 0.50	J	< 0.50	J	< 0.5		< 0.50	
Trans-1,4-Dichloro-2-Butene	110-57-6	ug/l	SW8260	N	< 5.00		< 5.00	J	< 5.00	J	< 5.00	J	< 5.0		< 5.00	J
Trichloroethene	79-01-6	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Trichlorofluoromethane	75-69-4	ug/l	SW8260	N	< 1.00		< 1.00		< 1.00		< 1.00		< 1.0		< 1.00	
Vinyl chloride	75-01-4	ug/l	SW8260	N	< 1.00	J	< 1.00		< 1.00		< 1.00		< 1.0	J	< 1.00	J
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
1,2,4-Trichlorobenzene	120-82-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
1,2-Dichlorobenzene	95-50-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
1,4-Dichlorobenzene	106-46-7	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2,4,5-Trichlorophenol	95-95-4	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2,4,6-Trichlorophenol	88-06-2	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2,4-Dichlorophenol	120-83-2	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2,4-Dimethylphenol	105-67-9	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2,4-Dinitrophenol	51-28-5	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2,4-Dinitrotoluene	121-14-2	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2,6-Dinitrotoluene	606-20-2	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2-Chloronaphthalene	91-58-7	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2-Chlorophenol	95-57-8	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2-Methylphenol	95-48-7	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2-Nitroaniline	88-74-4	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
2-Nitrophenol	88-75-5	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
3,3-Dichlorobenzidine	91-94-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00	J	N/A	
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
3-Nitroaniline	99-09-2	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
4,6-Dinitro-2-methylphenol	534-52-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
4-Bromophenyl phenyl ehter	101-55-3	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
4-Chloro-3-methylphenol	59-50-7	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
4-Chlorophenyl phenyl ehter	7005-72-3	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
4-Methylphenol	106-44-5	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 10.0		N/A	
4-Nitrophenol	100-02-7	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 20.0	J	N/A	
Aniline	62-53-3	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Azobenzene	103-33-3	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Benzidine	92-87-5	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Benzoic acid	65-85-0	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Benzyl alcohol	100-51-6	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Benzyl butyl phthalate	85-68-7	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Bis(2-chloroethoxy)methane	111-91-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Bis(2-chloroethyl)ether	111-44-4	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Bis(2-chloroisopropyl)ether	108-60-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Bis(2-ethylhexyl)phthalate	117-81-7	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Carbazole	86-74-8	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Dibenzofuran	132-64-9	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Diethy phthalate	84-66-2	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Dimethyl phthalate	131-11-3	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Di-n-butyl phthalate	84-74-2	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Di-n-octyl phthalate	117-84-0	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Hexachloro-1,3-butadiene	87-68-3	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Hexachlorobenzene	118-74-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Hexachlorocyclopentadiene	77-47-4	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Hexachloroethane	67-72-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
m-Dichlorobenzene	541-73-1	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Methanamine, n-methyl-n-nitroso	62-75-9	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Nitrobenzene	98-95-3	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
N-Nitroso-di-n-propylamine	621-64-7	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
N-Nitrosodiphenylamine	86-30-6	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
p-Chlororaniline	106-47-8	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Pentachlornitrobenzene	82-68-8	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 5.00		N/A	
Pentachlorophenol	87-86-5	ug/l	SW8270	N	N/A		N/A		N/A		N/A		< 20.0		N/A	

Table C-3
Summary of Groundwater Analytical Data

					West Borthers Brook: Adjacent Concrete-Lined Reach		West Borthers Brook: Adjacent Natural Bed Reach		West Borthers Brook: Adjacent Cider Mill Pond (AOC12)	
				Location Name	S15-SB237	V18-SB380	R20-SB423	L25	28-SB319	28-SB319
				Sample Name	MW-S15-072512-2	MW-V18-072512-1	MW-R20-072612-1	MW-L25-072612-1	MW-28-042012-1	MW-28-072612-1
				Sample Date	7/25/2012	7/25/2012	7/26/2012	7/26/2012	4/20/2012	7/26/2012
				Sample Type	FD	N	N	N	N	N
Analyte	**CAS Number**	**Units**	**Method**	**Fraction**						
Phenol	108-95-2	ug/l	SW8270	N	N/A	N/A	N/A	N/A	< 5.00	N/A
p-Nitroaniline	100-01-6	ug/l	SW8270	N	N/A	N/A	N/A	N/A	< 20.0	N/A
Pyridine	110-86-1	ug/l	SW8270	N	N/A	N/A	N/A	N/A	< 5.00	N/A
1-Methylnaphthalene	90-12-0	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
2-Methylnaphthalene	91-57-6	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	**0.068**	N/A
Acenaphthene	83-32-9	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Acenaphthylene	208-96-8	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Anthracene	120-12-7	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Benzo(a)anthracene	56-55-3	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Benzo(a)pyrene	50-32-8	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Benzo(b)fluoranthene	205-99-2	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Benzo(g,h,i)perylene	191-24-2	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Benzo(k)fluoranthene	207-08-9	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Chrysene	218-01-9	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Dibenzo(a,h)anthracene	53-70-3	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Fluoranthene	206-44-0	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Fluorene	86-73-7	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Naphthalene	91-20-3	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	**0.072**	N/A
Phenanthrene	85-01-8	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Pyrene	129-00-0	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Total High Molecular Weight PAHs	RACALC-HPAH	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	< 0.050	N/A
Total Low Molecular Weight PAHs	RACALC-LPAH	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	**0.14**	N/A
Total PAHs	RACALC-PAH	ug/l	SW8270 SIM	N	N/A	N/A	N/A	N/A	**0.14**	N/A
Cyanide	57-12-5	ug/l	SW9012	T	N/A	N/A	N/A	N/A	N/A	N/A

Notes:
NA = not available
µg/L = micrograms per liter
J = estimated
J- = estimated with low bias
Bold = detected concentration

Appendix D

Summary of Chemicals of Potential Ecological Concern Selection

ED_002022B_00026752-00170

Table D-1
Summary of Surface Water Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (µg/L)	Average Concentration (µg/L)	Maximum Detected Concentration (µg/L)	Minimum Reporting Limit (µg/L)	Maximum Reporting Limit (µg/L)	SW SL Lower of Aquatic vs Amphibian (µg/L)	COPEC Determination
Barium	7440-39-3	Inorganic			20	20	100.00	71	84.5	106	5.000	5	3.9	COPC: Max sample value exceeds SL
Pyrene	129-00-0	PAH	HPAH	x	20	3	15.00	0.052	0.068333333	0.09	0.050	0.05	0.025	COPC: Max sample value exceeds SL
alpha-Chlordane	5103-71-9	Pesticide	Insecticide	x	13	3	23.08	0.003	0.003	0.003	0.002	0.002	0.0022	COPC: Max sample value exceeds SL
Chlordane	57-74-9	Pesticide	Insecticide	x	13	8	61.54	0.018	0.0255	0.03	0.007	0.007	0.0043	COPC: Max sample value exceeds SL
Total DDx	RACALC-DDx	Pesticide	Insecticide	x	13	3	23.08	0.002	0.002	0.002	0.004	0.005	0.001	COPC: Max sample value exceeds SL
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	HPAH	x	20	3	15.00	0.052	0.068333333	0.09	0.050	0.05		COPEC: Detects present and SLNA; but is Detected and a BCC
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	LPAH		20	6	30.00	0.056	0.075833333	0.115	0.050	0.05		COPEC: SLNA but TRV available
Total PAHs	RACALC-PAH	PAH		x	20	6	30.00	0.059	0.111166667	0.205	0.050	0.05		COPEC: Detects present and SLNA; but is Detected and a BCC
Beryllium	*7440-41-7*	*Inorganic*			*20*		*0.00*				*2.000*	*2*	*0.66*	*ND COPEC: MRL exceeds SL*
Cadmium	*7440-43-9*	*Inorganic*			*20*		*0.00*				*2.500*	*2.5*	*0.125*	*ND COPEC: MRL exceeds SL*
Copper	*7440-50-8*	*Inorganic*			*20*		*0.00*				*5.000*	*5*	*4.8*	*ND COPEC: MRL exceeds SL*
Lead	*7439-92-1*	*Inorganic*			*20*		*0.00*				*7.500*	*7.5*	*1.2*	*ND COPEC: MRL exceeds SL*
Selenium	*7782-49-2*	*Inorganic*			*20*		*0.00*				*15.000*	*15*	*5*	*ND COPEC: MRL exceeds SL*
Silver	*7440-22-4*	*Inorganic*			*20*		*0.00*				*5.000*	*5*	*0.36*	*ND COPEC: MRL exceeds SL*
Benzo(a)anthracene	*56-55-3*	*PAH*	*HPAH*	*x*	*20*		*0.00*				*0.050*	*0.05*	*0.027*	*ND COPEC: MRL exceeds SL*
Benzo(a)pyrene	*50-32-8*	*PAH*	*HPAH*	*x*	*20*		*0.00*				*0.050*	*0.05*	*0.014*	*ND COPEC: MRL exceeds SL*
Total PCB Homologues	*RACALC-PCB-H*	*PCB*		*x*	*13*		*0.00*				*0.025*	*0.0284*	*0.014*	*ND COPEC: MRL exceeds SL*
4,4-DDT (p,p)	*50-29-3*	*Pesticide*	*Insecticide*	*x*	*13*		*0.00*				*0.004*	*0.005*	*0.0005*	*ND COPEC: MRL exceeds SL*
Camphechlor	*8001-35-2*	*Pesticide*	*Insecticide*	*x*	*13*		*0.00*				*0.052*	*0.057*	*0.0002*	*ND COPEC: MRL exceeds SL*
2,4,6-Trichlorophenol	*88-06-2*	*SVOC*			*20*		*0.00*				*5.100*	*5.56*	*4.9*	*ND COPEC: MRL exceeds SL*
3,3-Dichlorobenzidine	*91-94-1*	*SVOC*			*20*		*0.00*				*5.100*	*5.56*	*4.5*	*ND COPEC: MRL exceeds SL*
4-Bromophenyl phenyl ehter	*101-55-3*	*SVOC*			*20*		*0.00*				*5.100*	*5.56*	*1.5*	*ND COPEC: MRL exceeds SL*
Aniline	*62-53-3*	*SVOC*			*20*		*0.00*				*5.100*	*5.56*	*2.2*	*ND COPEC: MRL exceeds SL*
Benzidine	*92-87-5*	*SVOC*			*8*		*0.00*				*5.100*	*5.38*	*3.9*	*ND COPEC: MRL exceeds SL*
Dibenzofuran	*132-64-9*	*SVOC*			*20*		*0.00*				*5.100*	*5.56*	*3.7*	*ND COPEC: MRL exceeds SL*
Hexachlorobenzene	*118-74-1*	*SVOC*		*x*	*20*		*0.00*				*5.100*	*5.56*	*0.0003*	*ND COPEC: MRL exceeds SL*
Pentachlorophenol	*87-86-5*	*SVOC*			*20*		*0.00*				*20.400*	*22.2*	*15*	*ND COPEC: MRL exceeds SL*
Phenol	*108-95-2*	*SVOC*			*20*		*0.00*				*5.100*	*5.56*	*4*	*ND COPEC: MRL exceeds SL*
Carbon disulfide	*75-15-0*	*VOC*			*13*		*0.00*				*2.000*	*2*	*0.92*	*ND COPEC: MRL exceeds SL*
Hexachloro-1,3-butadiene	*87-68-3*	*VOC*	*cVOC*		*33*		*0.00*				*0.500*	*5.56*	*1.3*	*ND COPEC: MRL exceeds SL*
Zinc	7440-66-6	Inorganic			20	3	15.00	5.1	5.9	6.6	5.00	10	65	Not a COPEC: Max sample value does not exceed SL
2-Methylnaphthalene	91-57-6	PAH	LPAH		20	1	5.00	0.068	0.068	0.068	0.05	0.05	4.7	Not a COPEC: Max sample value does not exceed SL
Fluoranthene	206-44-0	PAH	LPAH		20	5	25.00	0.056	0.0774	0.115	0.05	0.05	8.1	Not a COPEC: Max sample value does not exceed SL
4,4-DDE (p,p)	72-55-9	Pesticide	Insecticide	x	13	3	23.08	0.002	0.002	0.002	0.00	0.002	105	Not a COPEC: Max sample value does not exceed SL
Dieldrin	60-57-1	Pesticide	Insecticide	x	13	3	23.08	0.002	0.002	0.002	0.00	0.002	0.056	Not a COPEC: Max sample value does not exceed SL
Bis(2-ethylhexyl)phthalate	117-81-7	SVOC			20	1	5.00	10.8	10.8	10.8	5.10	5.56	32	Not a COPEC: Max sample value does not exceed SL
Antimony	7440-36-0	Inorganic			20		0.00				6.00	6	30	Not a COPEC: MRL does not exceed SL
Arsenic	7440-38-2	Inorganic			20		0.00				4.00	4	150	Not a COPEC: MRL does not exceed SL
Chromium	7440-47-3	Inorganic			20		0.00				5.00	5	11	Not a COPEC: MRL does not exceed SL
Mercury	7439-97-6	Inorganic		x	20		0.00				0.20	0.2	0.77	Not a COPEC: MRL does not exceed SL
Nickel	7440-02-0	Inorganic			20		0.00				5.00	5	28.9	Not a COPEC: MRL does not exceed SL
Thallium	7440-28-0	Inorganic			20		0.00				5.00	5	12	Not a COPEC: MRL does not exceed SL
Vanadium	7440-62-2	Inorganic			20		0.00				5.00	5	19	Not a COPEC: MRL does not exceed SL
1-Methylnaphthalene	90-12-0	PAH	LPAH		20		0.00				0.05	0.05	2.1	Not a COPEC: MRL does not exceed SL
Acenaphthene	83-32-9	PAH	LPAH		20		0.00				0.05	0.05	23	Not a COPEC: MRL does not exceed SL
Anthracene	120-12-7	PAH	LPAH		20		0.00				0.05	0.05	0.73	Not a COPEC: MRL does not exceed SL
Benzo(b)fluoranthene	205-99-2	PAH	HPAH	x	20		0.00				0.05	0.05	9.1	Not a COPEC: MRL does not exceed SL
Fluorene	86-73-7	PAH	LPAH		20		0.00				0.05	0.05	3.9	Not a COPEC: MRL does not exceed SL
Indeno(1,2,3-cd)pyrene	193-39-5	PAH	HPAH	x	20		0.00				0.05	0.05	4.3	Not a COPEC: MRL does not exceed SL
Naphthalene	91-20-3	PAH	LPAH		33		0.00				0.05	1	24	Not a COPEC: MRL does not exceed SL
Phenanthrene	85-01-8	PAH	LPAH		20		0.00				0.05	0.05	6.3	Not a COPEC: MRL does not exceed SL
Aroclor 1016	12674-11-2	PCB	Aroclor	x	7		0.00				0.21	0.22	6.2	Not a COPEC: MRL does not exceed SL
Aroclor 1242	53469-21-9	PCB	Aroclor	x	7		0.00				0.21	0.22	2.1	Not a COPEC: MRL does not exceed SL
Aroclor 1254	11097-69-1	PCB	Aroclor	x	7		0.00				0.21	0.22	1	Not a COPEC: MRL does not exceed SL
4,4-DDD (p,p)	72-54-8	Pesticide	Insecticide	x	13		0.00				0.00	0.005	0.011	Not a COPEC: MRL does not exceed SL
Aldrin	309-00-2	Pesticide	Insecticide	x	13		0.00				0.00	0.002	3	Not a COPEC: MRL does not exceed SL
delta-BHC	319-86-8	Pesticide	Insecticide	x	13		0.00				0.00	0.002	141	Not a COPEC: MRL does not exceed SL
Endosulfan I	959-98-8	Pesticide	Insecticide		13		0.00				0.00	0.002	0.056	Not a COPEC: MRL does not exceed SL
Endosulfan II	33213-65-9	Pesticide	Insecticide		13		0.00				0.00	0.005	0.056	Not a COPEC: MRL does not exceed SL
Endosulfan sulfate	1031-07-8	Pesticide	Insecticide		13		0.00				0.00	0.005	2.22	Not a COPEC: MRL does not exceed SL
Endrin	72-20-8	Pesticide	Insecticide		13		0.00				0.00	0.005	0.036	Not a COPEC: MRL does not exceed SL
Heptachlor	76-44-8	Pesticide	Insecticide		13		0.00				0.00	0.002	0.0038	Not a COPEC: MRL does not exceed SL
Heptachlor epoxide	1024-57-3	Pesticide	Insecticide		13		0.00				0.00	0.002	0.0038	Not a COPEC: MRL does not exceed SL

Table D-1
Summary of Surface Water Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (µg/L)	Average Concentration (µg/L)	Maximum Detected Concentration (µg/L)	Minimum Reporting Limit (µg/L)	Maximum Reporting Limit (µg/L)	SW SL Lower of Aquatic vs Amphibian (µg/L)	COPEC Determination
Hexachlorocyclohexane, alpha	319-84-6	Pesticide	Insecticide	x	13		0.00				0.00	0.002	2.2	Not a COPEC: MRL does not exceed SL
Hexachlorocyclohexane, beta	319-85-7	Pesticide	Insecticide	x	13		0.00				0.00	0.002	2.2	Not a COPEC: MRL does not exceed SL
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	Pesticide	Insecticide	x	13		0.00				0.00	0.002	0.08	Not a COPEC: MRL does not exceed SL
Methoxychlor	72-43-5	Pesticide	Insecticide		13		0.00				0.00	0.005	0.03	Not a COPEC: MRL does not exceed SL
2,4-Dichlorophenol	120-83-2	SVOC			20		0.00				5.10	5.56	11	Not a COPEC: MRL does not exceed SL
2,4-Dinitrotoluene	121-14-2	SVOC			20		0.00				5.10	5.56	44	Not a COPEC: MRL does not exceed SL
2,6-Dinitrotoluene	606-20-2	SVOC			20		0.00				5.10	5.56	81	Not a COPEC: MRL does not exceed SL
2-Chlorophenol	95-57-8	SVOC			20		0.00				5.10	5.56	24	Not a COPEC: MRL does not exceed SL
2-Methylphenol	95-48-7	SVOC			20		0.00				5.10	5.56	13	Not a COPEC: MRL does not exceed SL
2-Nitrophenol	88-75-5	SVOC			20		0.00				5.10	5.56	1920	Not a COPEC: MRL does not exceed SL
4-Methylphenol	106-44-5	SVOC			20		0.00				10.20	11.1	543	Not a COPEC: MRL does not exceed SL
4-Nitrophenol	100-02-7	SVOC			20		0.00				20.40	22.2	60	Not a COPEC: MRL does not exceed SL
Benzoic acid	65-85-0	SVOC			20		0.00				5.10	5.56	42	Not a COPEC: MRL does not exceed SL
Benzyl alcohol	100-51-6	SVOC			20		0.00				5.10	5.56	8.6	Not a COPEC: MRL does not exceed SL
Benzyl butyl phthalate	85-68-7	SVOC			20		0.00				5.10	5.56	19	Not a COPEC: MRL does not exceed SL
Diethy phthalate	84-66-2	SVOC			20		0.00				5.10	5.56	220	Not a COPEC: MRL does not exceed SL
Di-n-butyl phthalate	84-74-2	SVOC			20		0.00				5.10	5.56	19	Not a COPEC: MRL does not exceed SL
Di-n-octyl phthalate	117-84-0	SVOC			20		0.00				5.10	5.56	22	Not a COPEC: MRL does not exceed SL
Hexachloroethane	67-72-1	SVOC			20		0.00				5.10	5.56	12	Not a COPEC: MRL does not exceed SL
Nitrobenzene	98-95-3	SVOC			20		0.00				5.10	5.56	640	Not a COPEC: MRL does not exceed SL
N-Nitrosodiphenylamine	86-30-6	SVOC			20		0.00				5.10	5.56	210	Not a COPEC: MRL does not exceed SL
p-Chlororaniline	106-47-8	SVOC			20		0.00				5.10	5.56	232	Not a COPEC: MRL does not exceed SL
Pyridine	110-86-1	SVOC			20		0.00				5.10	5.56	2380	Not a COPEC: MRL does not exceed SL
1,1,1-Trichloroethane	71-55-6	VOC	cVOC		13		0.00				1.00	1	62	Not a COPEC: MRL does not exceed SL
1,1,2,2-Tetrachloroethane	79-34-5	VOC	cVOC		13		0.00				0.50	0.5	420	Not a COPEC: MRL does not exceed SL
1,1,2-Trichloroethane	79-00-5	VOC	cVOC		13		0.00				1.00	1	1200	Not a COPEC: MRL does not exceed SL
1,1-Dichloroethane	75-34-3	VOC	cVOC		13		0.00				1.00	1	47	Not a COPEC: MRL does not exceed SL
1,1-Dichloroethylene	75-35-4	VOC	cVOC		13		0.00				1.00	1	25	Not a COPEC: MRL does not exceed SL
1,2,3-Trichlorobenzene	87-61-6	VOC	cVOC		13		0.00				1.00	1	8	Not a COPEC: MRL does not exceed SL
1,2,4,5-Tetrachlorobenzene	95-94-3	VOC	cVOC		20		0.00				5.10	5.56	50	Not a COPEC: MRL does not exceed SL
1,2,4-Trichlorobenzene	120-82-1	VOC	cVOC		33		0.00				1.00	5.56	24	Not a COPEC: MRL does not exceed SL
1,2-Dichlorobenzene	95-50-1	VOC	cVOC		33		0.00				1.00	5.56	14	Not a COPEC: MRL does not exceed SL
1,2-Dichloroethane	107-06-2	VOC	cVOC		13		0.00				1.00	1	910	Not a COPEC: MRL does not exceed SL
1,2-Dichloropropane	78-87-5	VOC	cVOC		13		0.00				1.00	1	63000	Not a COPEC: MRL does not exceed SL
1,4-Dichlorobenzene	106-46-7	VOC	cVOC		33		0.00				1.00	5.56	15	Not a COPEC: MRL does not exceed SL
2-Butanone (MEK)	78-93-3	VOC			13		0.00				10.00	10	14000	Not a COPEC: MRL does not exceed SL
2-Hexanone	591-78-6	VOC			13		0.00				10.00	10	99	Not a COPEC: MRL does not exceed SL
Acetone	67-64-1	VOC			13		0.00				10.00	10	1500	Not a COPEC: MRL does not exceed SL
Acrylonitrile	107-13-1	VOC			13		0.00				0.50	0.5	2600	Not a COPEC: MRL does not exceed SL
Benzene	71-43-2	VOC			13		0.00				1.00	1	46	Not a COPEC: MRL does not exceed SL
Bromoform	75-25-2	VOC			13		0.00				1.00	1	320	Not a COPEC: MRL does not exceed SL
Bromomethane	74-83-9	VOC			13		0.00				2.00	2	19	Not a COPEC: MRL does not exceed SL
Carbon tetrachloride	56-23-5	VOC	cVOC		13		0.00				1.00	1	240	Not a COPEC: MRL does not exceed SL
Chlorobenzene	108-90-7	VOC	cVOC		13		0.00				1.00	1	130	Not a COPEC: MRL does not exceed SL
Chloroform	67-66-3	VOC	cVOC		13		0.00				1.00	1	28	Not a COPEC: MRL does not exceed SL
cis-1,2-Dichloroethylene	156-59-2	VOC	cVOC		13		0.00				1.00	1	590	Not a COPEC: MRL does not exceed SL
cis-1,3-Dichloropropene	10061-01-5	VOC	cVOC		13		0.00				0.50	0.5	23	Not a COPEC: MRL does not exceed SL
Ethylbenzene	100-41-4	VOC			13		0.00				1.00	1	290	Not a COPEC: MRL does not exceed SL
Isopropylbenzene	98-82-8	VOC			13		0.00				1.00	1	2.6	Not a COPEC: MRL does not exceed SL
m-Dichlorobenzene	541-73-1	VOC	cVOC		33		0.00				1.00	5.56	71	Not a COPEC: MRL does not exceed SL
Methyl Isobutyl Ketone	108-10-1	VOC			13		0.00				10.00	10	170	Not a COPEC: MRL does not exceed SL
Methyl Tert Butyl Ether (MTBE)	1634-04-4	VOC			13		0.00				1.00	1	11070	Not a COPEC: MRL does not exceed SL
Methylene chloride	75-09-2	VOC	cVOC		13		0.00				2.00	2	2200	Not a COPEC: MRL does not exceed SL
o-Xylene	95-47-6	VOC			13		0.00				1.00	1	13	Not a COPEC: MRL does not exceed SL
Styrene	100-42-5	VOC			13		0.00				1.00	1	72	Not a COPEC: MRL does not exceed SL
Tetrachloroethylene	127-18-4	VOC	cVOC		13		0.00				1.00	1	120	Not a COPEC: MRL does not exceed SL
Toluene	108-88-3	VOC			13		0.00				1.00	1	9.8	Not a COPEC: MRL does not exceed SL
Total Xylenes	RACALC-XYL	VOC			13		0.00				2.00	2	13	Not a COPEC: MRL does not exceed SL
trans-1,2-Dichloroethylene	156-60-5	VOC	cVOC		13		0.00				1.00	1	970	Not a COPEC: MRL does not exceed SL
Trichloroethene	79-01-6	VOC	cVOC		13		0.00				1.00	1	21	Not a COPEC: MRL does not exceed SL
Vinyl chloride	75-01-4	VOC	cVOC		13		0.00				1.00	1	930	Not a COPEC: MRL does not exceed SL
Acenaphthylene	208-96-8	PAH	LPAH		20		0.00				0.05	0.05		Not a COPEC: No detects present and SLNA
Benzo(g,h,i)perylene	191-24-2	PAH	HPAH	x	20		0.00				0.05	0.05		Not a COPEC: No detects present and SLNA
Benzo(k)fluoranthene	207-08-9	PAH	HPAH	x	20		0.00				0.05	0.05		Not a COPEC: No detects present and SLNA
Chrysene	218-01-9	PAH	HPAH	x	20		0.00				0.05	0.05		Not a COPEC: No detects present and SLNA

Table D-1
Summary of Surface Water Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (µg/L)	Average Concentration (µg/L)	Maximum Detected Concentration (µg/L)	Minimum Reporting Limit (µg/L)	Maximum Reporting Limit (µg/L)	SW SL Lower of Aquatic vs Amphibian (µg/L)	COPEC Determination
Dibenzo(a,h)anthracene	53-70-3	PAH	HPAH	x	20		0.00				0.05	0.05		Not a COPEC: No detects present and SLNA
Aroclor 1221	11104-28-2	PCB	Aroclor	x	7		0.00				0.21	0.22		Not a COPEC: No detects present and SLNA
Aroclor 1232	11141-16-5	PCB	Aroclor	x	7		0.00				0.21	0.22		Not a COPEC: No detects present and SLNA
Aroclor 1248	12672-29-6	PCB	Aroclor	x	7		0.00				0.21	0.22		Not a COPEC: No detects present and SLNA
Aroclor 1260	11096-82-5	PCB	Aroclor	x	7		0.00				0.21	0.22		Not a COPEC: No detects present and SLNA
Aroclor 1262	37324-23-5	PCB	Aroclor	x	7		0.00				0.21	0.22		Not a COPEC: No detects present and SLNA
Aroclor 1268	11100-14-4	PCB	Aroclor	x	7		0.00				0.21	0.22		Not a COPEC: No detects present and SLNA
Decachlorobiphenyl	2051-24-3	PCB	Homologue	x	13		0.00				0.03	0.0284		Not a COPEC: No detects present and SLNA
Dichlorobiphenyl	25512-42-9	PCB	Homologue	x	13		0.00				0.01	0.00568		Not a COPEC: No detects present and SLNA
Heptachlorobiphenyl	28655-71-2	PCB	Homologue	x	13		0.00				0.02	0.017		Not a COPEC: No detects present and SLNA
Hexachlorobiphenyl	26601-64-9	PCB	Homologue	x	13		0.00				0.01	0.0114		Not a COPEC: No detects present and SLNA
Monochlorobiphenyl	27323-18-8	PCB	Homologue	x	13		0.00				0.01	0.00568		Not a COPEC: No detects present and SLNA
Nonachlorobiphenyl	53742-07-7	PCB	Homologue	x	13		0.00				0.03	0.0284		Not a COPEC: No detects present and SLNA
Octachlorobiphenyl	55722-26-4	PCB	Homologue	x	13		0.00				0.02	0.017		Not a COPEC: No detects present and SLNA
Pentachlorobiphenyl	25429-29-2	PCB	Homologue	x	13		0.00				0.01	0.0114		Not a COPEC: No detects present and SLNA
Tetrachlorobiphenyl	26914-33-0	PCB	Homologue	x	13		0.00				0.01	0.0114		Not a COPEC: No detects present and SLNA
Total PCB Aroclors	RACALC-PCB	PCB		x	7		0.00				0.21	0.22		Not a COPEC: No detects present and SLNA
Trichlorobiphenyl	25323-68-6	PCB	Homologue	x	13		0.00				0.01	0.00568		Not a COPEC: No detects present and SLNA
Alachlor	15972-60-8	Pesticide	Herbicide		13		0.00				0.00	0.002		Not a COPEC: No detects present and SLNA
Endrin aldehyde	7421-93-4	Pesticide	Insecticide		13		0.00				0.00	0.005		Not a COPEC: No detects present and SLNA
Endrin ketone	53494-70-5	Pesticide	Insecticide		13		0.00				0.00	0.005		Not a COPEC: No detects present and SLNA
gamma-Chlordane	5103-74-2	Pesticide	Insecticide	x	13		0.00				0.00	0.002		Not a COPEC: No detects present and SLNA
Total Endosulfans	RACALC-ENDO	Pesticide	Insecticide		13		0.00				0.00	0.005		Not a COPEC: No detects present and SLNA
2,4,5-Trichlorophenol	95-95-4	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
2,4-Dimethylphenol	105-67-9	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
2,4-Dinitrophenol	51-28-5	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
2-Chloronaphthalene	91-58-7	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
2-Nitroaniline	88-74-4	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
3-Nitroaniline	99-09-2	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
4,6-Dinitro-2-methylphenol	534-52-1	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
4-Chloro-3-methylphenol	59-50-7	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
4-Chlorophenyl phenyl ehter	7005-72-3	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
Azobenzene	103-33-3	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
Bis(2-chloroethoxy)methane	111-91-1	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
Bis(2-chloroethyl)ether	111-44-4	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
Bis(2-chloroisopropyl)ether	108-60-1	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
Carbazole	86-74-8	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
Dimethyl phthalate	131-11-3	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
Hexachlorocyclopentadiene	77-47-4	SVOC		x	20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
Methanamine, n-methyl-n-nitroso	62-75-9	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
N-Nitroso-di-n-propylamine	621-64-7	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
Pentachlornitrobenzene	82-68-8	SVOC			20		0.00				5.10	5.56		Not a COPEC: No detects present and SLNA
p-Nitroaniline	100-01-6	SVOC			20		0.00				20.40	22.2		Not a COPEC: No detects present and SLNA
1,1,1,2-Tetrachloroethane	630-20-6	VOC	cVOC		13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
1,1-Dichloropropene	563-58-6	VOC	cVOC		13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
1,2,3-Trichloropropane	96-18-4	VOC	cVOC		13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
1,2,4-Trimethylbenzene	95-63-6	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
1,2-Dibromo-3-chloropropane	96-12-8	VOC	cVOC		13		0.00				2.00	2		Not a COPEC: No detects present and SLNA
1,2-Dibromoethane	106-93-4	VOC			13		0.00				0.50	0.5		Not a COPEC: No detects present and SLNA
1,3,5-Trichlorobenzene	108-70-3	VOC	cVOC		13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
1,3,5-Trimethylbenzene	108-67-8	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
1,3-Dichloropropane	142-28-9	VOC	cVOC		13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
1,4-Dioxane	123-91-1	VOC			13		0.00				20.00	20		Not a COPEC: No detects present and SLNA
2,2-Dichloropropane	594-20-7	VOC	cVOC		13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
Bromobenzene	108-86-1	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
Bromochlormethane	74-97-5	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
Bromodichloromethane	75-27-4	VOC	cVOC		13		0.00				0.50	0.5		Not a COPEC: No detects present and SLNA
Chloroethane	75-00-3	VOC	cVOC		13		0.00				2.00	2		Not a COPEC: No detects present and SLNA
Chloromethane	74-87-3	VOC	cVOC		13		0.00				2.00	2		Not a COPEC: No detects present and SLNA
Dibromochloromethane	124-48-1	VOC	cVOC		13		0.00				0.50	0.5		Not a COPEC: No detects present and SLNA
Dichlorodifluoromethane	75-71-8	VOC	cVOC		13		0.00				2.00	2		Not a COPEC: No detects present and SLNA
Diisopropyl ether (DIPE)	108-20-3	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
Ethanol	64-17-5	VOC			13		0.00				400.00	400		Not a COPEC: No detects present and SLNA
Ethyl ether	60-29-7	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA

Table D-1
Summary of Surface Water Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (µg/L)	Average Concentration (µg/L)	Maximum Detected Concentration (µg/L)	Minimum Reporting Limit (µg/L)	Maximum Reporting Limit (µg/L)	SW SL Lower of Aquatic vs Amphibian (µg/L)	COPEC Determination
Ethyl-t-butyl ether (ETBE)	637-92-3	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
Freon 113	76-13-1	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
m,p-Xylenes	1330-20-7-M,P	VOC			13		0.00				2.00	2		Not a COPEC: No detects present and SLNA
Methylene bromide	74-95-3	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
n-Butylbenzene	104-51-8	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
n-Propylbenzene	103-65-1	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
o-Chlorotoluene	95-49-8	VOC	cVOC		13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
p-Chlorotoluene	106-43-4	VOC	cVOC		13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
p-Isopropyltoluene	99-87-6	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
sec-Butylbenzene	135-98-8	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
tert-Amyl Methyl Ether (TAME)	994-05-8	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
Tert-butyl alcohol	75-65-0	VOC			13		0.00				10.00	10		Not a COPEC: No detects present and SLNA
tert-butylbenzene	98-06-6	VOC			13		0.00				1.00	1		Not a COPEC: No detects present and SLNA
Tetrahydrofuran	109-99-9	VOC			13		0.00				2.00	2		Not a COPEC: No detects present and SLNA
trans-1,3-Dichloropropene	10061-02-6	VOC	cVOC		13		0.00				0.50	0.5		Not a COPEC: No detects present and SLNA
Trans-1,4-Dichloro-2-Butene	110-57-6	VOC	cVOC		13		0.00				5.00	5		Not a COPEC: No detects present and SLNA
Trichlorofluoromethane	75-69-4	VOC	cVOC		13		0.00				1.00	1		Not a COPEC: No detects present and SLNA

Notes:

Shading indicates chemical of potential ecological concern (COPEC)
BCC = bioaccumulative chemical compound
µg/L = micrograms per liter
COPEC = chemical of potential ecological concern
MDC = maximum detected concentration
MRL = maximum reporting limit
PAHs = polyaromatic hydrocarbons
PCBs = polychlorinated biphenyls
SL = screening level
SLNA = screening level not available
SVOCs = semi-volatile organic compound

Table D-2
Summary of Sediment Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (mg/kg)	Average Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Minimum Reporting Limit (mg/kg)	Maximum Reporting Limit (mg/kg)	Sediment Threshold SL (mg/kg)	COPEC Determination
Arsenic	7440-38-2	Inorganic			43	38	88.37	1.84	7.69	17.4	1.61	8.3	9.79	COPEC: Max sample value exceeds SL
Barium	7440-39-3	Inorganic			43	43	100.00	25.8	193.52	476	1.07	5.53	0.7	COPEC: Max sample value exceeds SL
Cadmium	7440-43-9	Inorganic			43	14	32.56	0.817	2.78	3.9	0.54	2.77	0.99	COPEC: Max sample value exceeds SL
Chromium	7440-47-3	Inorganic			43	43	100.00	5.79	37.93	281	1.07	5.53	43.4	COPEC: Max sample value exceeds SL
Copper	7440-50-8	Inorganic			43	43	100.00	7.01	77.43	213	1.07	5.53	31.6	COPEC: Max sample value exceeds SL
Lead	7439-92-1	Inorganic			43	43	100.00	6.96	94.43	340	1.61	8.3	35.8	COPEC: Max sample value exceeds SL
Mercury	7439-97-6	Inorganic		x	43	22	51.16	0.105	0.30	0.553	0.03	0.176	0.18	COPEC: Max sample value exceeds SL
Nickel	7440-02-0	Inorganic			43	43	100.00	5.42	25.92	127	1.07	5.53	22.7	COPEC: Max sample value exceeds SL
Vanadium	7440-62-2	Inorganic			43	43	100.00	7.92	33.88	74.1	1.61	8.3	50	COPEC: Max sample value exceeds SL
Zinc	7440-66-6	Inorganic			43	43	100.00	28	214.70	591	1.07	5.53	121	COPEC: Max sample value exceeds SL
Benzo(a)anthracene	56-55-3	PAH	HPAH	x	44	7	15.91	0.445	0.96	1.79	0.31	3.89	0.108	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Benzo(a)pyrene	50-32-8	PAH	HPAH	x	44	5	11.36	0.437	0.85	1.29	0.31	3.89	0.15	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Benzo(g,h,i)perylene	191-24-2	PAH	HPAH	x	44	1	2.27	0.61	0.61	0.61	0.31	3.89	0.17	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Benzo(k)fluoranthene	207-08-9	PAH	HPAH	x	44	5	11.36	0.357	0.77	1.43	0.31	3.89	0.0272	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Chrysene	218-01-9	PAH	HPAH	x	44	7	15.91	0.471	1.16	2.48	0.31	3.89	0.166	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Indeno(1,2,3-cd)pyrene	193-39-5	PAH	HPAH	x	44	1	2.27	0.646	0.65	0.646	0.31	3.89	0.0173	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Pyrene	129-00-0	PAH	HPAH	x	44	18	40.91	0.513	1.69	4.69	0.31	3.89	0.195	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	HPAH	x	44	18	40.91	0.513	3.42	11.6	0.31	3.89	0.193	COPEC: Max sample value exceeds SL
2-Methylnaphthalene	91-57-6	PAH	LPAH		44	1	2.27	2.61	2.61	2.61	0.31	3.89	0.202	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Anthracene	120-12-7	PAH	LPAH		44	2	4.55	0.566	0.80	1.03	0.31	3.89	0.0572	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Fluoranthene	206-44-0	PAH	LPAH		44	24	54.55	0.328	2.13	5.93	0.31	3.89	0.423	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Phenanthrene	85-01-8	PAH	LPAH		44	8	18.18	0.579	1.57	4.44	0.31	3.89	0.204	COPEC: Max sample value exceeds SL. Evaluated on a total PAH basis.
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	LPAH		44	24	54.55	0.328	2.91	10.7	0.31	3.89	0.07642	COPEC: Max sample value exceeds SL
Total PAHs	RACALC-PAH	PAH		x	44	24	54.55	0.328	5.48	22.3	0.31	3.89	1.6	COPEC: Max sample value exceeds SL
Total PCB Aroclors	RACALC-PCB	PCB		x	43	1	2.33	1.29	1.29	1.29	0.02	0.23	0.0598	COPEC: Max sample value exceeds SL
4,4-DDD (p,p)	72-54-8	Pesticide	Insecticide	x	43	4	9.30	0.0434	0.08	0.182	0.01	0.0507	0.00488	COPEC: Max sample value exceeds SL. Evaluated on a total DDx basis.
4,4-DDE (p,p)	72-55-9	Pesticide	Insecticide	x	43	26	60.47	0.00648	0.04	0.164	0.01	0.0317	0.00316	COPEC: Max sample value exceeds SL. Evaluated on a total DDx basis.
4,4-DDT (p,p)	50-29-3	Pesticide	Insecticide	x	43	4	9.30	0.013	0.02	0.0358	0.01	0.0507	0.00416	COPEC: Max sample value exceeds SL. Evaluated on a total DDx basis.
Chlordane	57-74-9	Pesticide	Insecticide	x	43	19	44.19	0.0231	0.12	0.371	0.02	0.127	0.00324	COPEC: Max sample value exceeds SL
Total DDx	RACALC-DDx	Pesticide	Insecticide	x	43	26	60.47	0.00648	0.05	0.382	0.01	0.0507	0.00528	COPEC: Max sample value exceeds SL
alpha-Chlordane	5103-71-9	Pesticide	Insecticide	x	43	8	18.60	0.0076	0.03	0.0881	0.01	0.0317		COPEC: Detects present and SLNA; but is Detected and a BCC. Evaluated using chlordane
gamma-Chlordane	5103-74-2	Pesticide	Insecticide	x	43	1	2.33	0.0541	0.05	0.0541	0.01	0.0317		COPEC: Detects present and SLNA; but is Detected and a BCC. Evaluated using chlordane
Aroclor 1260	11096-82-5	PCB		x	43	1	2.33	1.29	1.29	1.29	0.02	0.119		COPEC: Detects present and SLNA; but is Detected and a BCC. Evaluated using total PCBs.
Benzo(b)fluoranthene	205-99-2	PAH	HPAH	x	44	7	15.91	0.435	0.99	2.23	0.31	3.89	10.4	COPEC: Max sample value does not exceed SL; but is Detected and a BCC. Evaluated on total PAH basis.
Acetone	67-64-1	VOC			15	5	33.33	0.186	1.31	2.68	0.07	10.2		COPEC: SLNA but TRV available
2-Butanone (MEK)	78-93-3	VOC			15	3	20.00	0.359	0.68	0.972	0.07	10.2		COPEC: SLNA but TRV available
Antimony	*7440-36-0*	*Inorganic*			*43*		*0.00*				*5.37*	*27.7*	*0.16*	*ND COPEC: MRL exceeds SL*
Cyanide	*57-12-5*	*Inorganic*			*4*		*0.00*				*1.31*	*5.36*	*0.1*	*ND COPEC: MRL exceeds SL*
Selenium	*7782-49-2*	*Inorganic*			*43*		*0.00*				*1.61*	*8.3*	*2*	*ND COPEC: MRL exceeds SL*
Silver	*7440-22-4*	*Inorganic*			*43*		*0.00*				*1.61*	*8.3*	*1*	*ND COPEC: MRL exceeds SL*
Dibenzo(a,h)anthracene	*53-70-3*	*PAH*	*HPAH*	*x*	*44*		*0.00*				*0.31*	*3.89*	*0.033*	*ND COPEC: MRL exceeds SL*
Acenaphthene	*83-32-9*	*PAH*	*LPAH*		*44*		*0.00*				*0.31*	*3.89*	*0.0067*	*ND COPEC: MRL exceeds SL*
Acenaphthylene	*208-96-8*	*PAH*	*LPAH*		*44*		*0.00*				*0.31*	*3.89*	*0.0059*	*ND COPEC: MRL exceeds SL*
Fluorene	*86-73-7*	*PAH*	*LPAH*		*44*		*0.00*				*0.31*	*3.89*	*0.0774*	*ND COPEC: MRL exceeds SL*
Naphthalene	*91-20-3*	*PAH*	*LPAH*		*59*		*0.00*				*0.01*	*3.89*	*0.176*	*ND COPEC: MRL exceeds SL*
Aroclor 1254	*11097-69-1*	*PCB*		*x*	*43*		*0.00*				*0.02*	*0.119*	*0.06*	*ND COPEC: MRL exceeds SL*
Dinitrobutyl phenol	*88-85-7*	*Pesticide*	*Herbicide*		*4*		*0.00*				*0.01*	*0.0338*	*0.0145*	*ND COPEC: MRL exceeds SL*
Aldrin	*309-00-2*	*Pesticide*	*Insecticide*	*x*	*43*		*0.00*				*0.01*	*0.0317*	*0.002*	*ND COPEC: MRL exceeds SL*
Camphechlor	*8001-35-2*	*Pesticide*	*Insecticide*	*x*	*43*		*0.00*				*0.12*	*0.633*	*0.028*	*ND COPEC: MRL exceeds SL*
Dieldrin	*60-57-1*	*Pesticide*	*Insecticide*	*x*	*43*		*0.00*				*0.01*	*0.0317*	*0.0019*	*ND COPEC: MRL exceeds SL*
Endosulfan I	*959-98-8*	*Pesticide*	*Insecticide*		*43*		*0.00*				*0.01*	*0.0317*	*0.0029*	*ND COPEC: MRL exceeds SL*
Endosulfan II	*33213-65-9*	*Pesticide*	*Insecticide*		*43*		*0.00*				*0.01*	*0.0507*	*0.014*	*ND COPEC: MRL exceeds SL*
Endosulfan sulfate	*1031-07-8*	*Pesticide*	*Insecticide*		*43*		*0.00*				*0.01*	*0.0507*	*0.0054*	*ND COPEC: MRL exceeds SL*
Endrin	*72-20-8*	*Pesticide*	*Insecticide*		*43*		*0.00*				*0.01*	*0.0507*	*0.00222*	*ND COPEC: MRL exceeds SL*
Heptachlor epoxide	*1024-57-3*	*Pesticide*	*Insecticide*		*43*		*0.00*				*0.01*	*0.0317*	*0.00247*	*ND COPEC: MRL exceeds SL*
Hexachlorocyclohexane, alpha	*319-84-6*	*Pesticide*	*Insecticide*	*x*	*43*		*0.00*				*0.01*	*0.0317*	*0.006*	*ND COPEC: MRL exceeds SL*
Hexachlorocyclohexane, beta	*319-85-7*	*Pesticide*	*Insecticide*	*x*	*43*		*0.00*				*0.01*	*0.0317*	*0.005*	*ND COPEC: MRL exceeds SL*
Hexachlorocyclohexane, gamma (Lindane)	*58-89-9*	*Pesticide*	*Insecticide*	*x*	*43*		*0.00*				*0.01*	*0.0317*	*0.00237*	*ND COPEC: MRL exceeds SL*
Methoxychlor	*72-43-5*	*Pesticide*	*Insecticide*		*43*		*0.00*				*0.01*	*0.0507*	*0.019*	*ND COPEC: MRL exceeds SL*
Total Endosulfans	*RACALC-ENDO*	*Pesticide*	*Insecticide*		*43*		*0.00*				*0.01*	*0.0507*	*0.0029*	*ND COPEC: MRL exceeds SL*
2,4,6-Trichlorophenol	*88-06-2*	*SVOC*			*14*		*0.00*				*0.31*	*1.93*	*0.213*	*ND COPEC: MRL exceeds SL*
2,4-Dichlorophenol	*120-83-2*	*SVOC*			*14*		*0.00*				*0.31*	*1.93*	*0.117*	*ND COPEC: MRL exceeds SL*
2,4-Dimethylphenol	*105-67-9*	*SVOC*			*14*		*0.00*				*0.62*	*3.87*	*0.029*	*ND COPEC: MRL exceeds SL*
2,4-Dinitrophenol	*51-28-5*	*SVOC*			*14*		*0.00*				*0.62*	*3.87*	*0.00621*	*ND COPEC: MRL exceeds SL*
2,4-Dinitrotoluene	*121-14-2*	*SVOC*			*14*		*0.00*				*0.31*	*1.93*	*0.0416*	*ND COPEC: MRL exceeds SL*

Table D-2
Summary of Sediment Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (mg/kg)	Average Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Minimum Reporting Limit (mg/kg)	Maximum Reporting Limit (mg/kg)	Sediment Threshold SL (mg/kg)	COPEC Determination
2,6-Dinitrotoluene	606-20-2	SVOC			14		0.00				0.31	1.93	0.0398	ND COPEC: MRL exceeds SL
2-Chloronaphthalene	91-58-7	SVOC			14		0.00				0.62	3.87	0.417	ND COPEC: MRL exceeds SL
2-Chlorophenol	95-57-8	SVOC			14		0.00				0.31	1.93	0.0312	ND COPEC: MRL exceeds SL
2-Methylphenol	95-48-7	SVOC			14		0.00				0.62	3.87	0.0554	ND COPEC: MRL exceeds SL
3,3-Dichlorobenzidine	91-94-1	SVOC			14		0.00				0.62	3.87	0.127	ND COPEC: MRL exceeds SL
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	SVOC			14		0.00				0.31	1.93	0.432	ND COPEC: MRL exceeds SL
4,6-Dinitro-2-methylphenol	534-52-1	SVOC			14		0.00				0.62	3.87	0.104	ND COPEC: MRL exceeds SL
4-Bromophenyl phenyl ehter	101-55-3	SVOC			14		0.00				0.62	3.87	1.23	ND COPEC: MRL exceeds SL
4-Chloro-3-methylphenol	59-50-7	SVOC			14		0.00				0.62	3.87	0.388	ND COPEC: MRL exceeds SL
4-Methylphenol	106-44-5	SVOC			14		0.00				0.62	3.87	0.67	ND COPEC: MRL exceeds SL
4-Nitrophenol	100-02-7	SVOC			14		0.00				2.47	15.5	0.0133	ND COPEC: MRL exceeds SL
Aniline	62-53-3	SVOC			14		0.00				0.62	3.87	0.00031	ND COPEC: MRL exceeds SL
Benzoic acid	65-85-0	SVOC			14		0.00				0.62	3.87	0.65	ND COPEC: MRL exceeds SL
Benzyl alcohol	100-51-6	SVOC			14		0.00				0.62	3.87	0.00104	ND COPEC: MRL exceeds SL
Bis(2-ethylhexyl)phthalate	117-81-7	SVOC			14		0.00				0.31	1.93	0.18	ND COPEC: MRL exceeds SL
Diethy phthalate	84-66-2	SVOC			14		0.00				0.62	3.87	0.63	ND COPEC: MRL exceeds SL
Hexachlorobenzene	118-74-1	SVOC		x	14		0.00				0.31	1.93	0.02	ND COPEC: MRL exceeds SL
Hexachloroethane	67-72-1	SVOC			14		0.00				0.31	1.93	1	ND COPEC: MRL exceeds SL
N-Nitrosodiphenylamine	86-30-6	SVOC			14		0.00				0.62	3.87	2.68	ND COPEC: MRL exceeds SL
Pentachlorophenol	87-86-5	SVOC			14		0.00				0.62	3.87	0.504	ND COPEC: MRL exceeds SL
Phenol	108-95-2	SVOC			14		0.00				0.62	3.87	0.42	ND COPEC: MRL exceeds SL
Pyridine	110-86-1	SVOC			14		0.00				0.62	3.87	0.106	ND COPEC: MRL exceeds SL
1,1-Dichloroethylene	75-35-4	VOC	cVOC		15		0.00				0.01	1.02	0.031	ND COPEC: MRL exceeds SL
1,1,1-Trichloroethane	71-55-6	VOC	cVOC		15		0.00				0.01	1.02	0.17	ND COPEC: MRL exceeds SL
1,1,2,2-Tetrachloroethane	79-34-5	VOC	cVOC		15		0.00				0.01	1.02	0.94	ND COPEC: MRL exceeds SL
1,2,3-Trichlorobenzene	87-61-6	VOC	cVOC		15		0.00				0.01	1.02	0.858	ND COPEC: MRL exceeds SL
1,2,4,5-Tetrachlorobenzene	95-94-3	VOC	cVOC		14		0.00				0.62	3.87	1.09	ND COPEC: MRL exceeds SL
1,2-Dichlorobenzene	95-50-1	VOC	cVOC		29		0.00				0.01	3.87	0.34	ND COPEC: MRL exceeds SL
1,4-Dichlorobenzene	106-46-7	VOC	cVOC		29		0.00				0.01	3.87	0.35	ND COPEC: MRL exceeds SL
Acrylonitrile	107-13-1	VOC			15		0.00				0.01	1.02	0.0012	ND COPEC: MRL exceeds SL
Benzene	71-43-2	VOC			15		0.00				0.01	1.02	0.142	ND COPEC: MRL exceeds SL
Bromoform	75-25-2	VOC			15		0.00				0.01	1.02	0.654	ND COPEC: MRL exceeds SL
Bromomethane	74-83-9	VOC			15		0.00				0.01	2.04	0.00137	ND COPEC: MRL exceeds SL
Carbon disulfide	75-15-0	VOC			14		0.00				0.01	2.04	0.000851	ND COPEC: MRL exceeds SL
Carbon tetrachloride	56-23-5	VOC	cVOC		15		0.00				0.01	1.02	0.0642	ND COPEC: MRL exceeds SL
Chlorobenzene	108-90-7	VOC	cVOC		15		0.00				0.01	1.02	0.82	ND COPEC: MRL exceeds SL
Chloroform	67-66-3	VOC	cVOC		15		0.00				0.01	1.02	0.121	ND COPEC: MRL exceeds SL
cis-1,3-Dichloropropene	10061-01-5	VOC	cVOC		15		0.00				0.01	1.02	0.0000509	ND COPEC: MRL exceeds SL
Hexachloro-1,3-butadiene	87-68-3	VOC	cVOC		29		0.00				0.01	1.93	0.0268	ND COPEC: MRL exceeds SL
Isopropylbenzene	98-82-8	VOC			15		0.00				0.01	1.02	0.086	ND COPEC: MRL exceeds SL
m,p-Xylenes	1330-20-7-M,P	VOC			15		0.00				0.01	2.04	0.0252	ND COPEC: MRL exceeds SL
m-Dichlorobenzene	541-73-1	VOC	cVOC		29		0.00				0.01	3.87	1.7	ND COPEC: MRL exceeds SL
Methylene chloride	75-09-2	VOC	cVOC		15		0.00				0.01	2.04	0.159	ND COPEC: MRL exceeds SL
Styrene	100-42-5	VOC			15		0.00				0.01	1.02	0.559	ND COPEC: MRL exceeds SL
Tetrachloroethylene	127-18-4	VOC	cVOC		15		0.00				0.01	1.02	0.53	ND COPEC: MRL exceeds SL
Total Xylenes	RACALC-XYL	VOC			15		0.00				0.01	2.04	0.433	ND COPEC: MRL exceeds SL
trans-1,3-Dichloropropene	10061-02-6	VOC	cVOC		15		0.00				0.01	1.02	0.0000509	ND COPEC: MRL exceeds SL
Vinyl chloride	75-01-4	VOC	cVOC		15		0.00				0.01	1.02	0.202	ND COPEC: MRL exceeds SL
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	Fuel	CT-ETPH		33	33	100.00	37.2	361.08	2260	33.00	170		Not a COPEC: Detects present and SLNA
Total Petroleum Hydrocarbons	TPH	Fuel	CT-ETPH		33	33	100.00	37.2	361.08	2260	33.00	170		Not a COPEC: Detects present and SLNA
Unidentified	UNIND	Fuel	CT-ETPH		33	33	100.00	37.2	361.08	2260	33.00	170		Not a COPEC: Detects present and SLNA
Total Organic Carbon	TOC	Physical			20	20	100.00	3830	35392.50	93900	100.00	100		Not a COPEC: Detects present and SLNA
1-Methylnaphthalene	90-12-0	PAH	LPAH		44	1	2.27	2.19	2.19	2.19	0.31	3.89		Not a COPEC: Detects present and SLNA
p-Isopropyltoluene	99-87-6	VOC			15	1	6.67	0.0195	0.02	0.0195	0.01	1.02		Not a COPEC: Detects present and SLNA
Toluene	108-88-3	VOC			15	1	6.67	0.0582	0.06	0.0582	0.01	1.02	0.67	Not a COPEC: Max sample value does not exceed SL
1,1,2-Trichloroethane	79-00-5	VOC			15		0.00				0.01	1.02	1.24	Not a COPEC: Max sample value does not exceed SL
1,2,4-Trichlorobenzene	120-82-1	VOC			29		0.00				0.01	3.87	9.2	Not a COPEC: Max sample value does not exceed SL
2,4,5-T	93-76-5	Pesticide	Herbicide		4		0.00				0.01	0.0338	12.3	Not a COPEC: Max sample value does not exceed SL
2,4,5-TP (Silvex)	93-72-1	Pesticide	Herbicide		4		0.00				0.01	0.0338	0.675	Not a COPEC: Max sample value does not exceed SL
2-4 Dichlorophenoxyacetic acid (2,4-D)	94-75-7	Pesticide	Herbicide		4		0.00				0.01	0.0338	1.273	Not a COPEC: Max sample value does not exceed SL
Benzyl butyl phthalate	85-68-7	SVOC			14		0.00				0.62	3.87	11	Not a COPEC: Max sample value does not exceed SL
delta-BHC	319-86-8	Pesticide	Insecticide	x	43		0.00				0.01	0.0317	6.4	Not a COPEC: Max sample value does not exceed SL
Dibenzofuran	132-64-9	SVOC			14		0.00				0.31	1.93	2	Not a COPEC: Max sample value does not exceed SL
Di-n-butyl phthalate	84-74-2	SVOC			14		0.00				0.62	3.87	11	Not a COPEC: Max sample value does not exceed SL
Ethylbenzene	100-41-4	VOC			15		0.00				0.01	1.02	3.6	Not a COPEC: Max sample value does not exceed SL
Heptachlor	76-44-8	Pesticide	Insecticide		43		0.00				0.01	0.0317	0.068	Not a COPEC: Max sample value does not exceed SL
trans-1,2-Dichloroethylene	156-60-5	VOC	cVOC		15		0.00				0.01	1.02	1.05	Not a COPEC: Max sample value does not exceed SL
Trichloroethene	79-01-6	VOC	cVOC		15		0.00				0.01	1.02	1.6	Not a COPEC: Max sample value does not exceed SL
1,1,1,2-Tetrachloroethane	630-20-6	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA

Table D-2
Summary of Sediment Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (mg/kg)	Average Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Minimum Reporting Limit (mg/kg)	Maximum Reporting Limit (mg/kg)	Sediment Threshold SL (mg/kg)	COPEC Determination
1,1-Dichloroethane	75-34-3	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,1-Dichloropropene	563-58-6	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,2,3-Trichloropropane	96-18-4	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,2,4-Trimethylbenzene	95-63-6	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,2-Dibromo-3-chloropropane	96-12-8	VOC			15		0.00				0.01	2.04		Not a COPEC: No detects present and SLNA
1,2-Dibromoethane	106-93-4	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,2-Dichloroethane	107-06-2	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,2-Dichloropropane	78-87-5	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,3,5-Trichlorobenzene	108-70-3	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,3,5-Trimethylbenzene	108-67-8	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,3-Dichloropropane	142-28-9	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
1,4-Dioxane	123-91-1	VOC			15		0.00				0.14	38.4		Not a COPEC: No detects present and SLNA
2,2-Dichloropropane	594-20-7	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
2,2-Dichloropropionic acid	75-99-0	Pesticide	Herbicide		4		0.00				0.01	0.0338		Not a COPEC: No detects present and SLNA
2,4,5-Trichlorophenol	95-95-4	SVOC			14		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
2,4-DB	94-82-6	Pesticide	Herbicide		4		0.00				0.01	0.0338		Not a COPEC: No detects present and SLNA
2-Hexanone	591-78-6	VOC			15		0.00				0.07	10.2		Not a COPEC: No detects present and SLNA
2-Nitroaniline	88-74-4	SVOC			14		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
2-Nitrophenol	88-75-5	SVOC			14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA
3-Nitroaniline	99-09-2	SVOC			14		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
4-Chlorophenyl phenyl ehter	7005-72-3	SVOC			14		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
Alachlor	15972-60-8	Pesticide	Herbicide		43		0.00				0.01	0.0317		Not a COPEC: No detects present and SLNA
Aroclor 1016	12674-11-2	PCB		x	43		0.00				0.02	0.23		Not a COPEC: No detects present and SLNA
Aroclor 1221	11104-28-2	PCB		x	43		0.00				0.02	0.23		Not a COPEC: No detects present and SLNA
Aroclor 1232	11141-16-5	PCB		x	43		0.00				0.02	0.23		Not a COPEC: No detects present and SLNA
Aroclor 1242	53469-21-9	PCB		x	43		0.00				0.02	0.23		Not a COPEC: No detects present and SLNA
Aroclor 1248	12672-29-6	PCB		x	43		0.00				0.02	0.23		Not a COPEC: No detects present and SLNA
Aroclor 1262	37324-23-5	PCB		x	43		0.00				0.02	0.119		Not a COPEC: No detects present and SLNA
Aroclor 1268	11100-14-4	PCB		x	43		0.00				0.02	0.119		Not a COPEC: No detects present and SLNA
Aviation Fuel	AVIAT FUEL	Fuel	CT-ETPH		33		0.00				33.00	170		Not a COPEC: No detects present and SLNA
Azobenzene	103-33-3	SVOC			14		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
Benzidine	92-87-5	SVOC			13		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
Beryllium	7440-41-7	Inorganic			43		0.00				0.54	2.77		Not a COPEC: No detects present and SLNA
Bis(2-chloroethoxy)methane	111-91-1	SVOC			14		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
Bis(2-chloroethyl)ether	111-44-4	SVOC			14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA
Bis(2-chloroisopropyl)ether	108-60-1	SVOC			14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA
Bromobenzene	108-86-1	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Bromochlormethane	74-97-5	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Bromodichloromethane	75-27-4	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Carbazole	86-74-8	SVOC			14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA
Chloroethane	75-00-3	VOC			15		0.00				0.01	2.04		Not a COPEC: No detects present and SLNA
Chloromethane	74-87-3	VOC			15		0.00				0.01	2.04		Not a COPEC: No detects present and SLNA
cis-1,2-Dichloroethylene	156-59-2	VOC	cVOC		15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Dibromochloromethane	124-48-1	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Dicamba	1918-00-9	Pesticide	Herbicide		4		0.00				0.01	0.0338		Not a COPEC: No detects present and SLNA
Dichlorodifluoromethane	75-71-8	VOC			15		0.00				0.01	2.04		Not a COPEC: No detects present and SLNA
Dichloroprop	120-36-5	Pesticide	Herbicide		4		0.00				0.01	0.0338		Not a COPEC: No detects present and SLNA
Diisopropyl ether (DIPE)	108-20-3	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Dimethyl phthalate	131-11-3	SVOC			14		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
Di-n-octyl phthalate	117-84-0	SVOC			14		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
Endrin aldehyde	7421-93-4	Pesticide	Insecticide		43		0.00				0.01	0.0507		Not a COPEC: No detects present and SLNA
Endrin ketone	53494-70-5	Pesticide	Insecticide		43		0.00				0.01	0.0507		Not a COPEC: No detects present and SLNA
Ethanol	64-17-5	VOC			15		0.00				2.85	407		Not a COPEC: No detects present and SLNA
Ethyl ether	60-29-7	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Ethyl-t-butyl ether (ETBE)	637-92-3	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Freon 113	76-13-1	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Gasoline	PHCG	Fuel	CT-ETPH		33		0.00				33.00	170		Not a COPEC: No detects present and SLNA
Hexachlorocyclopentadiene	77-47-4	SVOC		x	14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA
MCPA (2-Methyl-4-Chlorophenoxyacetic acid)	94-74-6	Pesticide	Herbicide		4		0.00				2.95	11.3		Not a COPEC: No detects present and SLNA
MCPB	94-81-5	Pesticide	Herbicide		4		0.00				2.95	11.3		Not a COPEC: No detects present and SLNA
MCPP	93-65-2	Pesticide	Herbicide		4		0.00				2.95	11.3		Not a COPEC: No detects present and SLNA
Methanamine, n-methyl-n-nitroso	62-75-9	SVOC			14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA
Methyl Isobutyl Ketone	108-10-1	VOC			15		0.00				0.07	10.2		Not a COPEC: No detects present and SLNA
Methyl Tert Butyl Ether (MTBE)	1634-04-4	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Methylene bromide	74-95-3	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Motor Oil	Motor Oil	Fuel	CT-ETPH		33		0.00				33.00	170		Not a COPEC: No detects present and SLNA
n-Butylbenzene	104-51-8	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Nitrobenzene	98-95-3	SVOC			14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA
N-Nitroso-di-n-propylamine	621-64-7	SVOC			14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA

Table D-2
Summary of Sediment Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (mg/kg)	Average Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Minimum Reporting Limit (mg/kg)	Maximum Reporting Limit (mg/kg)	Sediment Threshold SL (mg/kg)	COPEC Determination
n-Propylbenzene	103-65-1	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
o-Chlorotoluene	95-49-8	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Other Oil	OTHEROIL	Fuel	CT-ETPH		33		0.00				33.00	170		Not a COPEC: No detects present and SLNA
o-Xylene	95-47-6	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
p-Chlororaniline	106-47-8	SVOC			14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA
p-Chlorotoluene	106-43-4	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Pentachlornitrobenzene	82-68-8	SVOC			14		0.00				0.62	3.87		Not a COPEC: No detects present and SLNA
PHC as Fuel Oil #2	PHCFO2	Fuel	CT-ETPH		33		0.00				33.00	170		Not a COPEC: No detects present and SLNA
PHC as Fuel Oil #4	PHCFO4	Fuel	CT-ETPH		33		0.00				33.00	170		Not a COPEC: No detects present and SLNA
PHC as Fuel Oil #6	PHCFO6	Fuel	CT-ETPH		33		0.00				33.00	170		Not a COPEC: No detects present and SLNA
p-Nitroaniline	100-01-6	SVOC			14		0.00				0.31	1.93		Not a COPEC: No detects present and SLNA
sec-Butylbenzene	135-98-8	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
tert-Amyl Methyl Ether (TAME)	994-05-8	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Tert-butyl alcohol	75-65-0	VOC			15		0.00				0.07	10.2		Not a COPEC: No detects present and SLNA
tert-butylbenzene	98-06-6	VOC			15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA
Tetrahydrofuran	109-99-9	VOC			15		0.00				0.01	2.04		Not a COPEC: No detects present and SLNA
Thallium	7440-28-0	Inorganic			43		0.00				3.22	16.6		Not a COPEC: No detects present and SLNA
Trans-1,4-Dichloro-2-Butene	110-57-6	VOC	cVOC		15		0.00				0.04	5.09		Not a COPEC: No detects present and SLNA
Trichlorofluoromethane	75-69-4	VOC	cVOC		15		0.00				0.01	1.02		Not a COPEC: No detects present and SLNA

Notes:

Shading indicates chemical of potential ecological concern (COPEC)
BCC = bioaccumulative chemical compound
COPEC = chemical of potential ecological concern
MDC = maximum detected concentration
mg/kg = milligram per kilogram
MRL = maximum reporting limit
NA = not available
PAHs = polyaromatic hydrocarbons
PCBs = polychlorinated biphenyls
SL = screening level
SLNA = screening level not available
SVOCs = semi-volatile organic compound

PAHs - individual PAHs are presented for reference only. PAHs are evaluated for sediment invertebrates and wildlife on a total PAH basis.
Chlordane - chlordane isomers (alpha- and beta-chlordane) are presented for reference only. Data reported for chlordane is inclusive of these and the other chlordane isomers (i.e., oxychlordane, cis- and trans- nonachlor).
PCBs - individual PCBs (as Aroclor or as homologues) are presented for reference only. PCBs are evaluated for sediment invertebrates and wildlife on a total PCB basis.
Xylenes - individual xylene isomers (o-xylene and m,p-xylene) are presented for reference only. Xylenes are evaluated for sediment invertebrates and wildlife on a total xylene basis.
DDx - individual 4,4'-substituted DDT isomers (4,4'DDD and 4'4-DDE) are presented for reference only. DDT isomers are evaluated for sediment invertebrates and wildlife on a total DDx basis.
Endosulfans - individual endosulfan isomers (4endosulfan I, endosulfan II and endosulfan sulfate) are presented for reference only. Endosulfan is evaluated for sediment invertebrates and wildlife on a total endosulfan basis.

Table D-3
Summary of Surface Water-Groundwater Transition Zone Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (µg/L)	Average Concentration (µg/L)	Maximum Detected Concentration (µg/L)	Minimum Reporting Limit (µg/L)	Maximum Reporting Limit (µg/L)	SWProtection (GW) (µg/L)	COPC Determination
Barium	7440-39-3	Inorganic			5	5	100	58.3	202.20	642	5	5	3.9	COPEC: Max sample value exceeds SL
Benzo(a)anthracene	*56-55-3*	*PAH*	*HPAH*	*x*	*6*		*0*				*0.05*	*5*	*0.3*	*ND COPEC: MRL exceeds SL*
Benzo(a)pyrene	*50-32-8*	*PAH*	*HPAH*	*x*	*6*		*0*				*0.05*	*5*	*0.3*	*ND COPEC: MRL exceeds SL*
Benzo(b)fluoranthene	*205-99-2*	*PAH*	*HPAH*	*x*	*6*		*0*				*0.05*	*5*	*0.3*	*ND COPEC: MRL exceeds SL*
Benzo(k)fluoranthene	*207-08-9*	*PAH*	*HPAH*	*x*	*6*		*0*				*0.05*	*5*	*0.3*	*ND COPEC: MRL exceeds SL*
Indeno(1,2,3-cd)pyrene	*193-39-5*	*PAH*	*HPAH*	*x*	*6*		*0*				*0.05*	*5*	*4.3*	*ND COPEC: MRL exceeds SL*
1-Methylnaphthalene	*90-12-0*	*PAH*	*LPAH*		*6*		*0*				*0.05*	*5*	*2.1*	*ND COPEC: MRL exceeds SL*
Acenaphthylene	*208-96-8*	*PAH*	*LPAH*		*6*		*0*				*0.05*	*5*	*0.3*	*ND COPEC: MRL exceeds SL*
Phenanthrene	*85-01-8*	*PAH*	*LPAH*		*6*		*0*				*0.05*	*5*	*0.077*	*ND COPEC: MRL exceeds SL*
4,4-DDT (p,p)	*50-29-3*	*Pesticide*	*Insecticide*	*x*	*1*		*0*				*0.004*	*0.004*	*0.0005*	*ND COPEC: MRL exceeds SL*
Chlordane	*57-74-9*	*Pesticide*	*Insecticide*	*x*	*1*		*0*				*0.006*	*0.006*	*0.0043*	*ND COPEC: MRL exceeds SL*
Total DDx	*RACALC-DDx*	*Pesticide*	*Insecticide*	*x*	*1*		*0*				*0.004*	*0.004*	*0.001*	*ND COPEC: MRL exceeds SL*
2,4,6-Trichlorophenol	*88-06-2*	*SVOC*			*1*		*0*				*5*	*5*	*4.9*	*ND COPEC: MRL exceeds SL*
3,3-Dichlorobenzidine	*91-94-1*	*SVOC*			*1*		*0*				*5*	*5*	*4.5*	*ND COPEC: MRL exceeds SL*
4-Bromophenyl phenyl ehter	*101-55-3*	*SVOC*			*1*		*0*				*5*	*5*	*1.5*	*ND COPEC: MRL exceeds SL*
Aniline	*62-53-3*	*SVOC*			*1*		*0*				*5*	*5*	*2.2*	*ND COPEC: MRL exceeds SL*
Benzidine	*92-87-5*	*SVOC*			*1*		*0*				*5*	*5*	*3.9*	*ND COPEC: MRL exceeds SL*
Dibenzofuran	*132-64-9*	*SVOC*			*1*		*0*				*5*	*5*	*3.7*	*ND COPEC: MRL exceeds SL*
Hexachlorobenzene	*118-74-1*	*SVOC*		*x*	*1*		*0*				*5*	*5*	*0.077*	*ND COPEC: MRL exceeds SL*
Pentachlorophenol	*87-86-5*	*SVOC*			*1*		*0*				*20*	*20*	*15*	*ND COPEC: MRL exceeds SL*
Hexachloro-1,3-butadiene	*87-68-3*	*VOC*	*cVOC*		*6*		*0*				*0.5*	*5*	*1.3*	*ND COPEC: MRL exceeds SL*
Carbon disulfide	*75-15-0*	*VOC*			*5*		*0*				*2*	*2*	*0.92*	*ND COPEC: MRL exceeds SL*
Total Low Molecular Weight PAHs	RACALC-LPAH	PAH	LPAH		6	1	17	0.14	0.14	0.14	0.05	5		Not a COPEC: Detects present and SLNA
Total PAHs	RACALC-PAH	PAH		x	6	1	17	0.14	0.14	0.14	0.05	5		Not a COPEC: Detects present and SLNA
Decachlorobiphenyl	2051-24-3	PCB	Homologue		6	2	33	54	59.50	65	0.025	0.025		Not a COPEC: Detects present and SLNA
Dichlorobiphenyl	25512-42-9	PCB	Homologue		4	1	25	0.00678	0.01	0.00678	0.005	0.005		Not a COPEC: Detects present and SLNA
Trichlorobiphenyl	25323-68-6	PCB	Homologue		4	1	25	0.00631	0.01	0.00631	0.01	0.005		Not a COPEC: Detects present and SLNA
Bicarbonate Alkalinity	BIC-ALK	WQ			4	4	100	88800	142950.00	230000	2000	2000		Not a COPEC: Detects present and SLNA
Chloride	16887-00-6	WQ			4	4	100	8260	353065.00	1230000	1000	100000		Not a COPEC: Detects present and SLNA
Sulfate as SO4	SASSO4	WQ			4	4	100	6460	25765.00	41600	1000	10000		Not a COPEC: Detects present and SLNA
Copper	7440-50-8	Inorganic			5	2	40	5.2	5.80	6.4	5	5	48	Not a COPEC: Max sample value does not exceed SL
Zinc	7440-66-6	Inorganic			5	3	60	5	22.20	53	5	5	123	Not a COPEC: Max sample value does not exceed SL
2-Methylnaphthalene	91-57-6	PAH	LPAH		6	1	17	0.068	0.07	0.068	0.05	5	4.7	Not a COPEC: Max sample value does not exceed SL
Naphthalene	91-20-3	PAH	LPAH		11	1	9	0.072	0.07	0.072	0.05	5	24	Not a COPEC: Max sample value does not exceed SL
Total PCB Homologues	RACALC-PCB-H	PCB	Homologue		4	2	50	0.00631	0.01	0.00678	0.025	0.025	0.5	Not a COPEC: Max sample value does not exceed SL
Antimony	7440-36-0	Inorganic			5		0				6	6	86000	Not a COPEC: MRL does not exceed SL
Arsenic	7440-38-2	Inorganic			5		0				4	4	4	Not a COPEC: MRL does not exceed SL
Beryllium	7440-41-7	Inorganic			5		0				2	2	4	Not a COPEC: MRL does not exceed SL
Cadmium	7440-43-9	Inorganic			5		0				2.5	2.5	6	Not a COPEC: MRL does not exceed SL
Chromium	7440-47-3	Inorganic			5		0				5	5	11	Not a COPEC: MRL does not exceed SL
Lead	7439-92-1	Inorganic			5		0				7.5	7.5	13	Not a COPEC: MRL does not exceed SL
Mercury	7439-97-6	Inorganic		x	5		0				0.2	0.2	0.4	Not a COPEC: MRL does not exceed SL
Nickel	7440-02-0	Inorganic			5		0				5	5	880	Not a COPEC: MRL does not exceed SL
Selenium	7782-49-2	Inorganic			5		0				15	15	50	Not a COPEC: MRL does not exceed SL
Silver	7440-22-4	Inorganic			5		0				5	5	12	Not a COPEC: MRL does not exceed SL
Thallium	7440-28-0	Inorganic			5		0				5	5	63	Not a COPEC: MRL does not exceed SL
Vanadium	7440-62-2	Inorganic			5		0				5	5	19	Not a COPEC: MRL does not exceed SL
Pyrene	129-00-0	PAH	HPAH	x	6		0				0.05	5	110000	Not a COPEC: MRL does not exceed SL
Acenaphthene	83-32-9	PAH	LPAH		6		0				0.05	5	23	Not a COPEC: MRL does not exceed SL
Anthracene	120-12-7	PAH	LPAH		6		0				0.05	5	1100000	Not a COPEC: MRL does not exceed SL
Fluoranthene	206-44-0	PAH	LPAH		6		0				0.05	5	3700	Not a COPEC: MRL does not exceed SL
Fluorene	86-73-7	PAH	LPAH		6		0				0.05	5	140000	Not a COPEC: MRL does not exceed SL
4,4-DDD (p,p)	72-54-8	Pesticide	Insecticide	x	1		0				0.004	0.004	0.011	Not a COPEC: MRL does not exceed SL
4,4-DDE (p,p)	72-55-9	Pesticide	Insecticide	x	1		0				0.002	0.002	105	Not a COPEC: MRL does not exceed SL
Aldrin	309-00-2	Pesticide	Insecticide	x	1		0				0.002	0.002	3	Not a COPEC: MRL does not exceed SL
alpha-Chlordane	5103-71-9	Pesticide	Insecticide	x	1		0				0.002	0.002	0.0022	Not a COPEC: MRL does not exceed SL
Camphechlor	8001-35-2	Pesticide	Insecticide	x	1		0				0.049	0.049	1	Not a COPEC: MRL does not exceed SL
delta-BHC	319-86-8	Pesticide	Insecticide	x	1		0				0.002	0.002	141	Not a COPEC: MRL does not exceed SL
Dieldrin	60-57-1	Pesticide	Insecticide	x	1		0				0.002	0.002	0.1	Not a COPEC: MRL does not exceed SL
Endosulfan I	959-98-8	Pesticide	Insecticide		1		0				0.002	0.002	0.056	Not a COPEC: MRL does not exceed SL
Endosulfan II	33213-65-9	Pesticide	Insecticide		1		0				0.004	0.004	0.056	Not a COPEC: MRL does not exceed SL
Endosulfan sulfate	1031-07-8	Pesticide	Insecticide		1		0				0.004	0.004	2.22	Not a COPEC: MRL does not exceed SL
Endrin	72-20-8	Pesticide	Insecticide		1		0				0.004	0.004	0.1	Not a COPEC: MRL does not exceed SL
Heptachlor	76-44-8	Pesticide	Insecticide		1		0				0.002	0.002	0.05	Not a COPEC: MRL does not exceed SL
Heptachlor epoxide	1024-57-3	Pesticide	Insecticide		1		0				0.002	0.002	0.05	Not a COPEC: MRL does not exceed SL
Hexachlorocyclohexane, alpha	319-84-6	Pesticide	Insecticide	x	1		0				0.002	0.002	2.2	Not a COPEC: MRL does not exceed SL

Table D-3
Summary of Surface Water-Groundwater Transition Zone Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (µg/L)	Average Concentration (µg/L)	Maximum Detected Concentration (µg/L)	Minimum Reporting Limit (µg/L)	Maximum Reporting Limit (µg/L)	SWProtection (GW) (µg/L)	COPC Determination
Hexachlorocyclohexane, beta	319-85-7	Pesticide	Insecticide	x	1		0				0.002	0.002	2.2	Not a COPEC: MRL does not exceed SL
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	Pesticide	Insecticide	x	1		0				0.002	0.002	0.08	Not a COPEC: MRL does not exceed SL
Methoxychlor	72-43-5	Pesticide	Insecticide		1		0				0.004	0.004	0.03	Not a COPEC: MRL does not exceed SL
Total Endosulfans	RACALC-ENDO	Pesticide	Insecticide		1		0				0.004	0.004	0.056	Not a COPEC: MRL does not exceed SL
2,4-Dichlorophenol	120-83-2	SVOC			1		0				5	5	15800	Not a COPEC: MRL does not exceed SL
2,4-Dinitrotoluene	121-14-2	SVOC			1		0				5	5	44	Not a COPEC: MRL does not exceed SL
2,6-Dinitrotoluene	606-20-2	SVOC			1		0				5	5	81	Not a COPEC: MRL does not exceed SL
2-Chlorophenol	95-57-8	SVOC			1		0				5	5	24	Not a COPEC: MRL does not exceed SL
2-Methylphenol	95-48-7	SVOC			1		0				5	5	13	Not a COPEC: MRL does not exceed SL
2-Nitrophenol	88-75-5	SVOC			1		0				5	5	1920	Not a COPEC: MRL does not exceed SL
4-Methylphenol	106-44-5	SVOC			1		0				10	10	543	Not a COPEC: MRL does not exceed SL
4-Nitrophenol	100-02-7	SVOC			1		0				20	20	60	Not a COPEC: MRL does not exceed SL
Benzoic acid	65-85-0	SVOC			1		0				5	5	42	Not a COPEC: MRL does not exceed SL
Benzyl alcohol	100-51-6	SVOC			1		0				5	5	8.6	Not a COPEC: MRL does not exceed SL
Benzyl butyl phthalate	85-68-7	SVOC			1		0				5	5	19	Not a COPEC: MRL does not exceed SL
Bis(2-chloroethyl)ether	111-44-4	SVOC			1		0				5	5	42	Not a COPEC: MRL does not exceed SL
Bis(2-chloroisopropyl)ether	108-60-1	SVOC			1		0				5	5	3400000	Not a COPEC: MRL does not exceed SL
Bis(2-ethylhexyl)phthalate	117-81-7	SVOC			1		0				5	5	59	Not a COPEC: MRL does not exceed SL
Diethy phthalate	84-66-2	SVOC			1		0				5	5	220	Not a COPEC: MRL does not exceed SL
Di-n-butyl phthalate	84-74-2	SVOC			1		0				5	5	120000	Not a COPEC: MRL does not exceed SL
Di-n-octyl phthalate	117-84-0	SVOC			1		0				5	5	22	Not a COPEC: MRL does not exceed SL
Hexachloroethane	67-72-1	SVOC			1		0				5	5	89	Not a COPEC: MRL does not exceed SL
N-Nitrosodiphenylamine	86-30-6	SVOC			1		0				5	5	210	Not a COPEC: MRL does not exceed SL
p-Chlororaniline	106-47-8	SVOC			1		0				5	5	232	Not a COPEC: MRL does not exceed SL
Phenol	108-95-2	SVOC			1		0				5	5	92000000	Not a COPEC: MRL does not exceed SL
Pyridine	110-86-1	SVOC			1		0				5	5	2380	Not a COPEC: MRL does not exceed SL
1,1,1-Trichloroethane	71-55-6	VOC	cVOC		5		0				1	1	62000	Not a COPEC: MRL does not exceed SL
1,1,2,2-Tetrachloroethane	79-34-5	VOC	cVOC		5		0				0.5	0.5	110	Not a COPEC: MRL does not exceed SL
1,1-Dichloroethylene	75-35-4	VOC	cVOC		5		0				1	1	96	Not a COPEC: MRL does not exceed SL
1,2,3-Trichlorobenzene	87-61-6	VOC	cVOC		5		0				1	1	8	Not a COPEC: MRL does not exceed SL
1,2,4,5-Tetrachlorobenzene	95-94-3	VOC	cVOC		1		0				5	5	50	Not a COPEC: MRL does not exceed SL
1,2-Dichlorobenzene	95-50-1	VOC	cVOC		6		0				1	5	170000	Not a COPEC: MRL does not exceed SL
1,4-Dichlorobenzene	106-46-7	VOC	cVOC		6		0				1	5	15	Not a COPEC: MRL does not exceed SL
Carbon tetrachloride	56-23-5	VOC	cVOC		5		0				1	1	132	Not a COPEC: MRL does not exceed SL
Chlorobenzene	108-90-7	VOC	cVOC		5		0				1	1	420000	Not a COPEC: MRL does not exceed SL
Chloroform	67-66-3	VOC	cVOC		5		0				1	1	14100	Not a COPEC: MRL does not exceed SL
cis-1,2-Dichloroethylene	156-59-2	VOC	cVOC		5		0				1	1	590	Not a COPEC: MRL does not exceed SL
cis-1,3-Dichloropropene	10061-01-5	VOC	cVOC		5		0				0.5	0.5	23	Not a COPEC: MRL does not exceed SL
m-Dichlorobenzene	541-73-1	VOC	cVOC		6		0				1	5	26000	Not a COPEC: MRL does not exceed SL
Methylene chloride	75-09-2	VOC	cVOC		5		0				2	2	48000	Not a COPEC: MRL does not exceed SL
Tetrachloroethylene	127-18-4	VOC	cVOC		5		0				1	1	88	Not a COPEC: MRL does not exceed SL
trans-1,2-Dichloroethylene	156-60-5	VOC	cVOC		5		0				1	1	970	Not a COPEC: MRL does not exceed SL
Trichloroethene	79-01-6	VOC	cVOC		5		0				1	1	2340	Not a COPEC: MRL does not exceed SL
Vinyl chloride	75-01-4	VOC	cVOC		5		0				1	1	15750	Not a COPEC: MRL does not exceed SL
1,1,2-Trichloroethane	79-00-5	VOC			5		0				1	1	1260	Not a COPEC: MRL does not exceed SL
1,1-Dichloroethane	75-34-3	VOC			5		0				1	1	47	Not a COPEC: MRL does not exceed SL
1,2,4-Trichlorobenzene	120-82-1	VOC			6		0				1	5	24	Not a COPEC: MRL does not exceed SL
1,2-Dichloroethane	107-06-2	VOC			5		0				1	1	2970	Not a COPEC: MRL does not exceed SL
2-Butanone (MEK)	78-93-3	VOC			5		0				10	10	14000	Not a COPEC: MRL does not exceed SL
2-Hexanone	591-78-6	VOC			5		0				10	10	99	Not a COPEC: MRL does not exceed SL
Acetone	67-64-1	VOC			5		0				10	10	1500	Not a COPEC: MRL does not exceed SL
Acrylonitrile	107-13-1	VOC			5		0				0.5	0.5	20	Not a COPEC: MRL does not exceed SL
Benzene	71-43-2	VOC			5		0				1	1	710	Not a COPEC: MRL does not exceed SL
Bromoform	75-25-2	VOC			5		0				1	1	10800	Not a COPEC: MRL does not exceed SL
Bromomethane	74-83-9	VOC			5		0				2	2	19	Not a COPEC: MRL does not exceed SL
Chloroethane	75-00-3	VOC			5		0				2	2	2538	Not a COPEC: MRL does not exceed SL
Dibromochloromethane	124-48-1	VOC			5		0				0.5	0.5	1020	Not a COPEC: MRL does not exceed SL
Ethylbenzene	100-41-4	VOC			5		0				1	1	580000	Not a COPEC: MRL does not exceed SL
Isopropylbenzene	98-82-8	VOC			5		0				1	1	2.6	Not a COPEC: MRL does not exceed SL
m,p-Xylenes	1330-20-7-M,P	VOC			5		0				2	2	702	Not a COPEC: MRL does not exceed SL
Methyl Isobutyl Ketone	108-10-1	VOC			5		0				10	10	170	Not a COPEC: MRL does not exceed SL
Methyl Tert Butyl Ether (MTBE)	1634-04-4	VOC			5		0				1	1	11070	Not a COPEC: MRL does not exceed SL
o-Xylene	95-47-6	VOC			5		0				1	1	702	Not a COPEC: MRL does not exceed SL
Styrene	100-42-5	VOC			5		0				1	1	72	Not a COPEC: MRL does not exceed SL
Tert-butyl alcohol	75-65-0	VOC			5		0				10	10	100	Not a COPEC: MRL does not exceed SL

Table D-3
Summary of Surface Water-Groundwater Transition Zone Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (µg/L)	Average Concentration (µg/L)	Maximum Detected Concentration (µg/L)	Minimum Reporting Limit (µg/L)	Maximum Reporting Limit (µg/L)	SWProtection (GW) (µg/L)	COPC Determination
Toluene	108-88-3	VOC			5		0				1	1	4000000	Not a COPEC: MRL does not exceed SL
Total Xylenes	RACALC-XYL	VOC			5		0				2	2	13	Not a COPEC: MRL does not exceed SL
Aviation Fuel	AVIAT FUEL	Fuel	CT-ETPH		5		0				100	100		Not a COPEC: No detects present and SLNA
C9-C36 Aliphatic Hydrocarbons (ETPH)	ETPH	Fuel	CT-ETPH		5		0				100	100		Not a COPEC: No detects present and SLNA
Gasoline	PHCG	Fuel	CT-ETPH		5		0				100	100		Not a COPEC: No detects present and SLNA
Motor Oil	Motor Oil	Fuel	CT-ETPH		5		0				100	100		Not a COPEC: No detects present and SLNA
Other Oil	OTHEROIL	Fuel	CT-ETPH		5		0				100	100		Not a COPEC: No detects present and SLNA
PHC as Fuel Oil #2	PHCFO2	Fuel	CT-ETPH		5		0				100	100		Not a COPEC: No detects present and SLNA
PHC as Fuel Oil #4	PHCFO4	Fuel	CT-ETPH		5		0				100	100		Not a COPEC: No detects present and SLNA
PHC as Fuel Oil #6	PHCFO6	Fuel	CT-ETPH		5		0				100	100		Not a COPEC: No detects present and SLNA
Total Petroleum Hydrocarbons	TPH	Fuel	CT-ETPH		5		0				100	100		Not a COPEC: No detects present and SLNA
Benzo(g,h,i)perylene	191-24-2	PAH	HPAH	x	6		0				0.05	5		Not a COPEC: No detects present and SLNA
Chrysene	218-01-9	PAH	HPAH	x	6		0				0.05	5		Not a COPEC: No detects present and SLNA
Dibenzo(a,h)anthracene	53-70-3	PAH	HPAH	x	6		0				0.05	5		Not a COPEC: No detects present and SLNA
Total High Molecular Weight PAHs	RACALC-HPAH	PAH	HPAH	x	6		0				0.05	5		Not a COPEC: No detects present and SLNA
Heptachlorobiphenyl	28655-71-2	PCB	Homologue		4		0				0.015	0.015		Not a COPEC: No detects present and SLNA
Hexachlorobiphenyl	26601-64-9	PCB	Homologue		4		0				0.01	0.01		Not a COPEC: No detects present and SLNA
Monochlorobiphenyl	27323-18-8	PCB	Homologue		4		0				0.005	0.005		Not a COPEC: No detects present and SLNA
Nonachlorobiphenyl	53742-07-7	PCB	Homologue		4		0				0.025	0.025		Not a COPEC: No detects present and SLNA
Octachlorobiphenyl	55722-26-4	PCB	Homologue		4		0				0.015	0.015		Not a COPEC: No detects present and SLNA
Pentachlorobiphenyl	25429-29-2	PCB	Homologue		4		0				0.01	0.01		Not a COPEC: No detects present and SLNA
Tetrachlorobiphenyl	26914-33-0	PCB	Homologue		4		0				0.01	0.01		Not a COPEC: No detects present and SLNA
Alachlor	15972-60-8	Pesticide	Herbicide		1		0				0.002	0.002		Not a COPEC: No detects present and SLNA
Endrin aldehyde	7421-93-4	Pesticide	Insecticide		1		0				0.004	0.004		Not a COPEC: No detects present and SLNA
Endrin ketone	53494-70-5	Pesticide	Insecticide		1		0				0.004	0.004		Not a COPEC: No detects present and SLNA
gamma-Chlordane	5103-74-2	Pesticide	Insecticide	x	1		0				0.002	0.002		Not a COPEC: No detects present and SLNA
2,4,5-Trichlorophenol	95-95-4	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
2,4-Dimethylphenol	105-67-9	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
2,4-Dinitrophenol	51-28-5	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
2-Chloronaphthalene	91-58-7	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
Carbonate Alkalinity	CARB-ALK	WQ			4		0				2000	2000		Not a COPEC: No detects present and SLNA
2-Nitroaniline	88-74-4	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
3-Nitroaniline	99-09-2	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
4,6-Dinitro-2-methylphenol	534-52-1	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
4-Chloro-3-methylphenol	59-50-7	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
4-Chlorophenyl phenyl ehter	7005-72-3	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
Azobenzene	103-33-3	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
Bis(2-chloroethoxy)methane	111-91-1	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
Carbazole	86-74-8	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
Dimethyl phthalate	131-11-3	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
Hexachlorocyclopentadiene	77-47-4	SVOC		x	1		0				5	5		Not a COPEC: No detects present and SLNA
Methanamine, n-methyl-n-nitroso	62-75-9	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
Nitrobenzene	98-95-3	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
N-Nitroso-di-n-propylamine	621-64-7	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
Pentachlornitrobenzene	82-68-8	SVOC			1		0				5	5		Not a COPEC: No detects present and SLNA
p-Nitroaniline	100-01-6	SVOC			1		0				20	20		Not a COPEC: No detects present and SLNA
trans-1,3-Dichloropropene	10061-02-6	VOC	cVOC		5		0				0.5	0.5		Not a COPEC: No detects present and SLNA
Trans-1,4-Dichloro-2-Butene	110-57-6	VOC	cVOC		5		0				5	5		Not a COPEC: No detects present and SLNA
Trichlorofluoromethane	75-69-4	VOC	cVOC		5		0				1	1		Not a COPEC: No detects present and SLNA
1,1,1,2-Tetrachloroethane	630-20-6	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
1,1-Dichloropropene	563-58-6	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
1,2,3-Trichloropropane	96-18-4	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
1,2,4-Trimethylbenzene	95-63-6	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
1,2-Dibromo-3-chloropropane	96-12-8	VOC			5		0				2	2		Not a COPEC: No detects present and SLNA
1,2-Dibromoethane	106-93-4	VOC			5		0				0.5	0.5		Not a COPEC: No detects present and SLNA
1,2-Dichloropropane	78-87-5	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
1,3,5-Trichlorobenzene	108-70-3	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
1,3,5-Trimethylbenzene	108-67-8	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
1,3-Dichloropropane	142-28-9	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
1,4-Dioxane	123-91-1	VOC			5		0				20	20		Not a COPEC: No detects present and SLNA
2,2-Dichloropropane	594-20-7	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
Bromobenzene	108-86-1	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
Bromochlormethane	74-97-5	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
Bromodichloromethane	75-27-4	VOC			5		0				0.5	0.5		Not a COPEC: No detects present and SLNA
Chloromethane	74-87-3	VOC			5		0				2	2		Not a COPEC: No detects present and SLNA

Table D-3
Summary of Surface Water-Groundwater Transition Zone Chemicals of Potential Ecological Concern

Analyte	CAS Number	Class	Subclass	BCC	Total Number of Samples	Number of Detections	Detection Frequency (%)	Minimum Detected Concentration (µg/L)	Average Concentration (µg/L)	Maximum Detected Concentration (µg/L)	Minimum Reporting Limit (µg/L)	Maximum Reporting Limit (µg/L)	SWProtection (GW) (µg/L)	COPC Determination
Dichlorodifluoromethane	75-71-8	VOC			5		0				2	2		Not a COPEC: No detects present and SLNA
Diisopropyl ether (DIPE)	108-20-3	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
Ethanol	64-17-5	VOC			5		0				400	400		Not a COPEC: No detects present and SLNA
Ethyl ether	60-29-7	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
Ethyl-t-butyl ether (ETBE)	637-92-3	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
Freon 113	76-13-1	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
Sulfide	18496-25-8	WQ			4		0				100	100		Not a COPEC: No detects present and SLNA
Methylene bromide	74-95-3	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
n-Butylbenzene	104-51-8	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
n-Propylbenzene	103-65-1	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
o-Chlorotoluene	95-49-8	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
p-Chlorotoluene	106-43-4	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
p-Isopropyltoluene	99-87-6	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
sec-Butylbenzene	135-98-8	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
tert-Amyl Methyl Ether (TAME)	994-05-8	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
tert-butylbenzene	98-06-6	VOC			5		0				1	1		Not a COPEC: No detects present and SLNA
Tetrahydrofuran	109-99-9	VOC			5		0				2	2		Not a COPEC: No detects present and SLNA

Notes:

Shading indicates chemical of potential ecological concern (COPEC)
BCC = bioaccumulative chemical compound
µg/L = micrograms per liter
COPEC = chemical of potential ecological concern
MDC = maximum detected concentration
MRL = maximum reporting limit
NA = not available
PAHs = polyaromatic hydrocarbons
PCBs = polychlorinated biphenyls
SL = screening level
SLNA = screening level not available
SVOCs = semi-volatile organic compound

Appendix E

Summary of Exposure Point Concentrations

ED_002022B_00026752-00183

Table E-1
Summary of Cider Mill Pond Sediment Exposure Point Concentrations

Analyte	CAS	Number of Samples	Number of Detections	Detection Frequency (%)	Max Concentration (mg/kg)	Max Reporting Limit (mg/kg)	Average Of Concentration (mg/kg)	Type of Distribution	Statistical Method	95% UCL (mg/kg)	Exposure Point Concentration (mg/kg)	Basis for EPC	Notes
1,1,1-Trichloroethane	71-55-6	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
1,1,2,2-Tetrachloroethane	79-34-5	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
1,1-Dichloroethylene	75-35-4	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
1,2,3-Trichlorobenzene	87-61-6	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
1,2,4,5-Tetrachlorobenzene	95-94-3	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
1,2-Dichlorobenzene	95-50-1	10	0	0		3.87	1.71091	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
1,4-Dichlorobenzene	106-46-7	10	0	0		3.87	1.71091	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2,4,6-Trichlorophenol	88-06-2	8	0	0		1.93	1.0425	NA	NA	NA	1.93	MRL	Less than 10 samples - 95% UCL calculation not appropriate
2,4-Dichlorophenol	120-83-2	8	0	0		1.93	1.0425	NA	NA	NA	1.93	MRL	Less than 10 samples - 95% UCL calculation not appropriate
2,4-Dimethylphenol	105-67-9	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
2,4-Dinitrophenol	51-28-5	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
2,4-Dinitrotoluene	121-14-2	8	0	0		1.93	1.0425	NA	NA	NA	1.93	MRL	Less than 10 samples - 95% UCL calculation not appropriate
2,6-Dinitrotoluene	606-20-2	8	0	0		1.93	1.0425	NA	NA	NA	1.93	MRL	Less than 10 samples - 95% UCL calculation not appropriate
2-Chloronaphthalene	91-58-7	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
2-Chlorophenol	95-57-8	8	0	0		1.93	1.0425	NA	NA	NA	1.93	MRL	Less than 10 samples - 95% UCL calculation not appropriate
2-Methylnaphthalene	91-57-6	19	1	5	2.61	3.89	1.764052632	NA	NA	NA	2.61	MDC	Less than 6 detections - 95% UCL calculation not appropriate
2-Methylphenol	95-48-7	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
3,3-Dichlorobenzidine	91-94-1	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	8	0	0		1.93	1.0425	NA	NA	NA	1.93	MRL	Less than 10 samples - 95% UCL calculation not appropriate
4,4-DDD (p,p)	72-54-8	19	4	21	0.182	0.0507	0.042852632	NA	NA	NA	0.182	MDC	Less than 6 detections - 95% UCL calculation not appropriate
4,4-DDE (p,p)	72-55-9	19	13	68	0.164	0.0317	0.049807895	Nonparametric	95% KM (t) UCL	0.0653	0.0653	95% UCL	95% UCL calculated with ProUCL v4.1.1
4,4-DDT (p,p)	50-29-3	19	1	5	0.0358	0.0507	0.034394737	NA	NA	NA	0.0358	MDC	Less than 6 detections - 95% UCL calculation not appropriate
4,6-Dinitro-2-methylphenol	534-52-1	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
4-Bromophenyl phenyl ehter	101-55-3	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
4-Chloro-3-methylphenol	59-50-7	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
4-Methylphenol	106-44-5	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
4-Nitrophenol	100-02-7	8	0	0		15.5	8.29875	NA	NA	NA	15.5	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Acenaphthene	83-32-9	19	0	0		3.89	1.737736842	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Acenaphthylene	208-96-8	19	0	0		3.89	1.737736842	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Acrylonitrile	107-13-1	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Aldrin	309-00-2	19	0	0		0.0317	0.021408421	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
alpha-Chlordane	5103-71-9	19	6	32	0.0881	0.0317	0.027571579	Nonparametric	95% KM (t) UCL	0.0381	0.0381	95% UCL	95% UCL calculated with ProUCL v4.1.1
Aniline	62-53-3	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Anthracene	120-12-7	19	0	0		3.89	1.737736842	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Antimony	7440-36-0	19	0	0		26.9	19.68789474	NA	NA	NA	26.9	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Aroclor 1254	11097-69-1	19	0	0		0.119	0.083242105	NA	NA	NA	0.119	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Arsenic	7440-38-2	19	19	100	17.4		11.18052632	Normal	95% Student's-t UCL	12.69	12.69	95% UCL	95% UCL calculated with ProUCL v4.1.1
Barium	7440-39-3	19	19	100	476		326.5526316	Nonparametric	95% Chebyshev (Mean, Sd) UCL	457.8	457.8	95% UCL	95% UCL calculated with ProUCL v4.1.1
Benzene	71-43-2	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Benzo(a)anthracene	56-55-3	19	1	5	0.964	3.89	1.738684211	NA	NA	NA	0.964	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Benzo(a)pyrene	50-32-8	19	0	0		3.89	1.737736842	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Benzo(b)fluoranthene	205-99-2	19	1	5	2.23	3.89	1.748789474	NA	NA	NA	2.23	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Benzo(g,h,i)perylene	191-24-2	19	0	0		3.89	1.737736842	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Benzo(k)fluoranthene	207-08-9	19	0	0		3.89	1.737736842	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Benzoic acid	65-85-0	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Benzyl alcohol	100-51-6	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Bis(2-ethylhexyl)phthalate	117-81-7	8	0	0		1.93	1.0425	NA	NA	NA	1.93	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Bromoform	75-25-2	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Bromomethane	74-83-9	7	0	0		2.04	0.7396	NA	NA	NA	2.04	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Cadmium	7440-43-9	19	12	63	3.9	2.54	2.383526316	Nonparametric	95% KM (t) UCL	2.844	2.844	95% UCL	95% UCL calculated with ProUCL v4.1.1
Camphechlor	8001-35-2	19	0	0		0.633	0.428157895	NA	NA	NA	0.633	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Carbon disulfide	75-15-0	7	0	0		2.04	0.7396	NA	NA	NA	2.04	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Carbon tetrachloride	56-23-5	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Chlordane	57-74-9	19	12	63	0.371	0.127	0.137521053	Nonparametric	95% KM (t) UCL	0.163	0.163	95% UCL	95% UCL calculated with ProUCL v4.1.1
Chlorobenzene	108-90-7	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Chloroform	67-66-3	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Chromium	7440-47-3	19	19	100	72.1		51.17894737	Nonparametric	95% Chebyshev (Mean, Sd) UCL	68.83	68.83	95% UCL	95% UCL calculated with ProUCL v4.1.1
Chrysene	218-01-9	19	1	5	2.48	3.89	1.761947368	NA	NA	NA	2.48	MDC	Less than 6 detections - 95% UCL calculation not appropriate
cis-1,3-Dichloropropene	10061-01-5	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Copper	7440-50-8	19	19	100	213		133.3789474	Nonparametric	95% Chebyshev (Mean, Sd) UCL	187.3	187.3	95% UCL	95% UCL calculated with ProUCL v4.1.1
Cyanide	57-12-5	2	0	0		5.36	3.335	NA	NA	NA	5.36	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Dibenzo(a,h)anthracene	53-70-3	19	0	0		3.89	1.737736842	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Dieldrin	60-57-1	19	0	0		0.0317	0.021408421	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Diethy phthalate	84-66-2	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Dinitrobutyl phenol	88-85-7	2	0	0		0.0338	0.02164	NA	NA	NA	0.0338	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Endosulfan I	959-98-8	19	0	0		0.0317	0.021408421	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Endosulfan II	33213-65-9	19	0	0		0.0507	0.034257895	NA	NA	NA	0.0507	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Endosulfan sulfate	1031-07-8	19	0	0		0.0507	0.034257895	NA	NA	NA	0.0507	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Endrin	72-20-8	19	0	0		0.0507	0.034257895	NA	NA	NA	0.0507	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Fluoranthene	206-44-0	19	11	58	5.93	2.87	2.250894737	Nonparametric	95% KM (t) UCL	2.592	2.592	95% UCL	95% UCL calculated with ProUCL v4.1.1
Fluorene	86-73-7	19	0	0		3.89	1.737736842	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Heptachlor epoxide	1024-57-3	19	0	0		0.0317	0.021408421	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachloro-1,3-butadiene	87-68-3	10	0	0		1.93	0.90251	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachlorobenzene	118-74-1	8	0	0		1.93	1.0425	NA	NA	NA	1.93	MRL	Less than 10 samples - 95% UCL calculation not appropriate

Table E-1
Summary of Cider Mill Pond Sediment Exposure Point Concentrations

Analyte	CAS	Number of Samples	Number of Detections	Detection Frequency (%)	Max Concentration (mg/kg)	Max Reporting Limit (mg/kg)	Average Of Concentration (mg/kg)	Type of Distribution	Statistical Method	95% UCL (mg/kg)	Exposure Point Concentration (mg/kg)	Basis for EPC	Notes
Hexachlorocyclohexane, alpha	319-84-6	19	0	0		0.0317	0.021408421	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachlorocyclohexane, beta	319-85-7	19	0	0		0.0317	0.021408421	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	19	0	0		0.0317	0.021408421	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachloroethane	67-72-1	8	0	0		1.93	1.0425	NA	NA	NA	1.93	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Indeno(1,2,3-cd)pyrene	193-39-5	19	0	0		3.89	1.737736842	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Isopropylbenzene	98-82-8	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Lead	7439-92-1	19	19	100	340		168.2157895	Normal	95% Student's-t UCL	204.5	204.5	95% UCL	95% UCL calculated with ProUCL v4.1.1
m,p-Xylenes	1330-20-7-M,P	7	0	0		2.04	0.7396	NA	NA	NA	2.04	MRL	Less than 10 samples - 95% UCL calculation not appropriate
m-Dichlorobenzene	541-73-1	10	0	0		3.87	1.71091	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Mercury	7439-97-6	19	18	95	0.553	0.0413	0.294068421	Nonparametric	95% KM (Percentile Bootstrap) UCL	0.346	0.346	95% UCL	95% UCL calculated with ProUCL v4.1.1
Methoxychlor	72-43-5	19	0	0		0.0507	0.034257895	NA	NA	NA	0.0507	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Methylene chloride	75-09-2	7	0	0		2.04	0.7396	NA	NA	NA	2.04	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Naphthalene	91-20-3	19	0	0		3.89	1.820421053	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Nickel	7440-02-0	19	19	100	52.4		36.34947368	Nonparametric	95% Chebyshev (Mean, Sd) UCL	48.72	48.72	95% UCL	95% UCL calculated with ProUCL v4.1.1
N-Nitrosodiphenylamine	86-30-6	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Pentachlorophenol	87-86-5	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Phenanthrene	85-01-8	19	2	11	2.04	3.89	1.744789474	NA	NA	NA	2.04	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Phenol	108-95-2	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Pyrene	129-00-0	19	6	32	4.69	3.89	2.003736842	Nonparametric	95% KM (t) UCL	1.786	1.786	95% UCL	95% UCL calculated with ProUCL v4.1.1
Pyridine	110-86-1	8	0	0		3.87	2.073875	NA	NA	NA	3.87	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Selenium	7782-49-2	19	0	0		8.06	5.906315789	NA	NA	NA	8.06	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Silver	7440-22-4	19	0	0		8.06	5.906315789	NA	NA	NA	8.06	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Styrene	100-42-5	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Tetrachloroethylene	127-18-4	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Total DDx	RACALC-DDx	19	13	68	0.382	0.0507	0.072381579	Nonparametric	95% KM (BCA) UCL	0.111	0.111	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total Endosulfans	RACALC-ENDO	19	0	0		0.0507	0.034257895	NA	NA	NA	0.0507	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Total High Molecular Weight PAHs	RACALC-HPAH	19	6	32	9.15	3.89	2.302157895	Nonparametric	95% KM (t) UCL	2.427	2.427	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total Low Molecular Weight PAHs	RACALC-LPAH	19	11	58	7.36	2.87	2.666684211	Nonparametric	95% KM (t) UCL	3.224	3.224	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total PAHs	RACALC-PAH	19	11	58	16.5	2.87	3.684	Nonparametric	95% KM (t) UCL	5.002	5.002	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total PCB Aroclors	RACALC-PCB	19	1	5	1.29	0.204	0.164678947	NA	NA	NA	1.29	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Total Xylenes	RACALC-XYL	7	0	0		2.04	0.7396	NA	NA	NA	2.04	MRL	Less than 10 samples - 95% UCL calculation not appropriate
trans-1,3-Dichloropropene	10061-02-6	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Vanadium	7440-62-2	19	19	100	74.1		52.31052632	Nonparametric	95% Chebyshev (Mean, Sd) UCL	70.2	70.2	95% UCL	95% UCL calculated with ProUCL v4.1.1
Vinyl chloride	75-01-4	7	0	0		1.02	0.369657143	NA	NA	NA	1.02	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Zinc	7440-66-6	19	19	100	591		377.2368421	Normal	95% Student's-t UCL	436.8	436.8	95% UCL	95% UCL calculated with ProUCL v4.1.1
Acetone	67-64-1	7	2	28.57142857	2.68	10.2	4.120142857	NA	NA	NA	2.68	MDC	Less than 10 samples - 95% UCL calculation not appropriate
2-Butanone (MEK)	78-93-3	7	2	28.57142857	0.972	10.2	3.766	NA	NA	NA	0.972	MDC	Less than 10 samples - 95% UCL calculation not appropriate

Notes:
COPC = chemical of potential concern
MDC = maximum detected concentration
MRL = maximum reporting limit
mg/kg = milligram per kilogram
UCL = upper confidence level
EPC = exposure point concentration

Reference:
1) USEPA 2011. ProUCL version 4.1.1. Office of Research and Development, National Expsoure Research Laboratory, Las Vegas, NV. Available online at http://www.epa.gov/nerlesd1/tsc/form.htm

Table E-2
Summary of Site-Wide (AOC11A, AOC11B, AOC11C and AOC12) Sediment Exposure Point Concentrations

Analyte	Cas	Number of Samples	Number of Detections	Detection Frequency (%)	Max Concentration (mg/kg)	Max Reporting Limit (mg/kg)	Average Concentration (mg/kg)	Type of Distribution	Statistical Method	95% UCL (mg/kg)	Exposure Point Concentration (mg/kg)	Basis for EPC	Notes
1,1,1-Trichloroethane	71-55-6	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
1,1,2,2-Tetrachloroethane	79-34-5	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
1,1-Dichloroethylene	75-35-4	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
1,2,3-Trichlorobenzene	87-61-6	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
1,2,4,5-Tetrachlorobenzene	95-94-3	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
1,2-Dichlorobenzene	95-50-1	17	0	0		3.87	1.419058824	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
1,4-Dichlorobenzene	106-46-7	17	0	0		3.87	1.419058824	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2,4,6-Trichlorophenol	88-06-2	12	0	0		1.93	0.989416667	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2,4-Dichlorophenol	120-83-2	12	0	0		1.93	0.989416667	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2,4-Dimethylphenol	105-67-9	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2,4-Dinitrophenol	51-28-5	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2,4-Dinitrotoluene	121-14-2	12	0	0		1.93	0.989416667	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2,6-Dinitrotoluene	606-20-2	12	0	0		1.93	0.989416667	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2-Chloronaphthalene	91-58-7	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2-Chlorophenol	95-57-8	12	0	0		1.93	0.989416667	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
2-Methylnaphthalene	91-57-6	41	1	2	2.61	3.89	1.149292683	NA	NA	NA	2.61	MDC	Less than 6 detections - 95% UCL calculation not appropriate
2-Methylphenol	95-48-7	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
3,3-Dichlorobenzidine	91-94-1	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
3,5,5-Trimethyl-2-cyclohexene-1-one	78-59-1	12	0	0		1.93	0.989416667	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
4,4-DDD (p,p)	72-54-8	41	4	10	0.182	0.0507	0.026994634	NA	NA	NA	0.182	MDC	Less than 6 detections - 95% UCL calculation not appropriate
4,4-DDE (p,p)	72-55-9	41	25	61	0.164	0.0317	0.028146098	Nonparametric	95% KM (Chebyshev) UCL	0.0499	0.0499	95% UCL	95% UCL calculated with ProUCL v4.1.1
4,4-DDT (p,p)	50-29-3	41	4	10	0.0358	0.0507	0.02325561	NA	NA	NA	0.0358	MDC	Less than 6 detections - 95% UCL calculation not appropriate
4,6-Dinitro-2-methylphenol	534-52-1	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
4-Bromophenyl phenyl ehter	101-55-3	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
4-Chloro-3-methylphenol	59-50-7	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
4-Methylphenol	106-44-5	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
4-Nitrophenol	100-02-7	12	0	0		15.5	7.8575	NA	NA	NA	15.5	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Acenaphthene	83-32-9	41	0	0		3.89	1.137097561	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Acenaphthylene	208-96-8	41	0	0		3.89	1.137097561	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Acrylonitrile	107-13-1	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Aldrin	309-00-2	41	0	0		0.0317	0.014381463	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
alpha-Chlordane	5103-71-9	41	8	20	0.0881	0.0317	0.01732	Nonparametric	95% KM (t) UCL	0.0172	0.0172	95% UCL	95% UCL calculated with ProUCL v4.1.1
Aniline	62-53-3	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Anthracene	120-12-7	41	2	5	1.03	3.89	1.142219512	NA	NA	NA	1.03	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Antimony	7440-36-0	41	0	0		27.7	13.30731707	NA	NA	NA	27.7	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Aroclor 1254	11097-69-1	41	0	0		0.119	0.055914634	NA	NA	NA	0.119	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Arsenic	7440-38-2	41	36	88	17.4	2.15	6.965365854	Nonparametric	95% KM (Chebyshev) UCL	10.4	10.4	95% UCL	95% UCL calculated with ProUCL v4.1.1
Barium	7440-39-3	41	41	100	476		188.9804878	Nonparametric	95% Chebyshev (Mean, Sd) UCL	301.1	301.1	95% UCL	95% UCL calculated with ProUCL v4.1.1
Benzene	71-43-2	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Benzo(a)anthracene	56-55-3	41	7	17	1.79	3.89	1.200414634	Nonparametric	95% KM (t) UCL	0.681	0.681	95% UCL	95% UCL calculated with ProUCL v4.1.1
Benzo(a)pyrene	50-32-8	41	5	12	1.29	3.89	1.173292683	NA	NA	NA	1.29	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Benzo(b)fluoranthene	205-99-2	41	7	17	2.23	3.89	1.180219512	Nonparametric	95% KM (t) UCL	0.676	0.676	95% UCL	95% UCL calculated with ProUCL v4.1.1
Benzo(g,h,i)perylene	191-24-2	41	1	2	0.61	3.89	1.141365854	NA	NA	NA	0.61	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Benzo(k)fluoranthene	207-08-9	41	5	12	1.43	3.89	1.164073171	NA	NA	NA	1.43	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Benzoic acid	65-85-0	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Benzyl alcohol	100-51-6	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Bis(2-ethylhexyl)phthalate	117-81-7	12	0	0		1.93	0.989416667	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Bromoform	75-25-2	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Bromomethane	74-83-9	14	0	0		2.04	0.3894	NA	NA	NA	2.04	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Cadmium	7440-43-9	41	13	32	3.9	2.77	1.524902439	Nonparametric	95% KM (t) UCL	1.71	1.71	95% UCL	95% UCL calculated with ProUCL v4.1.1
Camphechlor	8001-35-2	41	0	0		0.633	0.287634146	NA	NA	NA	0.633	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Carbon disulfide	75-15-0	13	0	0		2.04	0.416730769	NA	NA	NA	2.04	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Carbon tetrachloride	56-23-5	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Chlordane	57-74-9	41	19	46	0.371	0.127	0.083658537	Nonparametric	95% KM (t) UCL	0.0925	0.0925	95% UCL	95% UCL calculated with ProUCL v4.1.1
Chlorobenzene	108-90-7	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Chloroform	67-66-3	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Chromium	7440-47-3	41	41	100	281		37.64146341	Nonparametric	95% Chebyshev (Mean, Sd) UCL	68.73	68.73	95% UCL	95% UCL calculated with ProUCL v4.1.1
Chrysene	218-01-9	41	7	17	2.48	3.89	1.209170732	Nonparametric	95% KM (t) UCL	0.76	0.76	95% UCL	95% UCL calculated with ProUCL v4.1.1
cis-1,3-Dichloropropene	10061-01-5	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Copper	7440-50-8	41	41	100	213		75.17439024	Nonparametric	95% Chebyshev (Mean, Sd) UCL	122.8	122.8	95% UCL	95% UCL calculated with ProUCL v4.1.1
Cyanide	57-12-5	4	0	0		5.36	2.345	NA	NA	NA	5.36	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Dibenzo(a,h)anthracene	53-70-3	41	0	0		3.89	1.137097561	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Dieldrin	60-57-1	41	0	0		0.0317	0.014381463	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Diethy phthalate	84-66-2	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate

Table E-2
Summary of Site-Wide (AOC11A, AOC11B, AOC11C and AOC12) Sediment Exposure Point Concentrations

Analyte	Cas	Number of Samples	Number of Detections	Detection Frequency (%)	Max Concentration (mg/kg)	Max Reporting Limit (mg/kg)	Average Concentration (mg/kg)	Type of Distribution	Statistical Method	95% UCL (mg/kg)	Exposure Point Concentration (mg/kg)	Basis for EPC	Notes
Dinitrobutyl phenol	88-85-7	4	0	0		0.0338	0.01536	NA	NA	NA	0.0338	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Endosulfan I	959-98-8	41	0	0		0.0317	0.014381463	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Endosulfan II	33213-65-9	41	0	0		0.0507	0.023011707	NA	NA	NA	0.0507	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Endosulfan sulfate	1031-07-8	41	0	0		0.0507	0.023011707	NA	NA	NA	0.0507	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Endrin	72-20-8	41	0	0		0.0507	0.023011707	NA	NA	NA	0.0507	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Fluoranthene	206-44-0	41	23	56	5.93	2.87	1.706780488	Nonparametric	95% KM (t) UCL	1.856	1.856	95% UCL	95% UCL calculated with ProUCL v4.1.1
Fluorene	86-73-7	41	0	0		3.89	1.137097561	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Heptachlor epoxide	1024-57-3	41	0	0		0.0317	0.014381463	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachloro-1,3-butadiene	87-68-3	17	0	0		1.93	0.740764706	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachlorobenzene	118-74-1	12	0	0		1.93	0.989416667	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachlorocyclohexane, alpha	319-84-6	41	0	0		0.0317	0.014381463	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachlorocyclohexane, beta	319-85-7	41	0	0		0.0317	0.014381463	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	41	0	0		0.0317	0.014381463	NA	NA	NA	0.0317	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachloroethane	67-72-1	12	0	0		1.93	0.989416667	NA	NA	NA	1.93	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Indeno(1,2,3-cd)pyrene	193-39-5	41	1	2	0.646	3.89	1.142243902	NA	NA	NA	0.646	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Isopropylbenzene	98-82-8	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Lead	7439-92-1	41	41	100	340		89.5204878	Nonparametric	95% Chebyshev (Mean, Sd) UCL	156.9	156.9	95% UCL	95% UCL calculated with ProUCL v4.1.1
m,p-Xylenes	1330-20-7-M,P	14	0	0		2.04	0.3894	NA	NA	NA	2.04	MRL	Less than 6 detections - 95% UCL calculation not appropriate
m-Dichlorobenzene	541-73-1	17	0	0		3.87	1.419058824	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Mercury	7439-97-6	41	20	49	0.553	0.049	0.164887805	Nonparametric	95% KM (t) UCL	0.235	0.235	95% UCL	95% UCL calculated with ProUCL v4.1.1
Methoxychlor	72-43-5	41	0	0		0.0507	0.023011707	NA	NA	NA	0.0507	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Methylene chloride	75-09-2	14	0	0		2.04	0.3894	NA	NA	NA	2.04	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Naphthalene	91-20-3	41	0	0		3.89	1.175414634	NA	NA	NA	3.89	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Nickel	7440-02-0	41	41	100	127		25.68853659	Nonparametric	95% Chebyshev (Mean, Sd) UCL	41.49	41.49	95% UCL	95% UCL calculated with ProUCL v4.1.1
N-Nitrosodiphenylamine	86-30-6	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Pentachlorophenol	87-86-5	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Phenanthrene	85-01-8	41	8	20	4.44	3.89	1.279195122	Nonparametric	95% KM (t) UCL	0.995	0.995	95% UCL	95% UCL calculated with ProUCL v4.1.1
Phenol	108-95-2	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Pyrene	129-00-0	41	17	41	4.69	3.89	1.491243902	Nonparametric	95% KM (t) UCL	1.383	1.383	95% UCL	95% UCL calculated with ProUCL v4.1.1
Pyridine	110-86-1	12	0	0		3.87	1.96425	NA	NA	NA	3.87	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Selenium	7782-49-2	41	0	0		8.3	3.991463415	NA	NA	NA	8.3	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Silver	7440-22-4	41	0	0		8.3	3.991463415	NA	NA	NA	8.3	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Styrene	100-42-5	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Tetrachloroethylene	127-18-4	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Total DDx	RACALC-DDx	41	25	61	0.382	0.0507	0.041104878	Nonparametric	95% KM (Chebyshev) UCL	0.0819	0.0819	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total Endosulfans	RACALC-ENDO	41	0	0		0.0507	0.023011707	NA	NA	NA	0.0507	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Total High Molecular Weight PAHs	RACALC-HPAH	41	17	41	11.6	3.89	2.249731707	Nonparametric	95% KM (t) UCL	2.565	2.565	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total Low Molecular Weight PAHs	RACALC-LPAH	41	23	56	10.7	2.87	2.167756098	Nonparametric	95% KM (t) UCL	2.537	2.537	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total PAHs	RACALC-PAH	41	23	56	22.3	2.87	3.647	Nonparametric	95% KM (t) UCL	4.685	4.685	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total PCB Aroclors	RACALC-PCB	41	1	2.43902439	1.29	0.23	0.099141463	NA	NA	NA	1.29	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Total Xylenes	RACALC-XYL	14	0	0		2.04	0.3894	NA	NA	NA	2.04	MRL	Less than 6 detections - 95% UCL calculation not appropriate
trans-1,3-Dichloropropene	10061-02-6	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Vanadium	7440-62-2	41	41	100	74.1		33.40634146	Nonparametric	95% Chebyshev (Mean, Sd) UCL	49.29	49.29	95% UCL	95% UCL calculated with ProUCL v4.1.1
Vinyl chloride	75-01-4	14	0	0		1.02	0.194607143	NA	NA	NA	1.02	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Zinc	7440-66-6	41	41	100	591		209.5682927	Nonparametric	95% Chebyshev (Mean, Sd) UCL	344.6	344.6	95% UCL	95% UCL calculated with ProUCL v4.1.1
Acetone	67-64-1	14	5	35.71428571	2.68	10.2	2.301528571	NA	NA	NA	2.68	MDC	Less than 6 detections - 95% UCL calculation not appropriate
2-Butanone (MEK)	78-93-3	14	3	21.42857143	0.972	10.2	1.988814286	NA	NA	NA	0.972	MDC	Less than 6 detections - 95% UCL calculation not appropriate

Notes:
COPC = chemical of potential concern
MDC = maximum detected concentration
MRL = maximum reporting limit
mg/kg = milligram per kilogram
UCL = upper confidence level
EPC = exposure point concentration

Reference:
1) USEPA. 2011. ProUCL version 4.1.1. Office of Research and Development, National Expsoure Research Laboratory, Las Vegas, NV. Available online at http://www.epa.gov/nerlesd1/tsc/form.htm

Table E-3
Summary of Site-Wide (AOC15) Surface Water Exposure Point Concentrations

Analyte	CAS	Number of Samples	Number of Detections	Detection Frequency (%)	Max Concentration (µg/L)	Max Reporting Limit (µg/L)	Average Of Concentration (µg/L)	Type of Distribution	Statistical Method	95% UCL (µg/L)	Exposure Point Concentration (µg/L)	Basis for EPC	Notes
2,4,6-Trichlorophenol	88-06-2	18	0	0		5.56	5.265	NA	NA	NA	5.56	MRL	Less than 6 detections - 95% UCL calculation not appropriate
3,3-Dichlorobenzidine	91-94-1	18	0	0		5.56	5.265	NA	NA	NA	5.56	MRL	Less than 6 detections - 95% UCL calculation not appropriate
4,4-DDT (p,p)	50-29-3	12	0	0		0.005	0.004083333	NA	NA	NA	0.005	MRL	Less than 6 detections - 95% UCL calculation not appropriate
4-Bromophenyl phenyl ehter	101-55-3	18	0	0		5.56	5.265	NA	NA	NA	5.56	MRL	Less than 6 detections - 95% UCL calculation not appropriate
alpha-Chlordane	5103-71-9	12	3	25	0.003	0.002	0.00225	NA	NA	NA	0.003	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Aniline	62-53-3	18	0	0		5.56	5.265	NA	NA	NA	5.56	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Arsenic	7440-38-2	18	0	0		4	4	NA	NA	NA	4	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Barium	7440-39-3	18	18	100	106		84.10555556	Normal	95% Student's-t UCL	88.61	88.61	95% UCL	95% UCL calculated with ProUCL v4.1.1
Benzidine	92-87-5	8	0	0		5.38	5.20875	NA	NA	NA	5.38	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Benzo(a)anthracene	56-55-3	18	0	0		0.05	0.05	NA	NA	NA	0.05	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Benzo(a)pyrene	50-32-8	18	0	0		0.05	0.05	NA	NA	NA	0.05	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Beryllium	7440-41-7	18	0	0		2	2	NA	NA	NA	2	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Cadmium	7440-43-9	18	0	0		2.5	2.5	NA	NA	NA	2.5	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Camphechlor	8001-35-2	12	0	0		0.057	0.054166667	NA	NA	NA	0.057	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Carbon disulfide	75-15-0	12	0	0		2	2	NA	NA	NA	2	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Chlordane	57-74-9	12	8	67	0.03	0.007	0.019333333	Nonparametric	95% KM (BCA) UCL	0.0275	0.0275	95% UCL	95% UCL calculated with ProUCL v4.1.1
Copper	7440-50-8	18	0	0		5	5	NA	NA	NA	5	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Dibenzofuran	132-64-9	18	0	0		5.56	5.265	NA	NA	NA	5.56	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachloro-1,3-butadiene	87-68-3	18	0	0		5.56	5.265	NA	NA	NA	5.56	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Hexachlorobenzene	118-74-1	18	0	0		5.56	5.265	NA	NA	NA	5.56	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Lead	7439-92-1	18	0	0		7.5	7.5	NA	NA	NA	7.5	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Mercury	7439-97-6	18	0	0		0.2	0.2	NA	NA	NA	0.2	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Nickel	7440-02-0	18	0	0		5	5	NA	NA	NA	5	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Pentachlorophenol	87-86-5	18	0	0		22.2	21.05555556	NA	NA	NA	22.2	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Phenol	108-95-2	18	0	0		5.56	5.265	NA	NA	NA	5.56	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Pyrene	129-00-0	18	3	17	0.09	0.05	0.053055556	NA	NA	NA	0.09	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Selenium	7782-49-2	18	0	0		15	15	NA	NA	NA	15	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Silver	7440-22-4	18	0	0		5	5	NA	NA	NA	5	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Total DDx	RACALC-DDx	12	3	25	0.002	0.005	0.003583333	NA	NA	NA	0.002	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Total High Molecular Weight PAHs	RACALC-HPAH	18	3	17	0.09	0.05	0.053055556	NA	NA	NA	0.09	MDC	Less than 6 detections - 95% UCL calculation not appropriate
Total Low Molecular Weight PAHs	RACALC-LPAH	18	6	33.3	0.115	0.05	0.058611111	Nonparametric	95% KM (t) UCL	0.0695	0.0695	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total PAHs	RACALC-PAH	18	6	33	0.205	0.05	0.070388889	Nonparametric	95% KM (t) UCL	0.0944	0.0944	95% UCL	95% UCL calculated with ProUCL v4.1.1
Total PCB Aroclors	RACALC-PCB	6	0	0		0.22	0.211833333	NA	NA	NA	0.22	MRL	Less than 10 samples - 95% UCL calculation not appropriate
Total PCB Homologues	RACALC-PCB-H	12	0	0		0.0284	0.025441667	NA	NA	NA	0.0284	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Vanadium	7440-62-2	18	0	0		5	5	NA	NA	NA	5	MRL	Less than 6 detections - 95% UCL calculation not appropriate
Zinc	7440-66-6	18	2	11.1	6.6	10	5.422222222	NA	NA	NA	6.6	MDC	Less than 6 detections - 95% UCL calculation not appropriate

Notes:
COPC = chemical of potential concern
MDC = maximum detected concentration
MRL = maximum reporting limit
ug/L = micrograms per liter
UCL = upper confidence level
EPC = exposure point concentration

Reference:
1) USEPA. 2011. ProUCL version 4.1.1. Office of Research and Development, National Expsoure Research Laboratory, Las Vegas, NV. Available online at http://www.epa.gov/nerlesd1/tsc/form.htm

ProUCL Input

ProUCL Input: Cider Mill Pond Sediment

sys_loc_code	end_depth	sample_date	4,4-DDD (p,p)	D_4,4-DDD (p,p)	alpha-Chlordane	D_alpha-Chlordane	Arsenic	D_Arsenic	Barium	D_Barium	Cadmium	D_Cadmium	Chlordane	D_Chlordane	Chromium	D_Chromium	Copper	D_Copper	Fluoranthene	D_Fluoranthene	Lead	D_Lead	Mercury	D_Mercury	Nickel	D_Nickel	Pyrene	D_Pyrene	Total DDx
A29-SED	0.5	7/19/2012	0.0296	0	0.0185	0	11.1	1	258	1	1.77	0	0.074	0	55	1	129	1	0.741	1	138	1	0.241	1	39.1	1	0.648	1	0.0296
B29-SED05	0.5	12/27/2011	0.0321	0	0.0201	0	10.6	1	332	1	2.6	1	0.0803	0	58.5	1	149	1	1.34	0	182	1	0.29	1	38.7	1	1.34	0	0.0321
C28-SED10	0.5	12/27/2011	0.0473	1	0.0298	1	15.2	1	476	1	3.9	1	0.263	1	72.1	1	213	1	1.74	0	340	1	0.553	1	52.4	1	1.74	0	0.147
C29-SED04	0.5	12/27/2011	0.0462	1	0.0431	1	13.8	1	415	1	2.8	1	0.306	1	64.7	1	149	1	1.93	0	179	1	0.205	1	42.6	1	1.93	0	0.172
C31-SED	0.5	7/19/2012	0.0407	0	0.0254	0	11.2	1	347	1	2.54	0	0.102	0	56.1	1	154	1	1.31	1	143	1	0.262	1	41.1	1	1.14	1	0.0407
D27-SED14	0.5	12/27/2011	0.0415	0	0.0267	1	13.5	1	453	1	3.47	1	0.161	1	64.7	1	194	1	1.72	0	335	1	0.537	1	46.9	1	1.72	0	0.0706
D28-SED08	0.5	12/28/2011	0.047	0	0.0294	0	14.9	1	457	1	3.07	1	0.141	1	62.7	1	151	1	5.11	1	188	1	0.356	1	44.9	1	3.89	0	0.0645
D29-SED03	0.5	12/28/2011	0.0431	0	0.0269	0	17.4	1	471	1	2.84	1	0.117	1	58	1	141	1	5.93	1	169	1	0.284	1	42.5	1	4.69	1	0.0504
E29-SED	0.5	7/19/2012	0.182	1	0.0881	1	13.1	1	407	1	2.51	1	0.371	1	67.3	1	181	1	0.697	0	324	1	0.481	1	48.6	1	0.697	0	0.382
E30-SED	0.5	7/19/2012	0.0299	0	0.0187	0	6.83	1	198	1	1.67	0	0.0747	0	41.3	1	175	1	0.81	1	99.5	1	0.164	1	29.1	1	0.695	1	0.0299
F27-SED13	0.5	12/28/2011	0.0434	1	0.0275	1	12.5	1	369	1	2.86	1	0.14	1	56.9	1	143	1	3.1	1	174	1	0.332	1	41.2	1	2.79	0	0.103
F28A-SED	0.5	7/19/2012	0.017	0	0.0106	0	5.59	1	168	1	0.941	0	0.0424	0	28.7	1	80.6	1	0.328	1	84	1	0.203	1	21.8	1	0.36	0	0.017
F28-SED08	0.5	12/28/2011	0.0389	0	0.0243	0	10.6	1	283	1	2.17	0	0.157	1	44.8	1	104	1	5.32	1	125	1	0.258	1	32	1	4.44	1	0.0442
F29-SED02	0.5	12/28/2011	0.0351	0	0.0219	0	9.97	1	332	1	2.12	1	0.0877	0	43.5	1	105	1	2.87	0	129	1	0.193	1	30	1	2.87	0	0.0356
G27-SED12	0.5	12/28/2011	0.0114	0	0.00713	0	6.33	1	45.5	1	0.691	0	0.0352	1	10.7	1	11.6	1	2.41	1	17	1	0.111	1	8.58	1	2.08	1	0.00995
G28-SED07	0.5	12/28/2011	0.0364	0	0.0227	0	12.7	1	412	1	3.15	1	0.12	1	57.6	1	160	1	1.56	1	198	1	0.398	1	42.9	1	1.49	0	0.05
G29-SED01	0.5	12/28/2011	0.0305	0	0.0442	1	9.68	1	321	1	2.23	1	0.154	1	53.3	1	109	1	2.5	0	136	1	0.301	1	35.3	1	2.5	0	0.0355
H27-SED11	0.5	12/28/2011	0.0114	0	0.00713	0	2.43	1	51	1	0.645	0	0.0596	1	10.7	1	12	1	0.941	0	15.6	1	0.0413	0	7.86	1	0.941	0	0.0105
H28-SED06	0.5	12/28/2011	0.0507	0	0.0317	0	15	1	409	1	3.31	1	0.127	0	65.8	1	173	1	2.41	1	220	1	0.377	1	45.1	1	2.11	0	0.0507

ProUCL Input: Cider Mill Pond Sediment

sys_loc_code	end_depth	sample_date	D_Total DDx	Total High Molecular	D_Total High Molecular	Total Low Molecular	D_Total Low Molecular	Total PAHs	D_Total PAHs	Vanadium	D_Vanadium	Zinc	D_Zinc
A29-SED	0.5	7/19/2012	0	0.648	1	0.741	1	1.39	1	55.9	1	326	1
B29-SED05	0.5	12/27/2011	0	1.34	0	1.34	0	1.34	0	55.3	1	409	1
C28-SED10	0.5	12/27/2011	1	1.74	0	1.74	0	1.74	0	74.1	1	591	1
C29-SED04	0.5	12/27/2011	1	1.93	0	1.93	0	1.93	0	65.9	1	475	1
C31-SED	0.5	7/19/2012	0	1.14	1	1.31	1	2.45	1	59	1	395	1
D27-SED14	0.5	12/27/2011	1	1.72	0	1.72	0	1.72	0	66	1	527	1
D28-SED08	0.5	12/28/2011	1	3.89	0	5.11	1	5.11	1	66.5	1	511	1
D29-SED03	0.5	12/28/2011	1	4.69	1	5.93	1	10.6	1	62.9	1	472	1
E29-SED	0.5	7/19/2012	1	0.697	0	0.697	0	0.697	0	68.7	1	433	1
E30-SED	0.5	7/19/2012	0	0.695	1	0.81	1	1.5	1	41.3	1	274	1
F27-SED13	0.5	12/28/2011	1	2.79	0	3.1	1	3.1	1	57.9	1	471	1
F28A-SED	0.5	7/19/2012	0	0.36	0	0.328	1	0.328	1	30.2	1	179	1
F28-SED08	0.5	12/28/2011	1	9.15	1	7.36	1	16.5	1	43.9	1	346	1
F29-SED02	0.5	12/28/2011	1	2.87	0	2.87	0	2.87	0	43.2	1	355	1
G27-SED12	0.5	12/28/2011	1	3.04	1	3.47	1	6.51	1	12.1	1	61	1
G28-SED07	0.5	12/28/2011	1	1.49	0	1.56	1	1.56	1	58.9	1	457	1
G29-SED01	0.5	12/28/2011	1	2.5	0	2.5	0	2.5	0	52.2	1	326	1
H27-SED11	0.5	12/28/2011	1	0.941	0	0.941	0	0.941	0	12.5	1	53	1
H28-SED06	0.5	12/28/2011	0	2.11	0	7.21	1	7.21	1	67.4	1	507	1

ProUCL Input: Site-wide Sediment

sys_loc_code	end_depth	sample_date	4,4-DDE (p,p)	D_4,4-DDE (p,p)	alpha-Chlordane	D_alpha-Chlordane	Arsenic	D_Arsenic	Barium	D_Barium	Benzo(a) anthracene	D_Benzo(a) anthracene	Benzo(b)fluoranthene	D_Benzo(b)fluoranthene	Cadmium	D_Cadmium	Chlordane	D_Chlordane	Chromium	D_Chromium	Chrysene	D_Chrysene	Copper	D_Copper
A29-SED	0.5	7/19/2012	0.0185	0	0.0185	0	11.1	1	258	1	0.639	0	0.639	0	1.77	0	0.074	0	55	1	0.639	0	129	1
AB6-SED32	0.5	12/29/2011	0.00648	0	0.00648	0	2.93	1	50.9	1	1.7	1	1.31	1	0.562	0	0.0259	0	8.68	1	1.31	1	23.2	1
AG7-SED34	0.5	12/29/2011	0.00621	0	0.00621	0	4.31	1	61.3	1	0.409	0	0.409	0	0.581	0	0.0248	0	281	1	0.409	0	34.6	1
AL8-SED36	0.5	12/29/2011	0.00684	0	0.00684	0	2.91	1	33.5	1	0.444	0	0.444	0	0.638	0	0.0274	0	6.79	1	0.444	0	9.85	1
AQ9-SED38	0.5	12/29/2011	0.00718	0	0.00718	0	2.83	1	73.5	1	0.48	0	0.48	0	0.725	0	0.0287	0	9.43	1	0.48	0	23.6	1
B29-SED05	0.5	12/27/2011	0.0201	0	0.0201	0	10.6	1	332	1	1.34	0	1.34	0	2.6	1	0.0803	0	58.5	1	1.34	0	149	1
B31-SED	0.5	7/19/2012	0.03	0	0.03	0	12.8	1	357	1	0.98	0	0.98	0	2.77	0	0.12	0	63	1	0.98	0	156	1
C28-SED10	0.5	12/27/2011	0.1	1	0.0298	1	15.2	1	476	1	1.74	0	1.74	0	3.9	1	0.263	1	72.1	1	1.74	0	213	1
C29-SED04	0.5	12/27/2011	0.126	1	0.0431	1	13.8	1	415	1	1.93	0	1.93	0	2.8	1	0.306	1	64.7	1	1.93	0	149	1
C31-SED	0.5	7/19/2012	0.0254	0	0.0254	0	11.2	1	347	1	0.877	0	0.877	0	2.54	0	0.102	0	56.1	1	0.877	0	154	1
D27-SED14	0.5	12/27/2011	0.0706	1	0.0267	1	13.5	1	453	1	1.72	0	1.72	0	3.47	1	0.161	1	64.7	1	1.72	0	194	1
D28-SED08	0.5	12/28/2011	0.0645	1	0.0294	0	14.9	1	457	1	3.89	0	3.89	0	3.07	1	0.141	1	62.7	1	3.89	0	151	1
D29-SED03	0.5	12/28/2011	0.0504	1	0.0269	0	17.4	1	471	1	3.53	0	3.53	0	2.84	1	0.117	1	58	1	3.53	0	141	1
E29-SED	0.5	7/19/2012	0.164	1	0.0881	1	13.1	1	407	1	0.697	0	0.697	0	2.51	1	0.371	1	67.3	1	0.697	0	181	1
E30-SED	0.5	7/19/2012	0.0187	0	0.0187	0	6.83	1	198	1	0.627	0	0.627	0	1.67	0	0.0747	0	41.3	1	0.627	0	175	1
F27-SED13	0.5	12/28/2011	0.0601	1	0.0275	1	12.5	1	369	1	2.79	0	2.79	0	2.86	1	0.14	1	56.9	1	2.79	0	143	1
F28A-SED	0.5	7/19/2012	0.0106	0	0.0106	0	5.59	1	168	1	0.36	0	0.36	0	0.941	0	0.0424	0	28.7	1	0.36	0	80.6	1
F28-SED08	0.5	12/28/2011	0.0442	1	0.0243	0	10.6	1	283	1	2.02	0	2.23	1	2.17	0	0.157	1	44.8	1	2.48	1	104	1
F29-SED02	0.5	12/28/2011	0.0356	1	0.0219	0	9.97	1	332	1	2.87	0	2.87	0	2.12	1	0.0877	0	43.5	1	2.87	0	105	1
G27-SED12	0.5	12/28/2011	0.00995	1	0.00713	0	6.33	1	45.5	1	0.964	1	0.946	0	0.691	0	0.0352	1	10.7	1	0.946	0	11.6	1
G28-SED07	0.5	12/28/2011	0.05	1	0.0227	0	12.7	1	412	1	1.49	0	1.49	0	3.15	1	0.12	1	57.6	1	1.49	0	160	1
G29-SED01	0.5	12/28/2011	0.0355	1	0.0442	1	9.68	1	321	1	2.5	0	2.5	0	2.23	1	0.154	1	53.3	1	2.5	0	109	1
H27-SED11	0.5	12/28/2011	0.0105	1	0.00713	0	2.43	1	51	1	0.941	0	0.941	0	0.645	0	0.0596	1	10.7	1	0.941	0	12	1
H28-SED06	0.5	12/28/2011	0.0317	0	0.0317	0	15	1	409	1	2.11	0	2.11	0	3.31	1	0.127	0	65.8	1	2.11	0	173	1
I26-SED15	0.5	12/28/2011	0.00807	1	0.00681	0	1.84	1	39.4	1	0.449	0	0.449	0	0.583	0	0.0279	1	7.16	1	0.449	0	10.5	1
L25-SED16	0.5	12/28/2011	0.00759	1	0.0063	0	1.82	0	41.7	1	0.838	0	0.838	0	0.608	0	0.0252	0	9.41	1	0.838	0	11.3	1
N24-SED	0.5	7/19/2012	0.0123	1	0.0076	1	2.38	1	49.5	1	1.01	0	1.01	0	0.537	0	0.0315	1	12.9	1	1.01	0	21.3	1
N24-SED17	0.5	12/28/2011	0.0104	1	0.00839	0	6.29	1	48.6	1	0.547	0	0.547	0	0.793	0	0.0412	1	11.9	1	0.547	0	12	1
O11-SED24	0.5	12/29/2011	0.00595	0	0.00595	0	2.06	1	37.9	1	0.586	1	0.495	1	0.571	0	0.0238	0	10.6	1	0.602	1	10.9	1
O14-SED24	0.5	12/29/2011	0.00893	1	0.00735	0	2.9	1	71.9	1	0.744	1	0.642	1	0.651	0	0.0294	0	16	1	0.843	1	12.5	1
OUT-NEW-SED	0.5	7/19/2012	0.0167	0	0.0167	0	6.63	1	174	1	0.566	0	0.566	0	1.62	0	0.067	0	32.3	1	0.566	0	79.7	1
P23-SED18	0.5	12/28/2011	0.00712	1	0.00695	0	1.97	0	25.8	1	0.453	0	0.453	0	0.656	0	0.0522	1	5.79	1	0.453	0	10.3	1
P7-SED27	0.5	12/29/2011	0.0116	1	0.00885	1	2.98	1	47.8	1	0.471	1	0.494	1	0.673	0	0.0343	1	12.7	1	0.517	1	13.3	1
Q16-SED23	0.5	12/29/2011	0.00941	1	0.00741	0	2.05	1	54.6	1	0.48	0	0.48	0	0.652	0	0.0296	0	14.8	1	0.48	0	13	1
R22-SED19	0.5	12/28/2011	0.00806	1	0.00694	0	1.94	0	47.1	1	0.932	0	0.932	0	0.647	0	0.0278	0	9.03	1	0.932	0	7.01	1
S17-SED22	0.5	12/28/2011	0.00706	0	0.00706	0	2.15	0	36.6	1	0.48	0	0.48	0	0.717	0	0.0283	0	7.81	1	0.48	0	9.49	1
T20-SED	0.5	7/19/2012	0.00747	1	0.00577	0	2.94	1	90.7	1	0.977	0	0.977	0	0.567	0	0.0231	1	13.9	1	0.977	0	44.6	1
U18-SED21	0.5	12/28/2011	0.00751	0	0.00751	0	2.11	0	41.7	1	0.976	0	0.976	0	0.704	0	0.03	0	10.3	1	0.976	0	10.3	1
U21-SED20	0.5	12/28/2011	0.00997	1	0.00732	0	2.78	1	70.8	1	1.79	1	1.34	1	0.817	1	0.0685	1	10.4	1	1.91	1	11.6	1
U4-SED29	0.5	12/29/2011	0.00631	0	0.00631	0	2.59	1	44.6	1	0.425	0	0.425	0	0.587	0	0.0252	0	5.8	1	0.425	0	11.4	1
W5-SED30	0.5	12/29/2011	0.00648	1	0.00633	0	1.94	1	44.8	1	0.445	1	0.435	1	0.575	0	0.0253	0	11.2	1	0.471	1	11.5	1

ProUCL Input: Site-wide Sediment

sys_loc_code	end_depth	sample_date	Fluoranthene	D_Fluoranthene	Lead	D_Lead	Mercury	D_Mercury	Nickel	D_Nickel	Phenanthrene	D_Phenanthrene	Pyrene	D_Pyrene	Total DDx	D_Total DDx	Total High Molecular	D_Total High Molecular	Total Low Molecular	D_Total Low Molecular	Total PAHs	D_Total PAHs	Vanadium	D_Vanadium	Zinc	D_Zinc
A29-SED	0.5	7/19/2012	0.741	1	138	1	0.241	1	39.1	1	0.639	0	0.648	1	0.0296	0	0.648	1	0.741	1	1.39	1	55.9	1	326	1
AB6-SED32	0.5	12/29/2011	3.4	1	9.02	1	0.0375	0	7.49	1	1.77	1	2.68	1	0.0104	0	10.4	1	5.74	1	16.1	1	17.5	1	38	1
AG7-SED34	0.5	12/29/2011	0.622	1	8.23	1	0.0374	0	127	1	0.409	0	0.513	1	0.00993	0	0.513	1	0.622	1	1.13	1	13.2	1	35	1
AL8-SED36	0.5	12/29/2011	0.608	1	9.93	1	0.0385	0	5.42	1	0.444	0	0.648	1	0.0109	0	0.648	1	0.608	1	1.26	1	15.7	1	32	1
AQ9-SED38	0.5	12/29/2011	0.85	1	10.3	1	0.0403	0	6.73	1	0.48	0	0.694	1	0.0115	0	0.694	1	0.85	1	1.54	1	13.8	1	34	1
B29-SED05	0.5	12/27/2011	1.34	0	182	1	0.29	1	38.7	1	1.34	0	1.34	0	0.0321	0	1.34	0	1.34	0	1.34	0	55.3	1	409	1
B31-SED	0.5	7/19/2012	1.56	1	162	1	0.268	1	45.3	1	0.98	0	1.49	1	0.0479	0	1.49	1	1.56	1	3.05	1	66.4	1	442	1
C28-SED10	0.5	12/27/2011	1.74	0	340	1	0.553	1	52.4	1	1.74	0	1.74	0	0.147	1	1.74	0	1.74	0	1.74	0	74.1	1	591	1
C29-SED04	0.5	12/27/2011	1.93	0	179	1	0.205	1	42.6	1	1.93	0	1.93	0	0.172	1	1.93	0	1.93	0	1.93	0	65.9	1	475	1
C31-SED	0.5	7/19/2012	1.31	1	143	1	0.262	1	41.1	1	0.877	0	1.14	1	0.0407	0	1.14	1	1.31	1	2.45	1	59	1	395	1
D27-SED14	0.5	12/27/2011	1.72	0	335	1	0.537	1	46.9	1	1.72	0	1.72	0	0.0706	1	1.72	0	1.72	0	1.72	0	66	1	527	1
D28-SED08	0.5	12/28/2011	5.11	1	188	1	0.356	1	44.9	1	3.89	0	3.89	0	0.0645	1	3.89	0	5.11	1	5.11	1	66.5	1	511	1
D29-SED03	0.5	12/28/2011	5.93	1	169	1	0.284	1	42.5	1	3.53	0	4.69	1	0.0504	1	4.69	1	5.93	1	10.6	1	62.9	1	472	1
E29-SED	0.5	7/19/2012	0.697	0	324	1	0.481	1	48.6	1	0.697	0	0.697	0	0.382	1	0.697	0	0.697	0	0.697	0	68.7	1	433	1
E30-SED	0.5	7/19/2012	0.81	1	99.5	1	0.164	1	29.1	1	0.627	0	0.695	1	0.0299	0	0.695	1	0.81	1	1.5	1	41.3	1	274	1
F27-SED13	0.5	12/28/2011	3.1	1	174	1	0.332	1	41.2	1	2.79	0	2.79	0	0.103	1	2.79	0	3.1	1	3.1	1	57.9	1	471	1
F28A-SED	0.5	7/19/2012	0.328	1	84	1	0.203	1	21.8	1	0.36	0	0.36	0	0.017	0	0.36	0	0.328	1	0.328	1	30.2	1	179	1
F28-SED08	0.5	12/28/2011	5.32	1	125	1	0.258	1	32	1	2.04	1	4.44	1	0.0442	1	9.15	1	7.36	1	16.5	1	43.9	1	346	1
F29-SED02	0.5	12/28/2011	2.87	0	129	1	0.193	1	30	1	2.87	0	2.87	0	0.0356	1	2.87	0	2.87	0	2.87	0	43.2	1	355	1
G27-SED12	0.5	12/28/2011	2.41	1	17	1	0.111	1	8.58	1	1.06	1	2.08	1	0.00995	1	3.04	1	3.47	1	6.51	1	12.1	1	61	1
G28-SED07	0.5	12/28/2011	1.56	1	198	1	0.398	1	42.9	1	1.49	0	1.49	0	0.05	1	1.49	0	1.56	1	1.56	1	58.9	1	457	1
G29-SED01	0.5	12/28/2011	2.5	0	136	1	0.301	1	35.3	1	2.5	0	2.5	0	0.0355	1	2.5	0	2.5	0	2.5	0	52.2	1	326	1
H27-SED11	0.5	12/28/2011	0.941	0	15.6	1	0.0413	0	7.86	1	0.941	0	0.941	0	0.0105	1	0.941	0	0.941	0	0.941	0	12.5	1	53	1
H28-SED06	0.5	12/28/2011	2.41	1	220	1	0.377	1	45.1	1	2.11	0	2.11	0	0.0507	0	2.11	0	7.21	1	7.21	1	67.4	1	507	1
I26-SED15	0.5	12/28/2011	0.449	0	13.7	1	0.0402	0	6.47	1	0.449	0	0.449	0	0.00807	1	0.449	0	0.449	0	0.449	0	9.05	1	33	1
L25-SED16	0.5	12/28/2011	0.838	0	8.53	1	0.0373	0	6.58	1	0.838	0	0.838	0	0.00759	1	0.838	0	0.838	0	0.838	0	11.7	1	35	1
N24-SED	0.5	7/19/2012	1.76	1	24.5	1	0.0347	0	7.75	1	1.07	1	1.43	1	0.0123	1	1.43	1	2.83	1	4.26	1	14	1	42	1
N24-SED17	0.5	12/28/2011	0.547	0	16.6	1	0.049	0	6.72	1	0.547	0	0.547	0	0.0104	1	0.547	0	0.547	0	0.547	0	16.2	1	46	1
O11-SED24	0.5	12/29/2011	1.44	1	14	1	0.0366	0	7.31	1	0.811	1	1.19	1	0.00952	0	3.81	1	2.25	1	6.06	1	13.3	1	30	1
O14-SED24	0.5	12/29/2011	1.92	1	13.7	1	0.0426	0	10.6	1	0.773	1	1.52	1	0.0219	1	5.23	1	2.69	1	7.92	1	16.3	1	49	1
OUT-NEW-SED	0.5	7/19/2012	0.566	0	58.2	1	0.115	1	19.5	1	0.566	0	0.566	0	0.0268	0	0.566	0	0.566	0	0.566	0	40.1	1	200	1
P23-SED18	0.5	12/28/2011	0.453	0	9.03	1	0.0401	0	6.64	1	0.453	0	0.453	0	0.00712	1	0.453	0	0.453	0	0.453	0	7.92	1	29	1
P7-SED27	0.5	12/29/2011	1.29	1	22.5	1	0.0403	0	8	1	0.579	1	1.07	1	0.0273	1	3.35	1	1.87	1	5.21	1	14.2	1	51	1
Q16-SED23	0.5	12/29/2011	0.48	0	12.6	1	0.0427	0	15.9	1	0.48	0	0.48	0	0.00941	1	0.48	0	0.48	0	0.48	0	14.1	1	36	1
R22-SED19	0.5	12/28/2011	1.29	1	11.3	1	0.0419	0	5.81	1	0.932	0	0.932	0	0.00806	1	0.932	0	1.29	1	1.29	1	11	1	43	1
S17-SED22	0.5	12/28/2011	0.48	0	10.6	1	0.0391	0	6.26	1	0.48	0	0.48	0	0.0113	0	0.48	0	0.48	0	0.48	0	12.6	1	41	1
T20-SED	0.5	7/19/2012	0.977	0	15.2	1	0.0323	0	10.4	1	0.977	0	0.977	0	0.00747	1	0.977	0	0.977	0	0.977	0	18.1	1	45	1
U18-SED21	0.5	12/28/2011	0.976	0	14.2	1	0.0416	0	7.43	1	0.976	0	0.976	0	0.012	0	0.976	0	0.976	0	0.976	0	14.3	1	44	1
U21-SED20	0.5	12/28/2011	5.27	1	14.6	1	0.0421	0	31.6	1	4.44	1	3.85	1	0.0236	1	11.6	1	10.7	1	22.3	1	13.8	1	55	1
U4-SED29	0.5	12/29/2011	0.425	0	6.96	1	0.0382	0	6.1	1	0.425	0	0.425	0	0.0101	0	0.425	0	0.425	0	0.425	0	9.49	1	28	1
W5-SED30	0.5	12/29/2011	1.01	1	8.54	1	0.0377	0	7.58	1	0.417	0	0.862	1	0.00648	1	2.21	1	1.01	1	3.22	1	13	1	35	1

ProUCL Input: Site-wide Surface Water

sys_loc_code	end_depth	sample_date	Barium	D_Barium	Chlordane	D_Chlordane	Total PAHs	D_Total PAHs	Total Low Molecular Weight PAH	D_Total Low Molecular Weight PAH
A29-SW04		7/18/2012	95	1	0.007	0	0.05	0	0.05	0
AL8-SW06	0.5	12/29/2011	71.6	1			0.05	0	0.05	0
AL9-SW11		7/19/2012	79.8	1	0.027	1	0.05	0	0.05	0
AS10-SW12		7/19/2012	79.8	1	0.027	1	0.05	0	0.05	0
C28-SW02	0.6	12/27/2011	93.6	1			0.05	0	0.05	0
C31-SW03		7/18/2012	106	1	0.007	0	0.065	1	0.065	1
F28A-SW05		7/19/2012	86.9	1	0.03	1	0.16	1	0.092	1
F28-SW01		12/28/2011	71	1			0.05	0	0.05	0
G27A-SW06		7/19/2012	103	1	0.027	1	0.205	1	0.115	1
G27-SW03		12/28/2011	73	1			0.068	1	0.068	1
N24-SW07		7/19/2012	80.4	1	0.027	1	0.05	0	0.05	0
O14A-SW09		7/19/2012	85.8	1	0.018	1	0.11	1	0.056	1
O14-SW04	0.6	12/29/2011	72.7	1			0.05	0	0.05	0
OUT-30-SW02		7/18/2012	92.4	1	0.007	0	0.05	0	0.05	0
OUT-32-SW01		7/18/2012	93.4	1	0.007	0	0.05	0	0.05	0
T20-SW08		7/19/2012	80.3	1	0.021	1	0.05	0	0.05	0
W5A-SW10		7/19/2012	77.2	1	0.027	1	0.05	0	0.05	0
W5-SW05	0.6	12/29/2011	72	1			0.059	1	0.059	1

ProUCL Output

4,4-DDD (p,p)

General Statistics

Number of Valid Data	19	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	15
		Percent Non-Detects	78.95%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0434	Minimum Detected	-3.137
Maximum Detected	0.182	Maximum Detected	-1.704
Mean of Detected	0.0797	Mean of Detected	-2.742
SD of Detected	0.0682	SD of Detected	0.693
Minimum Non-Detect	0.0114	Minimum Non-Detect	-4.474
Maximum Non-Detect	0.0507	Maximum Non-Detect	-2.982

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	18
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	94.74%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.653	Shapiro Wilk Test Statistic	0.679
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0298	Mean	-3.885
SD	0.0388	SD	0.789
95% DL/2 (t) UCL	0.0452	95% H-Stat (DL/2) UCL	0.0432

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-4.428
		SD in Log Scale	0.955
		Mean in Original Scale	0.0229
		SD in Original Scale	0.0411
		95% t UCL	0.0392
		95% Percentile Bootstrap UCL	0.0408
		95% BCA Bootstrap UCL	0.0499
		95% H-UCL	0.0334

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.793	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.101		
nu star	6.345		

A-D Test Statistic	0.872	Nonparametric Statistics	
5% A-D Critical Value	0.66	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.66	Mean	0.0511
5% K-S Critical Value	0.397	SD	0.0309
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.00818
		95% KM (t) UCL	0.0653
Assuming Gamma Distribution		95% KM (z) UCL	0.0645
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0623
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.303
Maximum	0.182	95% KM (BCA) UCL	0.182
Mean	0.0168	95% KM (Percentile Bootstrap) UCL	0.0728
Median	1.00E-06	95% KM (Chebyshev) UCL	0.0867
SD	0.0435	97.5% KM (Chebyshev) UCL	0.102
k star	0.127	99% KM (Chebyshev) UCL	0.132
Theta star	0.133		
Nu star	4.81	Potential UCLs to Use	
AppChi2	1.065	95% KM (t) UCL	0.0653
95% Gamma Approximate UCL (Use when n >= 40)	0.0758	95% KM (% Bootstrap) UCL	0.0728
95% Adjusted Gamma UCL (Use when n < 40)	N/A		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

alpha-Chlordane

General Statistics

Number of Valid Data	19	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	13
		Percent Non-Detects	68.42%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0267	Minimum Detected	-3.623
Maximum Detected	0.0881	Maximum Detected	-2.429
Mean of Detected	0.0432	Mean of Detected	-3.237
SD of Detected	0.0233	SD of Detected	0.453
Minimum Non-Detect	0.00713	Minimum Non-Detect	-4.943
Maximum Non-Detect	0.0317	Maximum Non-Detect	-3.451

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	84.21%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.757	Shapiro Wilk Test Statistic	0.848
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0206	Mean	-4.228
SD	0.0203	SD	0.839
95% DL/2 (t) UCL	0.0287	95% H-Stat (DL/2) UCL	0.0333

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.167
		SD in Log Scale	0.701
		Mean in Original Scale	0.0206
		SD in Original Scale	0.02
		95% t UCL	0.0286
		95% Percentile Bootstrap UCL	0.0283
		95% BCA Bootstrap UCL	0.0301
		95% H-UCL	0.0286

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.798	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.0155		
nu star	33.57		

		Nonparametric Statistics	
A-D Test Statistic	0.573		
5% A-D Critical Value	0.698	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.698	Mean	0.0319
5% K-S Critical Value	0.333	SD	0.0142
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.00357
		95% KM (t) UCL	0.0381
Assuming Gamma Distribution		95% KM (z) UCL	0.0378
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0374
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.0464
Maximum	0.0881	95% KM (BCA) UCL	0.0455
Mean	0.0137	95% KM (Percentile Bootstrap) UCL	0.0424
Median	1.00E-06	95% KM (Chebyshev) UCL	0.0475
SD	0.024	97.5% KM (Chebyshev) UCL	0.0542
k star	0.142	99% KM (Chebyshev) UCL	0.0675
Theta star	0.096		
Nu star	5.406	Potential UCLs to Use	
AppChi2	1.344	95% KM (t) UCL	0.0381
95% Gamma Approximate UCL (Use when n >= 40)	0.0549		
95% Adjusted Gamma UCL (Use when n < 40)	0.0627		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	18

Raw Statistics		Log-transformed Statistics	
Minimum	2.43	Minimum of Log Data	0.888
Maximum	17.4	Maximum of Log Data	2.856
Mean	11.18	Mean of log Data	2.334
Geometric Mean	10.32	SD of log Data	0.465
Median	11.2		
SD	3.785		
Std. Error of Mean	0.868		
Coefficient of Variation	0.339		
Skewness	-0.676		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.957	Shapiro Wilk Test Statistic	0.818
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	12.69	95% H-UCL	14.27
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16.9
95% Adjusted-CLT UCL (Chen-1995)	12.46	97.5% Chebyshev (MVUE) UCL	19.26
95% Modified-t UCL (Johnson-1978)	12.66	99% Chebyshev (MVUE) UCL	23.92

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	5.417	Data appear Normal at 5% Significance Level	
Theta Star	2.064		
MLE of Mean	11.18		
MLE of Standard Deviation	4.804		
nu star	205.8		
Approximate Chi Square Value (.05)	173.6	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	12.61
Adjusted Chi Square Value	171.1	95% Jackknife UCL	12.69
		95% Standard Bootstrap UCL	12.55
Anderson-Darling Test Statistic	0.827	95% Bootstrap-t UCL	12.52
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL	12.54
Kolmogorov-Smirnov Test Statistic	0.202	95% Percentile Bootstrap UCL	12.53
Kolmogorov-Smirnov 5% Critical Value	0.199	95% BCA Bootstrap UCL	12.42
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	14.97
		97.5% Chebyshev(Mean, Sd) UCL	16.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	19.82
95% Approximate Gamma UCL (Use when n >= 40)	13.25		
95% Adjusted Gamma UCL (Use when n < 40)	13.45		

Potential UCL to Use	Use 95% Student's-t UCL	12.69

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). For additional insight, the user may want to consult a statistician.

Note: For highly negative-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.

Barium

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	18

Raw Statistics		Log-transformed Statistics	
Minimum	45.5	Minimum of Log Data	3.818
Maximum	476	Maximum of Log Data	6.165
Mean	326.6	Mean of log Data	5.639
Geometric Mean	281.1	SD of log Data	0.683
Median	347		
SD	131.3		
Std. Error of Mean	30.11		
Coefficient of Variation	0.402		
Skewness	-1.004		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.89	Shapiro Wilk Test Statistic	0.708
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	378.8	95% H-UCL	506
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	603.6
95% Adjusted-CLT UCL (Chen-1995)	368.7	97.5% Chebyshev (MVUE) UCL	713.4
95% Modified-t UCL (Johnson-1978)	377.6	99% Chebyshev (MVUE) UCL	929.1

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.976	Data do not follow a Discernable Distribution (0.05)	
Theta Star	109.7		
MLE of Mean	326.6		
MLE of Standard Deviation	189.3		
nu star	113.1		
Approximate Chi Square Value (.05)	89.56	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	376.1
Adjusted Chi Square Value	87.72	95% Jackknife UCL	378.8
		95% Standard Bootstrap UCL	373
Anderson-Darling Test Statistic	1.601	95% Bootstrap-t UCL	371.8
Anderson-Darling 5% Critical Value	0.747	95% Hall's Bootstrap UCL	369
Kolmogorov-Smirnov Test Statistic	0.243	95% Percentile Bootstrap UCL	373
Kolmogorov-Smirnov 5% Critical Value	0.2	95% BCA Bootstrap UCL	367.3
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	457.8
		97.5% Chebyshev(Mean, Sd) UCL	514.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	626.2
95% Approximate Gamma UCL (Use when n >= 40)	412.4		
95% Adjusted Gamma UCL (Use when n < 40)	421		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	457.8

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). For additional insight, the user may want to consult a statistician.

Note: For highly negative-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.

Cadmium

General Statistics

Number of Valid Data	19	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	7
		Percent Non-Detects	36.84%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.12	Minimum Detected	0.751
Maximum Detected	3.9	Maximum Detected	1.361
Mean of Detected	2.905	Mean of Detected	1.052
SD of Detected	0.513	SD of Detected	0.178
Minimum Non-Detect	0.645	Minimum Non-Detect	-0.439
Maximum Non-Detect	2.54	Maximum Non-Detect	0.932

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	9
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	52.63%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.982	Shapiro Wilk Test Statistic	0.984
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.109	Mean	0.51
SD	1.163	SD	0.809
95% DL/2 (t) UCL	2.572	95% H-Stat (DL/2) UCL	3.617

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.513	Mean in Log Scale	0.898
SD	0.696	SD in Log Scale	0.251
95% MLE (t) UCL	2.79	Mean in Original Scale	2.529
95% MLE (Tiku) UCL	2.864	SD in Original Scale	0.647
		95% t UCL	2.786
		95% Percentile Bootstrap UCL	2.779
		95% BCA Bootstrap UCL	2.783
		95% H UCL	2.818

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	26.25	Data appear Normal at 5% Significance Level
Theta Star	0.111	
nu star	630.1	

		Nonparametric Statistics	
A-D Test Statistic	0.134		
5% A-D Critical Value	0.731	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.731	Mean	2.619
5% K-S Critical Value	0.245	SD	0.542
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.13
		95% KM (t) UCL	2.844
Assuming Gamma Distribution		95% KM (z) UCL	2.833
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.826
Minimum	0.909	95% KM (bootstrap t) UCL	2.862
Maximum	3.9	95% KM (BCA) UCL	2.958
Mean	2.213	95% KM (Percentile Bootstrap) UCL	2.895
Median	2.51	95% KM (Chebyshev) UCL	3.186
SD	1.022	97.5% KM (Chebyshev) UCL	3.431
k star	3.492	99% KM (Chebyshev) UCL	3.913
Theta star	0.634		
Nu star	132.7	Potential UCLs to Use	
AppChi2	107.1	95% KM (t) UCL	2.844
95% Gamma Approximate UCL (Use when n >= 40)	2.742	95% KM (Percentile Bootstrap) UCL	2.895
95% Adjusted Gamma UCL (Use when n < 40)	2.794		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chlordane

General Statistics

Number of Valid Data	19	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	7
		Percent Non-Detects	36.84%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0352	Minimum Detected	-3.347
Maximum Detected	0.371	Maximum Detected	-0.992
Mean of Detected	0.169	Mean of Detected	-1.951
SD of Detected	0.0979	SD of Detected	0.653
Minimum Non-Detect	0.0424	Minimum Non-Detect	-3.161
Maximum Non-Detect	0.127	Maximum Non-Detect	-2.064

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	8
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	57.89%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.903	Shapiro Wilk Test Statistic	0.926
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.122	Mean	-2.417
SD	0.0993	SD	0.832
95% DL/2 (t) UCL	0.162	95% H-Stat (DL/2) UCL	0.201

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0957	Mean in Log Scale	-2.345
SD	0.13	SD in Log Scale	0.739
95% MLE (t) UCL	0.147	Mean in Original Scale	0.125
95% MLE (Tiku) UCL	0.166	SD in Original Scale	0.0969
		95% t UCL	0.163
		95% Percentile Bootstrap UCL	0.163
		95% BCA Bootstrap UCL	0.17
		95% H UCL	0.187

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.353	Data appear Normal at 5% Significance Level
Theta Star	0.0717	
nu star	56.46	

		Nonparametric Statistics	
A-D Test Statistic	0.41		
5% A-D Critical Value	0.739	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.739	Mean	0.123
5% K-S Critical Value	0.247	SD	0.0962
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0233
		95% KM (t) UCL	0.163
Assuming Gamma Distribution		95% KM (z) UCL	0.161
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.161
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.175
Maximum	0.371	95% KM (BCA) UCL	0.18
Mean	0.112	95% KM (Percentile Bootstrap) UCL	0.172
Median	0.117	95% KM (Chebyshev) UCL	0.224
SD	0.108	97.5% KM (Chebyshev) UCL	0.268
k star	0.522	99% KM (Chebyshev) UCL	0.354
Theta star	0.215		
Nu star	19.84	Potential UCLs to Use	
AppChi2	10.73	95% KM (t) UCL	0.163
95% Gamma Approximate UCL (Use when n >= 40)	0.208	95% KM (Percentile Bootstrap) UCL	0.172
95% Adjusted Gamma UCL (Use when n < 40)	0.219		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	17

Raw Statistics		Log-transformed Statistics	
Minimum	10.7	Minimum of Log Data	2.37
Maximum	72.1	Maximum of Log Data	4.278
Mean	51.18	Mean of log Data	3.831
Geometric Mean	46.09	SD of log Data	0.558
Median	56.9		
SD	17.65		
Std. Error of Mean	4.049		
Coefficient of Variation	0.345		
Skewness	-1.371		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.839	Shapiro Wilk Test Statistic	0.671
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	58.2	95% H-UCL	70.63
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	84.37
95% Adjusted-CLT UCL (Chen-1995)	56.48	97.5% Chebyshev (MVUE) UCL	97.8
95% Modified-t UCL (Johnson-1978)	57.99	99% Chebyshev (MVUE) UCL	124.2

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	4.187	Data do not follow a Discernable Distribution (0.05)	
Theta Star	12.22		
MLE of Mean	51.18		
MLE of Standard Deviation	25.01		
nu star	159.1		
Approximate Chi Square Value (.05)	131	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	57.84
Adjusted Chi Square Value	128.7	95% Jackknife UCL	58.2
		95% Standard Bootstrap UCL	57.55
Anderson-Darling Test Statistic	2.064	95% Bootstrap-t UCL	56.91
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL	56.72
Kolmogorov-Smirnov Test Statistic	0.279	95% Percentile Bootstrap UCL	57.22
Kolmogorov-Smirnov 5% Critical Value	0.199	95% BCA Bootstrap UCL	56.75
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	68.83
		97.5% Chebyshev(Mean, Sd) UCL	76.46
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	91.47
95% Approximate Gamma UCL (Use when n >= 40)	62.19		
95% Adjusted Gamma UCL (Use when n < 40)	63.26		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	68.83

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). For additional insight, the user may want to consult a statistician.

Note: For highly negative-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.

Copper

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	18

Raw Statistics		Log-transformed Statistics	
Minimum	11.6	Minimum of Log Data	2.451
Maximum	213	Maximum of Log Data	5.361
Mean	133.4	Mean of log Data	4.704
Geometric Mean	110.4	SD of log Data	0.823
Median	149		
SD	53.9		
Std. Error of Mean	12.37		
Coefficient of Variation	0.404		
Skewness	-1.107		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.898	Shapiro Wilk Test Statistic	0.627
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	154.8	95% H-UCL	245.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	286.5
95% Adjusted-CLT UCL (Chen-1995)	150.4	97.5% Chebyshev (MVUE) UCL	345
95% Modified-t UCL (Johnson-1978)	154.3	99% Chebyshev (MVUE) UCL	459.8

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.388	Data do not follow a Discernable Distribution (0.05)	
Theta Star	55.86		
MLE of Mean	133.4		
MLE of Standard Deviation	86.32		
nu star	90.73		
Approximate Chi Square Value (.05)	69.76	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	153.7
Adjusted Chi Square Value	68.16	95% Jackknife UCL	154.8
		95% Standard Bootstrap UCL	153.3
Anderson-Darling Test Statistic	2.14	95% Bootstrap-t UCL	151.8
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	151.1
Kolmogorov-Smirnov Test Statistic	0.265	95% Percentile Bootstrap UCL	151.9
Kolmogorov-Smirnov 5% Critical Value	0.2	95% BCA Bootstrap UCL	149.7
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	187.3
		97.5% Chebyshev(Mean, Sd) UCL	210.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	256.4
95% Approximate Gamma UCL (Use when n >= 40)	173.5		
95% Adjusted Gamma UCL (Use when n < 40)	177.5		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	187.3

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). For additional insight, the user may want to consult a statistician.

Note: For highly negative-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.

Fluoranthene

General Statistics

Number of Valid Data	19	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	8
		Percent Non-Detects	42.11%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.328	Minimum Detected	-1.115
Maximum Detected	5.93	Maximum Detected	1.78
Mean of Detected	2.639	Mean of Detected	0.642
SD of Detected	1.991	SD of Detected	0.925
Minimum Non-Detect	0.697	Minimum Non-Detect	-0.361
Maximum Non-Detect	2.87	Maximum Non-Detect	1.054

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	78.95%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.89	Shapiro Wilk Test Statistic	0.945
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.889	Mean	0.269
SD	1.753	SD	0.875
95% DL/2 (t) UCL	2.587	95% H-Stat (DL/2) UCL	3.174

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.397	Mean in Log Scale	0.2
SD	3.169	SD in Log Scale	0.893
95% MLE (t) UCL	1.657	Mean in Original Scale	1.818
95% MLE (Tiku) UCL	3.273	SD in Original Scale	1.787
		95% t UCL	2.529
		95% Percentile Bootstrap UCL	2.506
		95% BCA Bootstrap UCL	2.708
		95% H UCL	3.057

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.275	Data appear Normal at 5% Significance Level
Theta Star	2.069	
nu star	28.06	

		Nonparametric Statistics	
A-D Test Statistic	0.26		
5% A-D Critical Value	0.741	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.741	Mean	1.844
5% K-S Critical Value	0.259	SD	1.752
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.432
		95% KM (t) UCL	2.592
Assuming Gamma Distribution		95% KM (z) UCL	2.553
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.558
Minimum	1.00E-06	95% KM (bootstrap t) UCL	2.723
Maximum	5.93	95% KM (BCA) UCL	2.641
Mean	1.775	95% KM (Percentile Bootstrap) UCL	2.611
Median	1.106	95% KM (Chebyshev) UCL	3.725
SD	1.832	97.5% KM (Chebyshev) UCL	4.539
k star	0.477	99% KM (Chebyshev) UCL	6.138
Theta star	3.721		
Nu star	18.13	Potential UCLs to Use	
AppChi2	9.485	95% KM (t) UCL	2.592
95% Gamma Approximate UCL (Use when n >= 40)	3.394	95% KM (Percentile Bootstrap) UCL	2.611
95% Adjusted Gamma UCL (Use when n < 40)	3.6		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	19

Raw Statistics		Log-transformed Statistics	
Minimum	15.6	Minimum of Log Data	2.747
Maximum	340	Maximum of Log Data	5.829
Mean	168.2	Mean of log Data	4.901
Geometric Mean	134.5	SD of log Data	0.833
Median	169		
SD	91.24		
Std. Error of Mean	20.93		
Coefficient of Variation	0.542		
Skewness	0.451		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.925	Shapiro Wilk Test Statistic	0.782
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	204.5	95% H-UCL	304
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	354.3
95% Adjusted-CLT UCL (Chen-1995)	205	97.5% Chebyshev (MVUE) UCL	427.1
95% Modified-t UCL (Johnson-1978)	204.9	99% Chebyshev (MVUE) UCL	570.2

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.044	Data appear Normal at 5% Significance Level	
Theta Star	82.28		
MLE of Mean	168.2		
MLE of Standard Deviation	117.6		
nu star	77.69		
Approximate Chi Square Value (.05)	58.38	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	202.6
Adjusted Chi Square Value	56.92	95% Jackknife UCL	204.5
		95% Standard Bootstrap UCL	202
Anderson-Darling Test Statistic	0.913	95% Bootstrap-t UCL	208.6
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	209.1
Kolmogorov-Smirnov Test Statistic	0.204	95% Percentile Bootstrap UCL	201.5
Kolmogorov-Smirnov 5% Critical Value	0.201	95% BCA Bootstrap UCL	201.1
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	259.5
		97.5% Chebyshev(Mean, Sd) UCL	298.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	376.5
95% Approximate Gamma UCL (Use when n >= 40)	223.8		
95% Adjusted Gamma UCL (Use when n < 40)	229.6		

Potential UCL to Use	Use 95% Student's-t UCL	204.5

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). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	19	Number of Detected Data	18
Number of Distinct Detected Data	18	Number of Non-Detect Data	1
		Percent Non-Detects	5.26%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.111	Minimum Detected	-2.198
Maximum Detected	0.553	Maximum Detected	-0.592
Mean of Detected	0.308	Mean of Detected	-1.257
SD of Detected	0.124	SD of Detected	0.42
Minimum Non-Detect	0.0413	Minimum Non-Detect	-3.187
Maximum Non-Detect	0.0413	Maximum Non-Detect	-3.187

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.951	Shapiro Wilk Test Statistic	0.978
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.293	Mean	-1.395
SD	0.138	SD	0.727
95% DL/2 (t) UCL	0.348	95% H-Stat (DL/2) UCL	0.475

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.291	Mean in Log Scale	-1.311
SD	0.138	SD in Log Scale	0.472
95% MLE (t) UCL	0.346	Mean in Original Scale	0.297
95% MLE (Tiku) UCL	0.347	SD in Original Scale	0.13
		95% t UCL	0.349
		95% Percentile Bootstrap UCL	0.345
		95% BCA Bootstrap UCL	0.348
		95% H UCL	0.375

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	5.41	Data appear Normal at 5% Significance Level
Theta Star	0.057	
nu star	194.8	

		Nonparametric Statistics	
A-D Test Statistic	0.152		
5% A-D Critical Value	0.742	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.742	Mean	0.298
5% K-S Critical Value	0.204	SD	0.126
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0296
		95% KM (t) UCL	0.349
Assuming Gamma Distribution		95% KM (z) UCL	0.346
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.348
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.353
Maximum	0.553	95% KM (BCA) UCL	0.348
Mean	0.292	95% KM (Percentile Bootstrap) UCL	0.346
Median	0.284	95% KM (Chebyshev) UCL	0.427
SD	0.14	97.5% KM (Chebyshev) UCL	0.483
k star	0.757	99% KM (Chebyshev) UCL	0.593
Theta star	0.386		
Nu star	28.75	Potential UCLs to Use	
AppChi2	17.52	95% KM (t) UCL	0.349
95% Gamma Approximate UCL (Use when n >= 40)	0.479	95% KM (Percentile Bootstrap) UCL	0.346
95% Adjusted Gamma UCL (Use when n < 40)	0.501		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Nickel

General Statistics			
Number of Valid Observations	19	Number of Distinct Observations	19
Raw Statistics		Log-transformed Statistics	
Minimum	7.86	Minimum of Log Data	2.062
Maximum	52.4	Maximum of Log Data	3.959
Mean	36.35	Mean of log Data	3.496
Geometric Mean	32.97	SD of log Data	0.533
Median	41.1		
SD	12.37		
Std. Error of Mean	2.838		
Coefficient of Variation	0.34		
Skewness	-1.275		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.867	Shapiro Wilk Test Statistic	0.698
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	41.27	95% H-UCL	49.08
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	58.54
95% Adjusted-CLT UCL (Chen-1995)	40.13	97.5% Chebyshev (MVUE) UCL	67.57
95% Modified-t UCL (Johnson-1978)	41.13	99% Chebyshev (MVUE) UCL	85.3
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	4.483	Data do not follow a Discernable Distribution (0.05)	
Theta Star	8.109		
MLE of Mean	36.35		
MLE of Standard Deviation	17.17		
nu star	170.3		
Approximate Chi Square Value (.05)	141.2	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	41.02
Adjusted Chi Square Value	138.8	95% Jackknife UCL	41.27
		95% Standard Bootstrap UCL	40.85
Anderson-Darling Test Statistic	1.814	95% Bootstrap-t UCL	40.69
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL	40.42
Kolmogorov-Smirnov Test Statistic	0.246	95% Percentile Bootstrap UCL	40.9
Kolmogorov-Smirnov 5% Critical Value	0.199	95% BCA Bootstrap UCL	40.56
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	48.72
		97.5% Chebyshev(Mean, Sd) UCL	54.07
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	64.59
95% Approximate Gamma UCL (Use when n >= 40)	43.86		
95% Adjusted Gamma UCL (Use when n < 40)	44.6		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	48.72

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). For additional insight, the user may want to consult a statistician.

Note: For highly negative-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.

Pyrene

General Statistics

Number of Valid Data	19	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	13
		Percent Non-Detects	68.42%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.648	Minimum Detected	-0.434
Maximum Detected	4.69	Maximum Detected	1.545
Mean of Detected	2.282	Mean of Detected	0.517
SD of Detected	1.843	SD of Detected	0.881
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	3.89	Maximum Non-Detect	1.358

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	89.47%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.82	Shapiro Wilk Test Statistic	0.878
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.362	Mean	0.0102
SD	1.23	SD	0.786
95% DL/2 (t) UCL	1.852	95% H-Stat (DL/2) UCL	2.118

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.273
		SD in Log Scale	0.763
		Mean in Original Scale	1.095
		SD in Original Scale	1.281
		95% t UCL	1.604
		95% Percentile Bootstrap UCL	1.635
		95% BCA Bootstrap UCL	1.846
		95% H-UCL	1.539

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.997	Data appear Normal at 5% Significance Level
Theta Star	2.29	
nu star	11.96	

		Nonparametric Statistics	
A-D Test Statistic	0.45		
5% A-D Critical Value	0.706	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.706	Mean	1.245
5% K-S Critical Value	0.337	SD	1.203
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.312
		95% KM (t) UCL	1.786
Assuming Gamma Distribution		95% KM (z) UCL	1.758
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.747
Minimum	1.00E-06	95% KM (bootstrap t) UCL	2.021
Maximum	4.69	95% KM (BCA) UCL	2.222
Mean	0.838	95% KM (Percentile Bootstrap) UCL	1.97
Median	0.345	95% KM (Chebyshev) UCL	2.604
SD	1.405	97.5% KM (Chebyshev) UCL	3.193
k star	0.253	99% KM (Chebyshev) UCL	4.348
Theta star	3.311		
Nu star	9.613	Potential UCLs to Use	
AppChi2	3.702	95% KM (t) UCL	1.786
95% Gamma Approximate UCL (Use when n >= 40)	2.175	95% KM (Percentile Bootstrap) UCL	1.97
95% Adjusted Gamma UCL (Use when n < 40)	2.378		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Total DDx

General Statistics

Number of Valid Data	19	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	6
		Percent Non-Detects	31.58%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00995	Minimum Detected	-4.61
Maximum Detected	0.382	Maximum Detected	-0.962
Mean of Detected	0.0904	Mean of Detected	-2.865
SD of Detected	0.1	SD of Detected	1.025
Minimum Non-Detect	0.017	Minimum Non-Detect	-4.075
Maximum Non-Detect	0.0507	Maximum Non-Detect	-2.982

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.42%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.724	Shapiro Wilk Test Statistic	0.958
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0671	Mean	-3.27
SD	0.0891	SD	1.055
95% DL/2 (t) UCL	0.103	95% H-Stat (DL/2) UCL	0.129

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.325
		SD in Log Scale	1.095
		Mean in Original Scale	0.0662
		SD in Original Scale	0.0896
		95% t UCL	0.102
		95% Percentile Bootstrap UCL	0.101
		95% BCA Bootstrap UCL	0.116
		95% H-UCL	0.133

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.992	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.0912		
nu star	25.79		

A-D Test Statistic	0.379	Nonparametric Statistics	
5% A-D Critical Value	0.754	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.754	Mean	0.0662
5% K-S Critical Value	0.242	SD	0.0874
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0209
		95% KM (t) UCL	0.102
Assuming Gamma Distribution		95% KM (z) UCL	0.101
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.102
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.136
Maximum	0.382	95% KM (BCA) UCL	0.111
Mean	0.0623	95% KM (Percentile Bootstrap) UCL	0.104
Median	0.0356	95% KM (Chebyshev) UCL	0.157
SD	0.0922	97.5% KM (Chebyshev) UCL	0.197
k star	0.232	99% KM (Chebyshev) UCL	0.274
Theta star	0.269		
Nu star	8.808	Potential UCLs to Use	
AppChi2	3.211	95% KM (BCA) UCL	0.111
95% Gamma Approximate UCL (Use when n >= 40)	0.171		
95% Adjusted Gamma UCL (Use when n < 40)	0.188		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Total High Molecular

General Statistics

Number of Valid Data	19	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	13
		Percent Non-Detects	68.42%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.648	Minimum Detected	-0.434
Maximum Detected	9.15	Maximum Detected	2.214
Mean of Detected	3.227	Mean of Detected	0.701
SD of Detected	3.307	SD of Detected	1.088
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	3.89	Maximum Non-Detect	1.358

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	89.47%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.835	Shapiro Wilk Test Statistic	0.913
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.661	Mean	0.0683
SD	2.095	SD	0.895
95% DL/2 (t) UCL	2.494	95% H-Stat (DL/2) UCL	2.689

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.312
		SD in Log Scale	0.957
		Mean in Original Scale	1.347
		SD in Original Scale	2.183
		95% t UCL	2.216
		95% Percentile Bootstrap UCL	2.255
		95% BCA Bootstrap UCL	2.658
		95% H-UCL	2.058

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.712	Data appear Normal at 5% Significance Level
Theta Star	4.535	
nu star	8.54	

		Nonparametric Statistics	
A-D Test Statistic	0.349		
5% A-D Critical Value	0.712	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.712	Mean	1.522
5% K-S Critical Value	0.339	SD	2.063
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.522
		95% KM (t) UCL	2.427
Assuming Gamma Distribution		95% KM (z) UCL	2.381
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.362
Minimum	1.00E-06	95% KM (bootstrap t) UCL	3.358
Maximum	9.15	95% KM (BCA) UCL	3.214
Mean	1.019	95% KM (Percentile Bootstrap) UCL	2.765
Median	1.00E-06	95% KM (Chebyshev) UCL	3.798
SD	2.327	97.5% KM (Chebyshev) UCL	4.783
k star	0.11	99% KM (Chebyshev) UCL	6.717
Theta star	9.258		
Nu star	4.183	Potential UCLs to Use	
AppChi2	0.795	95% KM (t) UCL	2.427
95% Gamma Approximate UCL (Use when n >= 40)	5.36	95% KM (Percentile Bootstrap) UCL	2.765
95% Adjusted Gamma UCL (Use when n < 40)	6.28		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Total Low Molecular

General Statistics

Number of Valid Data	19	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	8
		Percent Non-Detects	42.11%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.328	Minimum Detected	-1.115
Maximum Detected	7.36	Maximum Detected	1.996
Mean of Detected	3.357	Mean of Detected	0.804
SD of Detected	2.656	SD of Detected	1.052
Minimum Non-Detect	0.697	Minimum Non-Detect	-0.361
Maximum Non-Detect	2.87	Maximum Non-Detect	1.054

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.42%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.888	Shapiro Wilk Test Statistic	0.923
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.305	Mean	0.363
SD	2.362	SD	0.993
95% DL/2 (t) UCL	3.245	95% H-Stat (DL/2) UCL	4.327

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.204	Mean in Log Scale	0.277
SD	3.622	SD in Log Scale	1.03
95% MLE (t) UCL	2.645	Mean in Original Scale	2.223
95% MLE (Tiku) UCL	3.599	SD in Original Scale	2.408
		95% t UCL	3.181
		95% Percentile Bootstrap UCL	3.236
		95% BCA Bootstrap UCL	3.226
		95% H UCL	4.267

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.058	Data appear Normal at 5% Significance Level	
Theta Star	3.172		
nu star	23.29		

A-D Test Statistic	0.351	Nonparametric Statistics	
5% A-D Critical Value	0.745	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.745	Mean	2.233
5% K-S Critical Value	0.26	SD	2.35
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.571
		95% KM (t) UCL	3.224
Assuming Gamma Distribution		95% KM (z) UCL	3.173
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.178
Minimum	1.00E-06	95% KM (bootstrap t) UCL	3.459
Maximum	7.36	95% KM (BCA) UCL	3.329
Mean	2.122	95% KM (Percentile Bootstrap) UCL	3.226
Median	0.741	95% KM (Chebyshev) UCL	4.723
SD	2.484	97.5% KM (Chebyshev) UCL	5.8
k star	0.328	99% KM (Chebyshev) UCL	7.916
Theta star	6.476		
Nu star	12.45	Potential UCLs to Use	
AppChi2	5.525	95% KM (t) UCL	3.224
95% Gamma Approximate UCL (Use when n >= 40)	4.781	95% KM (Percentile Bootstrap) UCL	3.226
95% Adjusted Gamma UCL (Use when n < 40)	5.154		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Total PAHs

General Statistics

Number of Valid Data	19	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	8
		Percent Non-Detects	42.11%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.328	Minimum Detected	-1.115
Maximum Detected	16.5	Maximum Detected	2.803
Mean of Detected	5.114	Mean of Detected	1.158
SD of Detected	4.896	SD of Detected	1.12
Minimum Non-Detect	0.697	Minimum Non-Detect	-0.361
Maximum Non-Detect	2.87	Maximum Non-Detect	1.054

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	6
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	68.42%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.852	Shapiro Wilk Test Statistic	0.964
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.322	Mean	0.568
SD	4.246	SD	1.136
95% DL/2 (t) UCL	5.012	95% H-Stat (DL/2) UCL	7.141

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.436
		SD in Log Scale	1.227
		Mean in Original Scale	3.215
		SD in Original Scale	4.309
		95% t UCL	4.929
		95% Percentile Bootstrap UCL	4.9
		95% BCA Bootstrap UCL	5.279
		95% H-UCL	7.693

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.929	Data appear Normal at 5% Significance Level
Theta Star	5.508	
nu star	20.43	

		Nonparametric Statistics	
A-D Test Statistic	0.206		
5% A-D Critical Value	0.748	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.748	Mean	3.245
5% K-S Critical Value	0.261	SD	4.19
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.013
		95% KM (t) UCL	5.002
Assuming Gamma Distribution		95% KM (z) UCL	4.911
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.836
Minimum	1.00E-06	95% KM (bootstrap t) UCL	6.112
Maximum	16.5	95% KM (BCA) UCL	5.681
Mean	2.961	95% KM (Percentile Bootstrap) UCL	5.11
Median	1.39	95% KM (Chebyshev) UCL	7.661
SD	4.477	97.5% KM (Chebyshev) UCL	9.572
k star	0.141	99% KM (Chebyshev) UCL	13.32
Theta star	20.93		
Nu star	5.377	Potential UCLs to Use	
AppChi2	1.33	95% KM (t) UCL	5.002
95% Gamma Approximate UCL (Use when n >= 40)	11.97	95% KM (Percentile Bootstrap) UCL	5.11
95% Adjusted Gamma UCL (Use when n < 40)	13.67		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	19

Raw Statistics		Log-transformed Statistics	
Minimum	12.1	Minimum of Log Data	2.493
Maximum	74.1	Maximum of Log Data	4.305
Mean	52.31	Mean of log Data	3.861
Geometric Mean	47.52	SD of log Data	0.524
Median	57.9		
SD	17.89		
Std. Error of Mean	4.105		
Coefficient of Variation	0.342		
Skewness	-1.23		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.863	Shapiro Wilk Test Statistic	0.707
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	59.43	95% H-UCL	70.08
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	83.53
95% Adjusted-CLT UCL (Chen-1995)	57.83	97.5% Chebyshev (MVUE) UCL	96.28
95% Modified-t UCL (Johnson-1978)	59.24	99% Chebyshev (MVUE) UCL	121.3

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	4.553	Data do not follow a Discernable Distribution (0.05)	
Theta Star	11.49		
MLE of Mean	52.31		
MLE of Standard Deviation	24.52		
nu star	173		
Approximate Chi Square Value (.05)	143.6	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	59.06
Adjusted Chi Square Value	141.3	95% Jackknife UCL	59.43
		95% Standard Bootstrap UCL	58.79
Anderson-Darling Test Statistic	1.737	95% Bootstrap-t UCL	58.35
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL	57.88
Kolmogorov-Smirnov Test Statistic	0.24	95% Percentile Bootstrap UCL	58.59
Kolmogorov-Smirnov 5% Critical Value	0.199	95% BCA Bootstrap UCL	58.05
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	70.2
		97.5% Chebyshev(Mean, Sd) UCL	77.95
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	93.16
95% Approximate Gamma UCL (Use when n >= 40)	63.03		
95% Adjusted Gamma UCL (Use when n < 40)	64.07		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	70.2

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). For additional insight, the user may want to consult a statistician.

Note: For highly negative-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.

Zinc

General Statistics			
Number of Valid Observations	19	Number of Distinct Observations	18
Raw Statistics		Log-transformed Statistics	
Minimum	52.9	Minimum of Log Data	3.968
Maximum	591	Maximum of Log Data	6.382
Mean	377.2	Mean of log Data	5.786
Geometric Mean	325.9	SD of log Data	0.676
Median	409		
SD	149.6		
Std. Error of Mean	34.33		
Coefficient of Variation	0.397		
Skewness	-1.001		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.907	Shapiro Wilk Test Statistic	0.707
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	436.8	95% H-UCL	580.5
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	692.9
95% Adjusted-CLT UCL (Chen-1995)	425.3	97.5% Chebyshev (MVUE) UCL	818.1
95% Modified-t UCL (Johnson-1978)	435.5	99% Chebyshev (MVUE) UCL	1064
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.044	Data appear Normal at 5% Significance Level	
Theta Star	123.9		
MLE of Mean	377.2		
MLE of Standard Deviation	216.2		
nu star	115.7		
Approximate Chi Square Value (.05)	91.84	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	433.7
Adjusted Chi Square Value	89.98	95% Jackknife UCL	436.8
		95% Standard Bootstrap UCL	430.5
Anderson-Darling Test Statistic	1.635	95% Bootstrap-t UCL	427.2
Anderson-Darling 5% Critical Value	0.746	95% Hall's Bootstrap UCL	426.2
Kolmogorov-Smirnov Test Statistic	0.254	95% Percentile Bootstrap UCL	428.3
Kolmogorov-Smirnov 5% Critical Value	0.2	95% BCA Bootstrap UCL	425.5
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	526.9
		97.5% Chebyshev(Mean, Sd) UCL	591.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	718.8
95% Approximate Gamma UCL (Use when n >= 40)	475.1		
95% Adjusted Gamma UCL (Use when n < 40)	484.9		
Potential UCL to Use		Use 95% Student's-t UCL	436.8

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). For additional insight, the user may want to consult a statistician.

Note: For highly negative-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.

4,4-DDE (p,p)

General Statistics			
Number of Valid Data	41	Number of Detected Data	25
Number of Distinct Detected Data	25	Number of Non-Detect Data	16
		Percent Non-Detects	39.02%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00648	Minimum Detected	-5.039
Maximum Detected	0.164	Maximum Detected	-1.808
Mean of Detected	0.0372	Mean of Detected	-3.846
SD of Detected	0.0417	SD of Detected	1.059
Minimum Non-Detect	0.00595	Minimum Non-Detect	-5.124
Maximum Non-Detect	0.0317	Maximum Non-Detect	-3.451
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	30
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	11
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	73.17%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.75	Shapiro Wilk Test Statistic	0.855
5% Shapiro Wilk Critical Value	0.918	5% Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0254	Mean	-4.353
SD	0.0357	SD	1.11
95% DL/2 (t) UCL	0.0348	95% H-Stat (DL/2) UCL	0.0368
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.54
		SD in Log Scale	1.25
		Mean in Original Scale	0.0243
		SD in Original Scale	0.0362
		95% t UCL	0.0338
		95% Percentile Bootstrap UCL	0.0342
		95% BCA Bootstrap UCL	0.0362
		95% H-UCL	0.0393
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.941	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0395		
nu star	47.06		
A-D Test Statistic	1.686	Nonparametric Statistics	
5% A-D Critical Value	0.772	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.772	Mean	0.0255
5% K-S Critical Value	0.179	SD	0.0351
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.00559
		95% KM (t) UCL	0.0349
Assuming Gamma Distribution		95% KM (z) UCL	0.0347
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0347
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.0401
Maximum	0.164	95% KM (BCA) UCL	0.0356
Mean	0.0227	95% KM (Percentile Bootstrap) UCL	0.0356
Median	0.00806	95% KM (Chebyshev) UCL	0.0499
SD	0.0372	97.5% KM (Chebyshev) UCL	0.0604
k star	0.191	99% KM (Chebyshev) UCL	0.0812
Theta star	0.119		
Nu star	15.63	Potential UCLs to Use	
AppChi2	7.703	95% KM (Chebyshev) UCL	0.0499
95% Gamma Approximate UCL (Use when n >= 40)	0.046		
95% Adjusted Gamma UCL (Use when n < 40)	0.0472		
Note: DL/2 is not a recommended method.			

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

alpha-Chlordane

General Statistics

Number of Valid Data	41	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	33
		Percent Non-Detects	80.49%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0076	Minimum Detected	-4.88
Maximum Detected	0.0881	Maximum Detected	-2.429
Mean of Detected	0.0345	Mean of Detected	-3.629
SD of Detected	0.0255	SD of Detected	0.821
Minimum Non-Detect	0.00577	Minimum Non-Detect	-5.155
Maximum Non-Detect	0.0317	Maximum Non-Detect	-3.451

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	38
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	92.68%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.868	Shapiro Wilk Test Statistic	0.917
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.012	Mean	-4.908
SD	0.016	SD	0.908
95% DL/2 (t) UCL	0.0162	95% H-Stat (DL/2) UCL	0.0154

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.876
		SD in Log Scale	1.184
		Mean in Original Scale	0.00806
		SD in Original Scale	0.017
		95% t UCL	0.0125
		95% Percentile Bootstrap UCL	0.0131
		95% BCA Bootstrap UCL	0.0148
		95% H-UCL	0.00913

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.374	Data appear Normal at 5% Significance Level	
Theta Star	0.0251		
nu star	21.98		

		Nonparametric Statistics	
A-D Test Statistic	0.344		
5% A-D Critical Value	0.724	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.724	Mean	0.013
5% K-S Critical Value	0.297	SD	0.015
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.00252
		95% KM (t) UCL	0.0172
Assuming Gamma Distribution		95% KM (z) UCL	0.0171
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0164
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.0195
Maximum	0.0881	95% KM (BCA) UCL	0.033
Mean	0.00673	95% KM (Percentile Bootstrap) UCL	0.0305
Median	1.00E-06	95% KM (Chebyshev) UCL	0.024
SD	0.0175	97.5% KM (Chebyshev) UCL	0.0287
k star	0.124	99% KM (Chebyshev) UCL	0.0381
Theta star	0.0541		
Nu star	10.2	Potential UCLs to Use	
AppChi2	4.065	95% KM (t) UCL	0.0172
95% Gamma Approximate UCL (Use when n >= 40)	0.0169	95% KM (Percentile Bootstrap) UCL	0.0305
95% Adjusted Gamma UCL (Use when n < 40)	0.0175		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Data	41	Number of Detected Data	36
Number of Distinct Detected Data	35	Number of Non-Detect Data	5
		Percent Non-Detects	12.20%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.84	Minimum Detected	0.61
Maximum Detected	17.4	Maximum Detected	2.856
Mean of Detected	7.655	Mean of Detected	1.779
SD of Detected	5.003	SD of Detected	0.764
Minimum Non-Detect	1.82	Minimum Non-Detect	0.599
Maximum Non-Detect	2.15	Maximum Non-Detect	0.765

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	32
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	21.95%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.87	Shapiro Wilk Test Statistic	0.869
5% Shapiro Wilk Critical Value	0.935	5% Shapiro Wilk Critical Value	0.935
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.844	Mean	1.562
SD	5.173	SD	0.927
95% DL/2 (t) UCL	8.204	95% H-Stat (DL/2) UCL	10.23

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	6.213	Mean in Log Scale	1.596
SD	6.017	SD in Log Scale	0.874
95% MLE (t) UCL	7.796	Mean in Original Scale	6.886
95% MLE (Tiku) UCL	7.837	SD in Original Scale	5.126
		95% t UCL	8.234
		95% Percentile Bootstrap UCL	8.174
		95% BCA Bootstrap UCL	8.28
		95% H UCL	9.828

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.948	Data do not follow a Discernable Distribution (0.05)
Theta Star	3.93	
nu star	140.2	

A-D Test Statistic	1.677	Nonparametric Statistics	
5% A-D Critical Value	0.759	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.759	Mean	6.951
5% K-S Critical Value	0.149	SD	4.994
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.791
		95% KM (t) UCL	8.283
Assuming Gamma Distribution		95% KM (z) UCL	8.252
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	8.274
Minimum	1.00E-06	95% KM (bootstrap t) UCL	8.371
Maximum	17.4	95% KM (BCA) UCL	8.25
Mean	6.722	95% KM (Percentile Bootstrap) UCL	8.305
Median	5.59	95% KM (Chebyshev) UCL	10.4
SD	5.323	97.5% KM (Chebyshev) UCL	11.89
k star	0.326	99% KM (Chebyshev) UCL	14.82
Theta star	20.62		
Nu star	26.73	Potential UCLs to Use	
AppChi2	15.94	95% KM (Chebyshev) UCL	10.4
95% Gamma Approximate UCL (Use when n >= 40)	11.27		
95% Adjusted Gamma UCL (Use when n < 40)	11.49		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Barium

General Statistics

Number of Valid Observations	41	Number of Distinct Observations	39

Raw Statistics		Log-transformed Statistics	
Minimum	25.8	Minimum of Log Data	3.25
Maximum	476	Maximum of Log Data	6.165
Mean	189	Mean of log Data	4.775
Geometric Mean	118.6	SD of log Data	1.02
Median	73.5		
SD	164.7		
Std. Error of Mean	25.73		
Coefficient of Variation	0.872		
Skewness	0.533		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.792	Shapiro Wilk Test Statistic	0.832
Shapiro Wilk Critical Value	0.941	Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	232.3	95% H-UCL	292.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	355.2
95% Adjusted-CLT UCL (Chen-1995)	233.6	97.5% Chebyshev (MVUE) UCL	424.2
95% Modified-t UCL (Johnson-1978)	232.7	99% Chebyshev (MVUE) UCL	559.7

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.14	Data do not follow a Discernable Distribution (0.05)	
Theta Star	165.8		
MLE of Mean	189		
MLE of Standard Deviation	177		
nu star	93.45		
Approximate Chi Square Value (.05)	72.16	Nonparametric Statistics	
Adjusted Level of Significance	0.0441	95% CLT UCL	231.3
Adjusted Chi Square Value	71.47	95% Jackknife UCL	232.3
		95% Standard Bootstrap UCL	231.1
Anderson-Darling Test Statistic	2.911	95% Bootstrap-t UCL	232.5
Anderson-Darling 5% Critical Value	0.773	95% Hall's Bootstrap UCL	229.5
Kolmogorov-Smirnov Test Statistic	0.23	95% Percentile Bootstrap UCL	231.8
Kolmogorov-Smirnov 5% Critical Value	0.141	95% BCA Bootstrap UCL	233.5
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	301.1
		97.5% Chebyshev(Mean, Sd) UCL	349.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	445
95% Approximate Gamma UCL (Use when n >= 40)	244.8		
95% Adjusted Gamma UCL (Use when n < 40)	247.1		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	301.1

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). For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Data	41	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	34
		Percent Non-Detects	82.93%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.445	Minimum Detected	-0.81
Maximum Detected	1.79	Maximum Detected	0.582
Mean of Detected	0.957	Mean of Detected	-0.188
SD of Detected	0.567	SD of Detected	0.573
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	3.89	Maximum Non-Detect	1.358

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	41
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.829	Shapiro Wilk Test Statistic	0.893
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.682	Mean	-0.627
SD	0.5	SD	0.703
95% DL/2 (t) UCL	0.813	95% H-Stat (DL/2) UCL	0.86

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.171
		SD in Log Scale	0.536
		Mean in Original Scale	0.377
		SD in Original Scale	0.348
		95% t UCL	0.469
		95% Percentile Bootstrap UCL	0.47
		95% BCA Bootstrap UCL	0.506
		95% H-UCL	0.421

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.166	Data appear Normal at 5% Significance Level	
Theta Star	0.442		
nu star	30.32		

		Nonparametric Statistics	
A-D Test Statistic	0.454		
5% A-D Critical Value	0.711	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.711	Mean	0.573
5% K-S Critical Value	0.313	SD	0.325
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.064
		95% KM (t) UCL	0.681
Assuming Gamma Distribution		95% KM (z) UCL	0.679
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.665
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.748
Maximum	1.79	95% KM (BCA) UCL	0.897
Mean	0.164	95% KM (Percentile Bootstrap) UCL	0.75
Median	1.00E-06	95% KM (Chebyshev) UCL	0.852
SD	0.426	97.5% KM (Chebyshev) UCL	0.973
k star	0.0972	99% KM (Chebyshev) UCL	1.21
Theta star	1.684		
Nu star	7.968	Potential UCLs to Use	
AppChi2	2.716	95% KM (t) UCL	0.681
95% Gamma Approximate UCL (Use when n >= 40)	0.48	95% KM (Percentile Bootstrap) UCL	0.75
95% Adjusted Gamma UCL (Use when n < 40)	0.5		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	41	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	34
		Percent Non-Detects	82.93%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.435	Minimum Detected	-0.832
Maximum Detected	2.23	Maximum Detected	0.802
Mean of Detected	0.992	Mean of Detected	-0.188
SD of Detected	0.669	SD of Detected	0.637
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	3.89	Maximum Non-Detect	1.358

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	41
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.827	Shapiro Wilk Test Statistic	0.873
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.675	Mean	-0.645
SD	0.521	SD	0.704
95% DL/2 (t) UCL	0.812	95% H-Stat (DL/2) UCL	0.845

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.283
		SD in Log Scale	0.593
		Mean in Original Scale	0.357
		SD in Original Scale	0.392
		95% t UCL	0.46
		95% Percentile Bootstrap UCL	0.469
		95% BCA Bootstrap UCL	0.511
		95% H-UCL	0.397

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.765	Data appear Normal at 5% Significance Level	
Theta Star	0.562		
nu star	24.71		
A-D Test Statistic	0.549	Nonparametric Statistics	
5% A-D Critical Value	0.712	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.712	Mean	0.563
5% K-S Critical Value	0.314	SD	0.358
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0672
		95% KM (t) UCL	0.676
Assuming Gamma Distribution		95% KM (z) UCL	0.674
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.654
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.732
Maximum	2.23	95% KM (BCA) UCL	0.805
Mean	0.169	95% KM (Percentile Bootstrap) UCL	0.726
Median	1.00E-06	95% KM (Chebyshev) UCL	0.856
SD	0.458	97.5% KM (Chebyshev) UCL	0.983
k star	0.0953	99% KM (Chebyshev) UCL	1.232
Theta star	1.778		
Nu star	7.812	Potential UCLs to Use	
AppChi2	2.627	95% KM (t) UCL	0.676
95% Gamma Approximate UCL (Use when n >= 40)	0.504	95% KM (Percentile Bootstrap) UCL	0.726
95% Adjusted Gamma UCL (Use when n < 40)	0.526		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Cadmium

General Statistics

Number of Valid Data	41	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	28
		Percent Non-Detects	68.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.817	Minimum Detected	-0.202
Maximum Detected	3.9	Maximum Detected	1.361
Mean of Detected	2.744	Mean of Detected	0.956
SD of Detected	0.76	SD of Detected	0.387
Minimum Non-Detect	0.537	Minimum Non-Detect	-0.622
Maximum Non-Detect	2.77	Maximum Non-Detect	1.019

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	33
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	8
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	80.49%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.921	Shapiro Wilk Test Statistic	0.741
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.198	Mean	-0.301
SD	1.175	SD	0.984
95% DL/2 (t) UCL	1.507	95% H-Stat (DL/2) UCL	1.728

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.133	Mean in Log Scale	0.322
SD	0.739	SD in Log Scale	0.486
95% MLE (t) UCL	2.328	Mean in Original Scale	1.573
95% MLE (Tiku) UCL	2.611	SD in Original Scale	0.91
		95% t UCL	1.812
		95% Percentile Bootstrap UCL	1.813
		95% BCA Bootstrap UCL	1.83
		95% H UCL	1.796

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	7.302	Data appear Normal at 5% Significance Level
Theta Star	0.376	
nu star	189.9	

		Nonparametric Statistics	
A-D Test Statistic	0.868		
5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.734	Mean	1.438
5% K-S Critical Value	0.237	SD	0.988
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.162
		95% KM (t) UCL	1.71
Assuming Gamma Distribution		95% KM (z) UCL	1.704
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.09
Minimum	1.00E-06	95% KM (bootstrap t) UCL	1.696
Maximum	3.9	95% KM (BCA) UCL	2.685
Mean	0.87	95% KM (Percentile Bootstrap) UCL	2.575
Median	1.00E-06	95% KM (Chebyshev) UCL	2.143
SD	1.358	97.5% KM (Chebyshev) UCL	2.448
k star	0.101	99% KM (Chebyshev) UCL	3.047
Theta star	8.624		
Nu star	8.274	Potential UCLs to Use	
AppChi2	2.895	95% KM (t) UCL	1.71
95% Gamma Approximate UCL (Use when n >= 40)	2.487	95% KM (Percentile Bootstrap) UCL	2.575
95% Adjusted Gamma UCL (Use when n < 40)	2.59		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chlordane

General Statistics

Number of Valid Data	41	Number of Detected Data	19
Number of Distinct Detected Data	19	Number of Non-Detect Data	22
		Percent Non-Detects	53.66%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0231	Minimum Detected	-3.768
Maximum Detected	0.371	Maximum Detected	-0.992
Mean of Detected	0.121	Mean of Detected	-2.443
SD of Detected	0.1	SD of Detected	0.863
Minimum Non-Detect	0.0238	Minimum Non-Detect	-3.738
Maximum Non-Detect	0.127	Maximum Non-Detect	-2.064

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	33
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	8
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	80.49%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.85	Shapiro Wilk Test Statistic	0.938
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0699	Mean	-3.198
SD	0.0836	SD	1.014
95% DL/2 (t) UCL	0.0919	95% H-Stat (DL/2) UCL	0.0999

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.309
		SD in Log Scale	1.018
		Mean in Original Scale	0.0658
		SD in Original Scale	0.0851
		95% t UCL	0.0882
		95% Percentile Bootstrap UCL	0.0882
		95% BCA Bootstrap UCL	0.0952
		95% H-UCL	0.0898

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.423	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.0852		
nu star	54.08		

A-D Test Statistic	0.515	Nonparametric Statistics	
5% A-D Critical Value	0.755	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.755	Mean	0.0703
5% K-S Critical Value	0.202	SD	0.0818
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0132
		95% KM (t) UCL	0.0925
Assuming Gamma Distribution		95% KM (z) UCL	0.092
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0907
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.0976
Maximum	0.371	95% KM (BCA) UCL	0.0974
Mean	0.0562	95% KM (Percentile Bootstrap) UCL	0.0938
Median	1.00E-06	95% KM (Chebyshev) UCL	0.128
SD	0.0909	97.5% KM (Chebyshev) UCL	0.153
k star	0.144	99% KM (Chebyshev) UCL	0.202
Theta star	0.391		
Nu star	11.77	Potential UCLs to Use	
AppChi2	5.078	95% KM (t) UCL	0.0925
95% Gamma Approximate UCL (Use when n >= 40)	0.13		
95% Adjusted Gamma UCL (Use when n < 40)	0.135		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium

General Statistics

Number of Valid Observations	41	Number of Distinct Observations	39

Raw Statistics		Log-transformed Statistics	
Minimum	5.79	Minimum of Log Data	1.756
Maximum	281	Maximum of Log Data	5.638
Mean	37.64	Mean of log Data	3.158
Geometric Mean	23.51	SD of log Data	0.968
Median	16		
SD	45.66		
Std. Error of Mean	7.131		
Coefficient of Variation	1.213		
Skewness	3.914		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.592	Shapiro Wilk Test Statistic	0.884
Shapiro Wilk Critical Value	0.941	Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	49.65	95% H-UCL	53.56
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	65.16
95% Adjusted-CLT UCL (Chen-1995)	54.03	97.5% Chebyshev (MVUE) UCL	77.37
95% Modified-t UCL (Johnson-1978)	50.38	99% Chebyshev (MVUE) UCL	101.3

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.13	Data do not follow a Discernable Distribution (0.05)	
Theta Star	33.3		
MLE of Mean	37.64		
MLE of Standard Deviation	35.41		
nu star	92.68		
Approximate Chi Square Value (.05)	71.48	Nonparametric Statistics	
Adjusted Level of Significance	0.0441	95% CLT UCL	49.37
Adjusted Chi Square Value	70.8	95% Jackknife UCL	49.65
		95% Standard Bootstrap UCL	49.33
Anderson-Darling Test Statistic	2.118	95% Bootstrap-t UCL	57.78
Anderson-Darling 5% Critical Value	0.773	95% Hall's Bootstrap UCL	102.6
Kolmogorov-Smirnov Test Statistic	0.203	95% Percentile Bootstrap UCL	50.04
Kolmogorov-Smirnov 5% Critical Value	0.141	95% BCA Bootstrap UCL	55.51
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	68.73
		97.5% Chebyshev(Mean, Sd) UCL	82.18
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	108.6
95% Approximate Gamma UCL (Use when n >= 40)	48.81		
95% Adjusted Gamma UCL (Use when n < 40)	49.27		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	68.73

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). For additional insight, the user may want to consult a statistician.

Chrysene

General Statistics

Number of Valid Data	41	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	34
		Percent Non-Detects	82.93%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.471	Minimum Detected	-0.753
Maximum Detected	2.48	Maximum Detected	0.908
Mean of Detected	1.162	Mean of Detected	-0.0379
SD of Detected	0.778	SD of Detected	0.658
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	3.89	Maximum Non-Detect	1.358

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	41
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.867	Shapiro Wilk Test Statistic	0.914
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.704	Mean	-0.62
SD	0.564	SD	0.726
95% DL/2 (t) UCL	0.852	95% H-Stat (DL/2) UCL	0.889

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.315
		SD in Log Scale	0.673
		Mean in Original Scale	0.374
		SD in Original Scale	0.473
		95% t UCL	0.498
		95% Percentile Bootstrap UCL	0.499
		95% BCA Bootstrap UCL	0.54
		95% H-UCL	0.418

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.704	Data appear Normal at 5% Significance Level	
Theta Star	0.682		
nu star	23.86		

		Nonparametric Statistics	
A-D Test Statistic	0.379		
5% A-D Critical Value	0.713	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.713	Mean	0.627
5% K-S Critical Value	0.314	SD	0.425
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0792
		95% KM (t) UCL	0.76
Assuming Gamma Distribution		95% KM (z) UCL	0.757
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.735
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.816
Maximum	2.48	95% KM (BCA) UCL	1.056
Mean	0.198	95% KM (Percentile Bootstrap) UCL	0.851
Median	1.00E-06	95% KM (Chebyshev) UCL	0.972
SD	0.535	97.5% KM (Chebyshev) UCL	1.122
k star	0.0943	99% KM (Chebyshev) UCL	1.415
Theta star	2.103		
Nu star	7.734	Potential UCLs to Use	
AppChi2	2.582	95% KM (t) UCL	0.76
95% Gamma Approximate UCL (Use when n >= 40)	0.594	95% KM (Percentile Bootstrap) UCL	0.851
95% Adjusted Gamma UCL (Use when n < 40)	0.62		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Copper

General Statistics

Number of Valid Observations	41	Number of Distinct Observations	37

Raw Statistics		Log-transformed Statistics	
Minimum	7.01	Minimum of Log Data	1.947
Maximum	213	Maximum of Log Data	5.361
Mean	75.17	Mean of log Data	3.69
Geometric Mean	40.06	SD of log Data	1.233
Median	34.6		
SD	69.98		
Std. Error of Mean	10.93		
Coefficient of Variation	0.931		
Skewness	0.469		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.803	Shapiro Wilk Test Statistic	0.809
Shapiro Wilk Critical Value	0.941	Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	93.58	95% H-UCL	142.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	169
95% Adjusted-CLT UCL (Chen-1995)	94.01	97.5% Chebyshev (MVUE) UCL	206.2
95% Modified-t UCL (Johnson-1978)	93.71	99% Chebyshev (MVUE) UCL	279.3

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.874	Data do not follow a Discernable Distribution (0.05)	
Theta Star	85.99		
MLE of Mean	75.17		
MLE of Standard Deviation	80.4		
nu star	71.68		
Approximate Chi Square Value (.05)	53.19	Nonparametric Statistics	
Adjusted Level of Significance	0.0441	95% CLT UCL	93.15
Adjusted Chi Square Value	52.61	95% Jackknife UCL	93.58
		95% Standard Bootstrap UCL	93.29
Anderson-Darling Test Statistic	3.106	95% Bootstrap-t UCL	95.09
Anderson-Darling 5% Critical Value	0.782	95% Hall's Bootstrap UCL	93.69
Kolmogorov-Smirnov Test Statistic	0.236	95% Percentile Bootstrap UCL	92.24
Kolmogorov-Smirnov 5% Critical Value	0.142	95% BCA Bootstrap UCL	92.38
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	122.8
		97.5% Chebyshev(Mean, Sd) UCL	143.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	183.9
95% Approximate Gamma UCL (Use when n >= 40)	101.3		
95% Adjusted Gamma UCL (Use when n < 40)	102.4		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	122.8

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). For additional insight, the user may want to consult a statistician.

Fluoranthene

General Statistics

Number of Valid Data	41	Number of Detected Data	23
Number of Distinct Detected Data	20	Number of Non-Detect Data	18
		Percent Non-Detects	43.90%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.328	Minimum Detected	-1.115
Maximum Detected	5.93	Maximum Detected	1.78
Mean of Detected	2.176	Mean of Detected	0.494
SD of Detected	1.703	SD of Detected	0.782
Minimum Non-Detect	0.425	Minimum Non-Detect	-0.856
Maximum Non-Detect	2.87	Maximum Non-Detect	1.054

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	35
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.37%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.831	Shapiro Wilk Test Statistic	0.968
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.464	Mean	-0.0691
SD	1.523	SD	0.96
95% DL/2 (t) UCL	1.864	95% H-Stat (DL/2) UCL	2.102

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.0861
		SD in Log Scale	0.908
		Mean in Original Scale	1.423
		SD in Original Scale	1.532
		95% t UCL	1.826
		95% Percentile Bootstrap UCL	1.818
		95% BCA Bootstrap UCL	1.859
		95% H-UCL	1.914

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.692	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.286		
nu star	77.85		

A-D Test Statistic	0.527	Nonparametric Statistics	
5% A-D Critical Value	0.756	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.756	Mean	1.444
5% K-S Critical Value	0.184	SD	1.517
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.245
		95% KM (t) UCL	1.856
Assuming Gamma Distribution		95% KM (z) UCL	1.847
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.809
Minimum	1.00E-06	95% KM (bootstrap t) UCL	1.931
Maximum	5.93	95% KM (BCA) UCL	2.009
Mean	1.268	95% KM (Percentile Bootstrap) UCL	1.912
Median	0.622	95% KM (Chebyshev) UCL	2.511
SD	1.641	97.5% KM (Chebyshev) UCL	2.973
k star	0.173	99% KM (Chebyshev) UCL	3.881
Theta star	7.337		
Nu star	14.17	Potential UCLs to Use	
AppChi2	6.69	95% KM (t) UCL	1.856
95% Gamma Approximate UCL (Use when n >= 40)	2.687		
95% Adjusted Gamma UCL (Use when n < 40)	2.765		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	41	Number of Distinct Observations	40

Raw Statistics		Log-transformed Statistics	
Minimum	6.96	Minimum of Log Data	1.94
Maximum	340	Maximum of Log Data	5.829
Mean	89.52	Mean of log Data	3.708
Geometric Mean	40.75	SD of log Data	1.356
Median	22.5		
SD	99.02		
Std. Error of Mean	15.46		
Coefficient of Variation	1.106		
Skewness	1.119		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.784	Shapiro Wilk Test Statistic	0.836
Shapiro Wilk Critical Value	0.941	Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	115.6	95% H-UCL	185.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	212.7
95% Adjusted-CLT UCL (Chen-1995)	117.8	97.5% Chebyshev (MVUE) UCL	262.3
95% Modified-t UCL (Johnson-1978)	116	99% Chebyshev (MVUE) UCL	359.7

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.72	Data do not follow a Discernable Distribution (0.05)	
Theta Star	124.3		
MLE of Mean	89.52		
MLE of Standard Deviation	105.5		
nu star	59.05		
Approximate Chi Square Value (.05)	42.38	Nonparametric Statistics	
Adjusted Level of Significance	0.0441	95% CLT UCL	115
Adjusted Chi Square Value	41.87	95% Jackknife UCL	115.6
		95% Standard Bootstrap UCL	114.8
Anderson-Darling Test Statistic	2.732	95% Bootstrap-t UCL	120.5
Anderson-Darling 5% Critical Value	0.789	95% Hall's Bootstrap UCL	117
Kolmogorov-Smirnov Test Statistic	0.253	95% Percentile Bootstrap UCL	115.7
Kolmogorov-Smirnov 5% Critical Value	0.143	95% BCA Bootstrap UCL	117.1
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	156.9
		97.5% Chebyshev(Mean, Sd) UCL	186.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	243.4
95% Approximate Gamma UCL (Use when n >= 40)	124.7		
95% Adjusted Gamma UCL (Use when n < 40)	126.3		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	156.9

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). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	41	Number of Detected Data	20
Number of Distinct Detected Data	20	Number of Non-Detect Data	21
		Percent Non-Detects	51.22%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.111	Minimum Detected	-2.198
Maximum Detected	0.553	Maximum Detected	-0.592
Mean of Detected	0.296	Mean of Detected	-1.305
SD of Detected	0.125	SD of Detected	0.446
Minimum Non-Detect	0.0323	Minimum Non-Detect	-3.433
Maximum Non-Detect	0.049	Maximum Non-Detect	-3.016

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	21
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	20
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	51.22%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.947	Shapiro Wilk Test Statistic	0.965
5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.155	Mean	-2.647
SD	0.165	SD	1.363
95% DL/2 (t) UCL	0.198	95% H-Stat (DL/2) UCL	0.326

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0615	Mean in Log Scale	-1.89
SD	0.27	SD in Log Scale	0.656
95% MLE (t) UCL	0.133	Mean in Original Scale	0.189
95% MLE (Tiku) UCL	0.15	SD in Original Scale	0.137
		95% t UCL	0.225
		95% Percentile Bootstrap UCL	0.223
		95% BCA Bootstrap UCL	0.227
		95% H UCL	0.231

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	4.932	Data appear Normal at 5% Significance Level
Theta Star	0.0601	
nu star	197.3	

		Nonparametric Statistics	
A-D Test Statistic	0.183		
5% A-D Critical Value	0.745	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.745	Mean	0.201
5% K-S Critical Value	0.194	SD	0.126
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0202
		95% KM (t) UCL	0.235
Assuming Gamma Distribution		95% KM (z) UCL	0.235
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.234
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.241
Maximum	0.553	95% KM (BCA) UCL	0.258
Mean	0.145	95% KM (Percentile Bootstrap) UCL	0.252
Median	1.00E-06	95% KM (Chebyshev) UCL	0.289
SD	0.173	97.5% KM (Chebyshev) UCL	0.328
k star	0.141	99% KM (Chebyshev) UCL	0.402
Theta star	1.023		
Nu star	11.59	Potential UCLs to Use	
AppChi2	4.961	95% KM (t) UCL	0.235
95% Gamma Approximate UCL (Use when n >= 40)	0.338	95% KM (Percentile Bootstrap) UCL	0.252
95% Adjusted Gamma UCL (Use when n < 40)	0.349		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Nickel

General Statistics			
Number of Valid Observations	41	Number of Distinct Observations	41

Raw Statistics		Log-transformed Statistics	
Minimum	5.42	Minimum of Log Data	1.69
Maximum	127	Maximum of Log Data	4.844
Mean	25.69	Mean of log Data	2.87
Geometric Mean	17.64	SD of log Data	0.896
Median	19.5		
SD	23.21		
Std. Error of Mean	3.624		
Coefficient of Variation	0.903		
Skewness	2.125		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.757	Shapiro Wilk Test Statistic	0.853
Shapiro Wilk Critical Value	0.941	Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	31.79	95% H-UCL	36.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	44.06
95% Adjusted-CLT UCL (Chen-1995)	32.94	97.5% Chebyshev (MVUE) UCL	51.88
95% Modified-t UCL (Johnson-1978)	31.99	99% Chebyshev (MVUE) UCL	67.23

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.383	Data do not follow a Discernable Distribution (0.05)	
Theta Star	18.58		
MLE of Mean	25.69		
MLE of Standard Deviation	21.84		
nu star	113.4		
Approximate Chi Square Value (.05)	89.81	Nonparametric Statistics	
Adjusted Level of Significance	0.0441	95% CLT UCL	31.65
Adjusted Chi Square Value	89.05	95% Jackknife UCL	31.79
		95% Standard Bootstrap UCL	31.56
Anderson-Darling Test Statistic	2.365	95% Bootstrap-t UCL	33.36
Anderson-Darling 5% Critical Value	0.767	95% Hall's Bootstrap UCL	35.73
Kolmogorov-Smirnov Test Statistic	0.212	95% Percentile Bootstrap UCL	32.39
Kolmogorov-Smirnov 5% Critical Value	0.141	95% BCA Bootstrap UCL	33.12
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	41.49
		97.5% Chebyshev(Mean, Sd) UCL	48.32
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	61.75
95% Approximate Gamma UCL (Use when n >= 40)	32.43		
95% Adjusted Gamma UCL (Use when n < 40)	32.71		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	41.49

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). For additional insight, the user may want to consult a statistician.

Phenanthrene

General Statistics

Number of Valid Data	41	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	33
		Percent Non-Detects	80.49%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.579	Minimum Detected	-0.546
Maximum Detected	4.44	Maximum Detected	1.491
Mean of Detected	1.568	Mean of Detected	0.236
SD of Detected	1.265	SD of Detected	0.658
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	3.89	Maximum Non-Detect	1.358

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	40
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	97.56%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.754	Shapiro Wilk Test Statistic	0.928
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.793	Mean	-0.57
SD	0.784	SD	0.803
95% DL/2 (t) UCL	0.999	95% H-Stat (DL/2) UCL	1.025

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.216
		SD in Log Scale	0.801
		Mean in Original Scale	0.478
		SD in Original Scale	0.76
		95% t UCL	0.678
		95% Percentile Bootstrap UCL	0.678
		95% BCA Bootstrap UCL	0.814
		95% H-UCL	0.537

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.641	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.955		
nu star	26.26		

A-D Test Statistic	0.485	Nonparametric Statistics	
5% A-D Critical Value	0.723	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.723	Mean	0.803
5% K-S Critical Value	0.297	SD	0.661
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.114
		95% KM (t) UCL	0.995
Assuming Gamma Distribution		95% KM (z) UCL	0.99
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.97
Minimum	1.00E-06	95% KM (bootstrap t) UCL	1.143
Maximum	4.44	95% KM (BCA) UCL	1.266
Mean	0.306	95% KM (Percentile Bootstrap) UCL	1.129
Median	1.00E-06	95% KM (Chebyshev) UCL	1.298
SD	0.822	97.5% KM (Chebyshev) UCL	1.513
k star	0.094	99% KM (Chebyshev) UCL	1.933
Theta star	3.254		
Nu star	7.709	Potential UCLs to Use	
AppChi2	2.568	95% KM (t) UCL	0.995
95% Gamma Approximate UCL (Use when n >= 40)	0.919		
95% Adjusted Gamma UCL (Use when n < 40)	0.959		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Pyrene

General Statistics

Number of Valid Data	41	Number of Detected Data	17
Number of Distinct Detected Data	16	Number of Non-Detect Data	24
		Percent Non-Detects	58.54%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.513	Minimum Detected	-0.667
Maximum Detected	4.69	Maximum Detected	1.545
Mean of Detected	1.744	Mean of Detected	0.308
SD of Detected	1.36	SD of Detected	0.705
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	3.89	Maximum Non-Detect	1.358

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	39
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	95.12%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.794	Shapiro Wilk Test Statistic	0.926
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.107	Mean	-0.26
SD	1.079	SD	0.851
95% DL/2 (t) UCL	1.391	95% H-Stat (DL/2) UCL	1.488

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.435
		SD in Log Scale	0.815
		Mean in Original Scale	0.958
		SD in Original Scale	1.094
		95% t UCL	1.246
		95% Percentile Bootstrap UCL	1.252
		95% BCA Bootstrap UCL	1.332
		95% H-UCL	1.191

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.826	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.955		
nu star	62.08		

A-D Test Statistic	0.719	Nonparametric Statistics	
5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.749	Mean	1.095
5% K-S Critical Value	0.211	SD	1.036
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.171
		95% KM (t) UCL	1.383
Assuming Gamma Distribution		95% KM (z) UCL	1.377
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.348
Minimum	1.00E-06	95% KM (bootstrap t) UCL	1.49
Maximum	4.69	95% KM (BCA) UCL	1.474
Mean	0.725	95% KM (Percentile Bootstrap) UCL	1.409
Median	1.00E-06	95% KM (Chebyshev) UCL	1.84
SD	1.222	97.5% KM (Chebyshev) UCL	2.163
k star	0.117	99% KM (Chebyshev) UCL	2.796
Theta star	6.176		
Nu star	9.625	Potential UCLs to Use	
AppChi2	3.709	95% KM (t) UCL	1.383
95% Gamma Approximate UCL (Use when n >= 40)	1.881		
95% Adjusted Gamma UCL (Use when n < 40)	1.952		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Total DDx

General Statistics

Number of Valid Data	41	Number of Detected Data	25
Number of Distinct Detected Data	25	Number of Non-Detect Data	16
		Percent Non-Detects	39.02%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00648	Minimum Detected	-5.039
Maximum Detected	0.382	Maximum Detected	-0.962
Mean of Detected	0.053	Mean of Detected	-3.658
SD of Detected	0.0814	SD of Detected	1.164
Minimum Non-Detect	0.00952	Minimum Non-Detect	-4.654
Maximum Non-Detect	0.0507	Maximum Non-Detect	-2.982

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	35
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.37%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.599	Shapiro Wilk Test Statistic	0.914
5% Shapiro Wilk Critical Value	0.918	5% Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0367	Mean	-4.055
SD	0.0665	SD	1.101
95% DL/2 (t) UCL	0.0542	95% H-Stat (DL/2) UCL	0.0488

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.047
		SD in Log Scale	1.034
		Mean in Original Scale	0.0361
		SD in Original Scale	0.0666
		95% t UCL	0.0536
		95% Percentile Bootstrap UCL	0.055
		95% BCA Bootstrap UCL	0.0626
		95% H-UCL	0.0441

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.749	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0707		
nu star	37.46		

A-D Test Statistic	1.209	Nonparametric Statistics	
5% A-D Critical Value	0.781	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.781	Mean	0.0361
5% K-S Critical Value	0.181	SD	0.0658
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0105
		95% KM (t) UCL	0.0538
Assuming Gamma Distribution		95% KM (z) UCL	0.0534
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0537
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.0703
Maximum	0.382	95% KM (BCA) UCL	0.0573
Mean	0.0332	95% KM (Percentile Bootstrap) UCL	0.0544
Median	0.00893	95% KM (Chebyshev) UCL	0.0819
SD	0.0679	97.5% KM (Chebyshev) UCL	0.102
k star	0.238	99% KM (Chebyshev) UCL	0.141
Theta star	0.139		
Nu star	19.55	Potential UCLs to Use	
AppChi2	10.52	95% KM (Chebyshev) UCL	0.0819
95% Gamma Approximate UCL (Use when n >= 40)	0.0617		
95% Adjusted Gamma UCL (Use when n < 40)	0.0631		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Total High Molecular

General Statistics			
Number of Valid Data	41	Number of Detected Data	17
Number of Distinct Detected Data	16	Number of Non-Detect Data	24
		Percent Non-Detects	58.54%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.513	Minimum Detected	-0.667
Maximum Detected	11.6	Maximum Detected	2.451
Mean of Detected	3.573	Mean of Detected	0.781
SD of Detected	3.591	SD of Detected	1.05
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	3.89	Maximum Non-Detect	1.358
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	36
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	5
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	87.80%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.802	Shapiro Wilk Test Statistic	0.927
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.866	Mean	-0.0643
SD	2.721	SD	1.119
95% DL/2 (t) UCL	2.581	95% H-Stat (DL/2) UCL	2.721
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	8.817	Mean in Log Scale	-0.491
SD	2.773	SD in Log Scale	1.311
95% MLE (t) UCL	9.546	Mean in Original Scale	1.638
95% MLE (Tiku) UCL	10.87	SD in Original Scale	2.807
		95% t UCL	2.377
		95% Percentile Bootstrap UCL	2.355
		95% BCA Bootstrap UCL	2.556
		95% H UCL	2.539
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.99	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	3.61		
nu star	33.65		
A-D Test Statistic	0.543	Nonparametric Statistics	
5% A-D Critical Value	0.763	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.763	Mean	1.834
5% K-S Critical Value	0.214	SD	2.687
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.434
		95% KM (t) UCL	2.565
Assuming Gamma Distribution		95% KM (z) UCL	2.548
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.508
Minimum	1.00E-06	95% KM (bootstrap t) UCL	2.888
Maximum	11.6	95% KM (BCA) UCL	2.685
Mean	1.481	95% KM (Percentile Bootstrap) UCL	2.643
Median	1.00E-06	95% KM (Chebyshev) UCL	3.725
SD	2.887	97.5% KM (Chebyshev) UCL	4.544
k star	0.109	99% KM (Chebyshev) UCL	6.152
Theta star	13.64		
Nu star	8.904	Potential UCLs to Use	
AppChi2	3.269	95% KM (t) UCL	2.565
95% Gamma Approximate UCL (Use when n >= 40)	4.035		
95% Adjusted Gamma UCL (Use when n < 40)	4.194		
Note: DL/2 is not a recommended method.			

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Total Low Molecular

General Statistics			
Number of Valid Data	41	Number of Detected Data	23
Number of Distinct Detected Data	22	Number of Non-Detect Data	18
		Percent Non-Detects	43.90%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.328	Minimum Detected	-1.115
Maximum Detected	10.7	Maximum Detected	2.37
Mean of Detected	2.998	Mean of Detected	0.696
SD of Detected	2.744	SD of Detected	0.944
Minimum Non-Detect	0.425	Minimum Non-Detect	-0.856
Maximum Non-Detect	2.87	Maximum Non-Detect	1.054
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	33
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	8
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	80.49%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.836	Shapiro Wilk Test Statistic	0.974
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.925	Mean	0.0442
SD	2.39	SD	1.103
95% DL/2 (t) UCL	2.553	95% H-Stat (DL/2) UCL	2.954
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.0328
		SD in Log Scale	1.114
		Mean in Original Scale	1.859
		SD in Original Scale	2.418
		95% t UCL	2.495
		95% Percentile Bootstrap UCL	2.505
		95% BCA Bootstrap UCL	2.645
		95% H-UCL	2.785
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.235	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	2.427		
nu star	56.81		
A-D Test Statistic	0.43	Nonparametric Statistics	
5% A-D Critical Value	0.762	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.762	Mean	1.896
5% K-S Critical Value	0.185	SD	2.376
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.381
		95% KM (t) UCL	2.537
Assuming Gamma Distribution		95% KM (z) UCL	2.523
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.477
Minimum	1.00E-06	95% KM (bootstrap t) UCL	2.744
Maximum	10.7	95% KM (BCA) UCL	2.715
Mean	1.682	95% KM (Percentile Bootstrap) UCL	2.535
Median	0.622	95% KM (Chebyshev) UCL	3.557
SD	2.532	97.5% KM (Chebyshev) UCL	4.275
k star	0.138	99% KM (Chebyshev) UCL	5.687
Theta star	12.18		
Nu star	11.33	Potential UCLs to Use	
AppChi2	4.788	95% KM (t) UCL	2.537
95% Gamma Approximate UCL (Use when n >= 40)	3.98		
95% Adjusted Gamma UCL (Use when n < 40)	4.113		
Note: DL/2 is not a recommended method.			

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Total PAHs

General Statistics

Number of Valid Data	41	Number of Detected Data	23
Number of Distinct Detected Data	23	Number of Non-Detect Data	18
		Percent Non-Detects	43.90%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.328	Minimum Detected	-1.115
Maximum Detected	22.3	Maximum Detected	3.105
Mean of Detected	5.635	Mean of Detected	1.257
SD of Detected	5.741	SD of Detected	1.036
Minimum Non-Detect	0.425	Minimum Non-Detect	-0.856
Maximum Non-Detect	2.87	Maximum Non-Detect	1.054

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	27
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	14
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	65.85%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.79	Shapiro Wilk Test Statistic	0.971
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.404	Mean	0.359
SD	4.97	SD	1.348
95% DL/2 (t) UCL	4.711	95% H-Stat (DL/2) UCL	6.4

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.34
		SD in Log Scale	1.314
		Mean in Original Scale	3.359
		SD in Original Scale	4.991
		95% t UCL	4.672
		95% Percentile Bootstrap UCL	4.655
		95% BCA Bootstrap UCL	5.025
		95% H-UCL	5.859

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.072	Data appear Gamma Distributed at 5% Significance Level
Theta Star	5.258	
nu star	49.3	

A-D Test Statistic	0.458	Nonparametric Statistics	
5% A-D Critical Value	0.766	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.766	Mean	3.356
5% K-S Critical Value	0.186	SD	4.936
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.789
		95% KM (t) UCL	4.685
Assuming Gamma Distribution		95% KM (z) UCL	4.654
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.509
Minimum	1.00E-06	95% KM (bootstrap t) UCL	4.887
Maximum	22.3	95% KM (BCA) UCL	5.284
Mean	3.161	95% KM (Percentile Bootstrap) UCL	4.814
Median	1.26	95% KM (Chebyshev) UCL	6.796
SD	5.113	97.5% KM (Chebyshev) UCL	8.284
k star	0.129	99% KM (Chebyshev) UCL	11.21
Theta star	24.51		
Nu star	10.57	Potential UCLs to Use	
AppChi2	4.303	95% KM (t) UCL	4.685
95% Gamma Approximate UCL (Use when n >= 40)	7.767		
95% Adjusted Gamma UCL (Use when n < 40)	8.039		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	41	Number of Distinct Observations	40

Raw Statistics		Log-transformed Statistics	
Minimum	7.92	Minimum of Log Data	2.069
Maximum	74.1	Maximum of Log Data	4.305
Mean	33.41	Mean of log Data	3.24
Geometric Mean	25.53	SD of log Data	0.758
Median	17.5		
SD	23.33		
Std. Error of Mean	3.644		
Coefficient of Variation	0.698		
Skewness	0.437		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.801	Shapiro Wilk Test Statistic	0.836
Shapiro Wilk Critical Value	0.941	Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	39.54	95% H-UCL	43.82
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	52.96
95% Adjusted-CLT UCL (Chen-1995)	39.67	97.5% Chebyshev (MVUE) UCL	61.28
95% Modified-t UCL (Johnson-1978)	39.58	99% Chebyshev (MVUE) UCL	77.63

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.879	Data do not follow a Discernable Distribution (0.05)	
Theta Star	17.78		
MLE of Mean	33.41		
MLE of Standard Deviation	24.37		
nu star	154.1		
Approximate Chi Square Value (.05)	126.4	Nonparametric Statistics	
Adjusted Level of Significance	0.0441	95% CLT UCL	39.4
Adjusted Chi Square Value	125.5	95% Jackknife UCL	39.54
		95% Standard Bootstrap UCL	39.29
Anderson-Darling Test Statistic	2.981	95% Bootstrap-t UCL	39.69
Anderson-Darling 5% Critical Value	0.759	95% Hall's Bootstrap UCL	39.64
Kolmogorov-Smirnov Test Statistic	0.242	95% Percentile Bootstrap UCL	39.25
Kolmogorov-Smirnov 5% Critical Value	0.14	95% BCA Bootstrap UCL	39.54
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	49.29
		97.5% Chebyshev(Mean, Sd) UCL	56.16
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	69.66
95% Approximate Gamma UCL (Use when n >= 40)	40.73		
95% Adjusted Gamma UCL (Use when n < 40)	41.02		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	49.29

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). For additional insight, the user may want to consult a statistician.

Zinc

General Statistics			
Number of Valid Observations	41	Number of Distinct Observations	40
Raw Statistics		Log-transformed Statistics	
Minimum	28	Minimum of Log Data	3.332
Maximum	591	Maximum of Log Data	6.382
Mean	209.6	Mean of log Data	4.739
Geometric Mean	114.4	SD of log Data	1.18
Median	55.2		
SD	198.3		
Std. Error of Mean	30.97		
Coefficient of Variation	0.946		
Skewness	0.51		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.778	Shapiro Wilk Test Statistic	0.787
Shapiro Wilk Critical Value	0.941	Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	261.7	95% H-UCL	369.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	441.3
95% Adjusted-CLT UCL (Chen-1995)	263.2	97.5% Chebyshev (MVUE) UCL	535.7
95% Modified-t UCL (Johnson-1978)	262.1	99% Chebyshev (MVUE) UCL	721.1
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.904	Data do not follow a Discernable Distribution (0.05)	
Theta Star	231.8		
MLE of Mean	209.6		
MLE of Standard Deviation	220.4		
nu star	74.12		
Approximate Chi Square Value (.05)	55.3	Nonparametric Statistics	
Adjusted Level of Significance	0.0441	95% CLT UCL	260.5
Adjusted Chi Square Value	54.7	95% Jackknife UCL	261.7
		95% Standard Bootstrap UCL	260.9
Anderson-Darling Test Statistic	3.663	95% Bootstrap-t UCL	261.6
Anderson-Darling 5% Critical Value	0.78	95% Hall's Bootstrap UCL	260.6
Kolmogorov-Smirnov Test Statistic	0.276	95% Percentile Bootstrap UCL	260.4
Kolmogorov-Smirnov 5% Critical Value	0.142	95% BCA Bootstrap UCL	259.5
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	344.6
		97.5% Chebyshev(Mean, Sd) UCL	403
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	517.8
95% Approximate Gamma UCL (Use when n >= 40)	280.9		
95% Adjusted Gamma UCL (Use when n < 40)	284		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	344.6

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). For additional insight, the user may want to consult a statistician.

Barium

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	17

Raw Statistics		Log-transformed Statistics	
Minimum	71	Minimum of Log Data	4.263
Maximum	106	Maximum of Log Data	4.663
Mean	84.11	Mean of log Data	4.424
Geometric Mean	83.45	SD of log Data	0.128
Median	80.35		
SD	10.99		
Std. Error of Mean	2.59		
Coefficient of Variation	0.131		
Skewness	0.567		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.917	Shapiro Wilk Test Statistic	0.926
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	88.61	95% H-UCL	88.82
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	95.18
95% Adjusted-CLT UCL (Chen-1995)	88.73	97.5% Chebyshev (MVUE) UCL	99.97
95% Modified-t UCL (Johnson-1978)	88.67	99% Chebyshev (MVUE) UCL	109.4

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	53.38	Data appear Normal at 5% Significance Level	
Theta Star	1.576		
MLE of Mean	84.11		
MLE of Standard Deviation	11.51		
nu star	1922		
Approximate Chi Square Value (.05)	1821	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	88.37
Adjusted Chi Square Value	1811	95% Jackknife UCL	88.61
		95% Standard Bootstrap UCL	88.31
Anderson-Darling Test Statistic	0.519	95% Bootstrap-t UCL	88.99
Anderson-Darling 5% Critical Value	0.738	95% Hall's Bootstrap UCL	88.73
Kolmogorov-Smirnov Test Statistic	0.18	95% Percentile Bootstrap UCL	88.59
Kolmogorov-Smirnov 5% Critical Value	0.203	95% BCA Bootstrap UCL	88.43
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	95.39
		97.5% Chebyshev(Mean, Sd) UCL	100.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	109.9
95% Approximate Gamma UCL (Use when n >= 40)	88.76		
95% Adjusted Gamma UCL (Use when n < 40)	89.22		

Potential UCL to Use	Use 95% Student's-t UCL	88.61

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). For additional insight, the user may want to consult a statistician.

Chlordane

General Statistics

Number of Valid Data	12	Number of Detected Data	8
Number of Distinct Detected Data	4	Number of Non-Detect Data	4
Number of Missing Values	5	Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.018	Minimum Detected	-4.017
Maximum Detected	0.03	Maximum Detected	-3.507
Mean of Detected	0.0255	Mean of Detected	-3.681
SD of Detected	0.00393	SD of Detected	0.169
Minimum Non-Detect	0.007	Minimum Non-Detect	-4.962
Maximum Non-Detect	0.007	Maximum Non-Detect	-4.962

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.777	Shapiro Wilk Test Statistic	0.753
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0182	Mean	-4.339
SD	0.0113	SD	0.981
95% DL/2 (t) UCL	0.024	95% H-Stat (DL/2) UCL	0.0495

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0255	Mean in Log Scale	-3.8
SD	0.00367	SD in Log Scale	0.227
95% MLE (t) UCL	0.0274	Mean in Original Scale	0.0229
95% MLE (Tiku) UCL	0.0278	SD in Original Scale	0.00503
		95% t UCL	0.0255
		95% Percentile Bootstrap UCL	0.0252
		95% BCA Bootstrap UCL	0.025
		95% H UCL	0.0261

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	26.74	Data do not follow a Discernable Distribution (0.05)
Theta Star	9.54E-04	
nu star	427.8	

		Nonparametric Statistics	
A-D Test Statistic	1.134		
5% A-D Critical Value	0.715	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.715	Mean	0.023
5% K-S Critical Value	0.294	SD	0.00464
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.00143
		95% KM (t) UCL	0.0256
Assuming Gamma Distribution		95% KM (z) UCL	0.0254
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0255
Minimum	0.00398	95% KM (bootstrap t) UCL	0.0252
Maximum	0.03	95% KM (BCA) UCL	0.0275
Mean	0.0205	95% KM (Percentile Bootstrap) UCL	0.0273
Median	0.024	95% KM (Chebyshev) UCL	0.0292
SD	0.00842	97.5% KM (Chebyshev) UCL	0.0319
k star	3.21	99% KM (Chebyshev) UCL	0.0372
Theta star	0.0064		
Nu star	77.04	Potential UCLs to Use	
AppChi2	57.82	95% KM (BCA) UCL	0.0275
95% Gamma Approximate UCL (Use when n >= 40)	0.0274		
95% Adjusted Gamma UCL (Use when n < 40)	0.0286		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006)
For additional insight, the user may want to consult a statistician.

Total PAHs

General Statistics

Number of Valid Data	18	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	12
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.059	Minimum Detected	-2.83
Maximum Detected	0.205	Maximum Detected	-1.585
Mean of Detected	0.111	Mean of Detected	-2.313
SD of Detected	0.0598	SD of Detected	0.521
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.862	Shapiro Wilk Test Statistic	0.885
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0537	Mean	-3.23
SD	0.0529	SD	0.725
95% DL/2 (t) UCL	0.0754	95% H-Stat (DL/2) UCL	0.0766

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.00705	Mean in Log Scale	-3.598
SD	0.0967	SD in Log Scale	1.145
95% MLE (t) UCL	0.0467	Mean in Original Scale	0.049
95% MLE (Tiku) UCL	0.0709	SD in Original Scale	0.0564
		95% t UCL	0.0722
		95% Percentile Bootstrap UCL	0.0735
		95% BCA Bootstrap UCL	0.0771
		95% H UCL	0.117

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.346	Data appear Normal at 5% Significance Level
Theta Star	0.0474	
nu star	28.15	

		Nonparametric Statistics	
A-D Test Statistic	0.446		
5% A-D Critical Value	0.699	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.699	Mean	0.0764
5% K-S Critical Value	0.333	SD	0.04
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0103
		95% KM (t) UCL	0.0944
Assuming Gamma Distribution		95% KM (z) UCL	0.0934
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0913
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.104
Maximum	0.205	95% KM (BCA) UCL	0.118
Mean	0.0371	95% KM (Percentile Bootstrap) UCL	0.1
Median	1.00E-06	95% KM (Chebyshev) UCL	0.121
SD	0.0629	97.5% KM (Chebyshev) UCL	0.141
k star	0.136	99% KM (Chebyshev) UCL	0.179
Theta star	0.272		
Nu star	4.897	Potential UCLs to Use	
AppChi2	1.105	95% KM (t) UCL	0.0944
95% Gamma Approximate UCL (Use when n >= 40)	0.164	95% KM (Percentile Bootstrap) UCL	0.1
95% Adjusted Gamma UCL (Use when n < 40)	0.192		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006)
For additional insight, the user may want to consult a statistician.

Total Low Molecular Weight PAH

General Statistics

Number of Valid Data	18	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	12
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.056	Minimum Detected	-2.882
Maximum Detected	0.115	Maximum Detected	-2.163
Mean of Detected	0.0758	Mean of Detected	-2.614
SD of Detected	0.023	SD of Detected	0.281
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.85	Shapiro Wilk Test Statistic	0.887
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0419	Mean	-3.331
SD	0.0276	SD	0.543
95% DL/2 (t) UCL	0.0533	95% H-Stat (DL/2) UCL	0.0544

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.033	Mean in Log Scale	-3.311
SD	0.0394	SD in Log Scale	0.62
95% MLE (t) UCL	0.0491	Mean in Original Scale	0.0437
95% MLE (Tiku) UCL	0.0589	SD in Original Scale	0.0278
		95% t UCL	0.0551
		95% Percentile Bootstrap UCL	0.0545
		95% BCA Bootstrap UCL	0.0558
		95% H UCL	0.0611

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	7.415	Data appear Normal at 5% Significance Level
Theta Star	0.0102	
nu star	88.98	

		Nonparametric Statistics	
A-D Test Statistic	0.462		
5% A-D Critical Value	0.698	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.698	Mean	0.0626
5% K-S Critical Value	0.332	SD	0.0153
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.00396
		95% KM (t) UCL	0.0695
Assuming Gamma Distribution		95% KM (z) UCL	0.0691
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0683
Minimum	1.00E-06	95% KM (bootstrap t) UCL	0.0803
Maximum	0.115	95% KM (BCA) UCL	0.0776
Mean	0.0267	95% KM (Percentile Bootstrap) UCL	0.073
Median	1.00E-06	95% KM (Chebyshev) UCL	0.0799
SD	0.0382	97.5% KM (Chebyshev) UCL	0.0873
k star	0.156	99% KM (Chebyshev) UCL	0.102
Theta star	0.171		
Nu star	5.608	Potential UCLs to Use	
AppChi2	1.443	95% KM (t) UCL	0.0695
95% Gamma Approximate UCL (Use when n >= 40)	0.104	95% KM (Percentile Bootstrap) UCL	0.073
95% Adjusted Gamma UCL (Use when n < 40)	0.12		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006)
For additional insight, the user may want to consult a statistician.

Appendix F

Location Specific Screening of Sediment and Surface Water

ED_002022B_00026752-00242

Table F-1
Summary of Surface Water COPC Data by Sample Point

						AOC	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW
						Location Name	AS10-SW12	AL9-SW11	AL8-SW06	W5A-SW10	W5-SW05	O14-SW04	O14A-SW09	T20-SW08	N24-SW07	G27-SW03
						Sample Name	AS10-SW-12	AL9-SW-11	AL8-SW06-0.5-122911	W5A-SW-10	W5-SW05-0.6-122911	O14-SW04-0.6-122911	O14A-SW-09	T-20-SW-08	N-24-SW-07	G27-SW03-0.6-122811
						Sample Date	7/19/2012	7/19/2012	12/29/2011	7/19/2012	12/29/2011	12/29/2011	7/19/2012	7/19/2012	7/19/2012	12/28/2011
						Sample Type	N	N	N	N	N	N	N	N	N	N
COPEC	**CAS Number**	**Units**	**Method**	**Fraction**	**Aquatic Life Screening Level**	**Amphibian SL**										
Barium	7440-39-3	ug/l	SW6010	D	3.9	NA	**79.8**	**79.8**	**71.6**	**77.2**	**72**	**72.7**	**85.8**	**80.3**	**80.4**	**73**
Copper	7440-50-8	ug/l	SW6010	D	4.8	15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4,4-DDD (p,p)	72-54-8	ug/l	SW8081	N	0.011	NA	< 0.004	< 0.004	NA	< 0.004	NA	NA	< 0.004	< 0.004	< 0.004	NA
4,4-DDE (p,p)	72-55-9	ug/l	SW8081	N	105	NA	< 0.002	**0.002**	NA	< 0.002	NA	NA	< 0.002	< 0.002	< 0.002	NA
4,4-DDT (p,p)	50-29-3	ug/l	SW8081	N	0.0005	150	< 0.004	< 0.004	NA	< 0.004	NA	NA	< 0.004	< 0.004	< 0.004	NA
Total DDx	RACALC-DDx	ug/l	SW8081	N	0.001	150	< 0.004	**0.002**	NA	< 0.004	NA	NA	< 0.004	< 0.004	< 0.004	NA
alpha-Chlordane	5103-71-9	ug/l	SW8081	N	0.0022	500	< 0.002	**0.003**	NA	< 0.002	NA	NA	< 0.002	< 0.002	**0.003**	NA
Chlordane	57-74-9	ug/l	SW8081	N	0.0043	NA	**0.027**	**0.027**	NA	**0.027**	NA	NA	**0.018**	**0.021**	**0.027**	NA
1-Methylnaphthalene	90-12-0	ug/l	SW8270 SIM	N	2.1	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	91-57-6	ug/l	SW8270 SIM	N	4.7	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	83-32-9	ug/l	SW8270 SIM	N	23	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	208-96-8	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Anthracene	120-12-7	ug/l	SW8270 SIM	N	0.73	25	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(a)anthracene	56-55-3	ug/l	SW8270 SIM	N	0.027	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(a)pyrene	50-32-8	ug/l	SW8270 SIM	N	0.014	12.5	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(b)fluoranthene	205-99-2	ug/l	SW8270 SIM	N	9.1	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(g,h,i)perylene	191-24-2	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(k)fluoranthene	207-08-9	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Chrysene	218-01-9	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzo(a,h)anthracene	53-70-3	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	206-44-0	ug/l	SW8270 SIM	N	8.1	90	< 0.050	< 0.050	< 0.050	< 0.050	**0.059**	< 0.050	**0.056**	< 0.050	< 0.050	< 0.050
Fluorene	86-73-7	ug/l	SW8270 SIM	N	3.9	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	SW8270 SIM	N	4.3	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	91-20-3	ug/l	SW8270 SIM	N	24	2100	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	85-01-8	ug/l	SW8270 SIM	N	6.3	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pyrene	129-00-0	ug/l	SW8270 SIM	N	0.025	140	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	**0.052**	< 0.050	< 0.050	< 0.050

Table F-1
Summary of Surface Water COPC Data by Sample Point

						AOC	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW	AOC-15-SW
						Location Name	G27-SW03	G27A-SW06	F28-SW01	F28A-SW05	C28-SW02	C31-SW03	C31-SW03	A29-SW04	OUT-30-SW02	OUT-32-SW01
						Sample Name	G27-SW03-0.6-122811-2	G-27A-SW-06	F28-SW01-0.6-122811	F-28A-SW-05	C28-SW02-0.6-122711	C31-SW-03	C31-SW-03 DUP	A29-SW-04	OUT-30-SW-02	OUT-32-SW01
						Sample Date	12/28/2011	7/19/2012	12/28/2011	7/19/2012	12/27/2011	7/18/2012	7/18/2012	7/18/2012	7/18/2012	7/18/2012
						Sample Type	FD	N	N	N	N	N	FD	N	N	N
COPEC	CAS Number	Units	Method	Fraction	Aquatic Life Screening Level	Amphibian SL										
Barium	7440-39-3	ug/l	SW6010	D	3.9	NA	**71.1**	**103**	**71**	**86.9**	**93.6**	**106**	**105**	**95**	**92.4**	**93.4**
Copper	7440-50-8	ug/l	SW6010	D	4.8	15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4,4-DDD (p,p)	72-54-8	ug/l	SW8081	N	0.011	NA	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
4,4-DDE (p,p)	72-55-9	ug/l	SW8081	N	105	NA	NA	**0.002**	NA	**0.002**	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
4,4-DDT (p,p)	50-29-3	ug/l	SW8081	N	0.0005	150	NA	< 0.004	NA	< 0.004	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
Total DDx	RACALC-DDx	ug/l	SW8081	N	0.001	150	NA	**0.002**	NA	**0.002**	NA	< 0.005	< 0.004	< 0.004	< 0.004	< 0.004
alpha-Chlordane	5103-71-9	ug/l	SW8081	N	0.0022	500	NA	< 0.002	NA	**0.003**	NA	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Chlordane	57-74-9	ug/l	SW8081	N	0.0043	NA	NA	**0.027**	NA	**0.03**	NA	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
1-Methylnaphthalene	90-12-0	ug/l	SW8270 SIM	N	2.1	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	91-57-6	ug/l	SW8270 SIM	N	4.7	NA	**0.068**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	83-32-9	ug/l	SW8270 SIM	N	23	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	208-96-8	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Anthracene	120-12-7	ug/l	SW8270 SIM	N	0.73	25	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(a)anthracene	56-55-3	ug/l	SW8270 SIM	N	0.027	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(a)pyrene	50-32-8	ug/l	SW8270 SIM	N	0.014	12.5	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(b)fluoranthene	205-99-2	ug/l	SW8270 SIM	N	9.1	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(g,h,i)perylene	191-24-2	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(k)fluoranthene	207-08-9	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Chrysene	218-01-9	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzo(a,h)anthracene	53-70-3	ug/l	SW8270 SIM	N	NA	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	206-44-0	ug/l	SW8270 SIM	N	8.1	90	< 0.050	**0.115**	< 0.050	**0.092**	< 0.050	**0.065**	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	86-73-7	ug/l	SW8270 SIM	N	3.9	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Indeno(1,2,3-cd)pyrene	193-39-5	ug/l	SW8270 SIM	N	4.3	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	91-20-3	ug/l	SW8270 SIM	N	24	2100	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	85-01-8	ug/l	SW8270 SIM	N	6.3	NA	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pyrene	129-00-0	ug/l	SW8270 SIM	N	0.025	140	< 0.050	**0.09**	< 0.050	**0.063**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Table F-1
Summary of Surface Water COPC Data by Sample Point

Notes:
NA = not available
µg/L = micrograms per liter
Bold = detected concentration
Exceeds Aquatic Life Screening Level
Exceeds Aquatic Life Screening Level and Amphibian SL

Table F-2
Summary of Sediment COPEC Data by Sample Point

						AOC	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE	AOC-11A-SE
						Location Name	AQ9-SED38	AL8-SED36	AG7-SED34	AB6-SED32	W5-SED30	U4-SED29	P7-SED27	P7-SED27	O11-SED24	O14-SED24	Q16-SED23	S17-SED22
						Sample Name	AQ9-SED38-0.5-122911	AL8-SED36-0.5-122911	AG7-SED34-0.5-122911	AB6-SED32-0.5-122911	W5-SED30-0.5-122911	U4-SED29-0.5-122911	P7-SED27-0.5-122911	P7-SED27-0.5-122911-2	O11-SED24-0.5-122911	O14-SED24-0.5-122911	Q16-SED23-0.5-122911	S17-SED22-0.5-122811
						Sample Date	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/29/2011	12/28/2011
						Start Depth	0	0	0	0	0	0	0	0	0	0	0	0
						End Depth	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
						Sample Type	N	N	N	N	N	N	N	FD	N	N	N	N
COPEC	CAS Number	Units	Method	Fraction	Threshold Levels	Probable Levels												
PH	PH	pH units	A423	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PMOIST	PMOIST	%	D2216	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Solids	SOLIDS, PERCENT	%	D2216	N	NA	NA	67.6	72.4	80	75.3	77.5	77.3	69.2	52.8	81	67.9	67.4	68.1
Fractional % Sieve #10 (4750-2000um)	SIEVE10	%	D422	N	NA	NA	N/A	20.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	26	N/A
Fractional % Sieve #100 (250-150um)	SIEVE100	%	D422	N	NA	NA	N/A	3.51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.79	N/A
Fractional % Sieve #20 (2000-850um)	SIEVE20	%	D422	N	NA	NA	N/A	23.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21.6	N/A
Fractional % Sieve #200 (150-75um)	SIEVE200	%	D422	N	NA	NA	N/A	0.597	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.747	N/A
Fractional % Sieve #230 (less than 75um)	SIEVE230	%	D422	N	NA	NA	N/A	0.398	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.299	N/A
Fractional % Sieve #4 (>4750um)	SIEVE4	%	D422	N	NA	NA	N/A	12.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14.5	N/A
Fractional % Sieve #40 (850-425um)	SIEVE40	%	D422	N	NA	NA	N/A	25.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22.7	N/A
Fractional % Sieve #60 (425-250um)	SIEVE60	%	D422	N	NA	NA	N/A	14.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11.3	N/A
Solids	SOLIDS, PERCENT	%	E160.3	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Organic Carbon	TOC	mg/kg	ETOC.LK	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oxidation/Reduction Potential	ORP	Eh	ORP	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Specific Conductivity	SC	ms/cm	SM2510B	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	7440-38-2	mg/kg	SW6010	N	9.79	33	2.83	2.91	4.31	2.93	1.94	2.59	2.98	N/A	2.06	2.9	2.05	< 2.15
Barium	7440-39-3	mg/kg	SW6010	N	0.7	NA	73.5	33.5	61.3	50.9	44.8	44.6	47.8	N/A	37.9	71.9	54.6	36.6
Beryllium	7440-41-7	mg/kg	SW6010	N	NA	NA	< 0.725	< 0.638	< 0.581	< 0.562	< 0.575	< 0.587	< 0.673	N/A	< 0.571	< 0.651	< 0.652	< 0.717
Cadmium	7440-43-9	mg/kg	SW6010	N	0.99	4.98	< 0.725	< 0.638	< 0.581	< 0.562	< 0.575	< 0.587	< 0.673	N/A	< 0.571	< 0.651	< 0.652	< 0.717
Chromium	7440-47-3	mg/kg	SW6010	N	43.4	111	9.43	6.79	283	8.68	11.2	5.8	12.7	N/A	10.6	16	14.8	7.81
Copper	7440-50-8	mg/kg	SW6010	N	31.6	149	23.6	9.85	34.6	23.2	11.5	11.4	13.3	N/A	10.9	12.5	13	9.49
Lead	7439-92-1	mg/kg	SW6010	N	35.8	128	10.3	9.93	8.23	9.02	8.54	6.96	22.5	N/A	14	13.7	12.6	10.6
Nickel	7440-02-0	mg/kg	SW6010	N	22.7	48.6	6.73	5.42	133	7.49	7.58	6.1	8	N/A	7.31	10.6	15.9	6.26
Vanadium	7440-62-2	mg/kg	SW6010	N	0.05	NA	13.8	15.7	13.2	17.5	13	9.49	14.2	N/A	13.3	16.3	14.1	12.6
Zinc	7440-66-6	mg/kg	SW6010	N	121	459	34	32.2	35.3	37.9	34.5	28	51.4	N/A	30.3	49.4	36.1	40.6
Mercury	7439-97-6	mg/kg	SW7470A	N	0.18	1.06	< 0.0403	< 0.0385	< 0.0374	< 0.0375	< 0.0377	< 0.0382	< 0.0403	N/A	< 0.0366	< 0.0426	< 0.0427	< 0.0391
4,4-DDD (p,p)	72-54-8	mg/kg	SW8081	N	0.00488	0.028	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	< 0.0114	N/A	< 0.00952	< 0.0118	< 0.0119	< 0.0113
4,4-DDE (p,p)	72-55-9	mg/kg	SW8081	N	0.00316	0.0311	< 0.00718	< 0.00684	< 0.00621	< 0.00648	0.00648	< 0.00631	0.0116	N/A	< 0.00595	0.00893	0.00941	< 0.00706
4,4-DDT (p,p)	50-29-3	mg/kg	SW8081	N	0.00416	0.0629	< 0.0115	< 0.0109	< 0.00993	< 0.0104	< 0.0101	< 0.0101	0.0157	N/A	< 0.00952	0.013	< 0.0119	< 0.0113
alpha-Chlordane	5103-71-9	mg/kg	SW8081	N	NA	NA	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	0.00885	N/A	< 0.00595	< 0.00735	< 0.00741	< 0.00706
Chlordane	57-74-9	mg/kg	SW8081	N	0.00324	0.0176	< 0.0287	< 0.0274	< 0.0248	< 0.0259	< 0.0253	< 0.0252	0.0343	N/A	< 0.0238	< 0.0294	< 0.0296	< 0.0283
gamma-Chlordane	5103-74-2	mg/kg	SW8081	N	NA	NA	< 0.00718	< 0.00684	< 0.00621	< 0.00648	< 0.00633	< 0.00631	< 0.00713	N/A	< 0.00595	< 0.00735	< 0.00741	< 0.00706
Total DDx	RACALC-DDx	mg/kg	SW8081	N	0.00528	0.572	< 0.0115	< 0.0109	< 0.00993	< 0.0104	0.00648	< 0.0101	0.0273	N/A	< 0.00952	0.0219	0.00941	< 0.0113
Aroclor 1248	12672-29-6	mg/kg	SW8082	N	NA	NA	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239	< 0.0276	< 0.0284	< 0.0277
Aroclor 1260	11096-82-5	mg/kg	SW8082	N	NA	NA	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239	< 0.0276	< 0.0284	< 0.0277
Total PCB Aroclors	RACALC-PCB	mg/kg	SW8082	N	0.0598	0.676	< 0.0292	< 0.0255	< 0.0237	< 0.0263	< 0.0252	< 0.0258	< 0.0275	N/A	< 0.0239	< 0.0276	< 0.0284	< 0.0277
2-Butanone (MEK)	78-93-3	mg/kg	SW8260	N	NA	NA	N/A	< 0.0912	N/A	N/A	N/A	< 0.0882	N/A	N/A	N/A	N/A	< 0.17	N/A
Acetone	67-64-1	mg/kg	SW8260	N	NA	NA	N/A	< 0.0912	N/A	N/A	N/A	< 0.0882	N/A	N/A	N/A	N/A	< 0.17	N/A
1-Methylnaphthalene	90-12-0	mg/kg	SW8270	N	NA	NA	< 0.48	< 0.444	< 0.409	< 0.435	< 0.417	< 0.425	< 0.474	< 0.309	< 0.399	< 0.482	< 0.48	< 0.48
2-Methylnaphthalene	91-57-6	mg/kg	SW8270	N	0.202	NA	< 0.48	< 0.444	< 0.409	< 0.435	< 0.417	< 0.425	< 0.474	< 0.309	< 0.399	< 0.482	< 0.48	< 0.48
Anthracene	120-12-7	mg/kg	SW8270	N	0.0572	0.845	< 0.48	< 0.444	< 0.409	0.566	< 0.417	< 0.425	< 0.474	< 0.309	< 0.399	< 0.482	< 0.48	< 0.48
Benzo(a)anthracene	56-55-3	mg/kg	SW8270	N	0.108	1.05	< 0.48	< 0.444	< 0.409	1.7	0.445	< 0.425	< 0.474	0.471	0.586	0.744	< 0.48	< 0.48
Benzo(a)pyrene	50-32-8	mg/kg	SW8270	N	0.15	1.45	< 0.48	< 0.444	< 0.409	1.29	< 0.417	< 0.425	< 0.474	0.437	0.494	0.714	< 0.48	< 0.48
Benzo(b)fluoranthene	205-99-2	mg/kg	SW8270	N	10.4	NA	< 0.48	< 0.444	< 0.409	1.31	0.435	< 0.425	< 0.474	0.494	0.495	0.642	< 0.48	< 0.48
Benzo(g,h,i)perylene	191-24-2	mg/kg	SW8270	N	0.17	3.2	< 0.48	< 0.444	< 0.409	0.61	< 0.417	< 0.425	< 0.474	< 0.309	< 0.399	< 0.482	< 0.48	< 0.48
Benzo(k)fluoranthene	207-08-9	mg/kg	SW8270	N	0.0272	13.4	< 0.48	< 0.444	< 0.409	0.858	< 0.417	< 0.425	< 0.474	0.357	0.439	0.763	< 0.48	< 0.48
Chrysene	218-01-9	mg/kg	SW8270	N	0.166	1.29	< 0.48	< 0.444	< 0.409	1.31	0.471	< 0.425	< 0.474	0.517	0.602	0.843	< 0.48	< 0.48
Fluoranthene	206-44-0	mg/kg	SW8270	N	0.423	2.23	0.85	0.608	0.622	3.4	1.01	< 0.425	0.995	1.29	1.44	1.92	< 0.48	< 0.48
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	SW8270	N	0.0173	3.2	< 0.48	< 0.444	< 0.409	0.646	< 0.417	< 0.425	< 0.474	< 0.309	< 0.399	< 0.482	< 0.48	< 0.48
Phenanthrene	85-01-8	mg/kg	SW8270	N	0.204	1.17	< 0.48	< 0.444	< 0.409	1.77	< 0.417	< 0.425	< 0.474	0.579	0.811	0.773	< 0.48	< 0.48
Pyrene	129-00-0	mg/kg	SW8270	N	0.195	1.52	0.694	0.648	0.513	2.88	0.862	< 0.425	0.855	1.07	1.19	1.52	< 0.48	< 0.48
Total High Molecular Weight PAHs	RACALC-HPAH	mg/kg	SW8270	N	0.193	6.5	0.694	0.648	0.513	10.4	2.21	< 0.425	0.855	3.35	3.81	5.23	< 0.48	< 0.48
Total Low Molecular Weight PAHs	RACALC-LPAH	mg/kg	SW8270	N	0.07642	5.3	0.85	0.608	0.622	5.74	1.01	< 0.425	0.995	1.87	2.25	2.69	< 0.48	< 0.48
Total PAHs	RACALC-PAH	mg/kg	SW8270	N	1.6	22.8	1.54	1.26	1.13	16.1	3.22	< 0.425	1.85	5.21	6.06	7.92	< 0.48	< 0.48
Total Organic Carbon	TOC	mg/kg	SW9060	N	NA	NA	N/A	7490	N/A	3830	N/A	4830	6050	N/A	N/A	N/A	5890	N/A
Total Organic Carbon	TOC	mg/kg	TOCLLOYDKAHN	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table F-2
Summary of Sediment COPEC Data by Sample Point

						AOC	AOC-11A-SE	AOC-11B-SE	AOC-11B-SE	AOC-11B-SE	AOC-11B-SE	AOC-11B-SE	AOC-11B-SE	AOC-11B-SE	AOC-11B-SE	AOC-11B-SE	AOC-11B-SE	AOC-12-SE	AOC-12-SE
						Location Name	U18-SED21	U21-SED20	T20-SED	T20-SED	R22-SED19	P23-SED18	N24-SED	N24-SED	N24-SED17	L25-SED16	I26-SED15	H27-SED11	G27-SED12
						Sample Name	U18-SED21-0.5-122811	U21-SED20-0.5-122811	T20-SED-TOP	T20-SED-BOTTOM	R22-SED19-0.5-122811	P23-SED18-0.5-122811	N24-SED-TOP	N24-SED-BOTTOM	N24-SED17-0.5-122811	L25-SED16-0.5-122811	I26-SED15-0.5-122811	H27-SED11-0.5-122811	G27-SED12-05-122811
						Sample Date	12/28/2011	12/28/2011	7/19/2012	7/19/2012	12/28/2011	12/28/2011	7/19/2012	7/19/2012	12/28/2011	12/28/2011	12/28/2011	12/28/2011	12/28/2011
						Start Depth	0	0	0	10"	0	0	0	10"	0	0	0	0	0
						End Depth	0.5	0.5	10"	20"	0.5	0.5	10"	20"	0.5	0.5	0.5	0.5	0.5
						Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N
COPEC	CAS Number	Units	Method	Fraction	Threshold Levels	Probable Levels													
PH	PH	pH units	A423	N	NA	NA	N/A	N/A	6.89	6.84	N/A	N/A	6.96	7.08	N/A	N/A	N/A	N/A	N/A
PMOIST	PMOIST	%	D2216	N	NA	NA	N/A	N/A	17	18	N/A	N/A	18	25	N/A	N/A	N/A	N/A	N/A
Solids	SOLIDS, PERCENT	%	D2216	N	NA	NA	66.5	67.8	84.8	78.2	69.3	70.9	82.7	76.4	59.4	76.8	71.8	68.9	69.1
Fractional % Sieve #10 (4750-2000um)	SIEVE10	%	D422	N	NA	NA	N/A	N/A	16.9	17.2	N/A	N/A	11.4	12.5	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #100 (250-150um)	SIEVE100	%	D422	N	NA	NA	N/A	N/A	2.6	3.97	N/A	N/A	2.48	4.7	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #20 (2000-850um)	SIEVE20	%	D422	N	NA	NA	N/A	N/A	31.9	31.2	N/A	N/A	36	25.7	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #200 (150-75um)	SIEVE200	%	D422	N	NA	NA	N/A	N/A	1.19	1.37	N/A	N/A	1.65	5.13	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #230 (less than 75um)	SIEVE230	%	D422	N	NA	NA	N/A	N/A	0.742	0.39	N/A	N/A	1.34	4.04	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #4 (>4750um)	SIEVE4	%	D422	N	NA	NA	N/A	N/A	2.82	7.15	N/A	N/A	1.4	3.53	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #40 (850-425um)	SIEVE40	%	D422	N	NA	NA	N/A	N/A	34.6	28.4	N/A	N/A	36.6	32.6	N/A	N/A	N/A	N/A	N/A
Fractional % Sieve #60 (425-250um)	SIEVE60	%	D422	N	NA	NA	N/A	N/A	9.28	10.3	N/A	N/A	9.05	11.8	N/A	N/A	N/A	N/A	N/A
Solids	SOLIDS, PERCENT	%	E160.3	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	83	76	N/A	N/A	N/A	N/A	N/A
Total Organic Carbon	TOC	mg/kg	ETOC.LK	N	NA	NA	N/A	N/A	5470	4450	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oxidation/Reduction Potential	ORP	Eh	ORP	N	NA	NA	N/A	N/A	545	544	N/A	N/A	529	532	N/A	N/A	N/A	N/A	N/A
Specific Conductivity	SC	ms/cm	SM2510B	N	NA	NA	N/A	N/A	101	102	N/A	N/A	74.7	83.5	N/A	N/A	N/A	N/A	N/A
Arsenic	7440-38-2	mg/kg	SW6010	N	9.79	33	< 2.11	2.78	2.94	2.05	< 1.94	< 1.97	2.38	2.56	6.29	< 1.82	1.84	2.43	6.33
Barium	7440-39-3	mg/kg	SW6010	N	0.7	NA	41.7	70.8	90.7	47.9	47.1	25.8	49.5	111	48.6	41.7	39.4	51	45.5
Beryllium	7440-41-7	mg/kg	SW6010	N	NA	NA	< 0.704	< 0.736	< 0.567	< 0.622	< 0.647	< 0.656	< 0.537	< 0.615	< 0.793	< 0.608	< 0.583	< 0.645	< 0.691
Cadmium	7440-43-9	mg/kg	SW6010	N	0.99	4.98	< 0.704	0.817	< 0.567	< 0.622	< 0.647	< 0.656	< 0.537	< 0.615	< 0.793	< 0.608	< 0.583	< 0.645	< 0.691
Chromium	7440-47-3	mg/kg	SW6010	N	43.4	111	10.3	10.4	13.9	12.8	9.03	5.79	12.9	23.5	11.9	9.41	7.16	10.7	10.7
Copper	7440-50-8	mg/kg	SW6010	N	31.6	149	10.3	11.6	44.6	16.6	7.01	10.3	21.3	17	12	11.3	10.5	12	11.6
Lead	7439-92-1	mg/kg	SW6010	N	35.8	128	14.2	14.6	15.2	16.2	11.3	9.03	24.5	12	16.6	8.53	13.7	15.6	17
Nickel	7440-02-0	mg/kg	SW6010	N	22.7	48.6	7.43	31.6	10.4	8.73	5.81	6.64	7.75	12	6.72	6.58	6.47	7.86	8.58
Vanadium	7440-62-2	mg/kg	SW6010	N	0.05	NA	14.3	13.8	18.1	14.8	11	7.92	14	24.2	16.2	11.7	9.05	12.5	12.1
Zinc	7440-66-6	mg/kg	SW6010	N	121	459	44.2	55.2	45.4	35.2	42.9	28.9	42.3	47.1	46.2	35	33	52.9	60.6
Mercury	7439-97-6	mg/kg	SW7470A	N	0.18	1.06	< 0.0416	< 0.0421	< 0.0323	< 0.0349	< 0.0419	< 0.0401	< 0.0347	< 0.0360	< 0.0490	< 0.0373	< 0.0402	< 0.0413	0.111
4,4-DDD (p,p)	72-54-8	mg/kg	SW8081	N	0.00488	0.028	< 0.0120	< 0.0117	< 0.00923	0.0311	< 0.0111	< 0.0111	< 0.00950	< 0.0101	< 0.0134	< 0.0101	< 0.0109	< 0.0114	< 0.0114
4,4-DDE (p,p)	72-55-9	mg/kg	SW8081	N	0.00316	0.0311	< 0.00751	0.00997	0.00747	0.0125	0.00806	0.00712	0.0123	0.00632	0.0104	0.00759	0.00807	0.0105	0.00995
4,4-DDT (p,p)	50-29-3	mg/kg	SW8081	N	0.00416	0.0629	< 0.0120	0.0136	< 0.00923	< 0.0101	< 0.0111	< 0.0111	< 0.00950	< 0.0101	< 0.0134	< 0.0101	< 0.0109	< 0.0114	< 0.0114
alpha-Chlordane	5103-71-9	mg/kg	SW8081	N	NA	NA	< 0.00751	< 0.00732	< 0.00577	< 0.00634	< 0.00694	< 0.00695	0.0076	< 0.00630	< 0.00839	< 0.00630	< 0.00681	< 0.00713	< 0.00713
Chlordane	57-74-9	mg/kg	SW8081	N	0.00324	0.0176	< 0.0300	0.0685	0.0231	0.0361	< 0.0278	0.0522	0.0315	0.0952	0.0412	< 0.0252	0.0278	0.0586	0.0352
gamma-Chlordane	5103-74-2	mg/kg	SW8081	N	NA	NA	< 0.00751	< 0.00732	< 0.00577	< 0.00634	< 0.00694	< 0.00695	< 0.00594	< 0.00630	< 0.00839	< 0.00630	< 0.00681	< 0.00713	< 0.00713
Total DDx	RACALC-DDx	mg/kg	SW8081	N	0.00528	0.572	< 0.0120	0.0236	0.00747	0.0436	0.00806	0.00712	0.0123	0.00632	0.0104	0.00759	0.00807	0.0105	0.00995
Aroclor 1248	12672-29-6	mg/kg	SW8082	N	NA	NA	< 0.0292	< 0.0281	< 0.0460	< 0.0239	< 0.0269	< 0.0278	< 0.0461	0.101	< 0.0313	< 0.0252	< 0.0265	< 0.0279	< 0.0270
Aroclor 1260	11096-82-5	mg/kg	SW8082	N	NA	NA	< 0.0292	< 0.0281	< 0.0230	< 0.0239	< 0.0269	< 0.0278	< 0.0230	< 0.0243	< 0.0313	< 0.0252	< 0.0265	< 0.0279	< 0.0270
Total PCB Aroclors	RACALC-PCB	mg/kg	SW8082	N	0.0598	0.676	< 0.0292	< 0.0281	< 0.0460	< 0.0239	< 0.0269	< 0.0278	< 0.0461	0.101	< 0.0313	< 0.0252	< 0.0265	< 0.0279	< 0.0270
2-Butanone (MEK)	78-93-3	mg/kg	SW8260	N	NA	NA	N/A	N/A	< 0.0767	< 0.0627	N/A	N/A	< 0.0713	< 0.105	N/A	N/A	N/A	N/A	< 0.101
Acetone	67-64-1	mg/kg	SW8260	N	NA	NA	N/A	N/A	0.391	< 0.0627	N/A	N/A	0.186	< 0.105	N/A	N/A	N/A	N/A	< 0.101
1-Methylnaphthalene	90-12-0	mg/kg	SW8270	N	NA	NA	< 0.976	< 0.951	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	< 0.946
2-Methylnaphthalene	91-57-6	mg/kg	SW8270	N	0.202	NA	< 0.976	< 0.951	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	< 0.946
Anthracene	120-12-7	mg/kg	SW8270	N	0.0572	0.845	< 0.976	1.83	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	< 0.946
Benzo(a)anthracene	56-55-3	mg/kg	SW8270	N	0.108	1.05	< 0.976	1.79	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	0.964
Benzo(a)pyrene	50-32-8	mg/kg	SW8270	N	0.15	1.45	< 0.976	1.29	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	< 0.946
Benzo(b)fluoranthene	205-99-2	mg/kg	SW8270	N	10.4	NA	< 0.976	1.34	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	< 0.946
Benzo(g,h,i)perylene	191-24-2	mg/kg	SW8270	N	0.17	3.2	< 0.976	< 0.951	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	< 0.946
Benzo(k)fluoranthene	207-08-9	mg/kg	SW8270	N	0.0272	13.4	< 0.976	1.43	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	< 0.946
Chrysene	218-01-9	mg/kg	SW8270	N	0.166	1.29	< 0.976	1.81	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	< 0.946
Fluoranthene	206-44-0	mg/kg	SW8270	N	0.423	2.23	< 0.976	3.27	< 0.977	< 0.211	1.29	< 0.453	1.76	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	3.43
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	SW8270	N	0.0173	3.2	< 0.976	< 0.951	< 0.977	< 0.211	< 0.932	< 0.453	< 1.01	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	< 0.946
Phenanthrene	85-01-8	mg/kg	SW8270	N	0.204	1.17	< 0.976	2.44	< 0.977	< 0.211	< 0.932	< 0.453	1.07	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	1.06
Pyrene	129-00-0	mg/kg	SW8270	N	0.195	1.52	< 0.976	3.85	< 0.977	< 0.211	< 0.932	< 0.453	1.43	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	2.88
Total High Molecular Weight PAHs	RACALC-HPAH	mg/kg	SW8270	N	0.193	6.5	< 0.976	11.5	< 0.977	< 0.211	< 0.932	< 0.453	1.43	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	3.04
Total Low Molecular Weight PAHs	RACALC-LPAH	mg/kg	SW8270	N	0.07642	5.3	< 0.976	10.7	< 0.977	< 0.211	1.29	< 0.453	2.83	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	3.47
Total PAHs	RACALC-PAH	mg/kg	SW8270	N	1.6	22.8	< 0.976	22.3	< 0.977	< 0.211	1.29	< 0.453	4.26	< 0.218	< 0.547	< 0.838	< 0.449	< 0.941	6.51
Total Organic Carbon	TOC	mg/kg	SW9060	N	NA	NA	N/A	N/A	N/A	N/A	8400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7330
Total Organic Carbon	TOC	mg/kg	TOCLLOYDKAHN	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	5260	3170	N/A	N/A	N/A	N/A	N/A

Table F-2
Summary of Sediment COPEC Data by Sample Point

						AOC	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE
						Location Name	H28-SED06	F27-SED13	G28-SED07	F28-SED08	F28A-SED	F28A-SED	F28A-SED	G29-SED01	D28-SED08	E29-SED	E29-SED	F29-SED02	D27-SED14
						Sample Name	H28-SED06-0.5-122811	F27-SED13-0.5-122811	G28-SED07-0.5-122811	F28-SED08-05-122811	F28A-SED-TOP	F28A-SED-TOP-DUP	F28A-SED-BOTTOM	G29-SED01-0.5-122811	D28-SED08-0.5-122811	E29-SED-TOP	E29-SED-BOTTOM	F29-SED02-0.5-122811	D27-SED14-0.5-122711
						Sample Date	12/28/2011	12/28/2011	12/28/2011	12/28/2011	7/19/2012	7/19/2012	7/19/2012	12/28/2011	12/28/2011	7/19/2012	7/19/2012	12/28/2011	12/27/2011
						Start Depth	0	0	0	0	0	0	13"	0	0	0	14"	0	0
						End Depth	0.5	0.5	0.5	0.5	13"	13"	26"	0.5	0.5	14"	27"	0.5	0.5
						Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N
COPEC	CAS Number	Units	Method	Fraction	Threshold Levels	Probable Levels													
PH	PH	pH units	A423	N	NA	NA	N/A	N/A	N/A	N/A	6.87	6.85	6.77	N/A	N/A	6.79	6.78	N/A	N/A
PMOIST	PMOIST	%	D2216	N	NA	NA	N/A	N/A	N/A	N/A	60	53	66	N/A	N/A	76	62	N/A	N/A
Solids	SOLIDS, PERCENT	%	D2216	N	NA	NA	15.6	23.2	21.7	19.7	52.6	45	30.8	25.8	16.9	23.9	42.1	22.7	19.3
Fractional % Sieve #10 (4750-2000um)	SIEVE10	%	D422	N	NA	NA	N/A	N/A	N/A	2.26	8.28	6.66	15.6	N/A	N/A	13.3	11.5	N/A	N/A
Fractional % Sieve #100 (250-150um)	SIEVE100	%	D422	N	NA	NA	N/A	N/A	N/A	12.7	8.56	7.59	9.74	N/A	N/A	8.35	2.73	N/A	N/A
Fractional % Sieve #20 (2000-850um)	SIEVE20	%	D422	N	NA	NA	N/A	N/A	N/A	9.89	25	24.2	16.5	N/A	N/A	17.2	35.1	N/A	N/A
Fractional % Sieve #200 (150-75um)	SIEVE200	%	D422	N	NA	NA	N/A	N/A	N/A	16.4	6.98	7.71	10.8	N/A	N/A	13.3	1.66	N/A	N/A
Fractional % Sieve #230 (less than 75um)	SIEVE230	%	D422	N	NA	NA	N/A	N/A	N/A	24.9	8.19	13	22.2	N/A	N/A	25.8	1.32	N/A	N/A
Fractional % Sieve #4 (>4750um)	SIEVE4	%	D422	N	NA	NA	N/A	N/A	N/A	0.282	1.86	0.234	4.19	N/A	N/A	0.983	1.66	N/A	N/A
Fractional % Sieve #40 (850-425um)	SIEVE40	%	D422	N	NA	NA	N/A	N/A	N/A	19.5	28.8	29	12	N/A	N/A	13.3	36.9	N/A	N/A
Fractional % Sieve #60 (425-250um)	SIEVE60	%	D422	N	NA	NA	N/A	N/A	N/A	14.1	12.3	11.7	8.93	N/A	N/A	7.86	9.26	N/A	N/A
Solids	SOLIDS, PERCENT	%	E160.3	N	NA	NA	N/A	N/A	N/A	N/A	42	33	29	N/A	N/A	23	43	N/A	N/A
Total Organic Carbon	TOC	mg/kg	ETOC.LK	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oxidation/Reduction Potential	ORP	Eh	ORP	N	NA	NA	N/A	N/A	N/A	N/A	520	505	171	N/A	N/A	148	140	N/A	N/A
Specific Conductivity	SC	ms/cm	SM2510B	N	NA	NA	N/A	N/A	N/A	N/A	287	316	378	N/A	N/A	373	319	N/A	N/A
Arsenic	7440-38-2	mg/kg	SW6010	N	9.79	33	15	12.5	12.7	10.6	5.09	5.59	23.7	9.68	14.9	13.1	14.8	9.97	11.5
Barium	7440-39-3	mg/kg	SW6010	N	0.7	NA	409	369	412	283	146	168	357	321	457	407	261	332	427
Beryllium	7440-41-7	mg/kg	SW6010	N	NA	NA	< 2.69	< 2.09	< 2.06	< 2.17	< 0.828	< 0.941	1.45	< 1.80	< 2.48	< 2.01	< 1.06	< 1.98	< 2.51
Cadmium	7440-43-9	mg/kg	SW6010	N	0.99	4.98	3.31	2.86	3.15	< 2.17	< 0.828	< 0.941	2.35	2.23	3.07	2.51	1.99	2.12	3.19
Chromium	7440-47-3	mg/kg	SW6010	N	43.4	111	65.8	56.9	57.6	44.8	26.5	28.7	71.1	53.3	62.7	67.3	55.7	43.5	61.4
Copper	7440-50-8	mg/kg	SW6010	N	31.6	149	173	143	189	104	67.3	80.6	195	109	181	191	141	105	180
Lead	7439-92-1	mg/kg	SW6010	N	35.8	128	220	174	198	125	72.3	84	290	136	199	324	341	129	318
Nickel	7440-02-0	mg/kg	SW6010	N	22.7	48.6	45.1	41.2	42.9	32	19	21.8	48.8	35.3	44.9	48.6	36.3	30	42.3
Vanadium	7440-62-2	mg/kg	SW6010	N	0.05	NA	67.4	57.9	58.9	43.9	26.5	30.2	74.3	52.2	66.5	68.7	59.8	43.2	60.6
Zinc	7440-66-6	mg/kg	SW6010	N	121	459	507	471	457	346	153	179	365	326	511	433	286	355	487
Mercury	7439-97-6	mg/kg	SW7470A	N	0.18	1.06	0.377	0.332	0.398	0.258	0.105	0.203	0.43	0.301	0.356	0.481	0.388	0.193	0.491
4,4-DDD (p,p)	72-54-8	mg/kg	SW8081	N	0.00488	0.028	< 0.0507	0.0434	< 0.0364	< 0.0389	< 0.0146	< 0.0170	< 0.0257	< 0.0305	< 0.0470	0.182	0.0382	< 0.0351	< 0.0400
4,4-DDE (p,p)	72-55-9	mg/kg	SW8081	N	0.00316	0.0311	< 0.0317	0.0601	0.05	0.0442	< 0.00913	< 0.0106	0.0263	0.0355	0.0645	0.164	0.0546	0.0356	0.0325
4,4-DDT (p,p)	50-29-3	mg/kg	SW8081	N	0.00416	0.0629	< 0.0507	< 0.0341	< 0.0364	< 0.0389	< 0.0146	< 0.0170	< 0.0257	< 0.0305	< 0.0470	0.0358	< 0.0187	< 0.0351	< 0.0400
alpha-Chlordane	5103-71-9	mg/kg	SW8081	N	NA	NA	< 0.0317	0.0275	< 0.0227	< 0.0243	< 0.00913	< 0.0106	< 0.0160	0.0442	< 0.0294	0.0881	0.023	< 0.0219	< 0.0250
Chlordane	57-74-9	mg/kg	SW8081	N	0.00324	0.0176	< 0.127	0.14	0.12	0.157	< 0.0365	< 0.0424	< 0.0641	0.154	0.141	0.371	0.123	< 0.0877	< 0.1
gamma-Chlordane	5103-74-2	mg/kg	SW8081	N	NA	NA	< 0.0317	< 0.0213	< 0.0227	< 0.0243	< 0.00913	< 0.0106	< 0.0160	< 0.0191	< 0.0294	0.0541	0.0182	< 0.0219	< 0.0250
Total DDx	RACALC-DDx	mg/kg	SW8081	N	0.00528	0.572	< 0.0507	0.103	0.05	0.0442	< 0.0146	< 0.0170	0.0263	0.0355	0.0645	0.382	0.0908	0.0356	0.0325
Aroclor 1248	12672-29-6	mg/kg	SW8082	N	NA	NA	< 0.119	< 0.0852	< 0.0907	< 0.0939	< 0.0721	< 0.0850	< 0.118	< 0.0731	< 0.115	< 0.156	< 0.0877	< 0.0807	< 0.102
Aroclor 1260	11096-82-5	mg/kg	SW8082	N	NA	NA	< 0.119	< 0.0852	< 0.0907	< 0.0939	< 0.0361	< 0.0425	< 0.0592	< 0.0731	1.29	< 0.0780	< 0.0439	< 0.0807	< 0.102
Total PCB Aroclors	RACALC-PCB	mg/kg	SW8082	N	0.0598	0.676	< 0.119	< 0.0852	< 0.0907	< 0.0939	< 0.0721	< 0.0850	< 0.118	< 0.0731	1.29	< 0.156	< 0.0877	< 0.0807	< 0.102
2-Butanone (MEK)	78-93-3	mg/kg	SW8260	N	NA	NA	N/A	N/A	N/A	< 5.08	< 3.11	< 3.84	< 6.52	N/A	N/A	0.972	< 3.62	N/A	N/A
Acetone	67-64-1	mg/kg	SW8260	N	NA	NA	N/A	N/A	N/A	< 5.08	< 3.11	< 3.84	< 6.52	N/A	N/A	2.68	< 3.62	N/A	N/A
1-Methylnaphthalene	90-12-0	mg/kg	SW8270	N	NA	NA	2.19	< 2.79	< 1.49	< 2.02	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
2-Methylnaphthalene	91-57-6	mg/kg	SW8270	N	0.202	NA	2.61	< 2.79	< 1.49	< 2.02	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
Anthracene	120-12-7	mg/kg	SW8270	N	0.0572	0.845	< 2.11	< 2.79	< 1.49	< 2.02	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
Benzo(a)anthracene	56-55-3	mg/kg	SW8270	N	0.108	1.05	< 2.11	< 2.79	< 1.49	< 2.02	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
Benzo(a)pyrene	50-32-8	mg/kg	SW8270	N	0.15	1.45	< 2.11	< 2.79	< 1.49	< 2.02	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
Benzo(b)fluoranthene	205-99-2	mg/kg	SW8270	N	10.4	NA	< 2.11	< 2.79	< 1.49	2.23	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
Benzo(g,h,i)perylene	191-24-2	mg/kg	SW8270	N	0.17	3.2	< 2.11	< 2.79	< 1.49	< 2.02	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
Benzo(k)fluoranthene	207-08-9	mg/kg	SW8270	N	0.0272	13.4	< 2.11	< 2.79	< 1.49	< 2.02	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
Chrysene	218-01-9	mg/kg	SW8270	N	0.166	1.29	< 2.11	< 2.79	< 1.49	2.48	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
Fluoranthene	206-44-0	mg/kg	SW8270	N	0.423	2.23	2.41	3.1	1.56	3.32	0.328	< 0.36	< 0.526	< 2.5	5.11	< 0.697	0.556	< 2.87	< 1.69
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	SW8270	N	0.0173	3.2	< 2.11	< 2.79	< 1.49	< 2.02	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	< 0.39	< 2.87	< 1.69
Phenanthrene	85-01-8	mg/kg	SW8270	N	0.204	1.17	< 2.11	< 2.79	< 1.49	2.08	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	0.398	< 2.87	< 1.69
Pyrene	129-00-0	mg/kg	SW8270	N	0.195	1.52	< 2.11	< 2.79	< 1.49	4.44	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	0.467	< 2.87	< 1.69
Total High Molecular Weight PAHs	RACALC-HPAH	mg/kg	SW8270	N	0.193	6.5	< 2.11	< 2.79	< 1.49	6.15	< 0.313	< 0.36	< 0.526	< 2.5	< 3.89	< 0.697	0.467	< 2.87	< 1.69
Total Low Molecular Weight PAHs	RACALC-LPAH	mg/kg	SW8270	N	0.07642	5.3	7.21	3.1	1.56	7.38	0.328	< 0.36	< 0.526	< 2.5	5.11	< 0.697	0.954	< 2.87	< 1.69
Total PAHs	RACALC-PAH	mg/kg	SW8270	N	1.6	22.8	7.21	3.1	1.56	16.5	0.328	< 0.36	< 0.526	< 2.5	5.11	< 0.697	1.42	< 2.87	< 1.69
Total Organic Carbon	TOC	mg/kg	SW9060	N	NA	NA	N/A	N/A	N/A	93900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Organic Carbon	TOC	mg/kg	TOCLLOYDKAHN	N	NA	NA	N/A	N/A	N/A	N/A	43600	41000	42000	N/A	N/A	50600	35900	N/A	N/A

Table F-2
Summary of Sediment COPEC Data by Sample Point

						AOC	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-12-SE	AOC-11C-SED	AOC-11C-SED
						Location Name	D27-SED14	D29-SED03	E30-SED	C28-SED10	C31-SED	C29-SED04	B29-SED05	A29-SED	B31-SED	OUT-NEW-SED
						Sample Name	D27-SED14-0.5-122711-2	D29-SED03-0.5-122811	E-30-SED-0.5	C28-SED10-0.5-122711	C-31-SED-0.5	C29-SED04-0.5-122711	B29-SED05-0.5-122711	A-29-SED-0.5	B-31-SED-0.5	OUT-NEW-SED-0.5
						Sample Date	12/27/2011	12/28/2011	7/19/2012	12/27/2011	7/19/2012	12/27/2011	12/27/2011	7/19/2012	7/19/2012	7/19/2012
						Start Depth	0	0	0	0	0	0	0	0	0	0
						End Depth	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
						Sample Type	FD	N	N	N	N	N	N	N	N	N
COPEC	CAS Number	Units	Method	Fraction	Threshold Levels	Probable Levels										
PH	PH	pH units	A423	N	NA	NA	N/A	N/A	7.6	N/A	6.95	N/A	N/A	6.93	7.04	7.15
PMOIST	PMOIST	%	D2216	N	NA	NA	N/A	N/A	79	N/A	80	N/A	N/A	72	80	72
Solids	SOLIDS, PERCENT	%	D2216	N	NA	NA	19.1	18.2	26.1	18.5	18.8	16.9	24.3	26.1	16.6	28.7
Fractional % Sieve #10 (4750-2000um)	SIEVE10	%	D422	N	NA	NA	N/A	N/A	9.95	N/A	10.4	N/A	N/A	9.17	6.01	10.7
Fractional % Sieve #100 (250-150um)	SIEVE100	%	D422	N	NA	NA	N/A	N/A	14.8	N/A	11.7	N/A	N/A	17	14.4	14.4
Fractional % Sieve #20 (2000-850um)	SIEVE20	%	D422	N	NA	NA	N/A	N/A	17.2	N/A	15	N/A	N/A	13.2	12.9	6.67
Fractional % Sieve #200 (150-75um)	SIEVE200	%	D422	N	NA	NA	N/A	N/A	16.5	N/A	17.9	N/A	N/A	18.3	20.4	16.1
Fractional % Sieve #230 (less than 75um)	SIEVE230	%	D422	N	NA	NA	N/A	N/A	14.3	N/A	20.4	N/A	N/A	20.8	19.8	11.8
Fractional % Sieve #4 (>4750um)	SIEVE4	%	D422	N	NA	NA	N/A	N/A	1.7	N/A	1.11	N/A	N/A	0.447	0.901	4.21
Fractional % Sieve #40 (850-425um)	SIEVE40	%	D422	N	NA	NA	N/A	N/A	14.8	N/A	13.7	N/A	N/A	11	14.4	21.6
Fractional % Sieve #60 (425-250um)	SIEVE60	%	D422	N	NA	NA	N/A	N/A	10.7	N/A	9.73	N/A	N/A	10.1	11.1	14.6
Solids	SOLIDS, PERCENT	%	E160.3	N	NA	NA	N/A	N/A	20	N/A	22	N/A	N/A	27	18	N/A
Total Organic Carbon	TOC	mg/kg	ETOC.LK	N	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30800
Oxidation/Reduction Potential	ORP	Eh	ORP	N	NA	NA	N/A	N/A	530	N/A	528	529	N/A	529	430	518
Specific Conductivity	SC	ms/cm	SM2510B	N	NA	NA	N/A	N/A	163	N/A	186	N/A	N/A	181	168	188
Arsenic	7440-38-2	mg/kg	SW6010	N	9.79	33	13.5	17.4	6.83	15.2	11.2	13.8	10.6	11.1	12.8	6.63
Barium	7440-39-3	mg/kg	SW6010	N	0.7	NA	453	471	198	476	347	415	332	258	357	174
Beryllium	7440-41-7	mg/kg	SW6010	N	NA	NA	< 2.55	< 2.63	< 1.67	< 2.36	< 2.54	< 2.53	< 1.80	< 1.77	< 2.77	< 1.62
Cadmium	7440-43-9	mg/kg	SW6010	N	0.99	4.98	3.47	2.84	< 1.67	3.9	< 2.54	2.8	2.6	< 1.77	< 2.77	< 1.62
Chromium	7440-47-3	mg/kg	SW6010	N	43.4	111	64.7	58	41.3	72.1	56.1	64.7	58.5	55	63	32.3
Copper	7440-50-8	mg/kg	SW6010	N	31.6	149	194	141	175	213	154	149	149	129	159	79.7
Lead	7439-92-1	mg/kg	SW6010	N	35.8	128	335	161	99.5	340	143	179	182	138	162	58.2
Nickel	7440-02-0	mg/kg	SW6010	N	22.7	48.6	46.9	42.5	29.1	52.4	41.1	42.6	38.7	39.1	45.3	19.5
Vanadium	7440-62-2	mg/kg	SW6010	N	0.05	NA	66	62.9	41.3	74.1	59	65.9	55.3	55.9	66.4	40.1
Zinc	7440-66-6	mg/kg	SW6010	N	121	459	527	472	274	591	395	475	409	326	442	200
Mercury	7439-97-6	mg/kg	SW7470A	N	0.18	1.06	0.537	0.284	0.164	0.553	0.262	0.205	0.29	0.241	0.268	0.115
4,4-DDD (p,p)	72-54-8	mg/kg	SW8081	N	0.00488	0.028	< 0.0415	< 0.0431	< 0.0299	0.0473	< 0.0407	0.0482	< 0.0321	< 0.0296	< 0.0479	< 0.0268
4,4-DDE (p,p)	72-55-9	mg/kg	SW8081	N	0.00316	0.0311	0.0706	0.0504	< 0.0187	0.1	< 0.0254	0.128	< 0.0201	< 0.0185	< 0.0300	< 0.0167
4,4-DDT (p,p)	50-29-3	mg/kg	SW8081	N	0.00416	0.0629	< 0.0415	< 0.0431	< 0.0299	< 0.0430	< 0.0407	< 0.0453	< 0.0321	< 0.0296	< 0.0479	< 0.0268
alpha-Chlordane	5103-71-9	mg/kg	SW8081	N	NA	NA	0.0267	< 0.0269	< 0.0187	0.0298	< 0.0254	0.0431	< 0.0201	< 0.0185	< 0.0300	< 0.0167
Chlordane	57-74-9	mg/kg	SW8081	N	0.00324	0.0176	0.161	0.117	< 0.0747	0.263	< 0.102	0.306	< 0.0803	< 0.0740	< 0.12	< 0.0670
gamma-Chlordane	5103-74-2	mg/kg	SW8081	N	NA	NA	< 0.0259	< 0.0269	< 0.0187	< 0.0269	< 0.0254	< 0.0283	< 0.0201	< 0.0185	< 0.0300	< 0.0167
Total DDx	RACALC-DDx	mg/kg	SW8081	N	0.00528	0.572	0.0706	0.0504	< 0.0299	0.147	< 0.0407	0.172	< 0.0321	< 0.0296	< 0.0479	< 0.0268
Aroclor 1248	12672-29-6	mg/kg	SW8082	N	NA	NA	< 0.0982	< 0.103	< 0.149	< 0.106	< 0.204	< 0.111	< 0.0754	< 0.15	< 0.23	< 0.128
Aroclor 1260	11096-82-5	mg/kg	SW8082	N	NA	NA	< 0.0982	< 0.103	< 0.0743	< 0.106	< 0.102	< 0.111	< 0.0754	< 0.0749	< 0.115	< 0.0641
Total PCB Aroclors	RACALC-PCB	mg/kg	SW8082	N	0.0598	0.676	< 0.0982	< 0.103	< 0.149	< 0.106	< 0.204	< 0.111	< 0.0754	< 0.15	< 0.23	< 0.128
2-Butanone (MEK)	78-93-3	mg/kg	SW8260	N	NA	NA	N/A	N/A	< 5.81	N/A	< 10.2	N/A	N/A	0.359	0.7	< 0.284
Acetone	67-64-1	mg/kg	SW8260	N	NA	NA	N/A	N/A	< 5.81	N/A	< 10.2	N/A	N/A	1.13	2.17	< 0.284
1-Methylnaphthalene	90-12-0	mg/kg	SW8270	N	NA	NA	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
2-Methylnaphthalene	91-57-6	mg/kg	SW8270	N	0.202	NA	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Anthracene	120-12-7	mg/kg	SW8270	N	0.0572	0.845	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Benzo(a)anthracene	56-55-3	mg/kg	SW8270	N	0.108	1.05	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Benzo(a)pyrene	50-32-8	mg/kg	SW8270	N	0.15	1.45	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Benzo(b)fluoranthene	205-99-2	mg/kg	SW8270	N	10.4	NA	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Benzo(g,h,i)perylene	191-24-2	mg/kg	SW8270	N	0.17	3.2	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Benzo(k)fluoranthene	207-08-9	mg/kg	SW8270	N	0.0272	13.4	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Chrysene	218-01-9	mg/kg	SW8270	N	0.166	1.29	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Fluoranthene	206-44-0	mg/kg	SW8270	N	0.423	2.23	< 1.72	5.93	0.81	< 1.74	1.31	< 1.93	< 1.34	0.741	1.56	< 0.566
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	SW8270	N	0.0173	3.2	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Phenanthrene	85-01-8	mg/kg	SW8270	N	0.204	1.17	< 1.72	< 3.53	< 0.627	< 1.74	< 0.877	< 1.93	< 1.34	< 0.639	< 0.98	< 0.566
Pyrene	129-00-0	mg/kg	SW8270	N	0.195	1.52	< 1.72	4.69	0.695	< 1.74	1.14	< 1.93	< 1.34	0.648	1.49	< 0.566
Total High Molecular Weight PAHs	RACALC-HPAH	mg/kg	SW8270	N	0.193	6.5	< 1.72	4.69	0.695	< 1.74	1.14	< 1.93	< 1.34	0.648	1.49	< 0.566
Total Low Molecular Weight PAHs	RACALC-LPAH	mg/kg	SW8270	N	0.07642	5.3	< 1.72	5.93	0.81	< 1.74	1.31	< 1.93	< 1.34	0.741	1.56	< 0.566
Total PAHs	RACALC-PAH	mg/kg	SW8270	N	1.6	22.8	< 1.72	10.6	1.5	< 1.74	2.45	< 1.93	< 1.34	1.39	3.05	< 0.566
Total Organic Carbon	TOC	mg/kg	SW9060	N	NA	NA	N/A	N/A	N/A	91700	N/A	N/A	73500	N/A	N/A	N/A
Total Organic Carbon	TOC	mg/kg	TOCLLOYDKAHN	N	NA	NA	N/A	N/A	59600	N/A	60600	N/A	N/A	39600	68400	N/A

Notes:
NA = not available
mg/kg = milligrams per kilogram
Bold = detected concentration
Exceeds Threshold Levels
Exceeds Threshold Levels and Probable Levels
Unless otherwise noted all start/end depths are in units of feet below ground surface

Appendix G

Summary of Ecological Risk Calculations

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Table G-1
Step 3A Risk Calculation - Site Wide: Great Blue Heron

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																			
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor				
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)	
2.23	0.044	0.045	NA	NA	NA	NA	NA	0.98	0.02	0.05	0.0022	0.6	8.4	4.5	1			0.52	
RSLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	0.98	NA										

	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose												
	Great Blue Heron TRV NOAEL (mg/kg-d)	Great Blue Heron TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFFish	BAFwf	Area-Specific AUF	AOC15 EPC (mg/kg)	AOC15 EPC (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)	Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
4,4'-DDx	0.227	2.27	R	R	R	R	24.7	1594333	1	0.0819	0.000002	NA	0.00000009	0.0001802	NA	7.11E-05	0.137495	0.087229	0.112362	NA	0.112362	0.112613	0.0	0.5	0.2
Arsenic	2.24	4.5	R	0.143	0.038	R	NA	17	1	10.4	0.004	NA	0.00018	0.02288	NA	0.001309	0.002932	NA	0.002932	NA	0.002932	0.027301	0.0	0.0	0.0
Cadmium	1.47	6.3	R	0.6	R	R	NA	3628	1	1.71	0.0025	NA	0.0001125	0.003762	NA	0.000903	0.391098	NA	0.391098	NA	0.391098	0.395876	0.1	0.3	0.1
Chlordane	2.14	10.7	11.8	4.1	0.1809448	1	4.9	1737067	1	0.0925	0.00003	NA	0.00000135	0.0002035	NA	0.000334	2.24707	0.019544	1.133307	NA	1.133307	1.133846	0.1	0.5	0.2
Chromium (total)	2.66	8.9	0.306	0.1	0.041	R	NA	21	1	68.73	0.005	NA	0.000225	0.151206	NA	0.006048	0.004528	NA	0.004528	NA	0.004528	0.162007	0.0	0.1	0.0
Copper	4.05	12.1	0.515	1.566	R	R	NA	36	1	122.8	0.005	NA	0.000225	0.27016	NA	0.169228	0.007762	NA	0.007762	NA	0.007762	0.447375	0.0	0.1	0.1
Lead	1.6	3.3	R	0.071	R	R	NA	12	1	156.9	0.0075	NA	0.0003375	0.34518	NA	0.009803	0.003881	NA	0.003881	NA	0.003881	0.359201	0.1	0.2	0.2
Nickel	6.7	21.4	1.059	0.486	R	R	NA	21	1	41.49	0.005	NA	0.000225	0.091278	NA	0.017744	0.004528	NA	0.004528	NA	0.004528	0.113775	0.0	0.0	0.0
hPAH (total)	NA	NA	0	0.14	R	0	0.26	3106	1	2.565	0.0009	NA	0.0000405	0.005643	NA	0.000316	0.120538	0.028757	0.074647	NA	0.074647	0.080647	NA	NA	NA
lPAH (total)	NA	NA	0	0.14	R	0	2.8	614	1	2.537	0.00012	NA	0.0000054	0.0055814	NA	0.000313	0.003177	0.306307	0.154742	NA	0.154742	0.160642	NA	NA	NA
PAH (total)	27.26	136.3	4.111875	0.14	R	0	1.4771765	1860	1	4.685	0.000205	NA	0.000009225	0.010307	NA	0.000577	0.016442	0.298415	0.157428	NA	0.157428	0.168322	0.0	0.0	0.0
Vanadium	0.344	0.688	0.042	0.042	0.00485	0.0123	NA	1	1	49.29	0.005	NA	0.000225	0.108438	NA	0.001822	0.000216	NA	0.000216	NA	0.000216	0.1107	0.2	0.3	0.2
Zinc	66.1	188.6	R	1.936	R	R	NA	47	1	344.6	0.0066	NA	0.000297	0.75812	NA	0.587088	0.013376	NA	0.013376	NA	0.013376	1.358881	0.0	0.0	0.0

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Table G-2
Step 3A Risk Calculation - AOC12: Great Blue Heron

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)
2.23	0.044	0.045	NA	NA	NA	NA	NA	0.98	0.02	0.05	0.0022	0.6	8.4	4.5	1			0.52
RSLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	0.98	NA									

	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
	Great Blue Heron TRV NOAEL (mg/kg-d)	Great Blue Heron TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	Area-Specific AUF	AOC12 EPC (Cider Mill Pond) (mg/kg)	AOC12 EPC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)				
4,4'-DDx	0.227	2.27	R	R	R	R	24.7	1594333	0.52	0.111	0.000002	NA	9E-08	0.000244	NA	0.000125	0.137495	0.118222	0.127859	NA	0.127859	0.128228	0.0	0.3	0.1
Arsenic	2.24	4.5	R	0.143	0.038	R	NA	17	0.52	12.69	0.004	NA	0.00018	0.027918	NA	0.001597	0.002932	NA	0.002932	NA	0.002932	0.032627	0.0	0.0	0.0
Cadmium	1.47	6.3	R	0.6	R	R	NA	3628	0.52	2.844	0.0025	NA	0.000113	0.006257	NA	0.001502	0.391098	NA	0.391098	NA	0.391098	0.398969	0.0	0.1	0.1
Chlordane	2.14	10.7	11.8	4.1	0.180945	1	4.9	1737067	0.52	0.163	0.00003	NA	1.35E-06	0.000359	NA	0.000588	2.24707	0.03444	1.140755	NA	1.140755	1.141703	0.1	0.3	0.1
Chromium (total)	2.66	8.9	0.306	0.1	0.041	R	NA	21	0.52	68.83	0.005	NA	0.000225	0.151426	NA	0.006057	0.004528	NA	0.004528	NA	0.004528	0.162236	0.0	0.0	0.0
Copper	4.05	12.1	0.515	1.566	R	R	NA	36	0.52	187.3	0.005	NA	0.000225	0.41206	NA	0.258114	0.007762	NA	0.007762	NA	0.007762	0.678161	0.0	0.1	0.1
Lead	1.6	3.3	R	0.071	R	R	NA	12	0.52	204.5	0.0075	NA	0.000338	0.4499	NA	0.012777	0.003881	NA	0.003881	NA	0.003881	0.466895	0.1	0.2	0.1
Nickel	6.7	21.4	1.059	0.486	R	R	NA	21	0.52	48.72	0.005	NA	0.000225	0.107184	NA	0.020837	0.004528	NA	0.004528	NA	0.004528	0.132773	0.0	0.0	0.0
hPAH (total)	NA	NA	0	0.14	R	0	0.26	3106	0.52	2.427	0.0009	NA	4.05E-05	0.005339	NA	0.000299	0.120538	0.02721	0.073874	NA	0.073874	0.079553	NA	NA	NA
lPAH (total)	NA	NA	0	0.14	R	0	2.8	614	0.52	3.224	0.00012	NA	5.4E-06	0.007093	NA	0.000397	0.003177	0.389253	0.196215	NA	0.196215	0.20371	NA	NA	NA
PAH (total)	27.26	136.3	4.111875	0.14	R	0	1.477176	1860	0.52	5.002	0.000205	NA	9.23E-06	0.011004	NA	0.000616	0.016442	0.318607	0.167524	NA	0.167524	0.179154	0.0	0.0	0.0
Vanadium	0.344	0.688	0.042	0.042	0.00485	0.0123	NA	1	0.52	70.2	0.005	NA	0.000225	0.15444	NA	0.002595	0.000216	NA	0.000216	NA	0.000216	0.157475	0.1	0.2	0.2
Zinc	66.1	188.6	R	1.936	R	R	NA	47	0.52	436.8	0.0066	NA	0.000297	0.96096	NA	0.744167	0.013376	NA	0.013376	NA	0.013376	1.7188	0.0	0.0	0.0

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Table G-2
Step 3A Risk Calculation - AOC12: Great Blue Heron

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)
2.23	0.044	0.045	NA	NA	NA	NA	NA	0.98	0.02	0.05	0.0022	0.6	8.4	4.5	1			0.52
RSLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	0.98	NA									

	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
	Great Blue Heron TRV NOAEL (mg/kg-d)	Great Blue Heron TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	Area-Specific AUF	AOC12 EPC (Cider Mill Pond) (mg/kg)	AOC12 EPC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)				
4,4'-DDx	0.227	2.27	R	R	R	R	24.7	1594333	0.52	0.111	0.000002	NA	9E-08	0.000244	NA	0.000125	0.137495	0.118222	0.127859	NA	0.127859	0.128228	0.0	0.3	0.1
Arsenic	2.24	4.5	R	0.143	0.038	R	NA	17	0.52	12.69	0.004	NA	0.00018	0.027918	NA	0.001597	0.002932	NA	0.002932	NA	0.002932	0.032627	0.0	0.0	0.0
Cadmium	1.47	6.3	R	0.6	R	R	NA	3628	0.52	2.844	0.0025	NA	0.000113	0.006257	NA	0.001502	0.391098	NA	0.391098	NA	0.391098	0.398969	0.0	0.1	0.1
Chlordane	2.14	10.7	11.8	4.1	0.180945	1	4.9	1737067	0.52	0.163	0.00003	NA	1.35E-06	0.000359	NA	0.000588	2.24707	0.03444	1.140755	NA	1.140755	1.141703	0.1	0.3	0.1
Chromium (total)	2.66	8.9	0.306	0.1	0.041	R	NA	21	0.52	68.83	0.005	NA	0.000225	0.151426	NA	0.006057	0.004528	NA	0.004528	NA	0.004528	0.162236	0.0	0.0	0.0
Copper	4.05	12.1	0.515	1.566	R	R	NA	36	0.52	187.3	0.005	NA	0.000225	0.41206	NA	0.258114	0.007762	NA	0.007762	NA	0.007762	0.678161	0.0	0.1	0.1
Lead	1.6	3.3	R	0.071	R	R	NA	12	0.52	204.5	0.0075	NA	0.000338	0.4499	NA	0.012777	0.003881	NA	0.003881	NA	0.003881	0.466895	0.1	0.2	0.1
Nickel	6.7	21.4	1.059	0.486	R	R	NA	21	0.52	48.72	0.005	NA	0.000225	0.107184	NA	0.020837	0.004528	NA	0.004528	NA	0.004528	0.132773	0.0	0.0	0.0
hPAH (total)	NA	NA	0	0.14	R	0	0.26	3106	0.52	2.427	0.0009	NA	4.05E-05	0.005339	NA	0.000299	0.120538	0.02721	0.073874	NA	0.073874	0.079553	NA	NA	NA
lPAH (total)	NA	NA	0	0.14	R	0	2.8	614	0.52	3.224	0.00012	NA	5.4E-06	0.007093	NA	0.000397	0.003177	0.389253	0.196215	NA	0.196215	0.20371	NA	NA	NA
PAH (total)	27.26	136.3	4.111875	0.14	R	0	1.477176	1860	0.52	5.002	0.000205	NA	9.23E-06	0.011004	NA	0.000616	0.016442	0.318607	0.167524	NA	0.167524	0.179154	0.0	0.0	0.0
Vanadium	0.344	0.688	0.042	0.042	0.00485	0.0123	NA	1	0.52	70.2	0.005	NA	0.000225	0.15444	NA	0.002595	0.000216	NA	0.000216	NA	0.000216	0.157475	0.1	0.2	0.2
Zinc	66.1	188.6	R	1.936	R	R	NA	47	0.52	436.8	0.0066	NA	0.000297	0.96096	NA	0.744167	0.013376	NA	0.013376	NA	0.013376	1.7188	0.0	0.0	0.0

AECOM

Table G-4
Step 3A Risk Calculation - AOC12: Mallard Duck

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)
1.043	0.050148	0.058186	0.253	NA	NA	NA	NA	NA	0.747	0.02	0.001147	307	719	513	0.0032			0.001
RSLERA Specific Diet Assumptions			0.253	NA	NA	NA	NA	NA	0.747									

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
	Mallard Duck TRV NOAEL (mg/kg-d)	Mallard Duck TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	Area-Specific AUF	AOC12 EPC (Cider Mill Pond) (mg/kg)	AOC12 EPC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)				
4,4'-DDx	0.227	2.27	R	R	R	R	24.7	1594333	0.001	0.111	0.000002	NA	1.16E-07	0.000111	0.000197	0.005322	NA	NA	NA	NA	NA	0.00563	0.0	0.0	0.0
Arsenic	2.24	4.5	R	0.143	0.038	R	NA	17	0.001	12.69	0.004	NA	0.000233	0.012728	0.006118	0.067979	NA	NA	NA	NA	NA	0.087057	0.0	0.0	0.0
Cadmium	1.47	6.3	R	0.6	R	R	NA	3628	0.001	2.844	0.0025	NA	0.000145	0.002852	0.013961	0.063923	NA	NA	NA	NA	NA	0.080882	0.0	0.0	0.0
Chlordane	2.14	10.7	11.8	4.1	0.180945	1	4.9	1737067	0.001	0.163	0.00003	NA	1.75E-06	0.000163	0.000374	0.025035	NA	NA	NA	NA	NA	0.025574	0.0	0.0	0.0
Chromium (total)	2.66	8.9	0.306	0.1	0.041	R	NA	21	0.001	68.83	0.005	NA	0.000291	0.069034	0.035804	0.257841	NA	NA	NA	NA	NA	0.36297	0.0	0.0	0.0
Copper	4.05	12.1	0.515	1.566	R	R	NA	36	0.001	187.3	0.005	NA	0.000291	0.187854	0.194475	10.98762	NA	NA	NA	NA	NA	11.37024	0.0	0.0	0.0
Lead	1.6	3.3	R	0.071	R	R	NA	12	0.001	204.5	0.0075	NA	0.000436	0.205105	0.066517	0.543909	NA	NA	NA	NA	NA	0.815967	0.0	0.0	0.0
Nickel	6.7	21.4	1.059	0.486	R	R	NA	21	0.001	48.72	0.005	NA	0.000291	0.048864	0.028913	0.886988	NA	NA	NA	NA	NA	0.965057	0.0	0.0	0.0
hPAH (total)	NA	NA	0	0.14	R	0	0.26	3106	0.001	2.427	0.0009	NA	5.24E-05	0.002434	0	0.012728	NA	NA	NA	NA	NA	0.015215	NA	NA	NA
lPAH (total)	NA	NA	0	0.14	R	0	2.8	614	0.001	3.224	0.00012	NA	6.98E-06	0.003234	0	0.016908	NA	NA	NA	NA	NA	0.020149	NA	NA	NA
PAH (total)	27.26	136.3	4.111875	0.14	R	0	1.477176	1860	0.001	5.002	0.000205	NA	1.19E-05	0.005017	0	0.026233	NA	NA	NA	NA	NA	0.031262	0.0	0.0	0.0
Vanadium	0.344	0.688	0.042	0.042	0.00485	0.0123	NA	1	0.001	70.2	0.005	NA	0.000291	0.070408	0.00432	0.110449	NA	NA	NA	NA	NA	0.185467	0.0	0.0	0.0
Zinc	66.1	188.6	R	1.936	R	R	NA	47	0.001	436.8	0.0066	NA	0.000384	0.438093	1.778707	31.67832	NA	NA	NA	NA	NA	33.89551	0.0	0.0	0.0

AECOM

Table G-5
Step 3A Risk Calculation - Site Wide: Muskrat

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)
0.837	0.0714	0.1008	1	NA	NA	NA	NA	NA	NA	0.005656	0.000641	0.17	0.17	0.17	1			1
RSLERA Specific Diet Assumptions			1	NA	NA	NA	NA	NA	NA									

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose										Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
	Muskrat TRV NOAEL (mg/kg-d)	Muskrat TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	Area-Specific AUF	AOC15 EPC (mg/kg)	AOC15 EPC (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)				
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	1594333	1	0.0819	0.000002	NA	2.02E-07	3.31E-05	0.000881	NA	NA	NA	NA	NA	NA	0.000915	0.0	0.0	0.0
Arsenic	1.04	1.66	R	0.143	0.038	R	NA	17	1	10.4	0.004	NA	0.000403	0.0042	0.028217	NA	NA	NA	NA	NA	NA	0.03282	0.0	0.0	0.0
Cadmium	0.77	7.1	R	0.6	R	R	NA	3628	1	1.71	0.0025	NA	0.000252	0.000691	0.059515	NA	NA	NA	NA	NA	NA	0.060457	0.0	0.1	0.0
Chlordane	4.58	9.16	11.8	4.1	0.180945	1	4.9	1737067	1	0.0925	0.00003	NA	3.02E-06	3.74E-05	0.001195	NA	NA	NA	NA	NA	NA	0.001235	0.0	0.0	0.0
Chromium (total)	2.4	35.1	0.306	0.1	0.041	R	NA	21	1	68.73	0.005	NA	0.000504	0.027755	0.2012	NA	NA	NA	NA	NA	NA	0.22946	0.0	0.1	0.0
Copper	5.6	9.3	0.515	1.566	R	R	NA	36	1	122.8	0.005	NA	0.000504	0.04959	0.926725	NA	NA	NA	NA	NA	NA	0.97682	0.1	0.2	0.1
Lead	4.7	8.9	R	0.071	R	R	NA	12	1	156.9	0.0075	NA	0.000756	0.063361	0.322626	NA	NA	NA	NA	NA	NA	0.386743	0.0	0.1	0.1
Nickel	1.7	3.4	1.059	0.486	R	R	NA	21	1	41.49	0.005	NA	0.000504	0.016755	0.143459	NA	NA	NA	NA	NA	NA	0.160718	0.0	0.1	0.1
hPAH (total)	0.615	3.1	0	0.14	R	0	0.26	3106	1	2.565	0.0009	NA	9.07E-05	0.001036	0	NA	NA	NA	NA	NA	NA	0.001127	0.0	0.0	0.0
lPAH (total)	65.6	328	0	0.14	R	0	2.8	614	1	2.537	0.00012	NA	1.21E-05	0.001025	0	NA	NA	NA	NA	NA	NA	0.001037	0.0	0.0	0.0
PAH (total)	NA	NA	4.111875	0.14	R	0	1.477176	1860	1	4.685	0.000205	NA	2.07E-05	0.001892	0	NA	NA	NA	NA	NA	NA	0.001913	0.0	0.0	0.0
Vanadium	4.16	8.3	0.042	0.042	0.00485	0.0123	NA	1	1	49.29	0.005	NA	0.000504	0.019905	0.017069	NA	NA	NA	NA	NA	NA	0.037477	0.0	0.0	0.0
Zinc	75.4	292.1	R	1.936	R	R	NA	47	1	344.6	0.0066	NA	0.000665	0.13916	8.77778	NA	NA	NA	NA	NA	NA	8.917605	0.0	0.1	0.1

AECOM

Table G-6
Step 3A Risk Calculation - Site Wide: Muskrat

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)
0.837	0.0714	0.1008	1	NA	NA	NA	NA	NA	NA	0.005656	0.000641	0.17	0.17	0.17	1			1
RSLERA Specific Diet Assumptions			1	NA	NA	NA	NA	NA	NA									

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose										Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
	Muskrat TRV NOAEL (mg/kg-d)	Muskrat TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	Area-Specific AUF	AOC15 EPC (mg/kg)	AOC15 EPC (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)				
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	1594333	1	0.111	0.000002	NA	2.02E-07	4.48E-05	0.001108	NA	NA	NA	NA	NA	NA	0.001153	0.0	0.0	0.0
Arsenic	1.04	1.66	R	0.143	0.038	R	NA	17	1	12.69	0.004	NA	0.000403	0.005125	0.034431	NA	NA	NA	NA	NA	NA	0.039958	0.0	0.0	0.0
Cadmium	0.77	7.1	R	0.6	R	R	NA	3628	1	2.844	0.0025	NA	0.000252	0.001148	0.078569	NA	NA	NA	NA	NA	NA	0.07997	0.0	0.1	0.0
Chlordane	4.58	9.16	11.8	4.1	0.180945	1	4.9	1737067	1	0.163	0.00003	NA	3.02E-06	6.58E-05	0.002106	NA	NA	NA	NA	NA	NA	0.002175	0.0	0.0	0.0
Chromium (total)	2.4	35.1	0.306	0.1	0.041	R	NA	21	1	68.83	0.005	NA	0.000504	0.027796	0.201493	NA	NA	NA	NA	NA	NA	0.229793	0.0	0.1	0.0
Copper	5.6	9.3	0.515	1.566	R	R	NA	36	1	187.3	0.005	NA	0.000504	0.075638	1.094427	NA	NA	NA	NA	NA	NA	1.170569	0.1	0.2	0.2
Lead	4.7	8.9	R	0.071	R	R	NA	12	1	204.5	0.0075	NA	0.000756	0.082583	0.37433	NA	NA	NA	NA	NA	NA	0.457669	0.1	0.1	0.1
Nickel	1.7	3.4	1.059	0.486	R	R	NA	21	1	48.72	0.005	NA	0.000504	0.019675	0.162714	NA	NA	NA	NA	NA	NA	0.182892	0.1	0.1	0.1
hPAH (total)	0.615	3.1	0	0.14	R	0	0.26	3106	1	2.427	0.0009	NA	9.07E-05	0.00098	0	NA	NA	NA	NA	NA	NA	0.001071	0.0	0.0	0.0
lPAH (total)	65.6	328	0	0.14	R	0	2.8	614	1	3.224	0.00012	NA	1.21E-05	0.001302	0	NA	NA	NA	NA	NA	NA	0.001314	0.0	0.0	0.0
PAH (total)	NA	NA	4.111875	0.14	R	0	1.477176	1860	1	5.002	0.000205	NA	2.07E-05	0.00202	0	NA	NA	NA	NA	NA	NA	0.002041	0.0	0.0	0.0
Vanadium	4.16	8.3	0.042	0.042	0.00485	0.0123	NA	1	1	70.2	0.005	NA	0.000504	0.028349	0.02431	NA	NA	NA	NA	NA	NA	0.053163	0.0	0.0	0.0
Zinc	75.4	292.1	R	1.936	R	R	NA	47	1	436.8	0.0066	NA	0.000665	0.176393	10.00987	NA	NA	NA	NA	NA	NA	10.18693	0.0	0.1	0.1

AECOM

Table G-7
Step 3A Risk Calculation - Site Wide: Mink

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)
0.568	0.05408	0.10475	0.02	NA	0	0	0	0.85	0.13	0.094	0.00508	7.8	20.4	14.1	0.13			0.04
RSLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	0.85	0.13									

Inhalation Rate (IR) m3/hr NA

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose													
	Mink TRV NOAEL (mg/kg-d)	Mink TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	Area-Specific AUF	AOC15 EPC (mg/kg)	AOC15 EPC (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)	Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	1594333	0.13	0.0819	0.000002	NA	2.1E-07	0.000416	1.34E-05	0.000568	0.146577	0.09299	0.119783	NA	0.119783	0.120781	0.0	0.1	0.0
Arsenic	1.04	1.66	R	0.143	0.038	R	NA	17	0.13	10.4	0.004	NA	0.000419	0.052869	0.000427	0.010456	0.003126	NA	0.003126	NA	0.003126	0.067296	0.0	0.0	0.0
Cadmium	0.77	7.1	R	0.6	R	R	NA	3628	0.13	1.71	0.0025	NA	0.000262	0.008693	0.000902	0.007213	0.41693	NA	0.41693	NA	0.41693	0.433999	0.0	0.1	0.0
Chlordane	4.58	9.16	11.8	4.1	0.180945	1	4.9	1737067	0.13	0.0925	0.00003	NA	3.14E-06	0.00047	1.81E-05	0.002666	2.395485	0.020835	1.20816	NA	1.20816	1.211318	0.0	0.0	0.0
Chromium (total)	2.4	35.1	0.306	0.1	0.041	R	NA	21	0.13	68.73	0.005	NA	0.000524	0.34939	0.003048	0.04832	0.004827	NA	0.004827	NA	0.004827	0.406109	0.0	0.0	0.0
Copper	5.6	9.3	0.515	1.566	R	R	NA	36	0.13	122.8	0.005	NA	0.000524	0.624256	0.014038	1.35198	0.008274	NA	0.008274	NA	0.008274	1.999072	0.0	0.0	0.0
Lead	4.7	8.9	R	0.071	R	R	NA	12	0.13	156.9	0.0075	NA	0.000786	0.797604	0.004887	0.078318	0.004137	NA	0.004137	NA	0.004137	0.885732	0.0	0.0	0.0
Nickel	1.7	3.4	1.059	0.486	R	R	NA	21	0.13	41.49	0.005	NA	0.000524	0.210915	0.002173	0.141762	0.004827	NA	0.004827	NA	0.004827	0.360201	0.0	0.0	0.0
hPAH (total)	0.615	3.1	0	0.14	R	0	0.26	3106	0.13	2.565	0.0009	NA	9.43E-05	0.013039	0	0.002525	0.128499	0.030656	0.079578	NA	0.079578	0.095236	0.0	0.0	0.0
lPAH (total)	65.6	328	0	0.14	R	0	2.8	614	0.13	2.537	0.00012	NA	1.26E-05	0.012897	0	0.002497	0.003387	0.326538	0.164963	NA	0.164963	0.180369	0.0	0.0	0.0
PAH (total)	NA	NA	4.111875	0.14	R	0	1.477176	1860	0.13	4.685	0.000205	NA	2.15E-05	0.023816	0	0.004611	0.017528	0.318125	0.167826	NA	0.167826	0.196275	NA	NA	NA
Vanadium	4.16	8.3	0.042	0.042	0.00485	0.0123	NA	1	0.13	49.29	0.005	NA	0.000524	0.250567	0.000259	0.014554	0.00023	NA	0.00023	NA	0.00023	0.266133	0.004168	0.008317	0.0
Zinc	75.4	292.1	R	1.936	R	R	NA	47	0.13	344.6	0.0066	NA	0.000691	1.751781	0.13297	4.6903	0.014259	NA	0.014259	NA	0.014259	6.590002	0.002933	0.011362	0.0

AECOM

Table G-8
Step 3A Risk Calculation - AOC12: Mink

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)
0.568	0.05408	0.10475	0.02	NA	0	0	0	0.85	0.13	0.094	0.00508	7.8	20.4	14.1	0.13			0.04
RSLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	0.85	0.13									

Inhalation Rate (IR) m3/hr NA

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose													
	Mink TRV NOAEL (mg/kg-d)	Mink TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	Area-Specific AUF	AOC12 EPC (Cider Mill Pond) (mg/kg)	AOC12 EPC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)	Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	1594333	0.04	0.111	0.000002	NA	2.1E-07	0.000564	1.68E-05	0.000999	0.146577	0.12603	0.136304	NA	0.136304	0.137884	0.0	0.0	0.0
Arsenic	1.04	1.66	R	0.143	0.038	R	NA	17	0.04	12.69	0.004	NA	0.000419	0.06451	0.000522	0.012758	0.003126	NA	0.003126	NA	0.003126	0.081334	0.0	0.0	0.0
Cadmium	0.77	7.1	R	0.6	R	R	NA	3628	0.04	2.844	0.0025	NA	0.000262	0.014458	0.00119	0.011997	0.41693	NA	0.41693	NA	0.41693	0.444836	0.0	0.0	0.0
Chlordane	4.58	9.16	11.8	4.1	0.180945	1	4.9	1737067	0.04	0.163	0.00003	NA	3.14E-06	0.000829	3.19E-05	0.004698	2.395485	0.036715	1.2161	NA	1.2161	1.221662	0.0	0.0	0.0
Chromium (total)	2.4	35.1	0.306	0.1	0.041	R	NA	21	0.04	68.83	0.005	NA	0.000524	0.349899	0.003052	0.04839	0.004827	NA	0.004827	NA	0.004827	0.406692	0.0	0.0	0.0
Copper	5.6	9.3	0.515	1.566	R	R	NA	36	0.04	187.3	0.005	NA	0.000524	0.952143	0.016579	2.062099	0.008274	NA	0.008274	NA	0.008274	3.039619	0.0	0.0	0.0
Lead	4.7	8.9	R	0.071	R	R	NA	12	0.04	204.5	0.0075	NA	0.000786	1.03958	0.005671	0.102078	0.004137	NA	0.004137	NA	0.004137	1.152251	0.0	0.0	0.0
Nickel	1.7	3.4	1.059	0.486	R	R	NA	21	0.04	48.72	0.005	NA	0.000524	0.247669	0.002465	0.166465	0.004827	NA	0.004827	NA	0.004827	0.42195	0.0	0.0	0.0
hPAH (total)	0.615	3.1	0	0.14	R	0	0.26	3106	0.04	2.427	0.0009	NA	9.43E-05	0.012338	0	0.002389	0.128499	0.029007	0.078753	NA	0.078753	0.093574	0.0	0.0	0.0
lPAH (total)	65.6	328	0	0.14	R	0	2.8	614	0.04	3.224	0.00012	NA	1.26E-05	0.016389	0	0.003173	0.003387	0.414962	0.209175	NA	0.209175	0.22875	0.0	0.0	0.0
PAH (total)	NA	NA	4.111875	0.14	R	0	1.477176	1860	0.04	5.002	0.000205	NA	2.15E-05	0.025428	0	0.004923	0.017528	0.33965	0.178589	NA	0.178589	0.208961	NA	NA	NA
Vanadium	4.16	8.3	0.042	0.042	0.00485	0.0123	NA	1	0.04	70.2	0.005	NA	0.000524	0.356863	0.000368	0.020728	0.00023	NA	0.00023	NA	0.00023	0.378713	0.0	0.0	0.0
Zinc	75.4	292.1	R	1.936	R	R	NA	47	0.04	436.8	0.0066	NA	0.000691	2.220482	0.151634	5.945221	0.014259	NA	0.014259	NA	0.014259	8.332288	0.0	0.0	0.0

Table G-9
Step 3A Risk Calculation - Site Wide: Raccoon

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)
5.74	0.0266	0.08313	0.3915	NA	NA	0	0	0.029	0.58	0.094	0.00473	5.3	376	190.65	0.18			0.06
RSLERA Specific Diet Assumptions			0.3915	NA	NA	NA	NA	NA	0.58									

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
	Raccoon TRV NOAEL (mg/kg-d)	Raccoon TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFFish	BAFwf	Area-Specific AUF	AOC15 EPC (mg/kg)	AOC15 EPC (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)				
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	1594333	0.18	0.0819	0.000002	NA	1.66E-07	0.000205	0.000129	0.001247	0.00246	0.0015605	0.002010113	NA	0.00201	0.0035902	0.0	0.0	0.0
Arsenic	1.04	1.66	R	0.143	0.038	R	NA	17	0.18	10.4	0.004	NA	0.000333	0.026004	0.004116	0.022945	5.25E-05	NA	5.24552E-05	NA	5.25E-05	0.0534492	0.0	0.0	0.0
Cadmium	0.77	7.1	R	0.6	R	R	NA	3628	0.18	1.71	0.0025	NA	0.000208	0.004276	0.00868	0.015829	0.006997	NA	0.006996598	NA	0.006997	0.0359896	0.0	0.0	0.0
Chlordane	4.58	9.16	11.8	4.1	0.180945	1	4.9	1737067	0.18	0.0925	0.00003	NA	2.49E-06	0.000231	0.000174	0.005851	0.040199	0.0003496	0.020274421	NA	0.020274	0.0265336	0.0	0.0	0.0
Chromium (total)	2.4	35.1	0.306	0.1	0.041	R	NA	21	0.18	68.73	0.005	NA	0.000416	0.171852	0.029346	0.106037	8.1E-05	NA	0.000080997	NA	8.1E-05	0.3077314	0.0	0.0	0.0
Copper	5.6	9.3	0.515	1.566	R	R	NA	36	0.18	122.8	0.005	NA	0.000416	0.307049	0.135166	2.966878	0.000139	NA	0.000138852	NA	0.000139	3.4096477	0.1	0.1	0.1
Lead	4.7	8.9	R	0.071	R	R	NA	12	0.18	156.9	0.0075	NA	0.000623	0.392313	0.047056	0.171866	6.94E-05	NA	0.000069426	NA	6.94E-05	0.611928	0.0	0.0	0.0
Nickel	1.7	3.4	1.059	0.486	R	R	NA	21	0.18	41.49	0.005	NA	0.000416	0.103742	0.020924	0.311092	8.1E-05	NA	0.000080997	NA	8.1E-05	0.4362546	0.0	0.0	0.0
hPAH (total)	0.615	3.1	0	0.14	R	0	0.26	3106	0.18	2.565	0.0009	NA	7.48E-05	0.006414	0	0.00554	0.002156	0.0005144	0.001335409	NA	0.001335	0.0133639	0.0	0.0	0.0
lPAH (total)	65.6	328	0	0.14	R	0	2.8	614	0.18	2.537	0.00012	NA	9.98E-06	0.006344	0	0.00548	5.68E-05	0.0054797	0.002768277	NA	0.002768	0.0146015	0.0	0.0	0.0
PAH (total)	NA	NA	4.111875	0.14	R	0	1.477176	1860	0.18	4.685	0.000205	NA	1.7E-05	0.011714	0	0.010119	0.000294	0.0053385	0.002816332	NA	0.002816	0.024667	0.0	0.0	0.0
Vanadium	4.16	8.3	0.042	0.042	0.00485	0.0123	NA	1	0.18	49.29	0.005	NA	0.000416	0.123245	0.00249	0.031939	3.86E-06	NA	0.000003857	NA	3.86E-06	0.1580925	0.0	0.0	0.0
Zinc	75.4	292.1	R	1.936	R	R	NA	47	0.18	344.6	0.0066	NA	0.000549	0.861638	1.280265	10.29272	0.000239	NA	0.000239288	NA	0.000239	12.435413	0.0	0.0	0.0

AECOM

Table G-10
Step 3A Risk Calculation - AOC12: Raccoon

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)	Site- Wide (AOC 15)			Cider Mill Pond (AOC 12)
5.74	0.0266	0.08313	0.3915	NA	NA	0	0	0.029	0.58	0.094	0.00473	5.3	376	190.65	0.18			0.06
RSLERA Specific Diet Assumptions			0.3915	NA	NA	NA	NA	NA	0.58									

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Total Dose (mg/kg-d)	Hazard Quotient (LOAEL)	Hazard Quotient Upper Bound (NOAEL)	Hazard Quotient GeoMean
	Raccoon TRV NOAEL (mg/kg-d)	Raccoon TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFFish	BAFwf	Area-Specific AUF	AOC12 EPC (Cider Mill Pond) (mg/kg)	AOC12 EPC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (Modeled Mean) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish (tissue or model) (mg/kg-d)				
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	1594333	0.06	0.111	0.000002	NA	1.66E-07	0.000278	0.000162	0.002192	0.00246	0.0021149	0.002287342	NA	0.002287	0.0049185	0.0	0.0	0.0
Arsenic	1.04	1.66	R	0.143	0.038	R	NA	17	0.06	12.69	0.004	NA	0.000333	0.03173	0.005022	0.027997	5.25E-05	NA	5.24552E-05	NA	5.25E-05	0.0651336	0.0	0.0	0.0
Cadmium	0.77	7.1	R	0.6	R	R	NA	3628	0.06	2.844	0.0025	NA	0.000208	0.007111	0.01146	0.026326	0.006997	NA	0.006996598	NA	0.006997	0.0521015	0.0	0.0	0.0
Chlordane	4.58	9.16	11.8	4.1	0.180945	1	4.9	1737067	0.06	0.163	0.00003	NA	2.49E-06	0.000408	0.000307	0.010311	0.040199	0.0006161	0.020407661	NA	0.020408	0.0314354	0.0	0.0	0.0
Chromium (total)	2.4	35.1	0.306	0.1	0.041	R	NA	21	0.06	68.83	0.005	NA	0.000416	0.172103	0.029388	0.106191	8.1E-05	NA	0.000080997	NA	8.1E-05	0.3081784	0.0	0.0	0.0
Copper	5.6	9.3	0.515	1.566	R	R	NA	36	0.06	187.3	0.005	NA	0.000416	0.468325	0.159625	4.525214	0.000139	NA	0.000138852	NA	0.000139	5.1537193	0.0	0.1	0.0
Lead	4.7	8.9	R	0.071	R	R	NA	12	0.06	204.5	0.0075	NA	0.000623	0.511332	0.054597	0.224007	6.94E-05	NA	0.000069426	NA	6.94E-05	0.7906286	0.0	0.0	0.0
Nickel	1.7	3.4	1.059	0.486	R	R	NA	21	0.06	48.72	0.005	NA	0.000416	0.121819	0.023732	0.365303	8.1E-05	NA	0.000080997	NA	8.1E-05	0.5113514	0.0	0.0	0.0
hPAH (total)	0.615	3.1	0	0.14	R	0	0.26	3106	0.06	2.427	0.0009	NA	7.48E-05	0.006068	0	0.005242	0.002156	0.0004868	0.00132157	NA	0.001322	0.012707	0.0	0.0	0.0
lPAH (total)	65.6	328	0	0.14	R	0	2.8	614	0.06	3.224	0.00012	NA	9.98E-06	0.008061	0	0.006964	5.68E-05	0.0069636	0.003510209	NA	0.00351	0.0185451	0.0	0.0	0.0
PAH (total)	NA	NA	4.111875	0.14	R	0	1.477176	1860	0.06	5.002	0.000205	NA	1.7E-05	0.012507	0	0.010804	0.000294	0.0056997	0.002996942	NA	0.002997	0.0263249	0.0	0.0	0.0
Vanadium	4.16	8.3	0.042	0.042	0.00485	0.0123	NA	1	0.06	70.2	0.005	NA	0.000416	0.175528	0.003546	0.045488	3.86E-06	NA	0.000003857	NA	3.86E-06	0.2249811	0.0	0.0	0.0
Zinc	75.4	292.1	R	1.936	R	R	NA	47	0.06	436.8	0.0066	NA	0.000549	1.092175	1.45997	13.04661	0.000239	NA	0.000239288	NA	0.000239	15.59954	0.0	0.0	0.0

AECOM

Table G-11
Step 2 Risk Calculation - AOC12: Muskrat

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide
0.837	0.0714	0.1008	1	NA	NA	NA	NA	NA	NA	0.0056559	0.000641	0.17	0.17	0.17				1
SLERA Specific Diet Assumptions			1	NA	NA	NA	NA	NA	NA									

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Hazard Quotient
	Muskrat TRV NOAEL (mg/kg-d)	Muskrat TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	AUF Default	AOC12 MDC (Cider Mill Pond) (mg/kg)	AOC12 MDC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	
2-Butanone (MEK)	1771	8855	0.7	1	26.325704	1	NA	0.9781377	1	0.972	0.01	NA	0.001008	0.0003925	1.8270249	NA	NA	NA	NA	NA	1.8284255	0.0
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	2.016E-07	0.0001543	0.0028076	NA	NA	NA	NA	NA	0.0029621	0.0
Acetone	20	250	0.7	1	53.299115	1	NA	0.3869011	1	2.68	0.01	NA	0.001008	0.0010823	10.198892	NA	NA	NA	NA	NA	10.200983	0.5
Arsenic	1.04	1.66	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.0004032	0.0070267	1.3703231	NA	NA	NA	NA	NA	1.3777529	1.3
Barium	51.8	119	0.477	0.16	0.477	R	NA	5.2	1	476	0.08861	NA	0.008931888	0.1922237	16.211513	NA	NA	NA	NA	NA	16.412668	0.3
Cadmium	0.77	7.1	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.000252	0.0015749	0.0933533	NA	NA	NA	NA	NA	0.0951802	0.1
Chlordane	4.58	9.16	11.8	4.1	0.1809448	1	4.9	3205000	1	0.371	0.0000275	NA	0.000002772	0.0001498	0.0047931	NA	NA	NA	NA	NA	0.0049457	0.0
Chromium (total)	2.4	35.1	3.16	0.468	0.0829	R	NA	21	1	72.1	0.005	NA	0.000504	0.0291162	0.4267642	NA	NA	NA	NA	NA	0.4563845	0.2
Copper	5.6	9.3	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.000504	0.0860161	1.1513	NA	NA	NA	NA	NA	1.23782	0.2
Lead	4.7	8.9	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.000756	0.1373026	0.4978687	NA	NA	NA	NA	NA	0.6359273	0.1
Mercury	1.01	5.05	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	0.00002016	0.0002233	0.0191066	NA	NA	NA	NA	NA	0.0193501	0.0
Nickel	1.7	3.4	4.73	2.32	R	R	NA	21	1	52.4	0.005	NA	0.000504	0.0211608	0.172273	NA	NA	NA	NA	NA	0.1939378	0.1
hPAH (total)	0.615	3.1	0	0.18	R	0	2.8	691	1	9.15	0.0009	NA	0.00009072	0.0036951	0	NA	NA	NA	NA	NA	0.0037858	0.0
lPAH (total)	65.6	328	0	0.18	R	0	0.26	5846	1	7.36	0.0000695	NA	7.0056E-06	0.0029722	0	NA	NA	NA	NA	NA	0.0029792	0.0
PAH (total)	NA	NA	4.111875	0.18	R	0	1.4771765	3268	1	16.5	0.0000944	NA	9.51552E-06	0.0066632	0	NA	NA	NA	NA	NA	0.0066727	NA
Vanadium	4.16	8.3	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.000504	0.0299239	0.0513202	NA	NA	NA	NA	NA	0.0817481	0.0
Zinc	75.4	292.1	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.00066528	0.2386643	11.835088	NA	NA	NA	NA	NA	12.074417	0.2

AECOM

Table G-12
Step 2 Risk Calculation - Site Wide: Muskrat

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide
0.837	0.0714	0.1008	1	NA	NA	NA	NA	NA	NA	0.0056559	0.000641	0.17	0.17	0.17				1
SLERA Specific Diet Assumptions			1	NA	NA	NA	NA	NA	NA									

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Hazard Quotient
	Muskrat TRV NOAEL (mg/kg-d)	Muskrat TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	AUF Default	AOC15 MDC (mg/kg)	AOC15 MDC (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	
2-Butanone (MEK)	1771	8855	0.7	1	26.325704	1	NA	0.9781377	1	0.972	0.01	NA	0.001008	0.0003925	1.8270249	NA	NA	NA	NA	NA	1.8284255	0.0
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	2.016E-07	0.0001543	0.0028076	NA	NA	NA	NA	NA	0.0029621	0.0
Acetone	20	250	0.7	1	53.299115	1	NA	0.3869011	1	2.68	0.01	NA	0.001008	0.0010823	10.198892	NA	NA	NA	NA	NA	10.200983	0.5
Arsenic	1.04	1.66	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.0004032	0.0070267	1.3703231	NA	NA	NA	NA	NA	1.3777529	1.3
Barium	51.8	119	0.477	0.16	0.477	R	NA	5.2	1	476	0.106	NA	0.0106848	0.1922237	16.211513	NA	NA	NA	NA	NA	16.414421	0.3
Cadmium	0.77	7.1	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.000252	0.0015749	0.0933533	NA	NA	NA	NA	NA	0.0951802	0.1
Chlordane	4.58	9.16	11.8	4.1	0.1809448	1	4.9	3205000	1	0.371	0.00003	NA	0.000003024	0.0001498	0.0047931	NA	NA	NA	NA	NA	0.004946	0.0
Chromium (total)	2.4	35.1	3.16	0.468	0.0829	R	NA	21	1	281	0.005	NA	0.000504	0.1134766	1.6632559	NA	NA	NA	NA	NA	1.7772364	0.7
Copper	5.6	9.3	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.000504	0.0860161	1.1513	NA	NA	NA	NA	NA	1.23782	0.2
Lead	4.7	8.9	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.000756	0.1373026	0.4978687	NA	NA	NA	NA	NA	0.6359273	0.1
Mercury	1.01	5.05	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	0.00002016	0.0002233	0.0191066	NA	NA	NA	NA	NA	0.0193501	0.0
Nickel	1.7	3.4	4.73	2.32	R	R	NA	21	1	127	0.005	NA	0.000504	0.0512866	0.3448607	NA	NA	NA	NA	NA	0.3966513	0.2
hPAH (total)	0.615	3.1	0	0.18	R	0	2.8	691	1	11.6	0.00009	NA	0.000009072	0.0046844	0	NA	NA	NA	NA	NA	0.0046935	0.0
lPAH (total)	65.6	328	0	0.18	R	0	0.26	5846	1	10.7	0.00012	NA	0.000012096	0.004321	0	NA	NA	NA	NA	NA	0.0043331	0.0
PAH (total)	NA	NA	4.111875	0.18	R	0	1.4771765	3268	1	22.3	0.000205	NA	0.000020664	0.0090054	0	NA	NA	NA	NA	NA	0.0090261	NA
Vanadium	4.16	8.3	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.000504	0.0299239	0.0513202	NA	NA	NA	NA	NA	0.0817481	0.0
Zinc	75.4	292.1	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.00066528	0.2386643	11.835088	NA	NA	NA	NA	NA	12.074417	0.2

AECOM

Table G-13
Step 2 Risk Calculation - Site Wide: Mink

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																			
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor				
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide	
0.568	0.05408	0.10475	0.02	NA	0	0	0	0.85	0.13	0.094	0.00508	7.8	20.4	14.1				1	
SLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	1	NA										

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration				Estimated Exposure Dose								Hazard Quotient
	Mink TRV NOAEL (mg/kg-d)	Mink TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	AUF Default	AOC15 MDC (mg/kg)	AOC15 MDC (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	
2-Butanone (MEK)	1771	8855	0.7	1	26.325704	1	NA	0.9781377	1	0.972	0.01	NA	0.0010475	0.0049412	NA	NA	0.000529	NA	NA	0.000529	0.0065177	0.0
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	2.095E-07	0.0019419	NA	NA	0.2503904	0.5102664	NA	0.5102664	0.5122085	3.5
Acetone	20	250	0.7	1	53.299115	1	NA	0.3869011	1	2.68	0.01	NA	0.0010475	0.0136238	NA	NA	0.0002092	NA	NA	0.0002092	0.0148806	0.0
Arsenic	1.04	1.66	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.000419	0.0884532	NA	NA	0.0036774	NA	NA	0.0036774	0.0925497	0.1
Barium	51.8	119	0.477	0.16	0.477	R	NA	5.2	1	476	0.106	NA	0.0111035	2.4197555	NA	NA	0.0298089	NA	NA	0.0298089	2.4606679	0.0
Cadmium	0.77	7.1	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.000261875	0.0198257	NA	NA	0.4905056	NA	NA	0.4905056	0.5105932	0.7
Chlordane	4.58	9.16	11.8	4.1	0.1809448	1	4.9	3205000	1	0.371	0.00003	NA	3.1425E-06	0.001886	NA	NA	5.199792	0.098312	NA	5.199792	5.2016811	1.1
Chromium (total)	2.4	35.1	3.16	0.468	0.0829	R	NA	21	1	281	0.005	NA	0.00052375	1.4284691	NA	NA	0.0056784	NA	NA	0.0056784	1.4346713	0.6
Copper	5.6	9.3	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.00052375	1.0827898	NA	NA	0.0097344	NA	NA	0.0097344	1.0930479	0.2
Lead	4.7	8.9	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.000785625	1.7283968	NA	NA	0.0048672	NA	NA	0.0048672	1.7340496	0.4
Mercury	1.01	5.05	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	0.00002095	0.0028112	NA	NA	0.0009085	NA	NA	0.0009085	0.0037407	0.0
Nickel	1.7	3.4	4.73	2.32	R	R	NA	21	1	127	0.005	NA	0.00052375	0.645607	NA	NA	0.0056784	NA	NA	0.0056784	0.6518092	0.4
hPAH (total)	0.615	3.1	0	0.18	R	0	2.8	691	1	11.6	0.00009	NA	9.4275E-06	0.0589688	NA	NA	0.0033632	1.7565184	NA	1.7565184	1.8154967	3.0
lPAH (total)	65.6	328	0	0.18	R	0	0.26	5846	1	10.7	0.00012	NA	0.00001257	0.0543937	NA	NA	0.0379382	0.1504506	NA	0.1504506	0.2048568	0.0
PAH (total)	NA	NA	4.111875	0.18	R	0	1.4771765	3268	1	22.3	0.000205	NA	2.14738E-05	0.1133625	NA	NA	0.0362304	1.7814512	NA	1.7814512	1.8948352	3.0
Vanadium	4.16	8.3	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.00052375	0.3766888	NA	NA	0.0002704	NA	NA	0.0002704	0.377483	0.1
Zinc	75.4	292.1	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.00069135	3.0043603	NA	NA	0.0167756	NA	NA	0.0167756	3.0218273	0.0

AECOM

Table G-14
Step 2 Risk Calculation - AOC12: Mink

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide
0.568	0.05408	0.10475	0.02	NA	0	0	0	0.85	0.13	0.094	0.00508	7.8	20.4	14.1				1
SLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	1	NA									
NA																		

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Hazard Quotient
	Mink TRV NOAEL (mg/kg-d)	Mink TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	AUF Default	AOC12 MDC (Cider Mill Pond) (mg/kg)	AOC12 MDC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	
2-Butanone (MEK)	1771	8855	0.7	1	26.325704	1	NA	0.9781377	1	0.972	0.01	NA	0.0010475	0.0049412	NA	NA	0.000529	NA	NA	0.000529	0.0065177	0.0
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	2.095E-07	0.0019419	NA	NA	0.2503904	0.5102664	NA	0.5102664	0.5122085	3.5
Acetone	20	250	0.7	1	53.299115	1	NA	0.3869011	1	2.68	0.01	NA	0.0010475	0.0136238	NA	NA	0.0002092	NA	NA	0.0002092	0.0148806	0.0
Arsenic	1.04	1.66	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.000419	0.0884532	NA	NA	0.0036774	NA	NA	0.0036774	0.0925497	0.1
Barium	51.8	119	0.477	0.16	0.477	R	NA	5.2	1	476	0.08861	NA	0.009281898	2.4197555	NA	NA	0.0249185	NA	NA	0.0249185	2.453956	0.0
Cadmium	0.77	7.1	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.000261875	0.0198257	NA	NA	0.4905056	NA	NA	0.4905056	0.5105932	0.7
Chlordane	4.58	9.16	11.8	4.1	0.1809448	1	4.9	3205000	1	0.371	0.0000275	NA	2.88063E-06	0.001886	NA	NA	4.766476	0.098312	NA	4.766476	4.7683649	1.0
Chromium (total)	2.4	35.1	3.16	0.468	0.0829	R	NA	21	1	72.1	0.005	NA	0.00052375	0.3665218	NA	NA	0.0056784	NA	NA	0.0056784	0.3727239	0.2
Copper	5.6	9.3	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.00052375	1.0827898	NA	NA	0.0097344	NA	NA	0.0097344	1.0930479	0.2
Lead	4.7	8.9	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.000785625	1.7283968	NA	NA	0.0048672	NA	NA	0.0048672	1.7340496	0.4
Mercury	1.01	5.05	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	0.00002095	0.0028112	NA	NA	0.0009085	NA	NA	0.0009085	0.0037407	0.0
Nickel	1.7	3.4	4.73	2.32	R	R	NA	21	1	52.4	0.005	NA	0.00052375	0.2663764	NA	NA	0.0056784	NA	NA	0.0056784	0.2725786	0.2
hPAH (total)	0.615	3.1	0	0.18	R	0	2.8	691	1	9.15	0.0009	NA	0.000094275	0.0465142	NA	NA	0.0336324	1.3855296	NA	1.3855296	1.4321381	2.3
lPAH (total)	65.6	328	0	0.18	R	0	0.26	5846	1	7.36	0.0000695	NA	7.28013E-06	0.0374147	NA	NA	0.0219725	0.1034875	NA	0.1034875	0.1409095	0.0
PAH (total)	NA	NA	4.111875	0.18	R	0	1.4771765	3268	1	16.5	0.0000944	NA	9.8884E-06	0.0838781	NA	NA	0.0166836	1.3181141	NA	1.3181141	1.4020021	2.3
Vanadium	4.16	8.3	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.00052375	0.3766888	NA	NA	0.0002704	NA	NA	0.0002704	0.377483	0.1
Zinc	75.4	292.1	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.00069135	3.0043603	NA	NA	0.0167756	NA	NA	0.0167756	3.0218273	0.0

AECOM

Table G-15
Step 2 Risk Calculation - AOC15: Raccoon

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide
5.74	0.0266	0.08313	0.3915	NA	NA	0	0	0.029	0.58	0.094	0.00473	5.3	376	190.65				1
SLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	NA	1									
NA																		

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Hazard Quotient
	Raccoon TRV NOAEL (mg/kg-d)	Raccoon TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	AUF Default	AOC12 MDC (Cider Mill Pond) (mg/kg)	AOC12 MDC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	
2-Butanone (MEK)	1771	8855	0.7	1	26.325704	1	NA	0.9781377	1	0.972	0.01	NA	0.0008313	0.0024304	NA	0.0258552	NA	NA	NA	NA	0.0291169	0.0
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	1.6626E-07	0.0009552	NA	0.0130055	NA	NA	NA	NA	0.0139609	0.1
Acetone	20	250	0.7	1	53.299115	1	NA	0.3869011	1	2.68	0.01	NA	0.0008313	0.0067011	NA	0.071288	NA	NA	NA	NA	0.0788204	0.0
Arsenic	1.04	1.66	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.00033252	0.043507	NA	0.3193596	NA	NA	NA	NA	0.3631991	0.3
Barium	51.8	119	0.477	0.16	0.477	R	NA	5.2	1	476	0.08861	NA	0.007366149	1.1901904	NA	2.025856	NA	NA	NA	NA	3.2234125	0.1
Cadmium	0.77	7.1	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.000207825	0.0097516	NA	0.8288826	NA	NA	NA	NA	0.838842	1.1
Chlordane	4.58	9.16	11.8	4.1	0.1809448	1	4.9	3205000	1	0.371	0.0000275	NA	2.28608E-06	0.0009276	NA	0.0404613	NA	NA	NA	NA	0.0413912	0.0
Chromium (total)	2.4	35.1	3.16	0.468	0.0829	R	NA	21	1	72.1	0.005	NA	0.00041565	0.1802788	NA	0.8975585	NA	NA	NA	NA	1.078253	0.4
Copper	5.6	9.3	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.00041565	0.5325852	NA	29.74545	NA	NA	NA	NA	30.278451	5.4
Lead	4.7	8.9	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.000623475	0.850136	NA	5.489708	NA	NA	NA	NA	6.3404675	1.3
Mercury	1.01	5.05	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	0.000016626	0.0013827	NA	0.0421877	NA	NA	NA	NA	0.0435871	0.0
Nickel	1.7	3.4	4.73	2.32	R	R	NA	21	1	52.4	0.005	NA	0.00041565	0.131021	NA	3.2337088	NA	NA	NA	NA	3.3651454	2.0
hPAH (total)	0.615	3.1	0	0.18	R	0	2.8	691	1	9.15	0.0009	NA	0.000074817	0.0228787	NA	0.0438102	NA	NA	NA	NA	0.0667637	0.1
lPAH (total)	65.6	328	0	0.18	R	0	0.26	5846	1	7.36	0.0000695	NA	5.77754E-06	0.0184029	NA	0.0352397	NA	NA	NA	NA	0.0536484	0.0
PAH (total)	NA	NA	4.111875	0.18	R	0	1.4771765	3268	1	16.5	0.0000944	NA	7.84747E-06	0.0412566	NA	0.079002	NA	NA	NA	NA	0.1202664	0.1
Vanadium	4.16	8.3	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.00041565	0.1852796	NA	0.1734533	NA	NA	NA	NA	0.3591486	0.1
Zinc	75.4	292.1	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.000548658	1.4777364	NA	118.32896	NA	NA	NA	NA	119.80724	1.6

AECOM

Table G-16
Step 2 Risk Calculation - Site Wide: Raccoon

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide
5.74	0.0266	0.08313	0.3915	NA	NA	0	0	0.029	0.58	0.094	0.00473	5.3	376	190.65				1
SLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	NA	1									
NA																		

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration				Estimated Exposure Dose								Hazard Quotient
	Raccoon TRV NOAEL (mg/kg-d)	Raccoon TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	AUF Default	AOC15 MDC (mg/kg)	AOC15 MDC (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	
2-Butanone (MEK)	1771	8855	0.7	1	26.325704	1	NA	0.9781377	1	0.972	0.01	NA	0.0008313	0.0024304	NA	0.0258552	NA	NA	NA	NA	0.0291169	0.0
4,4'-DDx	0.147	0.735	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	1.6626E-07	0.0009552	NA	0.0130055	NA	NA	NA	NA	0.0139609	0.1
Acetone	20	250	0.7	1	53.299115	1	NA	0.3869011	1	2.68	0.01	NA	0.0008313	0.0067011	NA	0.071288	NA	NA	NA	NA	0.0788204	0.0
Arsenic	1.04	1.66	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.00033252	0.043507	NA	0.3193596	NA	NA	NA	NA	0.3631991	0.3
Barium	51.8	119	0.477	0.16	0.477	R	NA	5.2	1	476	0.106	NA	0.00881178	1.1901904	NA	2.025856	NA	NA	NA	NA	3.2248582	0.1
Cadmium	0.77	7.1	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.000207825	0.0097516	NA	0.8288826	NA	NA	NA	NA	0.838842	1.1
Chlordane	4.58	9.16	11.8	4.1	0.1809448	1	4.9	3205000	1	0.371	0.00003	NA	2.4939E-06	0.0009276	NA	0.0404613	NA	NA	NA	NA	0.0413914	0.0
Chromium (total)	2.4	35.1	3.16	0.468	0.0829	R	NA	21	1	281	0.005	NA	0.00041565	0.7026124	NA	3.4981128	NA	NA	NA	NA	4.2011409	1.8
Copper	5.6	9.3	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.00041565	0.5325852	NA	29.74545	NA	NA	NA	NA	30.278451	5.4
Lead	4.7	8.9	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.000623475	0.850136	NA	5.489708	NA	NA	NA	NA	6.3404675	1.3
Mercury	1.01	5.05	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	0.000016626	0.0013827	NA	0.0421877	NA	NA	NA	NA	0.0435871	0.0
Nickel	1.7	3.4	4.73	2.32	R	R	NA	21	1	127	0.005	NA	0.00041565	0.3175508	NA	7.837424	NA	NA	NA	NA	8.1553905	4.8
hPAH (total)	0.615	3.1	0	0.18	R	0	2.8	691	1	11.6	0.00009	NA	7.4817E-06	0.0290046	NA	0.0555408	NA	NA	NA	NA	0.0845529	0.1
lPAH (total)	65.6	328	0	0.18	R	0	0.26	5846	1	10.7	0.00012	NA	9.9756E-06	0.0267543	NA	0.0512316	NA	NA	NA	NA	0.0779959	0.0
PAH (total)	NA	NA	4.111875	0.18	R	0	1.4771765	3268	1	22.3	0.000205	NA	1.70417E-05	0.0557589	NA	0.1067724	NA	NA	NA	NA	0.1625484	0.1
Vanadium	4.16	8.3	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.00041565	0.1852796	NA	0.1734533	NA	NA	NA	NA	0.3591486	0.1
Zinc	75.4	292.1	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.000548658	1.4777364	NA	118.32896	NA	NA	NA	NA	119.80724	1.6

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Table G-17
Step 2 Risk Calculation - AOC12: Mallard Duck

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide
1.043	0.050148	0.058186	0.253	NA	NA	NA	NA	NA	0.747	0.02	0.001147	307	719	513				1
SLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	NA	1									

	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration			Estimated Exposure Dose									Hazard Quotient
	Mallard Duck TRV NOAEL (mg/kg-d)	Mallard Duck TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	AUF Default	AOC12 MDC (Cider Mill Pond) (mg/kg)	AOC12 MDC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	
2-Butanone (MEK)	NA	NA	0.7	1	26.325704	1	NA	0.9781377	1	0.972	0.01	NA	0.00058186	0.0009749	NA	0.0487439	NA	NA	NA	NA	0.0503006	NA
4,4'-DDx	0.227	2.27	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	1.16372E-07	0.0003831	NA	0.0245189	NA	NA	NA	NA	0.0249021	0.1
Acetone	420	2100	0.7	1	53.299115	1	NA	0.3869011	1	2.68	0.01	NA	0.00058186	0.0026879	NA	0.1343966	NA	NA	NA	NA	0.1376664	0.0
Arsenic	2.24	4.5	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.000232744	0.0174515	NA	0.6020769	NA	NA	NA	NA	0.6197611	0.3
Barium	41.66	208.25	0.477	0.16	0.477	R	NA	5.2	1	476	0.08861	NA	0.005155861	0.477409	NA	3.8192717	NA	NA	NA	NA	4.3018365	0.1
Cadmium	1.47	6.3	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.000145465	0.0039115	NA	1.5626618	NA	NA	NA	NA	1.5667188	1.1
Chlordane	2.14	10.7	11.8	4.1	0.1809448	1	4.9	3205000	1	0.371	0.0000275	NA	1.60012E-06	0.0003721	NA	0.0762801	NA	NA	NA	NA	0.0766538	0.0
Chromium (total)	2.66	8.9	3.16	0.468	0.0829	R	NA	21	1	72.1	0.005	NA	0.00029093	0.0723134	NA	1.6921339	NA	NA	NA	NA	1.7647383	0.7
Copper	4.05	12.1	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.00029093	0.2136305	NA	56.078001	NA	NA	NA	NA	56.291922	13.9
Lead	1.6	3.3	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.000436395	0.3410064	NA	10.349544	NA	NA	NA	NA	10.690987	6.7
Mercury	0.45	0.9	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	1.16372E-05	0.0005546	NA	0.0795349	NA	NA	NA	NA	0.0801012	0.2
Nickel	6.7	21.4	4.73	2.32	R	R	NA	21	1	52.4	0.005	NA	0.00029093	0.0525551	NA	6.0963921	NA	NA	NA	NA	6.1492381	0.9
hPAH (total)	NA	NA	0	0.18	R	0	2.8	691	1	9.15	0.0009	NA	5.23674E-05	0.0091771	NA	0.0825938	NA	NA	NA	NA	0.0918232	NA
lPAH (total)	NA	NA	0	0.18	R	0	0.26	5846	1	7.36	0.0000695	NA	4.04393E-06	0.0073818	NA	0.0664361	NA	NA	NA	NA	0.0738219	NA
PAH (total)	27.26	136.3	4.111875	0.18	R	0	1.4771765	3268	1	16.5	0.0000944	NA	5.49276E-06	0.0165488	NA	0.1489396	NA	NA	NA	NA	0.1654939	0.0
Vanadium	0.344	0.688	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.00029093	0.0743193	NA	0.3270051	NA	NA	NA	NA	0.4016153	1.2
Zinc	66.1	188.6	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.000384028	0.5927494	NA	223.08122	NA	NA	NA	NA	223.67436	3.4

AECOM

Table G-18
Step 2 Risk Calculation - Site Wide: Mallard Duck

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide
1.043	0.050148	0.058186	0.253	NA	NA	NA	NA	NA	0.747	0.02	0.001147	307	719	513				1
SLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	NA	1									

	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration				Estimated Exposure Dose								
	Mallard Duck TRV NOAEL (mg/kg-d)	Mallard Duck TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	AUF Default	AOC12 MDC (Cider Mill Pond) (mg/kg)	AOC12 MDC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	Hazard Quotient
2-Butanone (MEK)	NA	NA	0.7	1	26.325704	1	NA	0.9781377	1	0.972	0.01	NA	0.00058186	0.0009749	NA	0.0487439	NA	NA	NA	NA	0.0503006	NA
4,4'-DDx	0.227	2.27	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	1.16372E-07	0.0003831	NA	0.0245189	NA	NA	NA	NA	0.0249021	0.1
Acetone	420	2100	0.7	1	53.299115	1	NA	0.3869011	1	2.68	0.01	NA	0.00058186	0.0026879	NA	0.1343966	NA	NA	NA	NA	0.1376664	0.0
Arsenic	2.24	4.5	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.000232744	0.0174515	NA	0.6020769	NA	NA	NA	NA	0.6197611	0.3
Barium	41.66	208.25	0.477	0.16	0.477	R	NA	5.2	1	476	0.106	NA	0.006167716	0.477409	NA	3.8192717	NA	NA	NA	NA	4.3028484	0.1
Cadmium	1.47	6.3	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.000145465	0.0039115	NA	1.5626618	NA	NA	NA	NA	1.5667188	1.1
Chlordane	2.14	10.7	11.8	4.1	0.1809448	1	4.9	3205000	1	0.371	0.00003	NA	1.74558E-06	0.0003721	NA	0.0762801	NA	NA	NA	NA	0.076654	0.0
Chromium (total)	2.66	8.9	3.16	0.468	0.0829	R	NA	21	1	281	0.005	NA	0.00029093	0.2818318	NA	6.5948632	NA	NA	NA	NA	6.8769859	2.6
Copper	4.05	12.1	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.00029093	0.2136305	NA	56.078001	NA	NA	NA	NA	56.291922	13.9
Lead	1.6	3.3	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.000436395	0.3410064	NA	10.349544	NA	NA	NA	NA	10.690987	6.7
Mercury	0.45	0.9	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	1.16372E-05	0.0005546	NA	0.0795349	NA	NA	NA	NA	0.0801012	0.2
Nickel	6.7	21.4	4.73	2.32	R	R	NA	21	1	127	0.005	NA	0.00029093	0.1273759	NA	14.775607	NA	NA	NA	NA	14.903274	2.2
hPAH (total)	NA	NA	0	0.18	R	0	2.8	691	1	11.6	0.00009	NA	5.23674E-06	0.0116343	NA	0.104709	NA	NA	NA	NA	0.1163486	NA
lPAH (total)	NA	NA	0	0.18	R	0	0.26	5846	1	10.7	0.00012	NA	6.98232E-06	0.0107317	NA	0.096585	NA	NA	NA	NA	0.1073237	NA
PAH (total)	27.26	136.3	4.111875	0.18	R	0	1.4771765	3268	1	22.3	0.000205	NA	1.19281E-05	0.022366	NA	0.2012941	NA	NA	NA	NA	0.223672	0.0
Vanadium	0.344	0.688	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.00029093	0.0743193	NA	0.3270051	NA	NA	NA	NA	0.4016153	1.2
Zinc	66.1	188.6	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.000384028	0.5927494	NA	223.08122	NA	NA	NA	NA	223.67436	3.4

AECOM

Table G-19
Step 2 Risk Calculation - Site Wide: Great Blue Heron

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide (AOC11A, 11B, 11c and 12)
2.23	0.044	0.045	NA	NA	NA	NA	NA	0.98	0.02	0.05	0.0022	0.6	8.4	4.5				1
SLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	1	NA									

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration				Estimated Exposure Dose								Hazard Quotient
	Great Blue Heron TRV NOAEL (mg/kg-d)	Great Blue Heron TRV LOAEL (mg/kg-d)		BCFsedi	BCFspl		BSAFfish	BAFwf	AUF Default	AOC15 MDC (mg/kg)	AOC15 MDC (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	
2-Butanone (MEK)	NA	NA	0.7	1	26.325704	1	NA	0.9781377	1	0.972	0.01	NA	0.00045	0.0021384	NA	NA	0.0004304	NA	NA	0.0004304	0.0030188	NA
4,4'-DDx	0.227	2.27	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	0.00000009	0.0008404	NA	NA	0.20372	0.4151576	NA	0.4151576	0.4159981	1.8
Acetone	420	2100	0.7	1	53.299115	1	NA	0.3869011	1	2.68	0.01	NA	0.00045	0.005896	NA	NA	0.0001702	NA	NA	0.0001702	0.0065162	0.0
Arsenic	2.24	4.5	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.00018	0.03828	NA	NA	0.002992	NA	NA	0.002992	0.041452	0.0
Barium	41.66	208.25	0.477	0.16	0.477	R	NA	5.2	1	476	0.106	NA	0.00477	1.0472	NA	NA	0.0242528	NA	NA	0.0242528	1.0762228	0.0
Cadmium	1.47	6.3	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.0001125	0.00858	NA	NA	0.39908	NA	NA	0.39908	0.4077725	0.3
Chlordane	2.14	10.7	11.8	4.1	0.1809448	1	4.9	3205000	1	0.371	0.00003	NA	0.00000135	0.0008162	NA	NA	4.2306	0.0799876	NA	4.2306	4.2314176	2.0
Chromium (total)	2.66	8.9	3.16	0.468	0.0829	R	NA	21	1	281	0.005	NA	0.000225	0.6182	NA	NA	0.00462	NA	NA	0.00462	0.623045	0.2
Copper	4.05	12.1	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.000225	0.4686	NA	NA	0.00792	NA	NA	0.00792	0.476745	0.1
Lead	1.6	3.3	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.0003375	0.748	NA	NA	0.00396	NA	NA	0.00396	0.7522975	0.5
Mercury	0.45	0.9	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	0.000009	0.0012166	NA	NA	0.0007392	NA	NA	0.0007392	0.0019648	0.0
Nickel	6.7	21.4	4.73	2.32	R	R	NA	21	1	127	0.005	NA	0.000225	0.2794	NA	NA	0.00462	NA	NA	0.00462	0.284245	0.0
hPAH (total)	NA	NA	0	0.18	R	0	2.8	691	1	11.6	0.00009	NA	0.00000405	0.02552	NA	NA	0.0027364	1.42912	NA	1.42912	1.4546441	NA
lPAH (total)	NA	NA	0	0.18	R	0	0.26	5846	1	10.7	0.00012	NA	0.0000054	0.02354	NA	NA	0.0308669	0.122408	NA	0.122408	0.1459534	NA
PAH (total)	27.26	136.3	4.111875	0.18	R	0	1.4771765	3268	1	22.3	0.000205	NA	0.000009225	0.04906	NA	NA	0.0294774	1.4494056	NA	1.4494056	1.4984748	0.1
Vanadium	0.344	0.688	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.000225	0.16302	NA	NA	0.00022	NA	NA	0.00022	0.163465	0.5
Zinc	66.1	188.6	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.000297	1.3002	NA	NA	0.0136488	NA	NA	0.0136488	1.3141458	0.0

AECOM

Table G-20
Step 2 Risk Calculation - AOC12: Great Blue Heron

Greenwich High School
10 Hillside Road
Greenwich, CT

Receptor Assumptions																		
Food Ingestion			Diet Composition							Soil Ingestion		Home/Feeding Range			Area Use Factor			
Body Weight (BW) (kg)	Food Ingestion Rate (FIR) (kg/kg-day)	Water Ingestion Rate (WIR) (L/kg-d)	Plants	Soil Invertebrates	Birds	Reptiles/Amphibians	Small Mammals	Fish	Benthic Invertebrates	Incidental Soil Ingestion (Ps)	Soil Ingestion Rate (SIR) (kg/kg-day)	Range (lower limit) (ha)	Range (upper limit) (ha)	Range (Mean) (ha)				Site-Wide
2.23	0.044	0.045	NA	NA	NA	NA	NA	0.98	0.02	0.05	0.0022	0.6	8.4	4.5				1
SLERA Specific Diet Assumptions			NA	NA	NA	NA	NA	1	NA									

COPEC	Toxicity Reference Values		Bioconcentration Factors (BCFs)						Area Use Factor	Exposure Point Concentration				Estimated Exposure Dose								Hazard Quotient
	Great Blue Heron TRV NOAEL (mg/kg-d)	Great Blue Heron TRV LOAEL (mg/kg-d)	BCFssi	BCFsedi	BCFspl	BCFssm	BSAFfish	BAFwf	AUF Default	AOC12 MDC (Cider Mill Pond) (mg/kg)	AOC12 MDC (Cider Mill Pond) (mg/L)	None	Dose from Water (mg/kg-d)	Dose from Sediment (mg/kg-d)	Dose from Aquatic Plants (mg/kg-d)	Dose from Benthic Invetebrates (mg/kg-d)	Dose from Fish (water) (mg/kg-d)	Dose from Fish (sediment) (mg/kg-d)	Dose from Fish (tissue) (mg/kg-d)	Dose from Fish Final (mg/kg-d)	Total Dose (mg/kg-d)	
2-Butanone (MEK)	NA	NA	0.7	1	26.3257	1	NA	0.978138	1	0.972	0.01	NA	0.00045	0.002138	NA	NA	0.00043	NA	NA	0.00043	0.003019	NA
4,4'-DDx	0.227	2.27	R	R	R	R	24.7	2315000	1	0.382	0.000002	NA	9E-08	0.00084	NA	NA	0.20372	0.415158	NA	0.415158	0.415998	1.8
Acetone	420	2100	0.7	1	53.29912	1	NA	0.386901	1	2.68	0.01	NA	0.00045	0.005896	NA	NA	0.00017	NA	NA	0.00017	0.006516	0.0
Arsenic	2.24	4.5	R	0.69	1.103	R	NA	17	1	17.4	0.004	NA	0.00018	0.03828	NA	NA	0.002992	NA	NA	0.002992	0.041452	0.0
Barium	41.66	208.25	0.477	0.16	0.477	R	NA	5.2	1	476	0.08861	NA	0.003987	1.0472	NA	NA	0.020274	NA	NA	0.020274	1.071461	0.0
Cadmium	1.47	6.3	R	7.99	R	R	NA	3628	1	3.9	0.0025	NA	0.000113	0.00858	NA	NA	0.39908	NA	NA	0.39908	0.407773	0.3
Chlordane	2.14	10.7	11.8	4.1	0.180945	1	4.9	3205000	1	0.371	2.75E-05	NA	1.24E-06	0.000816	NA	NA	3.87805	0.079988	NA	3.87805	3.878867	1.8
Chromium (total)	2.66	8.9	3.16	0.468	0.0829	R	NA	21	1	72.1	0.005	NA	0.000225	0.15862	NA	NA	0.00462	NA	NA	0.00462	0.163465	0.1
Copper	4.05	12.1	1.53	5.25	R	R	NA	36	1	213	0.005	NA	0.000225	0.4686	NA	NA	0.00792	NA	NA	0.00792	0.476745	0.1
Lead	1.6	3.3	R	0.607	R	R	NA	12	1	340	0.0075	NA	0.000338	0.748	NA	NA	0.00396	NA	NA	0.00396	0.752298	0.5
Mercury	0.45	0.9	20.63	2.868	R	0.192	NA	84	1	0.553	0.0002	NA	0.000009	0.001217	NA	NA	0.000739	NA	NA	0.000739	0.001965	0.0
Nickel	6.7	21.4	4.73	2.32	R	R	NA	21	1	52.4	0.005	NA	0.000225	0.11528	NA	NA	0.00462	NA	NA	0.00462	0.120125	0.0
hPAH (total)	NA	NA	0	0.18	R	0	2.8	691	1	9.15	0.0009	NA	4.05E-05	0.02013	NA	NA	0.027364	1.12728	NA	1.12728	1.147451	NA
lPAH (total)	NA	NA	0	0.18	R	0	0.26	5846	1	7.36	6.95E-05	NA	3.13E-06	0.016192	NA	NA	0.017877	0.084198	NA	0.084198	0.100394	NA
PAH (total)	27.26	136.3	4.111875	0.18	R	0	1.477176	3268	1	16.5	9.44E-05	NA	4.25E-06	0.0363	NA	NA	0.013574	1.07243	NA	1.07243	1.108734	0.0
Vanadium	0.344	0.688	0.088	0.088	0.0097	0.0179	NA	1	1	74.1	0.005	NA	0.000225	0.16302	NA	NA	0.00022	NA	NA	0.00022	0.163465	0.5
Zinc	66.1	188.6	R	7.527	R	R	NA	47	1	591	0.0066	NA	0.000297	1.3002	NA	NA	0.013649	NA	NA	0.013649	1.314146	0.0