Final RI Appendix M: Human Health Risk Assessment Report

Matlack Inc. Superfund Site
Remedial Investigation/Feasibility Study

USEPA Work Assignment Number 029-RICO-02P9,
USEPA Contract Number EP-W-09-009

Woolwich Township,
Gloucester County, New Jersey
July 20, 2017

Prepared for:
U.S. Environmental Protection Agency
Region 2
New York, NY

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ABBREVIATIONS AND ACRONYMS

ADAF	Age-dependent adjustment factor
AT	Averaging time
B	Ratio of permeability coefficients for dermal water exposure
BW	Body weight
Ca	Constituent concentration in air
CAF	Cancer adjustment factor
CDC	Centers for Disease Control and Prevention
CLP	USEPA Contract Laboratory Program
cm	Centimeter
COC	Constituent of concern
COPC	Constituent of potential concern
Cr	Chromium
CSM	Conceptual Site model
DA-event	Absorbed dermal dose per event
DCE	1,2-cis- or trans-dichloroethylene
DER	Data evaluation report
DESA	USEPA Division of Environmental Sciences and Assessment
DQI	Data quality indicators
EB	Ethylbenzene
ED	Exposure duration
EDD	Electronic data deliverable
EF	Exposure frequency
ELCR	Excess lifetime cancer risk
EPC	Exposure point concentration
FA	Fraction absorbed for dermal water exposure
GIABS	Gastrointestinal absorption factor
GWQS	NJDEP Groundwater Quality Standard
HDR	Henningson, Durham and Richardson Architecture and Engineering, P.C., in association with HDR Engineering, Inc.
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient

IEUBK	Integrated Exposure and Uptake Biokinetic Model
IR	Intake rate
IRIS	USEPA Integrated Risk Information System
IUR	Inhalation unit risk
kg	Kilogram
Kp	Dermal permeability constant
L	Liter
LOAEL	Lowest observable adverse effect level
m^3	cubic meter
MAF	Mutagen adjustment factor
MCL	Maximum contaminant level
mg/kg-day	Milligrams per kilogram per day
mg/kg	Milligrams per kilogram
mL	Milligrams per liter
MMOA	Mutagenic mode of action
NJDEP	New Jersey Department of Environmental Protection
NOAEL	No observable adverse effect level
NPL	National Priorities List
NRDCSRS	NJDEP Non-Residential Direct Contact Soil Remediation Standards
OSWER	USEPA Office of Solid Waste and Emergency Response
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethylene
PEF	Particulate emission factor
PEST	Pesticide
PPRTV	USEPA Provisional Peer Reviewed Toxicity Values
QAPP	Quality Assurance Project Plan
QL	Quantitation Limit
RAGS	USEPA Risk Assessment Guidance for Superfund
RBA	Relative bioavailability factor
RCRA	Resource Conservation and Recovery Act
RDCSRS	NJDEP Residential Direct Contact Soil Remediation Standards
RfD	Oral reference dose
RfC	Inhalation reference concentration

RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RME	Reasonable maximum exposure
RSL	USEPA Regional Screening Level
SF	Slope factor
STSC	Superfund Health Risk Technical Support Center
SVOC	Semi-volatile organic compound
SWQS	NJDEP Surface Water Quality Standard
TAL/TCL	USEPA target analyte list / target chemical list
TCE	Trichloroethylene
TDS	Total dissolved solids
t*	Time to reach steady state for dermal water exposure
t-event	Event duration for dermal water exposure
tau-event	Lag time per event for dermal water exposure
TIC	Tentatively identified compound
TOC	Total organic carbon
TSS	Total suspended solids
UCL	Upper confidence limit
ug/m^3	Micrograms per cubic meter
USEPA	United States Environmental Protection Agency
VC	Vinyl chloride
VI	Vapor intrusion
VOC	Volatile organic compound
VF	Volatilization factor
WQC	USEPA National Recommended Water Quality Criteria

1 Introduction

This baseline Human Health Risk Assessment (HHRA) was prepared on behalf of the United States Environmental Protection Agency (USEPA) by Henningson, Durham & Richardson Architecture & Engineering, P.C. in association with HDR Engineering, Inc. (HDR) to provide an evaluation of the data collected by HDR as part of the Remedial Investigation/Feasibility Study (RI/FS) for the Matlack, Inc. (Matlack) Superfund Site (the Site), located in Gloucester County, New Jersey (**Figure 1-1**).

Previous investigations at the Matlack Site (CERCLIS ID No. NJD043584101) indicate the presence of residual soil contamination and a groundwater contaminant plume resulting from operations at the Site, which included the cleaning of tankers that previously contained a variety of substances including oils, xylenes, benzene, toluene, trichloroethylene (TCE), tetrachloroethylene (PCE) acetone, methanol and ethanol. The Site was included on the National Priorities List (NPL) in May 2013. A summary of prior investigations, removal and remedial actions is provided in the RI/FS and a Site Plan is included as **Figure 1-2**.

The RI/FS is being performed under Work Assignment Number 029-RICO-02P9, USEPA Remedial Action Contract (RAC) 2 Contract Number EP-W-09-009.

This HHRA is performed in accordance with USEPA Risk Assessment Guidance for Superfund (RAGS, USEPA 1989) and other relevant risk assessment guidance. It identifies the current and future land use exposure pathways by which human populations may be exposed to contaminants identified in environmental media and presents cancer risks and noncancer hazard quotients (HQ) for potential receptors for each Constituent of Potential Concern (COPC). COPCs that contribute the most to the cumulative cancer risks and noncancer hazard indices (HI) are identified as Constituents of Concern (COC) in the Section 6 Risk Characterization.

1.1 Purpose

The purpose of the HHRA is to evaluate potential exposures and define risks to public health and the environment related to groundwater, soil, sediment and surface water. The HHRA identifies COPCs and exposure media that may pose an unacceptable risk to current and/or future human receptors and subsequently provides information for remedial planning.

This report contains the information necessary to understand how the risks at the Site are calculated, including the statistical treatment of the data, evaluation of COPCs, the exposure pathways, receptors, exposure parameters and the current toxicological values (e.g., reference dose).

1.2 Report Organization

This HHRA is organized into the sections described below.

Section 1 Introduction: Identifies the purpose and organization of this report.

Section 2 Site Description: Presents the location, history and contamination.

Section 3 Sample Collection, Data Refinements and COPC Identification: Describes the collection and preparation of data sets and the COPCs.

Section 4 Exposure Assessment: Presents a Conceptual Site Model (CSM) that identifies the exposure pathways and potentially exposed receptors and describes how exposure intakes are calculated.

Section 5 Toxicity Assessment: Provides a discussion of the toxicity values and the hierarchy by which they are chosen.

Section 6 Hazard Identification and Risk Characterization: Provides a description of the carcinogenic classes and the methods by which cancer risks and noncancer HQs are calculated and the results of the HHRA.

Section 7 Uncertainty Analysis: Describes the inherent uncertainties in the HHRA conclusions.

Section 8 References: Provides information on the literature cited in the HHRA.

2 Site Description

The Matlack Site is located on Route 322 East in Woolwich Township, Gloucester County, New Jersey, at geographic coordinates 39° 45' 48.6" North Latitude and 075° 19' 15.7" West Longitude (**Figure 1-1**). The Site includes Matlack's former Swedesboro terminal, which occupied the northern portion of a 72-acre parcel (Woolwich Township, Block 6, Lot 5) and operated for much of its history in largely rural surroundings. Matlack was in the business of transporting chemicals, petrochemicals, and food-grade material in bulk, mostly liquid chemicals that were trucked in tank trailers ("tankers").

Operations at the Swedesboro terminal included tanker cleaning, truck maintenance, parking and dispatching of these tankers. Matlack operated the terminal from 1962 until 2001, when the company submitted a petition for Chapter 11 bankruptcy and ceased operations at the facility. From 1962 until 1976, Matlack discharged the generated wastewater from these operations into an unlined surface impoundment.

Currently the Site is operated by Liberty Kenworth, a medium and heavy duty truck sales and service center. The current land use surrounding the Site consists of agricultural, commercial and residential (**Figure 1-1**).

2.1 Site Contamination

A primary source of contamination at the Site was the cleaning of tankers that had held oils, xylenes, benzene, toluene, glycol, styrene, wax, alum, resins, acids, naphthalene, various organic solvents, flammable substances, coal tar and other types of hazardous waste. In 1988, approximately 16 to 20 tank trailers per working day were being cleaned at the Site. Matlack used various solvents, including PCE, methylene chloride, toluene, TCE, acetone, methanol and ethanol. The cleaning operation generated 5,000 to 15,000 gallons of wastewater per day. From 1962 until 1976, the wastewater was discharged to an unlined lagoon. After 1976, wastewater was collected for temporary storage in two in-ground concrete tanks for ultimate off-Site disposal. The tanker cleaning operation ceased in November 1997.

2.2 Geology, Hydrology and Hydrogeology

The geology, hydrology and hydrogeology of the Matlack Site are described in detail in the RI/FS report and summarized here.

2.2.1 Geology

Gloucester County is located within the Atlantic Coastal Plain physiographic province and is underlain by a wedge of unconsolidated sedimentary deposits. These dip to the southeast and lie unconformably on bedrock. They consist of clay, silt, sand and gravel of both marine and non-marine origin. In descending order, the stratigraphic units in the vicinity of the Matlack terminal are: the Pensauken Formation, the Woodbury Clay, the Merchantville Formation, and the undifferentiated Magothy-Raritan Formations (ERM 1990b).

The Pensauken Formation is a glacial terrace deposit that consists of a medium to coarse grained quartzose sand, with some gravel and clay. In localized areas, the sands and gravels are hardened by iron-containing cement to form "ironstone."

While not considered a major source of water for domestic use, a few wells within the county yield from 10 to 50 gallons per minute (gpm) of water from the Pensauken formation. In Site borings, this unit ranged from 13.5 feet to 33 feet in thickness. Underlying the Pensauken Formation is the Woodbury Clay. This formation generally consists of a dark blue to black blocky clay with occasional thin white sand streaks and late Cretaceous fossils of marine origin. The Woodbury Clay near the Site is a dark blue to black, dense, micaceous clay. The formation dips between 38 and 44 feet per mile to the southeast, and ranges in thickness from a few feet at the outcrop area to 80 feet elsewhere in Gloucester County, averaging f about 50 feet. There are no wells within Gloucester County known to obtain water from the Woodbury Clay.

Underlying the Woodbury Clay is the Cretaceous Merchantville Formation. This formation commonly consists of green to black glauconitic and micaceous silt and clay or quartzose or glauconitic sandy clay. The formation dips to the southeast with a thickness from 45 to 70 feet, averaging 50 to 60 feet. The Merchantville Formation is a minor source of groundwater for domestic use, with most of the wells tapping the upper sandy sections of the formation (ERM 1990b).

The Merchantville Formation, together with the overlying Woodbury Clay, functions as a confining layer, separating-the water-bearing sands of the Magothy-Raritan formations from overlying aquifers. In Site borings, the combined Woodbury Merchantville aquiclude ranged from 54 feet to 62 feet in thickness.

The Raritan Formation consists of light colored quartzose sand, clay and some gravel, while the Magothy Formation is composed of beds of dark gray or black clay, commonly lignitic, alternating with white, micaceous, fine sand. The combined thickness of the two formations may be as much as 500 feet within Gloucester County. The Magothy Formation dips to the southeast towards the Atlantic Ocean, as does the basal unit of the Raritan Formation. Most of the commercial and public water supplies within Gloucester

County obtain groundwater from these formations, with wells yielding up to 1400 gpm (ERM 1990b).

2.2.2 Hydrology and Hydrogeology

Grand Sprute Run, located to the west of the Site, is the closest surface water body to the Site. The total length of the stream is approximately 1.25 miles, then emptying into Raccoon Creek. The lower third of the stream is mainly wetlands, with negligible flow and many small, interconnected branches. The stream meanders throughout its entire length, splitting and rejoining numerous times. The bottom is sandy to gravelly, with pockets of extremely soft mud and decaying organic debris away from the main channels. Flow rate and channel size are sensitive to precipitation. Recent measurements indicated a maximum velocity of 0.22 to 0.76 feet per second. Channel depth ranges from a few inches to nearly three feet, while channel width varies from two to 10 feet or more. Dense vegetation occurs within and along the stream on small islands and along the banks (ERM 1990b).

Previous investigations have determined that two separate hydrogeologic systems exist at the Site. A shallow aquifer exists under water table conditions and is contained by the underlying Woodbury Clay. Historic water level measurements indicate that the water table occurs from approximately four feet below the surface at the southeast comer of the Site to approximately 28 feet below the surface at the northwest corner of the Site. The general groundwater flow direction derived from groundwater elevations in the Site monitoring wells indicate flow across the Site to the north-northwest to west, flowing towards Grand Sprute Run (ERM 1990b).

Based on prior investigations, the deep Magothy-Raritan aquifer is separated from the upper aquifer by a clay confining unit over 50 feet thick. Groundwater in this aquifer flows towards the southeast.

2.3 Existing Habitats, Water Bodies and Wetlands

The on-Site former lagoon area is comprised of trees, shrubs and herbaceous plants. Wildlife, such as rabbits, songbirds, domestic geese and deer, has been observed (ERM 1990a).

The on-Site wetlands are dominated by giant reed (phragmites) and blackberry. Other vegetation include barnyard grass, soft rush, goldenrod, black locust, honeysuckle, various grasses and asters (ERM 1990a).

Nearby off-Site habitats include forested uplands west of the Site, flat open fields west of the Site and south of the forested uplands and palustrine wetlands along Grand Sprute Run (ERM 1990a).

The New Jersey Department of Environmental Protection (NJDEP) indicates the Site is adjacent to the Raccoon Creek Wildlife Management Area, located to the northwest and west (NJDEP 2011a, 2016b).

Appendices of the 2004 Environmental Resource Inventory for Woolwich and the 2012 Environmental Resource Inventory for Swedesboro (DVRPC 2004, 2012) have more information on the habitats and wildlife known or probable to be present in Woolwich Township and the nearby Borough of Swedesboro.

Grand Sprute Run and Raccoon Creek surface waters are categorized as FW2-NT/SE2 from the Delaware River to Kings Highway and FW2-NT from Kings Highway to the head waters at Mullica Hill, NJ as per the NJDEP Surface Water Quality Standards (SWQS) (NJDEP 2011b). Kings Highway is 1.5 miles east of the Site, further from the Delaware River; Mullica Hill is even further east of the Site. The Woolwich Environmental Resource Inventory states that category FW2-NT is applicable for the non-tidal portions and SE2 for the tidal portions of Raccoon Creek; neither the NJ surface water regulations nor the Woolwich Inventory is clear on whether Grand Sprute Run is considered only freshwater or saline.

The township has freshwater tidal marshes and wetlands along its creeks and lakes. There are approximately 1,165 acres of wetlands, of which 653 acres are forested wetlands, 316 acres are low-growing riparian and 196 acres are tidal marshes (DVRPC 2004).

3 Sample Collection, Data Refinements and Identification of COPCS

Data from samples collected by HDR were used to quantitatively evaluate potential human exposures to contaminants. Historical data from 2012 to 2014 were also included in the HHRA as needed to fill in potential data gaps (e.g., Grand Sprute Run). All data were refined for use in the risk assessment in accordance with USEPA guidance.

3.1 Sample Collection

HDR collected and managed data as outlined in the QAPP (HDR 2016).

3.1.1 Soil Sampling

From March 7 through March 9, 201620 soil borings were installed in the area of the former lagoon. The borings were advanced through unconsolidated materials to the top of the clay layer with total depths between 15 and 35 feet below ground surface.

The recovered soil inside each core was continuously logged and classified visually using the Unified Soil Classification System (USCS). In addition, each boring core was screened for the potential presence of volatile organic compounds (VOCs) using a photoionization detector (PID). Drilling logs containing details regarding soil classification, encountered solid waste material and other anthropogenic fill materials, staining, PID readings and odors, and other relevant observations are provided in **Appendix L** of the RI.

The sampling locations are displayed on **Figure 3-1** and the list of soil samples collected is shown in **Table 2-2 of the RI**. Two samples were collected at each boring: one shallow soil sample from the 0-2 foot interval and one deeper sample from the saturated zone. The deeper sample was collected from below the water table near the clay layer that had the highest PID reading. Soil samples were analyzed for Target Compound List (TCL) VOCs, TCL semi-volatile organic compounds (SVOCs), target analyte list (TAL) metals plus mercury, cyanide, polychlorinated biphenyls (PCBs), pesticides, and herbicides.

Date	Locations Sampled
March 7	B-01, B-02, B-03, B-04, B-05 (including a field duplicate of the deeper sample identified as “B-21_13_15”), B-06, and B-07
March 8	B-08, B-09, B-10, B-16, B-17, B-18, B-19 (including a field duplicate of the shallow sample identified as “B-21_00_02”), and B-20
March 9	B-11, B-12, B-13, B-14, and B-15

3.1.2 Sediment Sampling

Seep sediment samples were collected by HDR along Grand Sprute Run, downgradient from the Site, to assess potential impacts and provide data for the risk assessments. Eight samples were collected from eight seep locations along the east bank of Grand Sprute Run. The sampling locations are displayed on **Figure 3-1** and the list of sediment samples collected is shown in **Table 2-2** of the RI. Sediment samples were analyzed for TCL VOCs, TCL SVOCs, TAL metals plus mercury, cyanide and PCBs. No sediment samples were collected from within Grand Sprute Run stream bed in 2016; samples were only collected at the seep locations.

Date	Locations Sampled
April 11	SD-01, SD-02 and SD-03 (including a field duplicate “SD-08”)
April 12	SD-04 (including an MS/MSD), SD-05, SD-06 and SD-07
April 13	SD-08

3.1.3 Groundwater Sampling

HDR conducted groundwater sampling at 25 monitoring wells between April 4th and April 13th, 2016, and again between July 25th and August 3rd, 2016. The sampling locations are displayed on **Figure 3-1** and the list of groundwater samples collected is shown in **Table 2-6 of the RI**. Groundwater samples were analyzed for TCL VOCs, TCL SVOCs, total and dissolved TAL metals plus mercury, cyanide and PCBs.

Round 1:

Date	Wells Sampled
April 4	MW-04, MW-10, MW-15 and L-01
April 5	MW-01, MW-01B, MW-07B, MW-18 and PZ-1
April 6	MW-13 (including a field duplicate “MW-30”), MW-17, MW-20, MW-21 and PZ-2
April 7	MW-2, MW-2B, MW-3, MW-5, MW-6 and MW-22
April 8	MW-23, MW-25, MW-26 and MW-27
April 13	MW-24

Round 2:

Date	Wells Sampled
July 25	MW-04
July 26	MW-10 (including an MS/MSD), MW-15 and MW-22
July 27	MW-01, MW-01B, MW-07B and MW-18
July 28	MW-02, MW-03, and MW-05
July 29	MW-02B, MW-06, and MW-21
August 1	MW-23 (including an MS/MSD), L-01 and PZ-01 (including a field duplicate “PZ-01-1”)
August 2	MW-13, MW-17, MW-25 and PZ-02
August 3	MW-20, MW-24 (including a field duplicate “MW-24-1”), MW-26, and MW-27

Purging and sampling was conducted in accordance with USEPA low stress/low flow protocol.

3.1.4 Surface Water Sampling

Surface water and seep water samples were collected along Grand Sprute Run to assess potential impacts to the creek to provide data for the risk assessments. Eight seep samples were collected from locations along the eastern bank of Grand Sprute Run, and eight samples were collected from within the stream adjacent to the seep locations. The sampling locations are displayed on **Figure 3-1** and the list of surface water and seep samples collected is shown in **Table 2-6** of the RI. The samples were collected via direct fill and were analyzed for temperature, dissolved oxygen, conductivity, turbidity, oxidation-reduction potential and pH in the field. The samples were analyzed for TCL VOCs, TCL SVOCs, total and dissolved TAL metals plus mercury, cyanide and PCBs.

Date	Locations Sampled
April 11	Seep locations: SW-01, SW-02 SW-03 (field duplicate “SW-17”) Stream locations: SW-09, SW-10 and SW-11
April 12	Seep locations: SW-04 (including an MS/MSD), SW-05, SW-06 and SW-07 Stream locations: SW-12, SW-13, SW-14 and SW-15
April 13	Seep location: SW-08 Stream location: SW-16

3.2 Historical Data

In April 2012, a USEPA contractor (Weston Solutions, Inc.) conducted sampling of surface water and sediment from Grand Sprute Run and seeps on its eastern bank, as well as groundwater from six monitoring wells and one piezometer to evaluate the Site for inclusion in the NPL. These data for PCE, TCE and cis-1,2-dichloroethylene (DCE) that were presented in Weston’s Surface Water Migration Pathway and Removal Assessment Sampling Trip Report (2012) were combined with 2016 sampling round to increase the quantity of surface water, seep water, seep sediment and sediment data evaluated in the HHRA and provide adequate risk characterization.

In August 2014, USEPA ERT's SERAS contractor Lockheed Martin conducted soil sampling at a depth of 4 – 21 feet to supplement the vertical characterization of contamination between the surface and subsurface in the previous RI. These data were used in the HHRA to evaluate potential exposures to a future on-Site construction worker performing activities in a trench at a depth of between 0 and 10 feet below ground surface.

3.3 Data Refinement

Data from HDR's 2016 sampling events were analyzed by the USEPA Contract Laboratory Program (CLP) or USEPA Division of Environmental Sciences and Assessment (DESA) laboratory. CLP data underwent Level 3 validation (USEPA Region II 2014a). DESA performed validation in accordance with USEPA Region II standard operating procedure (SOP) #G26 (USEPA Region II 2014b). Laboratory validation reports are provided in the Data Evaluation Report (DER), which is **Appendix B** of the RI. Validated electronic data deliverables (EDDs) were provided to HDR. HDR submitted the EDDs to USEPA Region II Superfund EDD Database Support personnel. Media-specific data tables are provided in **Appendix J** of the RI.

HDR reviewed and compiled the data in the DER to determine whether the data met the project data quality indicators of the QAPP, identify data gaps and determine the usability of the data for the HHRA. The DER also includes evaluation of data usability based on a re-assessment of data by USEPA resulting from manual integration errors in the initial deliverables by KAP laboratory (P. Cocuzza, personal communication, April 24, 2017).

Data that were determined appropriate for use in the risk assessments, based on the analyses completed and documented in the DER are further refined for use in the HHRA.

3.3.1 General Refinements

In accordance with *USEPA Guidance for Data Useability in Risk Assessment* (Part A) (USEPA 1992) data are refined as follows:

- Chemical concentrations qualified as not detected (i.e., U-qualified data) are evaluated as non-detects. Concentrations qualified as estimated (i.e., J-qualified data) are included for quantitative assessment. Rejected (R-qualified) data are not used.
- The sample quantitation limit (QL) is used to represent non-detect results. Note that ProUCL applies the Regression on Order Statistics (ROS) methods for lognormal and gamma distributed data sets to provide a better estimate of the non-detected sample's true value based on actual detected concentrations. For normal distributions, ProUCL utilizes Kaplan-Meier estimates in lieu of the ROS methods because the ROS methods tend to yield biased and negative non-detect values for these distributions (USEPA 2015b and c).
- The maximum result of the normal and field duplicate sample pairs is used if constituents are detected in both samples. The detected value is used when one was detected and the other non-detect.

- The concentrations of specific isomers or Aroclors™ are evaluated individually instead of summing the results to calculate a result for the total. This applies to the following constituents:
  - Endosulfan I and endosulfan II
  - M,p-xylene and o-xylene
  - Cis and trans 1,3-dichloropropene
  - Alpha and gamma chlordane
  - PCB Aroclors

3.3.2 Data Refinements Using USEPA Core of the Plume Guidance

Certain groundwater data are excluded to meet the requirements in the USEPA memorandum titled *Determining Groundwater Exposure Point Concentrations, Supplemental Guidance* (referred to herein as "Core of the Plume", USEPA 2014a). This memorandum specifies which groundwater data are acceptable for calculating the exposure point concentrations based on the type of well sample (e.g., monitoring well) and data quality (e.g., low turbidity). In accordance with this guidance, data from samples collected from piezometer wells (i.e., PZ-1 and PZ-2) are excluded from the groundwater data set, as the data may not be reproducible.

Further discussion on the evaluation of data using the USEPA memorandum is described in **Section 4.3**.

3.4 Identification of COPCs

The COPC screening tables are presented in the format of RAGS Part D Planning Tables (USEPA 2001) in **Attachment A, RAGS Part D Planning Tables 2.1 through 2.6**. **Table 2.1** presents the COPC screening of soil (0-2ft and 0-10ft), **Table 2.2** that of Site-wide groundwater, **Table 2.3** that of seep water, **Table 2.4** that of surface water, **Table 2.5** that of sediment and **Table 2.6** that of seep sediment.

COPCs were determined in accordance with the criteria included in Chapter 5 of USEPA RAGS Part A (USEPA 1989) as follows:

- A constituent that is detected in fewer than five percent of the samples is eliminated as a COPC if a sufficient number of samples are collected for analysis. According to RAGS, Part A (USEPA 1989), at least 20 samples are needed in the data set if a frequency of detection limit of 5 percent is used. For this COPC screening, groundwater had six constituents with less than five percent detection and at least 20 samples were collected for these constituents; thus, they were determined not to be COPCs in groundwater – see **Attachment A, Table 2.2**.
- Constituents are excluded from the COPC list if they are essential nutrients and are present at levels not likely to pose appreciable risk to human health as per RAGS, Part A (USEPA 1989). Chemicals that are considered to be essential nutrients include iron, calcium, chloride, magnesium, potassium and sodium. Iron was retained as a COPC since its maximum concentrations in groundwater, surface water

and seep sediment are greater than screening levels – see **Attachment A, Tables 2.2, 2.4 and 2.6**.

- Analytical data results that are not chemical-specific (e.g., TOC) were excluded from the COPC list.
- Tentatively identified compounds (TICs) were excluded from the COPC screening.

For the remaining constituents, the maximum detected concentrations of the constituents detected in soil, groundwater, seep water, surface water, sediment and seep sediment were compared to risk-based screening levels and NJ standards to assess the potential for adverse impact to human health and to identify COPCs. Exceedances of screening levels do not in themselves indicate that an unacceptable exposure exists. Rather, the exceedance of a screening level indicates the need for further evaluation in the HHRA.

- Soil, sediment and seep sediment concentrations were compared to the minimum of the following criteria: USEPA Regional Screening Levels (RSLs) for Residential Soil and Industrial Soil at a target cancer risk of 1E-06 and target noncancer HQ of 0.1 (USEPA 2016b), NJDEP Residential Direct Contact Soil Remediation Standards (RDCSRS) and Non-Residential Direct Contact Soil Remediation Standards (NRDCSRS; NJDEP 2012).
- Groundwater concentrations were compared to the minimum of the following criteria: NJDEP Groundwater Quality Standards (GWQS, NJDEP 2010), which include NJ Interim criteria (NJDEP 2015), Federal Maximum Contaminant Levels (MCL, USEPA 2016b), USEPA RSLs for Residential Tapwater at a target cancer risk of 1E-06 and target noncancer HQ of 0.1 (USEPA 2016b) and USEPA National Recommended Water Quality Criteria (WQC), provided in USEPA 2015a.
- Seep water concentrations were compared to the minimum of the NJDEP SWQS for Human Health Freshwater and Saline Water (NJDEP 2011). Further discussion on the justification for using freshwater and saline water criteria is in Section 2.3 above. USEPA WQC and Tapwater RSLs are not used here because there are no drinking water withdrawals within the 15-mile target distance limit and seeps are an unlikely source of regulated water consumption.
- Surface water concentrations were compared to minimum of the NJDEP SWQS Human Health Freshwater and Saline Water (NJDEP 2011), the USEPA Residential Tapwater RSLs (USEPA 2016b) and the USEPA WQC Organism Only (USEPA 2015a). USEPA WQC Water & Organism is not used because there are no drinking water withdrawals within the 15-mile target distance limit.

If the maximum detected concentration of a constituent was less than the screening level, it was eliminated as a COPC, as it is assumed it will not contribute significantly to potential unacceptable risk (USEPA 1989). Constituents without a screening level were retained for further quantitative evaluation in the HHRA.

Note the total chromium concentrations are screened against the USEPA RSL criteria for hexavalent chromium (Cr^{+6}), as RSLs are not available for total chromium. Also, in accordance with USEPA Region 2 policy, the USEPA RSLs for PCB-1016 are applied for PCB-1221, 1232 and 1242 if its RSLs are more stringent; similarly, PCB-1254's RSLs are applied for PCB-1248, 1260, 1262 and 1268 if its RSLs are more stringent.

The COPC screening identified 47 COPCs in soil, groundwater, seep water, surface water, sediment and seep sediment. Of these COPCs, 10 COPCs were identified in surface soil (0-2 ft), 19 COPCs were identified in soil (0-10 ft), 29 in groundwater, 18 in seep water, 12 in surface water, none in sediment and 13 in seep sediment. The COPCs are presented in **Table 3-1** below as well as in **Attachment A, RAGS Part D Planning Table 2.Supp.1**.

Table 3-1. Constituents of Potential Concern

Constituent Group	Constituent	Surface Soil (0-2 ft)	Soil (0-10 ft)	Site-wide Groundwater	Seep Water	Surface Water	Sediment	Seep Sediment
VOC	1,1,1-Trichloroethane				x			
VOC	1,1-Dichloroethane			x	x			
VOC	1,1-Dichloroethene				x			
VOC	1,2,3-Trichlorobenzene			x				
VOC	1,2,4-Trichlorobenzene			x				
VOC	1,2-Dichloroethane			x				
VOC	1,4-Dichlorobenzene			x		x		
VOC	1,4-Dioxane			x				
VOC	Benzene		x	x		x		
VOC	Chlorobenzene			x				
VOC	cis-1,2-Dichloroethylene			x	x	x		
VOC	Ethylbenzene		x	x				
VOC	Methylcyclohexane			x				x
VOC	Methylene chloride			x				
VOC	o-Xylene			x				
VOC	Tetrachloroethylene		x	x	x	x		x
VOC	Trichloroethylene		x	x	x	x		x
VOC	Vinyl chloride			x	x	x		
SVOC	2-Methylnaphthalene		x					
SVOC	4-Chloroaniline			x		x		
SVOC	Benzo(a)anthracene	x	x					x
SVOC	Benzo(a)pyrene	x	x					x
SVOC	Benzo(b)fluoranthene							x
SVOC	Benzyl Butyl Phthalate		x					
SVOC	Biphenyl (diphenyl)		x	x				
SVOC	Bis(2-ethylhexyl)phthalate	x	x					
SVOC	Di-n-octylphthalate		x					
SVOC	Naphthalene	x	x	x				
PEST	Dibenzofuran		x					
PCB	PCB-1248 (Aroclor 1248)	x	x					
PCB	PCB-1254 (Aroclor 1254)	x	x					
PCB	PCB-1260 (Aroclor 1260)	X	x					
OTHER	Carbon disulfide				x			
INORGANIC	Aluminum			x	x			x
INORGANIC	Arsenic	x	x	x	x	x		x
INORGANIC	Barium			x				
INORGANIC	Beryllium				x			
INORGANIC	Cadmium				x			
INORGANIC	Chromium (Total)	x	x	x		x		x

Constituent Group	Constituent	Surface Soil (0-2 ft)	Soil (0-10 ft)	Site-wide Groundwater	Seep Water	Surface Water	Sediment	Seep Sediment
INORGANIC	Cobalt	x	x	x	x	x		x
INORGANIC	Cyanide			x				x
INORGANIC	Iron			x		x		x
INORGANIC	Lead				x			
INORGANIC	Manganese			x	x	x		x
INORGANIC	Mercury			x	x			
INORGANIC	Thallium			x	x			
INORGANIC	Vanadium				x			

4 Exposure Assessment

The objective of the exposure assessment is to estimate the magnitude, frequency, duration and routes of current and reasonably anticipated future human exposure to COPCs associated with the Site. The exposure assessment is based on the receptor scenarios for Site-related COPCs via Site-specific routes of exposure.

The standard default exposure factors recommended by USEPA for estimating reasonable maximum exposure (RME) are used where available. Where standard default exposure factors are not available for an exposure pathway, the evaluation is conducted using similarly conservative exposure factors that are based on Site-specific considerations and professional judgment.

This section presents a CSM that identifies the exposure pathways and the potentially exposed receptors. It also describes the receptors and exposure pathways and if they will be evaluated quantitatively and qualitatively and the rationale for each chosen pathway.

4.1 Conceptual Site Model

The CSM is a dynamic tool for understanding Site conditions and potential exposure scenarios for human receptors that may be exposed to Site-related contamination. An exposure pathway consists of:

- A source (e.g., disposal lagoon) and mechanism of constituent release from source;
- A retention or transport medium (e.g., groundwater) for the constituent;
- A point of contact (e.g., drinking water) between the human receptor and the medium; and
- A route of exposure (e.g., ingestion) for the potential human receptor at the contact point.

An exposure pathway is considered complete only if all four components are present. In the HHRA, only complete exposure pathways are evaluated quantitatively. A schematic presentation of the CSM is included as **Figure 4-1** and in a tabular format in **Attachment A, RAGS Part D Planning Table 1.**

4.2 Receptors

Potential receptors are defined as human populations that are subject to contaminant exposure. Both current and future land and water use conditions are considered when determining exposure scenarios. Currently the Site is owned by Liberty Kenworth, a medium and heavy duty truck sales and service center on the adjacent property; the service center is not part of the Site. The current land use surrounding the Site consists of agricultural, commercial and residential uses (**Figure 1-1**). Also, as noted in **Section 2.3**, the Site is adjacent to the Raccoon Creek Wildlife Management Area. Therefore, the following potential receptors are identified: future on-Site construction worker, future on-Site worker (composite of an indoor and outdoor worker), current/future off-Site resident adult and child, future on-Site resident adult and child and current/future off-Site recreator. These receptors are depicted in diagram format on **Figure 4-1** and in tabular format in **Attachment A, RAGS Part D Planning Table 1**.

4.2.1 Future On-Site Construction Worker

Redevelopment of the Site may occur. A future on-Site construction worker's exposure to soil (0-10 ft) in a trench via the ingestion, dermal and inhalation pathways was evaluated. The construction worker's exposure to incidental ingestion of groundwater in a trench, dermal contact and inhalation was also evaluated because of the shallow depth of groundwater (4 ft at the southeast corner to 28 ft at the northwest corner of the Site).

4.2.2 Future On-Site Worker

The future on-Site worker is assumed to include employees that perform activities indoors and outdoors. They are involved with future non-intrusive indoor and outdoor activities, such as landscape maintenance and Site operations. Although the potential for exposure to COPCs from surface soil (0-2 ft) is expected to be low due to the limited paved areas of the facility, ingestion, dermal contact and inhalation of volatilized constituents and particulates in air from surface soil were evaluated.

Although no workers are currently on-Site, an off-Site potable well at the Liberty Kenworth facility is used for certain tasks (e.g., cleaning the floor with a hose) and for hand washing and flushing toilets at the off-Site service center. The same practice could continue in future scenarios for an on-Site worker; therefore, the dermal pathway was evaluated quantitatively. Inhalation via vapor intrusion was evaluated using groundwater-derived air concentrations. Bottled water is supplied to employees for drinking in the off-Site Liberty Kenworth facility; this is also assumed for a future on-Site worker; therefore, the ingestion pathway was not evaluated.

The worker can represent a conservative surrogate for potential risks to Site recreators for some exposure scenarios. For example, there are potential soil exposures to a recreator near Grand Sprute Run; however, an on-Site worker's exposure to surface soil involves a more conservative scenario than what could reasonably be expected for a recreator at this Site. Therefore, the potential risk to workers is used as a surrogate scenario for recreators.

4.2.3 Current/Future Off-Site Resident (Adult and Child)

Exposure to groundwater by current off-Site residents was evaluated qualitatively; a potential future on-Site resident is evaluated below. The 2011 Site Reassessment identified six private wells within 500 ft of the Site (NJDEP 2011). Analytical results from a private well survey indicate that no COPCs or other constituent are present above health-based standards in private wells. Groundwater flow is from the Site to Grand Sprute Run and there are no intervening residences in this downgradient direction. Further discussion on the potential risks to current off-Site residents is discussed in **Section 6** in context of the quantitative evaluation of future on-Site residents' risk from groundwater consumption; on-Site residents are considered to be a conservative surrogate for off-Site residents as their exposure, as derived in this HHRA, will be greater.

4.2.4 Future On-Site Resident (Adult and Child)

The Site could potentially be redeveloped with residences using private wells as potable water source. In accordance with the USEPA memorandum titled *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions* (USEPA 1991b), which requires the assumption of no treatment of the water source and no institutional (e.g., restrictive ordinances) or engineering (e.g., point of entry treatment) controls, a future on-Site resident was evaluated.

Risks potentially associated with ingestion and dermal contact of COPCs from tap water; and the inhalation of VOCs during showering were evaluated in the HHRA. Ingestion, dermal contact and inhalation of volatilized constituents and particulates in air from surface soil were also evaluated for off-Site residents. Inhalation via vapor intrusion was evaluated using groundwater-derived air concentrations.

4.2.5 Current/Future Off-Site Recreator (Adult and Child)

Recreational users may incidentally ingest or come into dermal contact with surface water, seep water and seep sediment while visiting the area of Grand Sprute Run.

There are potential soil exposures to a recreator near Grand Sprute Run; however soil sampling was not completed in this area, but in areas in proximity to the facility building and contaminant source areas. The areas sampled are separated from Grand Sprute Run by several hundred feet, the facility driveway, fields and woods. Therefore, the on-Site worker exposure to surface soil is considered a conservative surrogate for this receptor and exposure scenario, as discussed in **Section 7.3**.

Recreators may ingest fish caught from Grand Sprute Run (FW2-NT/SE2). No fish tissue samples have been collected. Therefore, the fish ingestion pathway has been evaluated qualitatively in **Section 6**.

4.3 Exposure Point Concentrations

Estimates of COPC concentrations at points of potential human exposure are necessary for evaluating chemical intakes by potentially exposed individuals. The concentrations of chemicals in the exposure medium at the exposure point are termed "exposure point concentrations" (EPC). EPCs are determined for each medium, as detailed below.

4.3.1 Approach for EPC Calculations

The EPC for the HHRA is defined as the 95 percent upper confidence limit (UCL) of the arithmetic mean or maximum observed concentration of an individual COPC, whichever is lower, per media. Calculation of the 95% UCL is conducted in accordance with USEPA guidance (USEPA 2002a, 2015b and c). The ProUCL software package, version 5.1.00 is used to determine the underlying statistical distributions and the EPCs.

EPCs were calculated for each medium as follows:

- Surface soil (0-2 ft) for a future resident and worker's exposure;
- Soil (0-10 ft) for a future construction worker's exposure;
- Site-wide groundwater for a future construction worker, worker and resident's exposure;
- Seep water for a recreator's exposure;
- Surface water for a recreator's exposure; and
- Seep sediment for a recreator's exposure.

EPCs for sediment were not calculated as no COPCs were identified for this medium.

The EPCs for each medium in the exposure assessment are presented in **Attachment A, RAGS Part D Planning Tables 3.1 through 3.6**. **Table 3.1** presents the EPCs for surface soil (0-2 ft), **Table 3.2** for soil (0-10 ft), **Table 3.3** for Site-wide groundwater, **Table 3.4** for seep water, **Table 3.5** for surface water and **Table 3.6** for seep sediment. The supporting ProUCL data input and outputs are provided in **Attachment B**.

4.4 Chemical Exposure Intake

The EPCs were used in combination with exposure factors from USEPA guidance and standard default parameters (USEPA 2011) to estimate chemical intake via each exposure pathway for each receptor. Some default exposure factors have been updated in the 2014 USEPA Office of Solid Waste and Emergency Response (OSWER, now Office of Land and Emergency Management, OLEM) Directive 9200.1-120 (USEPA 2014); these values were incorporated.

Chemical intake is expressed in terms of milligrams of chemical per kilogram of body weight per day (mg/kg-day), using the following general equation, which is adjusted based on the exposure pathway and medium:

$$Intake = \frac{EPC \ x \ IR \ x \ EF \ x \ ED}{BW \ x \ AT}$$

Where:

Intake = daily intake or exposure dose (mg/kg-day)

EPC = exposure point concentration of COPC [micrograms/liter (ug/L)]

IR = ingestion rate; the amount of contaminated medium ingested over the exposure period (L/day)

EF	=	exposure frequency; describes how often exposure occurs (days/year)
ED	=	exposure duration; describes how long exposure occurs (years)
BW	=	body weight; the average body weight over the exposure period (kg)
AT	=	averaging time; period over which exposure is averaged (days)

Each of the intake variables in the above equation consists of a range of values taken from *RAGS, Part A through F* (USEPA 1989, 2009) and other applicable risk guidance, e.g., the *Exposure Factors Handbook* (USEPA 2011). The exposure factors and intakes for receptor population groups for each exposure pathway are presented in **Attachment A, RAGS Part D Planning Tables 4.1 to 4.4** and are summarized below. **Attachment A, Table 4.1** describes in more detail the exposure factors and equations for pathways related to soil exposure scenarios; **Table 4.2** that for groundwater, **Table 4.3** that for surface water and seep water and **Table 4.4** that for seep sediment. Supplemental values for the exposure factors are presented in **Attachment A, Tables 4.Supp.1 to 4.Supp.5**.

4.4.1 Exposure Factors

The averaging time (AT) for cancer risk and BW are the same for all exposure pathways, as follows:

- The averaging time for evaluating cancer risk is equal to a lifetime of 70 years or 25,550 days (USEPA 2014b). The averaging time for evaluating noncancer hazard quotients is equal to the exposure duration, which varies by receptor (USEPA 2014b).
- The body weight of 80 kg is the standard USEPA-recommended body weight for assessing exposure to adults; a body weight of 15 kg is used for children (0 to 6 years; USEPA 2014b).

Ingestion Pathway of Exposure

- *Ingestion Rate*

  <u>Soil/Sediment</u>

  The worker has a soil ingestion rate of 100 mg/day and the construction worker, 330 mg/day (USEPA 2014b, 2016b). The soil ingestion rate of an adult resident is 100 mg/day; that of a child is 200 mg/day; the soil ingestion rates are the same for a recreator adult and child, respectively (USEPA 2014b, 2016b).

  The incidental ingestion rate of sediment for a recreator is the same as that of soil, 100 mg/day for an adult and 200 mg/day for a child.

  <u>Water</u>

  Residents are assumed to drink 2.5 L/day of tap water as an adult and 0.78 L/day as a child (0 to 6 years), which are weighted averages of 90th percentile values for ingestion of drinking water (USEPA 2014b).

The incidental ingestion rate of groundwater in a trench for a construction worker is 0.02 L/day, which was taken from the construction worker scenario in the Virginia Department of Environmental Quality's Virginia Unified Risk Assessment Model (VURAM; VADEQ 2016).

The incidental ingestion rate of surface water for a recreator is assumed to be less, at 0.0037 L/hour for an adult, which is based on a mean recommended value of 3.7 milliliters/hour (mL/hour) for wading in Table 3-93 of the USEPA *Exposure Factors Handbook* (USEPA 2011a). A child's incidental ingestion rate is the same, as the reference does not distinguish between adult and child ingestion rates for this exposure scenario. The ingestion rates are converted into units of L/day by assuming an exposure time of 2.6 hours/event, which is a commonly used value from RAGS Part A, based on a national average for time spent swimming (USEPA 1989), and one event per day. The *Exposure Factors Handbook* presents a similar range of UCL values, 160 to 180 minutes (2.6 to 3 hours), for swimming (USEPA 2011a) and the time spent wading is assumed to be similar.

- *Exposure Duration and Frequency*

  The worker is assumed to be exposed to contaminants in soil for 250 days/year for 25 years (USEPA 2014b, 2016b).

  The exposure duration for a construction worker incidentally ingesting soil or groundwater is one year of activity for 250 days/year (USEPA 2016b).

  Resident adults are assumed to incidentally ingest surface soil for 350 days/year for 20 years (USEPA 2014b). They ingest groundwater-derived tap water 350 days/year as well (USEPA 2016b).The same exposure frequency of 350 days/year is also applied to a resident child, for six years (USEPA 2014b, 2016b).

  The exposure duration for a recreator's incidental ingestion of surface water and sediment is also six years for a child and 20 years for an adult (USEPA 2014b, 2016b). Recreators are expected to have an exposure frequency of 52 days/year, which assumes the receptor visits surface water streams two days/week during summer (May, June, July, Aug) and one day/week during spring and fall (Mar, Apr, Sept, Oct, Nov).

- *Relative Bioavailability Factor*

  The relative bioavailability factor (RBA) is incorporated in the ingestion pathway and accounts for the differences in the bioavailability of a constituent between the medium of exposure (e.g., soil) and the media associated with the derivation of the toxicity value (e.g., drinking water). A RBA of 0.6 was applied for arsenic, which is based on an upper-bound estimate from several studies that evaluated the water-soluble form of arsenic, as identified in the USEPA *RSL User's Guide* (USEPA 2016b); an RBA of 1 was assumed for the remaining constituents. The values are presented in **Attachment A, RAGS Part D Planning Table 4.Supp.5**.

Dermal Contact Pathway of Exposure

- *Skin Surface Area*

  <u>Soil/Sediment</u>

  The skin surface area available for contact with soil for a worker and construction worker is 3,527 square centimeters (cm^2), which is the weighted average of mean values for head, hands and forearms for male and females of ages over 21 years (USEPA 2014b). The same skin surface area is also applied for a worker's dermal contact with tapwater (e.g., hand washing in the sink) and construction worker's incidental contact with groundwater in a trench.

  For a resident adult, the skin surface area available for contact with soil is 6,032 cm^2 and 2,373 cm^2 for a resident child. These values are weighted averages of mean values for head, hands, forearms and lower legs and the child's surface area also considers feet (USEPA 2014b). The skin surface area for a recreator adult and child's dermal exposure to soil and sediment are assumed to be the same as that of a resident adult and child, respectively.

- *Soil/Sediment Adherence Factor*

  The soil adherence factor to skin for a worker is 0.12 milligrams per square centimeters (mg/cm^2), which is the arithmetic mean of weighted average of the adherence factors for hands, forearms and face for adult commercial/industrial activities from Table 7-20 of the *Exposure Factors Handbook* (USEPA 2011, 2014b). The adherence factor for a construction worker is 0.3 mg/cm^2 (USEPA 2016b).

  The soil adherence factor for an adult resident is 0.07 mg/cm^2 and 0.2 mg/cm^2 for a child from Exhibit 3-5 of *RAGS Part E* (USEPA 2004b, 2014b).

  The adherence factors for a recreator adult and child's dermal exposure to soil and sediment are assumed to be the same as that of a resident adult and child, respectively.

- *Soil/Sediment Dermal Absorption Fraction*

  The dermal absorption of constituents into the body is constituent-specific and taken from the USEPA RSL tables (USEPA 2016b), which is a compilation of values from various sources including *RAGS Part E* (USEPA 2004b). The dermal absorption fraction values are derived from Exhibit 3-4 of *RAGS Part E* and presented in **Attachment A, RAGS Part D Planning Table 4.Supp.5**. Dermal exposures were not calculated for COPCs that did not have a dermal absorption fraction value.

  <u>Water</u>

  The skin surface area available for contact with water during showering for a resident is 19,652 cm^2 for an adult and 6,365 cm^2 for a child (0 to 6 years), which are weighted average of mean values for total surface area of the whole body (USEPA 2014b). These values are greater than the skin surface area for contact with surface water, as it is assumed there will be more skin exposure to water during showering.

  The skin surface area for recreational contact with surface water is 10,070 cm^2 for an adult and 3,870 cm^2 for a child (0 to 6 years). The sum of mean values for arms, hands, legs and feet from Table 7-2 of the *Exposure Factors Handbook* (USEPA

2011a) was calculated for each age group and then the maximum of these values was used as the surface area, which is presented in **Attachment A, RAGS Part D Planning Tables 4.Supp.1 and 4.Supp.2**.

- *Absorbed Dose per Event in Water*

  The dermally absorbed dose per event (DA-event) from water contact is calculated using default equations and values presented in *RAGS Part E* (USEPA 2004b). The following chemical-specific dermal factors are used in the calculation: dermal permeability constant (Kp), ratio of permeability coefficients (B), lag time per event (tau-event), time to reach steady state (t*) and fraction absorbed water (FA). The calculations of DA-event for each water medium and scenario are presented in **Attachment A, RAGS Part D Planning Tables 4.Supp.3A through 3C**.

- *Exposure Duration and Frequency*

- The exposure duration and frequency for each scenario is the same as those identified for the ingestion pathway above.

- *Event Duration (t-event) and Frequency*

  The event frequency is assumed to be one event/day for all exposures (USEPA 2004b).

  The t-event is assumed to be one hour for a worker and four hours for a construction worker.

  The t-event for a resident showering is assumed to be 0.71 hour/event for an adult and 0.54 hour/event for a child, which are weighted averages of the 90th percentile spent bathing or showering in a day (USEPA 2014b).

  The event duration for surface water contact is 2.6 hour/event, which is a commonly used value from RAGS Part A that is based on a national average for time spent swimming (USEPA 1989). The *Exposure Factors Handbook* presents a similar range of UCL values, 160 to 180 minutes (2.6 to 3 hours), for swimming (USEPA 2011a) and the time spent wading is assumed to be similar.

Inhalation Pathway of Exposure

- *Concentration in Air*

  <u>Resident</u>

  The Andelman model as modified by Schaum et al. as referenced in *Water Consumption and Health: Integration of Exposure Assessment, Toxicology, and Risk Assessment* (Wang 1994) is used to estimate the chemical concentration in air (C_a) of VOCs during time spent showering and in the bathroom for a resident adult and child. In the derivation of C_a, it is assumed that the volume of the bathroom is six cubic meters (m^3), the shower water flow rate is 1000 L/hour and the fraction of chemical concentration volatilized is 0.9, which are all based on upper estimates of the range of values presented in the Adelman model (Wang 1994). The calculations to model groundwater concentrations in air concentrations are presented in **Attachment A, RAGS Part D Planning Table 4.Supp.4** for the Site-wide groundwater scenario.

The total exposure time for showering is 0.71 hour for an adult and 0.54 hour for a child (USEPA 2014b). Since the Andelman model separates out exposure during showering from exposure while in the bathroom, professional judgment is used to split up the time spent for each in the calculation of the air concentration. For adult exposure, 15 minutes (min) for showering followed by 28 min in the bathroom, for a total of 43 min (0.71 hour) is assumed. For a child, approximately 20 min bathing followed by 13 min in the bathroom, for a total of 33 min (0.54 hour) is assumed. These values are consistent with the exposure time range identified in Table 1 of the Andelman model study (Wang 1994), USEPA-recommended assumptions in Exhibit 3-2 of *RAGS Part E* (USEPA 2004b) and fall within the range of estimates presented in Table 16-1 of the *Exposure Factors Handbook* (USEPA 2011a).

<u>Construction Worker</u>

The VADEQ spreadsheet box model is used to derive chemical concentrations in air using groundwater concentrations for construction workers via the inhalation pathway (VADEQ 2007). Calculator defaults were applied except for groundwater temperature. The groundwater temperature was modified to 14.23 degrees Celsius (approximately 58 degrees Fahrenheit based on the average groundwater temperatures measured during Round 1 and 2 purge logs). The calculations are presented in **Attachment E**.

- *Exposure Time*

<u>Soil</u>

The exposure time for inhalation of soil particulates and soil vapor for a worker and construction worker is an eight-hour work day (USEPA 2011). For a resident, the exposure time is 24 hours/day (USEPA 2014b).

A recreator's exposure time for inhalation of soil particulates and vapors is two hours/day, which is based on the weighted average of the mean values for time spent outdoors, presented in Table 16-1 of the *Exposure Factors Handbook* (USEPA 2011). The table also indicates times spent playing on the grass and times spent playing in the dirt, which also are approximately two hours (USEPA 2011).

<u>Water</u>

The exposure time for a construction worker's incidental inhalation of groundwater vapors is assumed to be four hours, which is the value used in the construction worker scenario in the VADEQ VURAM software (VADEQ 2016). This assumes that construction workers do not remain all day in the trench and rotate out to perform other activities during the day.

The exposure times for inhalation of groundwater-derived water vapor during showering are 0.71 hour/day for a resident adult and 0.54 hour/day for a resident child (0 to 6 years), which are weighted averages of the 90th percentile spent bathing or showering in a day (USEPA 2014b).

- *Exposure Duration and Frequency*

The exposure durations and frequencies for each scenario is the same as those identified for the ingestion pathway above.

- *Particulate Emissions Factor and Volatilization Factor*

  To evaluate a receptor's exposure to soil particulates and vapors, a particulate emission factor (PEF) and volatilization factor (VF) is calculated using the USEPA RSL Calculator and incorporating Site-specific characteristics. The supporting information for these calculations is presented in **Attachment C**.

  In the calculation of the PEF for the worker, construction worker, resident and recreator, the climate zone for Philadelphia, PA (Region 8) and a Site area of 72 acres are applied. Default values are used for the remaining inputs and the calculated PEFs for each receptor are presented in **Attachment A, RAGS Part D Planning Table 4.1**.

  The calculated VFs are both receptor-specific and constituent-specific and are presented in **Attachment A, RAGS Part D Planning Table 4.Supp.5**. Default values are used, except as follows:

  - A climate zone for Philadelphia, PA and a Site area of 72 acres are applied for all receptors.
  - For a recreator, the exposure frequency was modified to 52 days/year and exposure time to two hours/day, which is consistent with the exposure frequency and time noted above.
  - For a construction worker, the "Construction Worker - Other Construction Activities" scenario in the RSL calculator is applied, based on professional judgment. The groundwater temperature was modified to 14.23 degrees Celsius (approximately 58 degrees Fahrenheit based on the average groundwater temperatures measured during Round 1 and 2 purge logs). It was assumed that excavation will occur for 50% of the Site (36 acres) to a depth of eight feet (depth is consistent with the VADEQ VURAM program). Also, it was assumed that the Site will be bulldozed and graded once by the construction worker using a Caterpillar dozer blade of 92 inches (2.337 meters; CAT 2016) and a grader blade of 60 inches (1.524 meters; CAT 2016).This is consistent with values used at other NPL sites in Region 2.

4.4.2 Age-Based Adjustments for Adult and Child

The HHRA calculations incorporate age-adjustments for each COPC in the exposure intake term for calculating the cancer risk over the lifetime of a resident or recreator as both a child and adult. For the ingestion exposure pathway, the adjusted ingestion rate is a summation of the individual ingestion rates weighted by the body weights and exposure durations of the receptor from birth to 26 years as described in the USEPA RSL equations (USEPA 2016b).

$$IR_{Adj} = \frac{\sum ED\ x\ IR}{BW}$$

Where:

IR-Adj = Adjusted ingestion rate (mg-year/day-kg)

ED = Exposure duration (year)

IR = Ingestion rate (mg/day)

BW = Body weight (kg)

For the dermal exposure pathway, the adjusted surface area is a summation of the individual surface areas weighted by the body weights and exposure durations of the receptor from birth to 26 years similar to the above equation.

The age-adjustment equations are presented in **Attachment A, RAGS Part D Planning Tables 4.1 to 4.4** and calculated in **Attachment A, Table 4.Supp.1**.

The inhalation exposure pathway does not require an age-adjustment as per *RAGS Part F, Appendix A, Section 6.1* (USEPA 2009).

4.4.3 Mutagen Adjustments for Early Life Exposure

USEPA has identified several carcinogens that act via a mutagenic mode of action (MMOA). To account for their early life exposures, age-dependent adjustment factors (ADAFs) have been incorporated into the intake equation. This approach is consistent with the 2005 *Guidelines for Carcinogen Risk Assessment* (USEPA 2005a) and the *Supplemental Guidance for Assessing Susceptibility from Early Life Exposure to Carcinogens* (USEPA 2005b). The intake equations are described in the USEPA RSL equations (USEPA 2016b); the equation for the ingestion exposure pathway is shown here:

$$IR_{Adj} = \frac{\sum ED\ x\ IR}{BW} \times ADAF$$

Where:

ADAF = Age dependent adjustment factors, where

0-<2 years applied an ADAF of 10,

2-<6 years applied an ADAF of 3,

6-<16 years applied an ADAF of 3, and

16-26 years applied and ADAF of 1.

For the dermal exposure pathway, the adjusted surface area is a summation of the individual surface areas weighted by the body weights and exposure durations of the receptor from birth to 26 years. That surface area is then multiplied by the ADAF, similar to the above equation.

The MMOA age adjustment equations are presented in **Attachment A, RAGS Part D Planning Tables 4.1 to 4.4** and calculated in **Attachment A, Table 4.Supp.2**.

Exposure intakes for the mutagen TCE incorporate specific calculations, as the toxicity assessment for TCE requires that we address the mutagenic effects on the kidney versus the standard cancer effects on the liver and potential for developing non-Hodgkin's lymphoma. To accomplish this, the mutagenic and standard cancer equations are combined. The different toxicity values for use in the cancer and mutagen intake equations are incorporated using a toxicity value adjustment factor for cancer (CAF) and mutagens (MAF) for all exposure pathways as described in the USEPA RSL equations (USEPA 2016b).

For the mutagen VC, exposure intakes also incorporate specific calculations that are based on the USEPA RSL equations (USEPA 2016b). In the equations, early-life exposure is estimated assuming a lifetime of exposure using the adult slope factor. When evaluating both early life and adult exposures, the early life exposure is added to exposure as an adult, which can be pro-rated (ORDEQ 2010).

All of the mutagen equations are presented in **Attachment A, RAGS Part D Planning Tables 4.1 through 4.4**.

5 Toxicity Assessment

The toxicity assessment provides a framework for characterizing the relationship between the magnitude of exposure to a COPC and the nature and likelihood of adverse health effects that may result from such exposure. For all exposure pathways, there are two approaches for deriving toxicity values. One involves the derivation of a noncancer reference value, i.e., an oral or dermal reference dose (RfD) and inhalation reference concentration (RfC), while the other involves derivation of a predictive cancer risk estimate, i.e., an oral or dermal cancer slope factor (CSF) and inhalation unit risk (IUR). An overview of the hierarchy to apply toxicity values is described in **Section 5.1**. The methodology that is used to develop a toxicity assessment as part of the HHRA is provided in **Sections 5.2** and **5.3**.

5.1 Sources of Toxicity Values

Pertinent toxicological information on COPCs is selected from the following sources, in descending order of hierarchy, in accordance with USEPA's OSWER Directive 9285.7-53, *Human Health Toxicity Values in Superfund Risk Assessments* (USEPA 2003a).

- Tier 1 – USEPA's Integrated Risk Information System (IRIS) (USEPA 2016c).
- Tier 2 – USEPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) – The Superfund Health Risk Technical Support Center (STSC) develops PPRTVs on a chemical specific basis when requested by USEPA's Superfund program (USEPA 2014c).

- Tier 3 – Other Toxicity Values – Tier 3 includes additional USEPA and non-USEPA sources of toxicity information (ATSDR 2014a, Cal EPA 2007 and USEPA 2011b). Priority is given to sources of information that are the most current, transparent, publicly available and those which have been peer reviewed.

The USEPA RSL tables provide toxicity values following the above hierarchy; therefore, the May 2016 RSL summary table is used as the source of toxicity values (USEPA 2016b). As of this HHRA, the RSLs have not been updated since May 2016.

Note that hexavalent chromium (Cr+6) toxicity values were input as conservative surrogates for total chromium, as toxicity values are not available for total chromium – see **Section 7** for more detail. Also, in accordance with USEPA Region 2 policy, the RfD for PCB-1016 was applied for PCB-1221, 1232 and 1242 if its RfD was more stringent; similarly, PCB-1254's RfD was applied for PCB-1248, 1260, 1262 and 1268 if its RfD was more stringent. For polycyclic aromatic hydrocarbons (PAHs) identified as COPCs, the toxicity values for benzo(a)pyrene were applied as their toxicity values, modified by multiplying the toxicity equivalence factors (TEFs) for each COPC. The TEFs are described in the USEPA *RSL User's Guide*, Section 2.3.5 (2016b) and *USEPA Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons*, Table 7 (1993).

The cancer and noncancer toxicity values for the COPCs that are used in the risk assessment are presented in **Attachment A, RAGS Part D Planning Tables 5.1 through 6.2**.

5.2 Evaluation of Non-Carcinogenic Effects

An oral RfD is calculated for the ingestion exposure pathway; typically expressed as mg/kg-day. A RfC is calculated for the inhalation pathway, expressed in terms of the concentration in the air, as mg/m^3.

In the current absence of dermal slope factors, USEPA has devised a process that utilizes the dose-response relationship obtained from oral administration studies and makes an adjustment for absorption efficiency to represent the toxicity factor in terms of absorbed dose, using route-to-route (oral-to-dermal) extrapolations for systemic effects. This is performed using a chemical-specific oral absorption factor (GIABS) that accounts for the fact that most slope factors are expressed as the amount administered per unit time and body weight, with exposure estimates for the dermal pathway expressed as a dose absorbed in the gastrointestinal tract (USEPA 1989, 2004b).

In the calculation of these toxicity values, USEPA uses values (i.e., No Observable Adverse Effect Levels [NOAELs] and Lowest Observable Adverse Effect Levels [LOAELs]) that express the potential non-carcinogenic effects to identify thresholds for each chemical, and derive an estimate of the exposure below which adverse health effects are not expected to occur over a lifetime.

Two types of noncancer toxicity values are available from USEPA depending on the length of exposure being evaluated (i.e., chronic or sub-chronic). Chronic toxicity values are specifically developed to be protective for long-term exposure to a compound, and are generally used to evaluate the non-carcinogenic effects associated with exposure periods between seven years and a lifetime. Sub-chronic toxicity values are useful for characterizing potential non-carcinogenic effects associated with shorter-term exposures. A combination of chronic and sub-chronic toxicity values are presented in the May 2016 RSL summary table (USEPA 2016b), which is used as the source of toxicity values for this HHRA.

The noncancer toxicity values for the COPCs that are used in the risk assessment are presented in **Attachment A, RAGS Part D Planning Tables 5.1 and 5.2**.

5.3 Evaluation of Carcinogenic Effects

Carcinogenic risks associated with a given level of exposure to potential carcinogens are typically extrapolated based on slope factors or unit risks. Oral slope factors are the upper 95th percent confidence limit of the slope of the dose-response curve, expressed in terms of risk per unit dose [$(mg/kg\text{-}day)^{-1}$]. Inhalation unit risks similarly relate the risk of cancer development with the concentration of carcinogen [$(mg/m^3)^{-1}$].

In the absence of dermal toxicity values for cancer development, USEPA uses the oral dose-response relationship obtained from oral administration studies and adjusts for absorption efficiency with a GIABS factor to derive an absorbed dose in order to assess dermal exposure impacts for cancer, which is described in **Section 5.2** above (USEPA 1989, USEPA 2004b).

The cancer toxicity values for the COPCs that will be used in the risk assessment are presented in **Attachment A, RAGS Part D Planning Tables 6.1 and 6.2**.

For constituents that USEPA assessed prior to publication of the *Guidelines for Carcinogen Risk Assessment* (USEPA 2005a), USEPA considers those belonging to the following cancer weight of evidence groups to be human carcinogens (USEPA 1986):

- Group A – Known Human Carcinogen – Sufficient evidence of carcinogenicity in humans;
- Group B1 – Probable Human Carcinogen – Limited evidence of carcinogenicity in humans;
- Group B2 – Probable Human Carcinogen – Sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans; and
- Group C – Possible Human Carcinogen – Limited evidence of carcinogenicity in animals and inadequate or lack of evidence in humans.

For constituents that USEPA assessed after the 2005 Guidelines were published, USEPA uses a narrative approach to characterize carcinogenicity (USEPA 2005a):

- Carcinogenic to Humans
- Likely to be Carcinogenic to Humans
- Suggestive Evidence of Carcinogenic Potential
- Inadequate Information to Assess Carcinogenic Potential

As shown in **Attachment A, RAGS Part D Planning Tables 6.1 and 6.2**, approximately half of the COPCs are known carcinogens or are likely to be carcinogenic.

5.4 Health Effects of COPCs

The potential health effects from human health exposure to the VOC COPCs focused on in the RI, PCE, TCE, VC, benzene, EB and xylenes, as well as additional SVOC, PCB and inorganic COPCs identified in the HHRA are important for understanding the relevance of the risk estimates determined in this HHRA. The information presented here is consistent with the basis of the toxicity values determined by USEPA IRIS.

PCE primarily affects the central nervous system (CNS), kidney, liver, reproductive system and developing fetus. USEPA IRIS indicates PCE is likely to be carcinogenic to humans by all routes of exposure and the International Agency for Research on Cancer (IARC) indicates PCE is probably carcinogenic to humans. PCE is readily absorbed through the lung, gastrointestinal tract and skin and is widely distributed in the body regardless of the route of exposure. Most absorbed PCE is excreted unchanged in the exhaled air regardless of the route of exposure and PCE metabolites are excreted in the urine. (ATSDR 2014b)

TCE affects the CNS, kidney, liver, immune system, male reproductive system and developing fetus. IRIS and IARC indicate TCE is carcinogenic to humans and available human data strongly suggest the possibility of TCE-induced kidney cancer and the potential for liver cancer and malignant lymphoma in humans. TCE has similar toxicokinetics as that noted for PCE above. (ATSDR 2014c)

VC primarily affects the liver, but also affects the heart and blood vessels, immune system and developing fetus. IRIS indicates it is a known human carcinogen. Inhalation of VC in humans is rapid even at low concentrations. There are no data regarding oral or dermal absorption in humans or distribution of VC in the body. (ATSDR 2006b)

Benzene primarily affects the blood, nervous and immune systems. IRIS indicates it is a known human carcinogen and benzene is associated with leukemia. Benzene is readily absorbed via the lung and gastrointestinal tract and the inhalation pathway is the primary route of exposure. It is rapidly distributed throughout the body with the tendency to accumulate in fatty tissues. Benzene is readily metabolized and its metabolites are excreted in the urine. (ATSDR 2007a)

EB affects the auditory, developmental and hepatic systems. IRIS indicates there is inadequate information regarding its carcinogenicity (USEPA 2017), but IARC has classified it as possibly carcinogenic to humans based on animal data. EB is readily absorbed through all exposure routes and rapidly metabolized and excreted in the urine. (ATSDR 2011)

Xylenes primarily affects the CNS by all exposure routes, the respiratory system via the inhalation route and has effects on the liver, kidneys and body weight via high oral exposure route. IRIS indicates there is inadequate information regarding its carcinogenicity (USEPA 2017). Xylenes are rapidly absorbed by all exposure routes, distributed throughout the body, metabolized and quickly eliminated in exhaled air (ATSDR 2007b).

Naphthalene affects the nervous and respiratory systems and can have developmental effects. Exposure can result in hemolytic anemia, which can lead to fatigue, cardiac arrhythmias, enlargement of the heart and heart failure. It is also thought to cause cataracts and can be toxic to the respiratory tract, having both noncancer and cancer effects. Naphthalene is reasonably anticipated to be a human carcinogen; IARC concluded that naphthalene is possibly carcinogenic to humans, with enough evidence that it causes cancer in animals, but not enough direct evidence in humans. Under USEPA cancer guidelines, naphthalene has been assigned to Group C, also considered a possible human carcinogen (ATSDR 2005).

Effects of 4-chloroaniline include carcinogenicity and likely, skin sensitization. It primarily affects the lymphatic system and can result in cyanosis (it is the condition that is referred to as "blue baby syndrome"), which is related to induced methemoglobinemia, where hemoglobin in the blood can carry, but is unable to release oxygen effectively to body tissues. Other effects on the blood, as well as the liver, spleen, and kidneys are noted. These effects are secondary to excessive hemolysis (early destruction of red blood cells) and consistent with induced hemolysis (WHO 2003).

Biphenyl affects the respirator, hepatic and renal systems. Biphenyl inhalation or dermal contact has been shown to cause headaches, nausea and eye and throat irritation. Chronic higher dose exposure may contribute to liver effects. No data have been found on genotoxic, developmental or reproductive toxicity in humans. Biphenyl is an aromatic hydrocarbon with a strong odor similar to geraniums. It is used in industry as a heat-transfer agent and a fungistat for citrus crops and was used in the manufacture of PCBs (USEPA 2007a). It is currently listed as a Classification D, not classifiable as a human carcinogen and no carcinogenic data are reported in humans (USEPA 2017).

6 Hazard Identification and Risk Characterization

The information obtained from the exposure assessment (**Section 4**) and toxicity assessment (**Section 5**) is integrated to identify the potential non-carcinogenic hazard and characterize excess lifetime cancer risk (ELCR) posed by COPCs selected for evaluation in the HHRA. The risk associated with exposure to individual COPCs is described and then the risk associated with exposures to multiple COPCs is characterized.

6.1 Non-Carcinogenic Hazard Identification

Potential hazards for non-carcinogenic effects are typically estimated by calculating the HQ for each COPC, using the following general equation, which can vary by exposure pathway.

$$HQ = \frac{Intake}{Toxicity}$$

Where:

HQ	=	Hazard quotient (unitless)
Intake	=	Chronic daily intake of chemicals or exposure dose (mg/kg-day or mg/m^3)
Toxicity	=	Oral reference dose (mg/kg-day), dermal reference dose (mg/kg-day) or inhalation reference concentration (mg/m^3)

The cumulative noncancer hazard index (HI) from exposure to the combination of COPCs in an environmental medium and across all media for a receptor is estimated using the following equation (USEPA 1989):

$$Hazard\ Index\ = \sum_{i} HQ_i$$

When the HI for a COPC exceeds unity (one), there may be concern for potential noncancer effects from that COPC. The HI is an indicator that potential hazard for a specific receptor exposed to a COPC in the environment cannot be ruled out, if it is greater than one, not that the hazard actually exists. In interpreting HI values, it is important to understand that the values are estimates, based on predictive models, and are subject to the uncertainties inherent in both the estimates of exposure and toxicity benchmarks. The approach of summing noncancer hazard quotients across constituents and media may overestimate the noncancer HI because constituents may target different organs in the body and have varying noncancer health effects.

6.2 Carcinogenic Risk Characterization

Potential risks for carcinogenic effects are typically estimated by calculating an ELCR as a result of exposure to Site-related carcinogens. Calculation of an ELCR for an exposure pathway involves multiplying the chronic daily intake for each chemical by its upper-bound cancer slope factor, as described by the following general equation (USEPA 1989), which can vary by exposure pathway and COPC:

$$Risk\ =\ Intake\ x\ Toxicity$$

where:

Risk	=	Cancer risk (unitless)
Intake	=	Chronic daily intake of chemicals (expressed in mg/kg-day)
Toxicity	=	Oral slope factor [(mg/kg-day)$^{-1}$], dermal slope factor [(mg/kg-day)$^{-1}$] or inhalation unit risk [(ug/m^3)$^{-1}$]

The cumulative cancer risk from exposure to the combination of constituents in an environmental medium and also across all media for a receptor is estimated following USEPA guidance (USEPA 1989) and the following general equation:

$$Cumulative\ Risk\ = \sum_{i} Risk_i$$

For known or suspected carcinogens, USEPA considers acceptable exposure levels to generally be concentration levels that represent an ELCR to an individual of between one in ten thousand (1.0E-04) and one in a million (1.0E-06). As with the noncancer HI, cumulative cancer risk is an indicator that potential risk for a specific receptor exposed to a COPC in the environment cannot be ruled out, not that risk actually exists.

6.3 Risk Assessment Results

The results of the hazard identification and risk characterization are presented below, by receptor. The cancer risks and noncancer HQs are presented in **Attachment A, RAGS Part D Tables 7.1 through 7.4**. **Table 7.1** present risk estimates for exposure of a construction workers to soil 0-10 ft and Site-wide groundwater. **Table 7.2** present risk estimates for exposure of a worker to surface soil 0-2 ft and Site-wide groundwater. **Table 7.3** present risk estimates for exposure of an adult and child resident to surface soil 0-2 ft and Site-wide groundwater. **Table 7.4** presents risk estimates for exposure of an adult and child recreator to seep water, seep sediment and surface water. A summary of the cumulative cancer risks and HIs are presented in **Attachment A, RAGS Part D Tables 9.1 through 9.4,** presented in the same scenario sequence.

6.3.1 Future On-Site Construction Worker Evaluation

Soil 0-10 ft and Site-wide Groundwater

The cumulative cancer risks and noncancer HIs by exposure pathway for a future on-Site construction worker's exposure to COPCs in soil 0-10 ft and Site-wide groundwater are summarized in **Table 6-1** below. Chemical-specific cancer risks and noncancer HQs are presented in **Attachment A, RAGS Part D Planning Table 7.1** and a summary of the risk estimates by exposure pathway for each medium are presented in **Attachment A, RAGS Part D Planning Table 9.1**.

The total ELCR for a construction worker's exposure to COPCs in soil and Site-wide groundwater from all pathways is 1.7E-05. The ELCR for groundwater inhalation exposure is 1.3E-05; the primary contributors are EB, naphthalene and PCE. The ELCR for groundwater dermal exposure is 2.6E-06 whose primary contributor is 4-chloroaniline.

The total noncancer HI is 2.5E+01. The HI for groundwater inhalation is 2.3E+01 and the main contributors are PCE, TCE, biphenyl and naphthalene. The HI for groundwater dermal exposure is 1.4E+00 and the main contributors are 1,4-chloroaniline, manganese and PCE. See **Table 6-1**; COPCs are identified for only exposure pathways that have an ELCR greater than 1.0E-06 and a HI greater than one and are primary contributors to the risk estimates.

Table 6-1. Construction Worker's Exposure to Soil and Site-wide Groundwater

Medium	Exposure Route	Cumulative Cancer Risk	COPCs	Hazard Index	COPCs
		Lifetime			
Soil 0-10 ft	Incidental Ingestion	6.4E-07	--	4.8E-01	--
	Dermal	1.1E-07	--	7.2E-05	--
	Inhalation	1.0E-07	--	1.1E-02	--
Groundwater	Incidental Ingestion	5.2E-07	--	1.2E-01	--
	Dermal	2.6E-06	4-chloroaniline	1.4E+00	4-chloroaniline, manganese, PCE
	Inhalation	1.3E-05	EB, naphthalene, PCE	2.3E+01	PCE, TCE, biphenyl, naphthalene
	Total	1.7E-05		2.5E+01	

Results of this evaluation indicate that there may be potential for unacceptable risk to future on-Site construction workers from exposures to COPCs in groundwater.

6.3.2 Future On-Site Worker Evaluation

Soil 0-2 ft and Site-wide Groundwater

The cumulative cancer risks and noncancer HIs by exposure pathway for a future on-Site worker's exposure to COPCs in soil 0-2 ft and Site-wide groundwater are summarized in **Table 6-2** below. Chemical-specific cancer risks and noncancer HQs are presented in **Attachment A, RAGS Part D Planning Table 7.2** and a summary of the risk estimates by exposure pathway for each medium are presented in **Attachment A, RAGS Part D Planning Table 9.2**.

The total ELCR for a worker's exposure to COPCs in soil and Site-wide groundwater from all pathways is 3.1E-05. The ELCR for groundwater dermal exposure is 2.7E-05; the primary contributors are 4-chloroaniline, EB and PCE. The ELCR for soil ingestion exposure is 3.7E-06; the primary contributor is total chromium (evaluated here as hexavalent chromium, further discussed in **Section 7**).

The total noncancer HI is below one. See **Table 6-2**; COPCs are identified for only exposure pathways that have an ELCR greater than 1.0E-06 and a HI greater than one and are primary contributors to the risk estimates.

Table 6-2. Worker's Exposure to Soil and Site-wide Groundwater

Medium	Exposure Route	Cumulative Cancer Risk Lifetime	COPCs	Hazard Index	COPCs
Surface Soil 0-2 ft	Incidental Ingestion	3.7E-06	Chromium	7.5E-02	--
	Dermal	6.4E-07	--	3.4E-02	--
	Inhalation	6.6E-08	--	2.7E-04	--
Groundwater	Dermal	2.7E-05	4-chloroaniline, EB, PCE	5.7E-01	--
	Total	3.1E-05		6.7E-01	

Results of this evaluation indicate that there may be potential for unacceptable risk to future on-Site workers from exposures to COPCs in soil and groundwater.

6.3.3 Future On-Site Resident Evaluation

Soil 0-2 ft and Site-wide Groundwater

The cumulative cancer risks and noncancer HIs by exposure pathway for a future on-Site resident adult and child's exposure to COPCs in surface soil 0-2 ft and Site-wide groundwater are summarized in **Table 6-3** below. Chemical-specific cancer risks and noncancer HQs are presented in **Attachment A, RAGS Part D Planning Table 7.3** and a summary of the risk estimates by exposure pathway for each medium are presented in **Attachment A, RAGS Part D Planning Table 9.3**.

The total ELCR for a resident's exposure to COPCs in soil and Site-wide groundwater from all pathways is 4.4E-03. The groundwater ingestion pathway contributes the most to this risk with an ELCR of 3.4E-03; the primary contributor is 4-chloroaniline with a risk of 3.1E-03 followed by VC with a risk of 1.2E-04. Arsenic, EB, chromium (evaluated here as hexavalent chromium, further discussed in **Section 7**), TCE and PCE are in the 1.0E-05 range and benzene, methylene chloride and 1,2-dichloroethane are in the 1.0E-06 range. There is also potential concern (ELCR > 1E-06 and HQ >= 1.0E+00) for exposure to VOCs, total chromium in the groundwater via the other pathways as well as from incidental ingestion and dermal contact with TCE, metals, SVOCs and PCB-1248 in surface soil.

The total noncancer HI is 4.6E+01 for an adult and 6.0E+01 for a child. The groundwater ingestion and inhalation pathways contribute the most to these HIs. PCE and TCE are the main contributors for inhalation, with adult HQs of 1.2E+01 and 8.1E+00 and child HQs of 1.0E+01 and 6.9E+00, respectively. Next, 4-chloroaniline and manganese are the primary COPCs for ingestion with an adult HQs of 7.5E+00 and 5.4E+00 and child HQs of 1.3E+01 and 9.0E+00, respectively.

Although PCB-1248 and cobalt result in a HI of 1.1E+00 and the sum of the soil exposure pathways is 1.4E+00, compared to an acceptable limit of one, these COPCs most likely are not an issue and Site-related (denoted by a * in **Table 6-3**).

See **Table 6-3**; COPCs are identified for only exposure pathways that have an ELCR greater than 1.0E-06 and a HI greater than one and are primary contributors to the risk estimates.

Table 6-3. On-Site Resident's Exposure to Soil and Site-wide Groundwater

Medium	Exposure Route	Cumulative Cancer Risk	COPCs	Hazard Index		COPCs
		Lifetime		Adult	Child	
Surface Soil 0-2 ft	Incidental Ingestion	7.3E-05	TCE, chromium, arsenic, PCB-1248, benzo(a)pyrene	1.0E-01	1.1E+00	PCB-124*, cobalt*
	Dermal	2.9E-06	2-methylnaphthalene, benzyl butyl phthalate	4.8E-02	2.9E-01	--
	Inhalation	7.8E-07	--	1.1E-03	1.1E-03	--
Groundwater	Ingestion	3.4E-03	4-chloroaniline, VC, arsenic, EB, TCE, PCE, chromium, benzene, methylene chloride, 1,2-dichloroethane	2.1E+01	3.5E+01	4-chloroaniline, manganese, PCE, TCE, iron
	Dermal	2.4E-04	4-chloroaniline, EB, chromium, PCE, VC, TCE, 1,2,4-trichlorobenzene	3.6E+00	5.4E+00	PCE, manganese
	Inhalation	6.9E-04	VC, EB, TCE, PCE, benzene, 1,2-dichloroethane, 1,4-dichlorobenzene	2.2E+01	1.8E+01	TCE, PCE
Total		4.4E-03		4.6E+01	6.0E+01	

Results of this evaluation indicate that there may be potential for unacceptable risk to both future and current/future off-Site residents from exposures to COPCs in soil and groundwater.

6.3.4 Current/Future Off-Site Recreator Evaluation

The cumulative cancer risks and noncancer HIs by exposure pathway for a current/future off-Site recreator adult and child's exposure to COPCs in seep water, seep sediment and surface water are summarized in **Table 6-4** below. Chemical-specific cancer risks and noncancer HQs are presented in **Attachment A, RAGS Part D Planning Table 7.4** and a summary of the risk estimates by exposure pathway for each medium are presented in **Attachment A, RAGS Part D Planning Table 9.4**.

The total ELCR for a recreator's exposure to COPCs in media is 2.9E-05. The seep sediment ingestion pathway contributes the most to this risk with an ELCR of 1.6E-05; the primary contributor is total chromium (evaluated here as hexavalent chromium, further discussed in **Section 7**) with a risk of 1.3E-05, followed by arsenic with a risk of 2.2E-06. For the surface water dermal pathway, chromium, VC and TCE are contributors to the ELCR of 6.7E-06. For the seep water dermal pathway, PCE, TCE and arsenic are contributors to the ELCR of 5.0E-06.

The total noncancer HI is 1.5E+00 for an adult and 4.0E+00 for a child. For an adult, the seep water dermal pathway and surface water dermal pathway contribute to the HI. For a child, the seep water dermal pathway, seep sediment incidental ingestion pathway and seep water dermal pathway all contribute to the HI. For the seep sediment pathway, although manganese and cobalt result in a child HI of 1.1E+00 and the sum of the seep sediment exposure pathways is one, compared to an acceptable limit of one, these COPCs most likely are not an issue and Site-related (denoted by a * in **Table 6-4**).

See **Table 6-4**; COPCs are identified for only exposure pathways that have an ELCR greater than 1.0E-06 and a HI greater than one and are primary contributors to the risk estimates.

Table 6-4. Recreator's Exposure to Seeps and Surface Water

Medium	Exposure Route	Cumulative Cancer Risk	COPCs	Hazard Index		COPCs
		Lifetime		Adult	Child	
Seep Water	Incidental Ingestion	9.9E-07	--	1.8E-02	9.6E-02	--
	Dermal	5.0E-06	PCE, TCE, arsenic	8.8E-01	1.8E+00	Manganese, PCE
Seep Sediment	Incidental Ingestion	1.6E-05	Chromium, arsenic	9.8E-02	1.0E+00	Manganese*, cobalt*
	Dermal	4.5E-07	--	2.3E-03	1.4E-02	--
Surface Water	Incidental Ingestion	3.1E-07	--	7.2E-03	3.9E-02	--
	Dermal	6.7E-06	Chromium, VC, TCE	4.6E-01	9.5E-01	--
	Total	2.9E-05		1.5E+00	4.0E+00	

Results of this evaluation indicate that there may be potential for unacceptable risk to current/future off-Site recreators from exposures to COPCs in seep water, seep sediment and surface water.

6.3.5 Lead Exposure Evaluation

The *Superfund Lead-Contaminated Residential Sites Handbook* (USEPA 2003c) briefly discusses when surface water and sediment sampling of lead and its quantitative evaluation may be appropriate;

> *During field work, other potential sources of lead contamination may be identified. If the sources appear to represent a potential exposure pathway to occupants of a residence (or in this case, a potential Recreator) sampling may be recommended. Other areas should be evaluated on a case-by-case basis and could include sediment, surface water, or secondary play areas. If deemed appropriate, samples should be collected and quantitatively analyzed to estimate lead concentrations.*

Sampling and analysis has been performed at the Site, with the maximum detected concentrations of lead in soil, seeps and total groundwater and surface water samples being provided in **Table 6-5**, below:

Table 6-5. Summary of Lead Concentrations

Medium	Maximum Site-wide Concentration	Minimum Screening Level Applied in HHRA	Screening Level Basis
Soil (mg/kg)	3.1E+01	4.0E+02	NJ RDCSRS / EPA Residential RSL
Seep Sediment (mg/kg)	7.1E+01	4.0E+02	NJ RDCSRS / EPA Residential RSL
In-stream Sediment (mg/kg)	Not available	--	--
GW total (ug/L)	5.0E-01	5.0E+00	NJ GWQS
SW total (ug/L)	1.2E+00	5.0E+00	NJ SWQS HH FW2
Seep Water total (ug/L)	4.7E+02	5.0E+00	NJ SWQS HH FW2

Incidental ingestion and dermal exposure to lead can result from skin contact with contaminated environmental media, including surface water and sediment during wading in Grand Sprute Run at the Site. Of all the media lead is detected in, lead is identified as a COPC in only seep water at this Site and may be of concern for potential exposure of off-Site recreators to seeps along Grand Sprute Run.

A review of USEPA guidance (including Dermal Exposure Assessment: A Summary of EPA Approaches, USEPA 2007b) and the scientific literature was inconclusive regarding dermal exposures; not only is there very limited information available on the absorption of lead in water through the skin, but what was found is generally specific to a particular form or compound of lead, none of which are likely to be present at the Site. It is thought that dermal absorption of lead is less than 1% and is based on whether it is an organic or inorganic form of lead and if the skin is broken or otherwise compromised (Holstege 2015).

A review of actions taken at other Superfund sites indicates the concentrations of lead, as well as the form and pathways of exposure, are much more likely to result in adverse effects than the concentrations and pathways that exist at this Site (USEPA 2016a). The lead concentrations are not believed to be related to the sources of contamination from Site-related activities, e.g., disposal into the unlined waste lagoon and wastewater underground storage tanks; however, an on-Site source of lead from historical activities cannot be ruled out at this time.

6.3.6 Fish Ingestion Evaluation

Off-Site recreators may ingest fish caught from Grand Sprute Run (FW2-NT/SE2). The 1990 ERM Risk Assessment identified the following species as being indigenous to Raccoon Creek; they may be also present in Grand Sprute Run (ERM 1990a):

Largemouth Bass	Brown Bullhead
Chain Pickerel	Yellow Bullhead
Redfin Pickerel	Yellow Perch
Black Crappie	White Perch
Bluegill	Carp
Pumpkinseed	Golden Shiner
Black Spotted Sunfish	Spottail Shiner
Mud Sunfish	American Eel
Channel Catfish	

Information available in the open literature on fish species in Raccoon Creek and Grand Sprute Run confirm the presence of several of the species listed in the 1990 risk assessment (NJDEP 2004). There is also information indicating that there may be anadromous (migrating) fish species (e.g., shad and river herring; NJDEP 2005, Nature Conservancy 2011) in Raccoon Creek; however, this information is not conclusive regarding the immediate area of the Site.

There are no fish advisories in Gloucester County for Grand Sprute Run. There is a fish advisory for American eel for Raccoon Creek at Bridgeport in Logan Township, NJ, which is approximately four miles from the Site. Statewide fish advisories are noted for various species of trout, bass and bullhead as well as chain pickerel, sunfish and common carp (NJDEP 2016a).

Many of the Site-related COPCs identified in this HHRA are VOCs; these are unlikely to be present in significant concentrations in fish as they do not bioaccumulate. Therefore, the potential of adverse effects from exposure to these COPCs via this pathway is considered minimal. Other COPCs (e.g., arsenic, chromium, 4-chloroaniline) in surface water have low bioaccumulation potential as well.

6.3.7 Vapor Intrusion Evaluation

To calculate potential risks from vapor intrusion (VI), concepts from the *Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA, 2015) were used in concert with USEPA's Vapor Intrusion Screening Level (VISL) Calculator (version 3.5.1 using May 2016 RSLs) to evaluate VI risks at the Site. The VISL calculator incorporates information on volatile chemicals known to have a potential cancer risk or noncancer hazard through the inhalation pathway that provides screening level concentrations for groundwater, soil gas and indoor air using default target risk levels and exposure scenarios.

The VISL calculator was run to calculate Site-specific groundwater VISLs for both residential and commercial scenarios. The calculator defaults were. The VI calculations are presented in **Attachment D**. **Tables D.1** and **D.2** present the calculation of the Site-specific VISLs for the residential and commercial scenarios, respectively. **Table D.3** compares the maximum Site-wide groundwater concentrations to the Site-specific VISLs.

Comparison of the Residential VISLs to the maximum groundwater concentration indicates nine COPCs whose concentrations are greater than the VISL: 1,2-dichloroethane, 1,2-dichlorobenzene, benzene, EB, PCE, TCE, VC, naphthalene and cyanide. All of these COPCs, except for 1,2-dichloroethane and 1,2-dichlorobenzene, have concentrations greater than the Commercial VISL as well.

It is noted in the RI that a majority of the northern portion of the Site is paved. This would provide an effective cap, preventing vertical migration of VOCs through the subsurface to the atmosphere. However, it may also allow for greater horizontal migration in the sandy overburden soil. The RI recommended collection of groundwater samples from the off-Site Liberty Kenworth potable well, and if necessary, the collection of sub-slab and indoor air samples, to ensure vapor intrusion is not a complete exposure pathway.

6.3.8 Risk Assessment Conclusions

This HHRA was prepared to evaluate potential baseline health risks for current and future receptor exposure to COPCs present in groundwater, soil, seeps, sediment and surface water. The COPC screening of the HHRA identified 47 COPCs, including VOCs, SVOCs, pesticides, PCBs and inorganics. The potential exposure scenarios considered in this HHRA include inhalation of soil particulates and vapors; incidental ingestion of and dermal contact with soil particulates; drinking water ingestion, dermal contact and inhalation of groundwater; and incidental ingestion and dermal contact with sediment, seep water and sediment and surface water, as shown in the CSM, Figure 4-1.

The evaluation of potential cancer risks and noncancer hazards to current/future receptors on-Site from exposure to COPCs in environmental media indicates that there are several primary COPCs, now identified as COCs, whose concentrations in environmental media contribute to the hazard and risk estimates, and exposure to these COCs may result in potential adverse health effects.

The evaluation for on-Site future construction workers indicates that there are no COCs identified for soil exposures based on an ELCR of 1E-06 or resulting in an HI greater than or equal to one. For groundwater exposures, 4-chloroaniline, EB, biphenyl, naphthalene, manganese, TCE and PCE are COCs. Groundwater VOCs, naphthalene and cyanide volatilizing into buildings are also of potential concern to workers.

The evaluation for on-Site future workers indicates that there chromium is a COC for soil exposures based on an ELCR of 1E-06 or resulting in an HI greater than or equal to one. For groundwater exposures, 4-chloroaniline, EB and PCE are COCs. Groundwater VOCs, naphthalene and cyanide volatilizing into buildings are also of potential concern to workers.

The evaluation of potential cancer risks and noncancer hazards to future on-Site residents indicates that chromium, arsenic, PCB-1248, benzo(a)pyrene and cobalt are COCs identified for soil exposures based on an ELCR of 1E-06 or resulting in an HI greater than or equal to one. For groundwater exposures, VC, TCE, PCE, 4-chloroaniline, 1,2-dichloroethane, 1,2,4-trichlorobenzene, 1,4-dichlorobenzene, EB, arsenic, chromium, benzene, methylene chloride, manganese, iron, cobalt and thallium are COCs based on ELCRs greater than 1E-06 or resulting in an HI greater than or equal to one. Groundwater VOCs, naphthalene and cyanide volatilizing into buildings are also of potential concern to residents.

The evaluation for current/future off-Site recreators indicates PCE, TCE, arsenic and manganese are COCs identified for seep water exposures based on an ELCR of 1E-06 or resulting in an HI greater than or equal to one. For seep sediment exposures, chromium, arsenic, manganese and cobalt are COCs. For surface water exposures, chromium, VC, TCE and PCE are COCs.

The results of the HHRA indicate that Site cleanup, engineering controls and/or institutional controls may be necessary to mitigate potential risks associated with existing contamination.

The RI noted impacts from inorganics, e.g., iron and manganese, appear to be widespread at the Site with detections above the NJDEP GWQS; however these constituents were also identified at concentrations close to or greater than the NJ GWQS in upgradient wells. This may be indicative of an upgradient off-Site source or part of local background rather than from an on-Site source.

The cobalt maximum groundwater concentration of 30.6 ug/L is less than the NJDEP GWQS of 100 ug/L, but becomes a COPC in the HHRA because the USEPA RSL Resident Tapwater is 0.6 ug/L.

The remaining constituents identified in the HHRA as COCs include PCE, TCE, VC, EB, 4-chloroaniline, naphthalene, biphenyl and cyanide.

7 Uncertainty Analysis

This section includes a discussion on the inherent uncertainties in the HHRA methods, inputs and conclusions and the additional sensitivity analyses performed.

7.1 HHRA Uncertainties

There is uncertainty inherent in the methods, inputs and conclusions of any HHRA. This level of uncertainty results from the fact that most every step in the risk assessment process involves assumptions and unknowns, contributing to the total uncertainty in the final conclusions. These include, but are not limited to:

- Knowledge of the Site, including its geology, hydrology and habitat and past and current land use;
- Environmental parameters, chemistry and sampling analysis;
- Assumptions in the derivation of screening benchmarks that are used to identify Site-related COCs;
- The exposure factors used for quantifying exposure are conservative and reflect upper-bound assumptions; the resulting hazard and risk values may be overestimated;

- Maximum concentrations applied as a measure of exposure for each medium and receptor in the COPC screening, which is a conservative assumption intentionally used to focus the risk assessment on those pathways and receptors potentially at risk. This likely overestimates the risks and HQs;
- Bioavailability of 100% of the chemical substance is assumed for uptake by humans. This assumption is known to be invalid for most chemical substances under varying environmental conditions and likely overestimates risks and HQs; and
- Summing noncancer HQs across constituents and media may overestimate the noncancer HI, as constituents may target different organs in the body and have varying noncancer health effects.

Uncertainties specific to this HHRA include:

- QAPP data requirements not being met for precision, accuracy and sensitivity, which may result in potential data gaps (discussed further in the DER, **RI Appendix B**). Several constituents had reporting detection limits and quantitation limits greater than project action limits for VOCs, SVOCs, inorganics and PCBs; this may mask potential exceedances of the criteria. Completeness criteria were also not met for soil and groundwater VOCs as a result of the reassessment by USEPA of the manual integration performed by KAP laboratory on the analytical data.
- One of the contributors to VI exposure is cyanide; hydrogen cyanide is the surrogate compound for which the toxicity values are used in these calculations. This may result in overestimation of the adverse health effects.
- The RI and HHRA are focused on COPCs identified in past investigations, i.e., BTEX and CVOCs. Other COCs (e.g., SVOCs, PCB) have been identified. TICS were not considered in assessing human heath risk.
- Elevated concentrations of manganese and iron are found on a regional basis and may be considered as background; however, no background sampling was performed.
- Chromium sensitivity analysis is included below in **Section 7.2**, as chromium speciation was not performed on the samples collected.
- No soil samples were collected in areas likely to be visited by recreators; therefore, on-Site workers were considered a surrogate receptor. Further evaluation of a recreator's exposure to surface soil (0-2 ft) is provided in **Section 7.3**.
- The groundwater "Core of the Plume" evaluation is provided in **Section 7.4** below.

7.2 Chromium Sensitivity Analysis

Total chromium is identified as a COPC for soil, groundwater, seep sediment and surface water; however, there are no toxicity values available for total chromium. There are toxicity values for trivalent (+3) and hexavalent (+6) chromium. Speciation analysis has not been performed for chromium for the RI and it is unknown what the ratio of the species is in environmental media.

A literature review of which species is potentially present at the Site did not provide any substantive support for one over the other. To provide a conservative assessment of potential risk, the hexavalent toxicity values were used for evaluation of the total chromium data in this HHRA. Use of hexavalent chromium cancer toxicity values for total chromium may not accurately reflect the dominant form of chromium species in the environment and result in overestimation of the cancer risks in media.

The risk characterization indicates that total chromium concentrations detected at the Site (using hexavalent toxicity values and Kp), while varying by media, result in cancer risks within the risk range of 1.0E-04 to 1.0E-06.

A sensitivity analysis using only trivalent chromium toxicity values and dermal permeability coefficient (Kp) is presented here for comparison. IRIS identifies an oral RfD of 1.5 mg/kg-day for trivalent chromium and there are no toxicity values for any of the other exposure pathways. See **Table 7-1** for a comparison of toxicity values. A Kp of 0.001 cm/hour for trivalent chromium is applied in the dermal exposure pathway, compared to a Kp of 0.002 cm/hour for hexavalent chromium used in the main risk calculations.

Table 7-1. Comparison of Chromium Toxicity Values

	Noncancer		**Cancer**	
Constituent	**Oral Reference Dose** (mg/kg-day)	**Inhalation Reference Concentration** (mg/m^3)	**Oral Slope Factor** $(mg/kg\text{-}day)^{-1}$	**Inhalation Unit Risk** $(ug/m^3)^{-1}$
Trivalent Cr	1.5	NA	NA	NA
Hexavalent Cr	0.003	0.0001	0.5	0.084

A review of the noncancer hazards and cancer risks that result from applying the trivalent chromium oral RfD and Kp indicates that chromium risks would be well below the acceptable risk range, the hazards below one and therefore, would no longer be a primary contributor.

7.3 Recreator Soil Exposure Sensitivity Analysis

A recreator's exposure to surface soil (0-2 ft) was not quantitatively evaluated in the main risk calculations because an on-Site worker's and off-Site resident's exposure to surface soil are more conservative scenarios than what could reasonably be expected for a recreator at this Site.

As a sensitivity analysis, the cancer risks and noncancer hazards from potential ingestion, dermal contact and inhalation of volatilized constituents and particulates in air from surface soil to a current/future recreator are presented here. The results indicate these pathways for soil exposure are unlikely to be of concern for a recreator, with the exception of incidental ingestion at an ELCR of 1.1E-05; the primary contributor is total chromium (evaluated here as hexavalent chromium, further discussed in **Section 7)** with a risk of 9.3E-06, followed by arsenic and PCB-1248 with risks of 6.3E-07 and 5.6E-07, respectively.

Table 7-2. Recreator's Exposure to Surface Soil (0-2 ft)

		Cumulative Cancer Risk	Hazard Index	
Medium	**Exposure Route**	**Lifetime**	**Adult**	**Child**
Surface Soil 0-2 ft	Incidental Ingestion	1.1E-05	1.6E-02	1.7E-01
	Dermal	4.3E-07	7.1E-03	4.2E-02
	Inhalation	9.7E-09	1.4E-05	1.4E-05
	Total	1.1E-05	2.3E-02	2.1E-01

7.4 Groundwater Core of the Plume Sensitivity Analysis

The USEPA *Determining Groundwater Exposure Point Concentrations, Supplemental Guidance* (referred to herein as "Core of the Plume" guidance, USEPA 2014a) provides a recommended approach to improve the quality and consistency in calculating groundwater EPCs. The approach involves evaluating data from the "core/center of the plume," which is defined as the three-dimensional core/center zone of highest concentrations of each constituent within a delineated groundwater plume.

The HHRA (1) evaluated groundwater scenarios in the main risk calculations using Site-wide groundwater data for the COPCs and (2) performed a sensitivity analysis in this section that calculates more conservative groundwater EPCs for a subset of data for five wells with the highest maximum detected concentrations for Site-related VOCs identified in the RI. The supporting tables for the Core of the Plume evaluation are presented in **Attachment F**.

The Core of the Plume analysis affects only the groundwater data, which means that the EPCs and risks estimates for soil, seep water, seep sediment and surface water that were calculated in the main risk assessment remain the same.

7.4.1 Groundwater EPCs Calculated using Core of the Plume Data

The refinement process for calculation of the groundwater EPCs is described below:

- The primary, Site-related COPCs for each plume as identified in the RI are benzene, toluene, ethylbenzene (EB) and xylenes, which were evaluated together as the aromatic VOC plume, while PCE, TCE, cis-1,2-DCE, trans-1,2-DCE and vinyl chloride (VC) were evaluated as the chlorinated VOC plume. The COPC 4-chloroaniline was included in the evaluation of the aromatic VOCs because preliminary risk estimates indicated this COPC as a primary contributor for the groundwater exposure pathway and the RI noted the detections of 4-chloroaniline in wells appear to follow a pattern similar to that of the aromatic VOCs.

- The maximum concentrations for each well were reviewed for these COPCs. Based on the distribution of wells in which the largest concentrations were located, the groundwater data from wells MW-06, MW-13, MW-17, MW-18 and MW-25 were chosen to be included in the calculation of the EPCs for all of the aromatic VOCs and 4-chloroaniline. Note toluene and m,p-xylene, though identified as COPCs in the RI, were not screened in as groundwater COPCs in this HHRA (as concentrations were below risk-based screening levels); therefore, EPCs were not calculated for these constituents.
- Review of the chlorinated VOC concentrations indicated more variability in which wells had the largest concentrations; therefore, a unique set of wells was chosen for each of these COPCs as follows:
  - PCE: MW-06, MW-10, MW-22, MW-24, MW-26
  - TCE: MW-06, MW-18, MW-23, MW-24, MW-26
  - Cis-1,2-DCE: MW-06, MW-13, MW-17, MW-24, MW-25
  - VC: MW-06, MW-13, MW-17, MW-23, MW-25

Trans-1,2-DCE was not screened in as a COPC as concentrations were below risk-based screening levels and therefore, an EPC was not calculated for it.

The groundwater EPCs are presented in **Attachment F, Table F.1** and the supporting ProUCL data input and outputs are provided in **Attachment F, Tables F.10 and F.11**.

7.4.2 Exposure Factors & Toxicity Values

The exposure factors applied in the exposure scenarios for a future on-Site construction worker, worker and resident's exposure to groundwater remain the same, with the exception of exposure factors that incorporate the EPCs. The calculation of the dermally absorbed dose per event (DA-event) from water contact is presented in **Attachment F, Table F.2** and the calculation of bathroom air concentrations is in **Attachment F, Table F.3**.

The toxicity values are the same as those applied in the main risk assessment.

7.4.3 Risk Assessment Results

Construction Worker Soil 0-10 ft and Core of the Plume Groundwater

The cumulative cancer risks and noncancer HIs by exposure pathway for a construction worker's exposure to COPCs in soil 0-10 ft and Core of the Plume groundwater are summarized in **Table 7-3** below. Chemical-specific cancer risks and noncancer HQs are presented in **Attachment F, Table F.4** (in the format of RAGS Part D Table 7) and a summary of the risk estimates by exposure pathway for each medium is presented in **Attachment F, Table F.7** (in the format of RAGS Part D Table 9).

The total ELCR for a construction worker's exposure to COPCs in soil and Core of the Plume groundwater from all pathways is 5.3E-05. The soil risk estimates are the same as identified above in **Table 6-1**. The ELCR for groundwater inhalation exposure is 3.2E-05; the primary contributor is EB, followed by PCE, TCE and benzene. The ELCR for groundwater dermal exposure is 1.6E-05; the primary contributor is 4-chloroaniline.

The total noncancer HI for soil and groundwater is 8.4E+01. The HI for groundwater inhalation is 7.9E+01 and the main contributors are PCE and TCE. The HI for groundwater dermal exposure is 3.5E+00 and the main contributors are PCE and 4-chloroaniline.

See **Table 7-3**; COPCs are identified for only exposure pathways that have an ELCR greater than 1.0E-06 and a HI greater than one and are primary contributors to the risk estimates.

Table 7-3. Construction Worker's Exposure to Soil and Core of the Plume Groundwater

Medium	Exposure Route	Cumulative Cancer Risk Lifetime	COPCs	Hazard Index	COPCs
Soil 0-10 ft	Incidental Ingestion	6.4E-07	--	4.8E-01	--
	Dermal	1.1E-07	--	7.2E-05	--
	Inhalation	1.0E-07	--	1.1E-02	--
Groundwater	Incidental Ingestion	3.4E-06	4-chloroaniline	3.9E-01	--
	Dermal	1.6E-05	4-chloroaniline	3.5E+00	PCE, 4-chloroaniline
	Inhalation	3.2E-05	EB, TCE, PCE, benzene	7.9E+01	PCE, TCE
Total		5.3E-05		8.4E+01	

Worker Soil 0-2 ft and Core of the Plume Groundwater

The cumulative cancer risks and noncancer HIs by exposure pathway for a worker's exposure to COPCs in surface soil 0-2 ft and Core of the Plume groundwater are summarized in **Table 7-4** below. Chemical-specific cancer risks and noncancer HQs are presented in **Attachment F, Table F.5** (in the format of RAGS Part D Table 7) and a summary of the risk estimates by exposure pathway for each medium is presented in **Attachment F, Table F.8** (in the format of RAGS Part D Table 9).

The total ELCR for a worker's exposure to COPCs in soil and Core of the Plume groundwater from all pathways is 1.7E-04. The soil risk estimates are the same as identified above in **Table 6-1**. The ELCR for groundwater dermal exposure is 1.6E-04; the primary contributor is 4-chloroaniline, followed by EB, PCE and TCE.

The total noncancer HI is 1.7 for soil and groundwater. The HI for groundwater dermal exposure is 1.5E+00 and the main contributors are PCE, 4-chloroaniline and TCE.

See **Table 7-4**; COPCs are identified for only exposure pathways that have an ELCR greater than 1.0E-06 and a HI greater than one and are primary contributors to the risk estimates.

Table 7-4. Worker's Exposure to Soil and Core of the Plume Groundwater

Medium	Exposure Route	Cumulative Cancer Risk Lifetime	COPCs	Hazard Index	COPCs
Surface Soil 0-2 ft	Incidental Ingestion	3.7E-06	Chromium	7.5E-02	--
	Dermal	6.4E-07	--	3.4E-02	--
	Inhalation	6.6E-08	--	2.7E-04	--
Groundwater	Dermal	1.6E-04	4-chloroaniline, EB, PCE, TCE	1.5E+00	PCE
	Total	1.7E-04		1.7E+00	

Resident Soil 0-2 ft and Core of the Plume Groundwater

The cumulative cancer risks and noncancer HIs by exposure pathway for an on-Site resident adult and child's exposure to COPCs in surface soil 0-2 ft and Core of the Plume groundwater are summarized in **Table 7-5** below. Chemical-specific cancer risks and noncancer HQs are presented in **Attachment F, Table F.6** (in the format of RAGS Part D Table 7) and a summary of the risk estimates by exposure pathway for each medium is presented in **Attachment F, Table F.9** (in the format of RAGS Part D Table 9).

The total ELCR for a resident's exposure to COPCs in soil and Core of the Plume groundwater from all pathways is 2.4E-02. The soil risk estimates are the same as identified above in **Table 6-3**. The groundwater ingestion pathway contributes the most to this risk with an ELCR of 2.1E-02 and the primary contributor is 4-chloroaniline followed by TCE and EB. There is also potential concern for exposure to 4-chloroaniline and VOCs from dermal contact with and inhalation of groundwater.

The total noncancer HI is 1.7E+02 for an adult and 2.1E+02 for a child. The groundwater ingestion and inhalation pathways contribute the most to these HIs; PCE and TCE are the main contributors for inhalation. Next, 4-chloroaniline, PCE and TCE are the primary COPCs for ingestion. Although PCB-1248 and cobalt result in a HI of 1.1E+00 and the sum of the soil exposure pathways is 1.4E+00, compared to an acceptable limit of one, these COPCs most likely are not an issue and Site-related (denoted by a * in **Table 7-5**).

See **Table 7-5**; COPCs are identified for only exposure pathways that have an ELCR greater than 1.0E-06 and a HI greater than one and are primary contributors to the risk estimates.

Table 7-5. Resident's Exposure to Soil and Core of the Plume Groundwater

Medium	Exposure Route	Cumulative Cancer Risk	COPCs	Hazard Index		COPCs
		Lifetime		Adult	Child	
Surface Soil 0-2 ft	Incidental Ingestion	7.3E-05	Chromium, arsenic, PCB-1248, benzo(a)pyrene	1.0E-01	1.1E+00	PCB-1248*, cobalt*
	Dermal	2.9E-06	PCB-1248	4.8E-02	2.9E-01	--
	Inhalation	7.8E-07	--	1.1E-03	1.1E-03	--
Groundwater	Ingestion	2.1E-02	4-chloroaniline, TCE, ethylbenzene, PCE, benzene	6.8E+01	1.1E+02	PCE, TCE, 4-chloroaniline
	Dermal	1.4E-03	4-chloroaniline, EB, PCE, TCE, benzene	1.0E+01	1.5E+01	PCE, 4-chloroaniline, TCE
	Inhalation	1.1E-03	Ethylbenzene, TCE, PCE, benzene	9.1E+01	7.7E+01	PCE, TCE
Total		2.4E-02		1.7E+02	2.1E+02	

7.4.4 Vapor Intrusion Evaluation

The vapor intrusion evaluation for Core of the Plume groundwater data set applied the same maximum detected concentrations as those in the Site-wide groundwater data set, which is presented in **Attachment D, Table D.3**. Benzene, EB, PCE, TCE, VC had maximum concentrations greater than both of the Site-specific Residential and Commercial VISLs.

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FIGURES

FIGURES TABLE OF CONTENTS:

Source: United States Geological Survey Topographic Map. For more information on this map, visit http://goto.arcgisonline.com/maps/NGS_Topo_US_2D

Site Location Map
Matlack Inc. Superfund Site
Woolwich Township, Gloucester County, New Jersey

Job No.	Date	Figure No.
10021567	MARCH 2017	1-1

HDR

ISSUE	DATE	DESCRIPTION
	MARCH 2017	DRAFT-FINAL RI REPORT

PROJECT MANAGER E. ZIMMERMAN

PROJECT NUMBER 147 - 240662

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

CONTRACT NO. EP-W-09-009
WORK ASSIGNMENT NO. 029-RICO-02P9

MATLACK INC. SUPERFUND SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WOOLWICH TOWNSHIP, GLOUCESTER COUNTY, NEW JERSEY

SITE PLAN, TOPOGRAPHY, AND DRAINAGE FEATURES

0 100' 200'

FILENAME

SCALE

SHEET
FIGURE 1–2

		PROJECT MANAGER	E. ZIMMERMAN
MARCH 2017	DRAFT-FINAL RI REPORT		
ISSUE DATE	DESCRIPTION	PROJECT NUMBER	147 - 240662

HDR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

CONTRACT NO. EP-W-09-009
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029-RICO-02P9

MATLACK INC. SUPERFUND SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WOOLWICH TOWNSHIP, GLOUCESTER COUNTY, NEW JERSEY

SAMPLING LOCATIONS

0 100' 200'

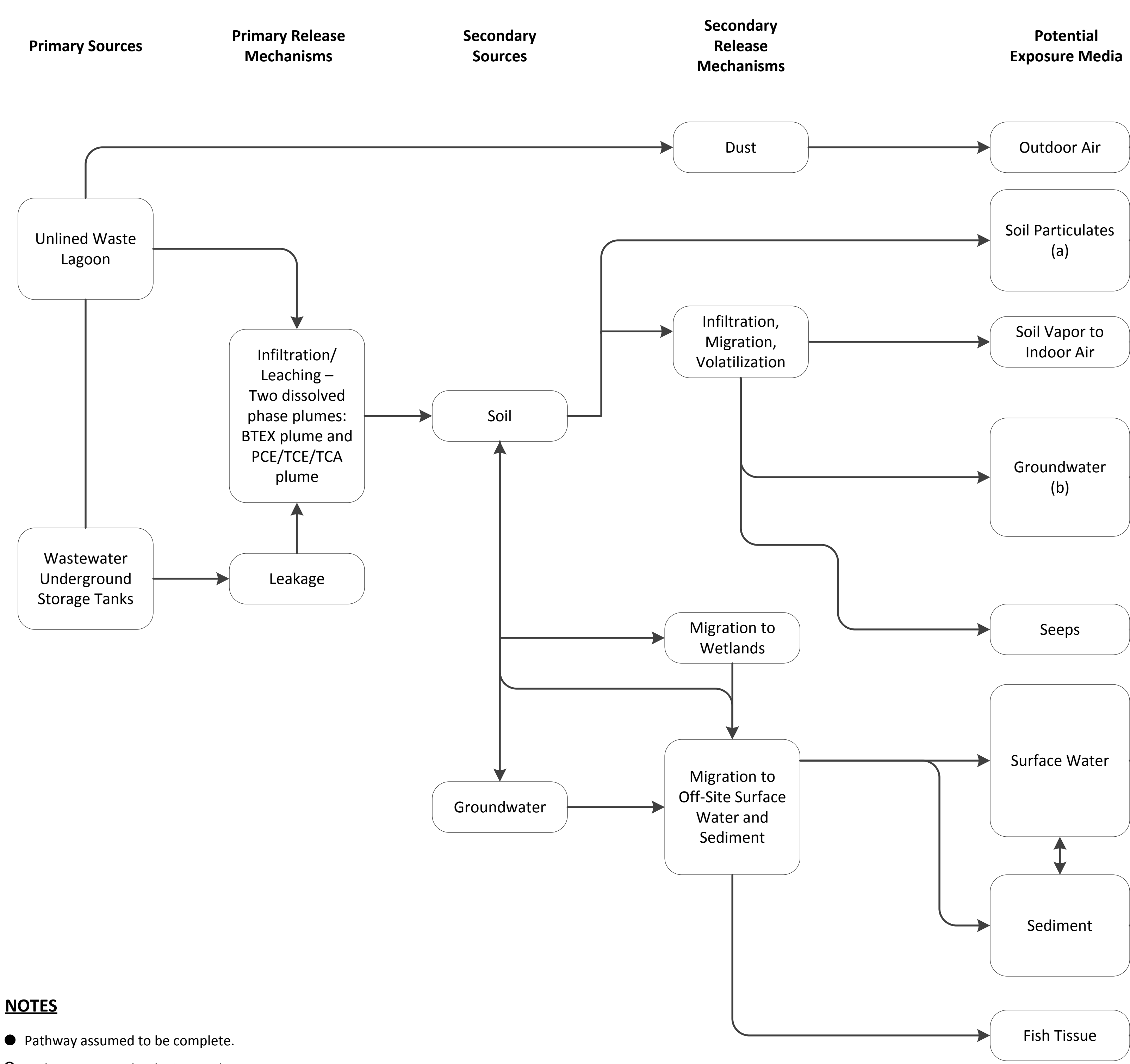
FILENAME

SCALE

SHEET

FIGURE 2-1

Figure 4-1
Human Health Conceptual Site Model
Matlack, Inc. Site
Woolwich Township, Gloucester County, NJ



Potential Exposure Route	Future On-Site Worker	Future On-Site Resident Adult/Child	Current Off-Site Resident Adult/Child	Current/Future Off-Site Recreator (c)	Future On-Site Construction Worker
Inhalation	●	●	○	●	●
Incidental Ingestion	●	●	○	●	●
Dermal Contact	●	●	○	●	●
Inhalation	●	●	○	○	○
Drinking Water Ingestion	○	●	+	○	●
Dermal Contact	●	●	+	○	●
Inhalation	○	●	+	○	●
Incidental Ingestion	○	○	○	●	○
Dermal Contact	○	○	○	●	○
Incidental Ingestion	○	○	○	●	○
Dermal Contact	○	○	○	●	○
Incidental Ingestion	○	○	○	●	○
Dermal Contact	○	○	○	●	○
Ingestion	○	○	○	+	○

(Potential Human Health Receptors: columns 2–6)

NOTES

● Pathway assumed to be complete.

○ Pathway assumed to be incomplete.

+ Pathway will be evaluated qualitatively.

(a) A on-site worker and resident assumes exposure to 0-2 ft soil while a construction worker assumes 0-10 ft soil

(b) Although bottled water is supplied at the facility, there is potential for dermal contact with groundwater.

(c) The exposure factors for a wader's dermal contact with surface water and sediment will be incorporated.

ABBREVIATIONS

BTEX: benzene, toluene, ethylbenzene, xylene; PCE: tetrachloroethene; TCA: 1,1,1-trichloroethane; TCE: trichloroethene

ATTACHMENT A

RAGS Part D Human Health Risk Assessment Tables

ATTACHMENT A TABLE OF CONTENTS:

TABLE 0
SITE RISK ASSESSMENT IDENTIFICATION INFORMATION
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Site Name/OU:	Matlack Inc. Superfund Site
Region:	2
EPA ID Number:	NJD043584101
State:	NJ
Status:	Remedial Investigation Report - BHHRA submitted under separate cover
Federal Facility (Y/N):	N
EPA Project Manager:	Juan Davila
EPA Risk Assessor:	Urszula Kinahan nee Filipowicz
Prepared by (Organization):	HDR
Prepared for (Organization):	USEPA
Document Title:	Revised Baseline Human Health Risk Assessment Report
Document Date:	June 2017
Probabilistic Risk Assessment (Y/N):	N
Comments:	RAGS Tables 0 to 9 and supporting tables

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe	Source	Receptor Population	Receptor Age	Medium / Exposure Medium	Exposure Point	Exposure Route	Type of Evaluation	Rationale for Selection or Exclusion of Exposure Pathway
Future	Unlined Waste Lagoon & Wasterwater USTs (Chlorinated VOCs plume & BTEX plume)	On-Site Worker	Adult	Soil	Surface Soil (0-2 ft)	Ingestion	Quantitative	An on-site worker (indoor and outdoor) may come into contact with surface soil (0-2ft); therefore the pathway is evaluated quantitatively.
						Dermal		
					Outdoor Air	Inhalation		
				Groundwater	Tapwater	Ingestion	None	An on-site potable well is used for certain tasks (e.g., cleaning the floor with a hose), for hand washing and flushing toilets. Bottled water is currently supplied to employees for drinking; therefore, the dermal pathway is evaluated quantitatively and the ingestion pathway is not evaluated. Inhalation via vapor intrusion is evaluated using groundwater-derived air concentrations.
						Dermal	Quantitative	
					Indoor/Outdoor Air	Inhalation	None	
Future		On-Site Construction Worker	Adult	Soil	Soil (0-10 ft)	Ingestion	Quantitative	Redevelopment of the site may occur; therefore a future on-site construction worker's exposure to soil (0-10ft) in a trench is evaluated quantitatively.
						Dermal		
					Outdoor Air	Inhalation		
				Groundwater	Trench water	Ingestion	Quantitative	Redevelopment of the site may occur; therefore a future on-site construction worker's exposure to groundwater in a trench is evaluated quantitatively. Inhalation via vapor intrusion is also evaluated using groundwater-derived air concentrations.
						Dermal		
					Indoor/Outdoor Air	Inhalation		
Current/Future		Off-Site Resident	Adult	Groundwater	Tapwater	Ingestion	Qualitative	Exposure to groundwater by current off-site residents is evaluated qualitatively; analytical results from a private well survey indicate that no COPCs or other constituent are present above health-based standards in private wells. Groundwater flow is from the site to Grand Sprute Run and there are no intervening residences in this downgradient direction. The results of the quantitative evaluation of the on-site future resident risk from groundwater consumption are a conservative surrogate for this pathway and will be considered in the qualitative evaluation for off-site residents.
						Dermal		
					Indoor Air	Inhalation		
			Child (0-6 years)	Groundwater	Tapwater	Ingestion	Qualitative	
						Dermal		
					Indoor Air	Inhalation		
Future		On-Site Resident	Adult	Groundwater	Tapwater	Ingestion	Quantitative	The site could potentially be redeveloped with residences using private wells as potable water source; therefore, a future on-site resident's exposure to groundwater and indoor air contaminants via showering and vapor intrusion is evaluated quantitatively.
						Dermal		
					Indoor Air	Inhalation		
				Soil	Surface Soil (0-2 ft)	Ingestion	Quantitative	The site could potentially be redeveloped with residences; therefore, a future on-site resident's exposure to surface soil is evaluated quantitatively.
						Dermal		
					Outdoor Air	Inhalation		
			Child (0-6 years)	Groundwater	Tapwater	Ingestion	Quantitative	The site could potentially be redeveloped with residences using private wells as potable water source; therefore, a future on-site resident's exposure to groundwater and indoor air contaminants via showering and vapor intrusion is evaluated quantitatively.
						Dermal		
					Indoor Air	Inhalation		
				Soil	Surface Soil (0-2 ft)	Ingestion	Quantitative	The site could potentially be redeveloped with residences; therefore, a future on-site resident's exposure to surface soil is evaluated quantitatively.
						Dermal		
					Outdoor Air	Inhalation		
Current/Future		Off-Site Recreator	Adult	Soil	Surface Soil (0-2 ft)	Ingestion	Qualitative	Recreators may come into contact with surface soil while visiting Grand Sprute Run; however, an on-site worker's and resident's exposure to surface soil are more conservative scenarios than what could reasonably be expected for a recreator at this site.
						Dermal		
					Outdoor Air	Inhalation		
				Seeps	Water & Sediment	Ingestion	Quantitative	Recreators may come into contact with seep water and sediment that are present along the banks of Grand Sprute Run.
						Dermal		
				Surface Water	Surface Water	Ingestion	Quantitative	Recreators may come into contact with sediment while visiting Grand Sprute Run, portions of which that are shallow.
						Dermal		
					Fish	Ingestion	Qualitative	Recreators may ingest fish caught from Grand Sprute Run (FW2-NT/SE2). The primary constituents of interest are volatile and unlikely to be present in significant concentrations in fish; therefore, this pathway is evaluated qualitatively.
				Sediment	Sediment	Ingestion	Quantitative	Recreators may come into contact with sediment while visiting Grand Sprute Run, portions of which that are shallow.
						Dermal		
			Child (0-6 years)	Soil	Surface Soil (0-2 ft)	Ingestion	Qualitative	Recreators may come into contact with surface soil while visiting Grand Sprute Run; however, an on-site worker's and resident's exposure to surface soil are more conservative scenarios than what could reasonably be expected for a recreator at this site.
						Dermal		
					Outdoor Air	Inhalation		
				Seeps	Water & Sediment	Ingestion	Quantitative	Recreators may come into contact with seep water and sediment that are present along the banks Grand Sprute Run.
						Dermal		
				Surface Water	Surface Water	Ingestion	Quantitative	Recreators may come into contact with surface water while visiting Grand Sprute Run.
						Dermal		
					Fish	Ingestion	Qualitative	Recreators may ingest fish caught from Grand Sprute Run (FW2-NT/SE2). The primary constituents of interest are volatile and unlikely to be present in significant concentrations in fish; therefore, this pathway is evaluated qualitatively.
				Sediment	Sediment	Ingestion	Quantitative	Recreators may come into contact with sediment while visiting Grand Sprute Run, portions of which that are shallow.
						Dermal		

Note:
The future on-site residential receptor is evaluated as a hypothetical scenario.

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TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SOIL
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (0-10 ft)

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (mg/kg)	Concentration used for Screening (mg/kg) (1)	NJDEP RDCSRS (mg/kg)	NJDEP NRDCSRS (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)	USEPA RSL Industrial Soil (mg/kg) (2)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil 0-2ft	VOC	1,1,1-Trichloroethane	71-55-6	ND		ND		--	20	0	0	0.005 - 0.005	ND	290	4200	810	3600	N	Not detected.
Surface Soil 0-2ft	VOC	1,1,2,2-Tetrachloroethane	79-34-5	ND		ND		--	20	0	0	0.005 - 0.005	ND	1	3	0.6	2.7	N	Not detected.
Surface Soil 0-2ft	VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND		ND		--	20	0	0	0.005 - 0.005	ND	NC	NC	4000	17000	N	Not detected.
Surface Soil 0-2ft	VOC	1,1,2-Trichloroethane	79-00-5	ND		ND		--	20	0	0	0.005 - 0.005	ND	2	6	0.15	0.63	N	Not detected.
Surface Soil 0-2ft	VOC	1,1-Dichloroethane	75-34-3	ND		ND		--	19	0	0	0.005 - 0.005	ND	8	24	3.6	16	N	Not detected.
Surface Soil 0-2ft	VOC	1,1-Dichloroethene	75-35-4	ND		ND		--	10	0	0	0.005 - 0.005	ND	11	150	23	100	N	Not detected.
Surface Soil 0-2ft	VOC	1,2,3-Trichlorobenzene	87-61-6	0.0067		0.0067		B-14	19	1	5	0.005 - 0.005	0.0067	NC	NC	6.3	93	N	Below screening level.
Surface Soil 0-2ft	VOC	1,2,4-Trichlorobenzene	120-82-1	0.042		0.14		B-17	20	2	10	0.005 - 0.005	0.14	73	820	5.8	26	N	Below screening level.
Surface Soil 0-2ft	VOC	1,2-Dibromo-3-chloropropane	96-12-8	ND		ND		--	19	0	0	0.005 - 0.005	ND	0.08	0.2	0.0053	0.064	N	Not detected.
Surface Soil 0-2ft	VOC	1,2-Dibromoethane	106-93-4	ND		ND		--	20	0	0	0.005 - 0.005	ND	0.008	0.04	0.036	0.16	N	Not detected.
Surface Soil 0-2ft	VOC	1,2-Dichlorobenzene	95-50-1	0.59	J	0.59	J	B-16	19	1	5	0.005 - 0.005	0.59	5300	59000	180	930	N	Below screening level.
Surface Soil 0-2ft	VOC	1,2-Dichloroethane	107-06-2	0.0065		0.0065		B-16	20	1	5	0.005 - 0.005	0.0065	0.9	3	0.46	2	N	Below screening level.
Surface Soil 0-2ft	VOC	1,2-Dichloropropane	78-87-5	ND		ND		--	20	0	0	0.005 - 0.005	ND	2	5	1	4.4	N	Not detected.
Surface Soil 0-2ft	VOC	1,3-Dichlorobenzene	541-73-1	ND		ND		--	19	0	0	0.005 - 0.005	ND	5300	59000	NC	NC	N	Not detected.
Surface Soil 0-2ft	VOC	1,4-Dichlorobenzene	106-46-7	0.029		0.029		B-17	20	1	5	0.005 - 0.005	0.029	5	13	2.6	11	N	Below screening level.
Surface Soil 0-2ft	VOC	1,4-Dioxane	123-91-1	ND		ND		--	20	0	0	0.066 - 0.066	ND	NC	NC	5.3	24	N	Not detected.
Surface Soil 0-2ft	VOC	2-Hexanone	591-78-6	ND		ND		--	14	0	0	0.01 - 0.01	ND	NC	NC	20	130	N	Not detected.
Surface Soil 0-2ft	VOC	Acetone	67-64-1	0.061		0.074		B-16	20	2	10	0.01 - 0.01	0.074	70000	NC	6100	67000	N	Below screening level.
Surface Soil 0-2ft	VOC	Benzene	71-43-2	0.016	J+	0.052		B-16	20	2	10	0.005 - 0.005	0.052	2	5	1.2	5.1	N	Below screening level.
Surface Soil 0-2ft	VOC	Bromochloromethane	74-97-5	ND		ND		--	19	0	0	0.005 - 0.005	ND	NC	NC	15	63	N	Not detected.
Surface Soil 0-2ft	VOC	Bromodichloromethane	75-27-4	ND		ND		--	20	0	0	0.005 - 0.005	ND	1	3	0.29	1.3	N	Not detected.
Surface Soil 0-2ft	VOC	Bromoform	75-25-2	ND		ND		--	18	0	0	0.005 - 0.005	ND	81	280	19	86	N	Not detected.
Surface Soil 0-2ft	VOC	Bromomethane	74-83-9	ND		ND		--	20	0	0	0.005 - 0.005	ND	25	59	0.68	3	N	Not detected.
Surface Soil 0-2ft	VOC	Carbon tetrachloride	56-23-5	ND		ND		--	20	0	0	0.005 - 0.005	ND	0.6	2	0.65	2.9	N	Not detected.
Surface Soil 0-2ft	VOC	Chlorobenzene	108-90-7	0.033		0.033		B-17	20	1	5	0.005 - 0.005	0.033	510	7400	28	130	N	Below screening level.
Surface Soil 0-2ft	VOC	Chloroethane	75-00-3	ND		ND		--	18	0	0	0.005 - 0.005	ND	220	1100	1400	5700	N	Not detected.
Surface Soil 0-2ft	VOC	Chloroform	67-66-3	ND		ND		--	19	0	0	0.005 - 0.005	ND	0.6	2	0.32	1.4	N	Not detected.
Surface Soil 0-2ft	VOC	Chloromethane	74-87-3	ND		ND		--	20	0	0	0.005 - 0.005	ND	4	12	11	46	N	Not detected.
Surface Soil 0-2ft	VOC	cis-1,2-Dichloroethylene	156-59-2	0.17		0.26		B-16	12	2	17	0.005 - 0.005	0.26	230	560	16	230	N	Below screening level.
Surface Soil 0-2ft	VOC	cis-1,3-Dichloropropene	10061-01-5	ND		ND		--	20	0	0	0.005 - 0.005	ND	2	7	NC	NC	N	Not detected.
Surface Soil 0-2ft	VOC	Cyclohexane	110-82-7	0.0051		0.0051		B-16	20	1	5	0.005 - 0.005	0.0051	NC	NC	650	2700	N	Below screening level.
Surface Soil 0-2ft	VOC	Dibromochloromethane	124-48-1	ND		ND		--	19	0	0	0.005 - 0.005	ND	3	8	8.3	39	N	Not detected.
Surface Soil 0-2ft	VOC	Dichlorodifluoromethane	75-71-8	ND		ND		--	20	0	0	0.005 - 0.005	ND	490	230000	8.7	37	N	Not detected.
Surface Soil 0-2ft	VOC	Ethylbenzene	100-41-4	0.44		0.61		B-16	20	2	10	0.005 - 0.005	0.61	7800	110000	5.8	25	N	Below screening level.
Surface Soil 0-2ft	VOC	Isopropylbenzene (Cumene)	98-82-8	0.15		0.2		B-17	20	2	10	0.005 - 0.005	0.2	NC	NC	190	990	N	Below screening level.
Surface Soil 0-2ft	VOC	m,p-Xylene	179601-23-1	0.0044	J	2.1		B-16	20	4	20	0.005 - 0.005	2.1	12000	170000	NC	NC	N	Below screening level.
Surface Soil 0-2ft	VOC	Methyl Ethyl Ketone (2-butanone)	78-93-3	ND		ND		--	20	0	0	0.01 - 0.01	ND	3100	44000	2700	19000	N	Not detected.
Surface Soil 0-2ft	VOC	Methyl Isobutyl Ketone	108-10-1	ND		ND		--	20	0	0	0.01 - 0.01	ND	NC	NC	3300	14000	N	Not detected.
Surface Soil 0-2ft	VOC	Methyl tert-butyl ether	1634-04-4	ND		ND		--	20	0	0	0.005 - 0.005	ND	110	320	47	210	N	Not detected.
Surface Soil 0-2ft	VOC	Methylcyclohexane	108-87-2	ND		ND		--	20	0	0	0.005 - 0.005	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	VOC	Methylene chloride	75-09-2	0.002	J	0.002	J	B-16	20	1	5	0.005 - 0.005	0.002	34	97	35	320	N	Below screening level.
Surface Soil 0-2ft	VOC	o-Xylene	95-47-6	0.76		0.79		B-17	20	2	10	0.005 - 0.005	0.79	12000	170000	65	280	N	Below screening level.
Surface Soil 0-2ft	VOC	Styrene	100-42-5	0.048		0.064		B-16	20	2	10	0.005 - 0.005	0.064	90	260	600	3500	N	Below screening level.
Surface Soil 0-2ft	VOC	Tetrachloroethylene	127-18-4	0.03		0.23		B-17	20	2	10	0.005 - 0.005	0.23	2	5	8.1	39	N	Below screening level.
Surface Soil 0-2ft	VOC	Toluene	108-88-3	0.0053		0.38		B-16	20	3	15	0.005 - 0.005	0.38	6300	91000	490	4700	N	Below screening level.
Surface Soil 0-2ft	VOC	trans-1,2-Dichloroethylene	156-60-5	ND		ND		--	10	0	0	0.005 - 0.005	ND	300	720	160	2300	N	Not detected.
Surface Soil 0-2ft	VOC	trans-1,3-Dichloropropene	10061-02-6	ND		ND		--	20	0	0	0.005 - 0.005	ND	2	7	NC	NC	N	Not detected.
Surface Soil 0-2ft	VOC	Trichloroethylene	79-01-6	0.096		0.1		B-17	20	2	10	0.005 - 0.005	0.1	7	20	0.41	1.9	N	Below screening level.
Surface Soil 0-2ft	VOC	Trichlorofluoromethane	75-69-4	ND		ND		--	20	0	0	0.005 - 0.005	ND	23000	340000	2300	35000	N	Not detected.
Surface Soil 0-2ft	VOC	Vinyl chloride	75-01-4	ND		ND		--	20	0	0	0.005 - 0.005	ND	0.7	2	0.059	1.7	N	Not detected.
Surface Soil 0-2ft	SVOC	1,2,4,5-Tetrachlorobenzene	95-94-3	ND		ND		--	20	0	0	0.17 - 0.17	ND	NC	NC	2.3	35	N	Not detected.
Surface Soil 0-2ft	SVOC	2,3,4,6-Tetrachlorophenol	58-90-2	ND		ND		--	20	0	0	0.17 - 0.17	ND	NC	NC	190	2500	N	Not detected.
Surface Soil 0-2ft	SVOC	2,4,5-Trichlorophenol	95-95-4	ND		ND		--	20	0	0	0.17 - 0.17	ND	6100	68000	630	8200	N	Not detected.
Surface Soil 0-2ft	SVOC	2,4,6-Trichlorophenol	88-06-2	ND		ND		--	20	0	0	0.17 - 0.17	ND	19	74	6.3	82	N	Not detected.
Surface Soil 0-2ft	SVOC	2,4-Dichlorophenol	120-83-2	0.27	J+	0.27	J+	B-12	20	1	5	0.17 - 0.17	0.27	180	2100	19	250	N	Below screening level.
Surface Soil 0-2ft	SVOC	2,4-Dimethylphenol	105-67-9	0.32		0.32		B-16	20	1	5	0.17 - 0.17	0.32	1200	14000	130	1600	N	Below screening level.
Surface Soil 0-2ft	SVOC	2,4-Dinitrophenol	51-28-5	ND		ND		--	20	0	0	0.33 - 0.33	ND	120	1400	13	160	N	Not detected.
Surface Soil 0-2ft	SVOC	2,4-Dinitrotoluene	121-14-2	ND		ND		--	20	0	0	0.17 - 0.17	ND	0.7	3	1.7	7.4	N	Not detected.
Surface Soil 0-2ft	SVOC	2,6-Dinitrotoluene	606-20-2	ND		ND		--	20	0	0	0.17 - 0.17	ND	0.7	3	0.36	1.5	N	Not detected.
Surface Soil 0-2ft	SVOC	2-Chloronaphthalene	91-58-7	ND		ND		--	20	0	0	0.17 - 0.17	ND	NC	NC	480	6000	N	Not detected.
Surface Soil 0-2ft	SVOC	2-Chlorophenol	95-57-8	ND		ND		--	20	0	0	0.17 - 0.17	ND	310	2200	39	580	N	Not detected.
Surface Soil 0-2ft	SVOC	2-Methylnaphthalene	91-57-6	0.15	J	13	J	B-16	20	4	20	0.17 - 0.17	13	230	2400	24	300	N	Below screening level.
Surface Soil 0-2ft	SVOC	2-Methylphenol	95-48-7	0.27	J	0.27	J	B-16	20	1	5	0.33 - 0.33	0.27	310	3400	320	4100	N	Below screening level.
Surface Soil 0-2ft	SVOC	2-Nitroaniline	88-74-4	ND		ND		--	20	0	0	0.17 - 0.17	ND	39	23000	63	800	N	Not detected.
Surface Soil 0-2ft	SVOC	2-Nitrophenol	88-75-5	ND		ND		--	20	0	0	0.17 - 0.17	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	SVOC	3,3-Dichlorobenzidine	91-94-1	ND		ND		--	20	0	0	0.33 - 0.33	ND	1	4	1.2	5.1	N	Not detected.
Surface Soil 0-2ft	SVOC	3-Nitroaniline	99-09-2	ND		ND		--	20	0	0	0.33 - 0.33	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	SVOC	4,6-Dinitro-2-methylphenol	534-52-1	ND		ND		--	20	0	0	0.33 - 0.33	ND	6	68	0.51	6.6	N	Not detected.
Surface Soil 0-2ft	SVOC	4-Bromophenyl-phenylether	101-55-3	ND		ND		--	20	0	0	0.17 - 0.17	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	SVOC	4-Chloro-3-methylphenol	59-50-7	ND		ND		--	20	0	0	0.17 - 0.17	ND	NC	NC	630	8200	N	Not detected.
Surface Soil 0-2ft	SVOC	4-Chloroaniline	106-47-8	0.96	J+	0.96	J+	B-12	20	1	5	0.33 - 0.33	0.96	NC	NC	2.7	11	N	Below screening level.
Surface Soil 0-2ft	SVOC	4-Chlorophenyl-phenylether	7005-72-3	ND		ND		--	20	0	0	0.17 - 0.17	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	SVOC	4-Methylphenol (p-Cresol)	106-44-5	0.31	J	0.31	J	B-16	20	1	5	0.33 - 0.33	0.31	31	340	630	8200	N	Below screening level.
Surface Soil 0-2ft	SVOC	4-Nitroaniline	100-01-6	ND		ND		--	20	0	0	0.33 - 0.33	ND	NC	NC	25	110	N	Not detected.
Surface Soil 0-2ft	SVOC	4-Nitrophenol	100-02-7	ND		ND		--	20	0	0	0.33 - 0.33	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	SVOC	Acenaphthene	83-32-9	0.21	J	0.92		B-16	20	4	20	0.17 - 0.17	0.92	3400	37000	360	4500	N	Below screening level.
Surface Soil 0-2ft	SVOC	Acenaphthylene	208-96-8	0.088	J	0.1	J	B-06	20	3	15	0.17 - 0.17	0.1	NC	300000	NC	NC	N	Below screening level.
Surface Soil 0-2ft	SVOC	Acetophenone	98-86-2	0.41		0.41		B-16	20	1	5	0.33 - 0.33	0.41	2	5	780	12000	N	Below screening level.
Surface Soil 0-2ft	SVOC	Anthracene	120-12-7	0.14	J	0.14	J	B-16	20	1	5	0.17 - 0.17	0.14	17000	30000	1800	23000	N	Below screening level.
Surface Soil 0-2ft	SVOC	Atrazine	1912-24-9	ND		ND		--	20	0	0	0.33 - 0.33	ND	210	2400	2.4	10	N	Not detected.
Surface Soil 0-2ft	SVOC	Benzaldehyde	100-52-7	0.53		0.53		B-16	20	1	5	0.33 - 0.33	0.53	6100	68000	170	820	N	Below screening level.
Surface Soil 0-2ft	SVOC	Benzo(a)anthracene	56-55-3	0.091	J	0.16	J	B-16	20	2	10	0.17 - 0.17	0.16	0.6	2	0.16	2.9	Y	Equal to or above screening level.
Surface Soil 0-2ft	SVOC	Benzo(a)pyrene	50-32-8	0.098	J	0.14	J	B-16	20	2	10	0.17 - 0.17	0.14	0.2	0.2	0.016	0.29	Y	Equal to or above screening level.
Surface Soil 0-2ft	SVOC	Benzo(b)fluoranthene	205-99-2	0.096	J	0.14	J	B-16	20	2	10	0.17 - 0.17	0.14	0.6	2	0.16	2.9	N	Below screening level.
Surface Soil 0-2ft	SVOC	Benzo(g,h,i)perylene	191-24-2	0.098	J	0.11	J	B-17	20	2	10	0.17 - 0.17	0.11	380000	30000	NC	NC	N	Below screening level.
Surface Soil 0-2ft	SVOC	Benzo(k)fluoranthene	207-08-9	0.1	J	0.15	J	B-16	20	2	10	0.17 - 0.17	0.15	6	23	1.6	29	N	Below screening level.
Surface Soil 0-2ft	SVOC	Benzyl Butyl Phthalate	85-68-7	0.06	J	60		B-16	20	14	70	0.17 - 0.17	60	1200	14000	290	1200	N	Below screening level.
Surface Soil 0-2ft	SVOC	Biphenyl (diphenyl)	92-52-4	0.1	J	1.6		B-16	20	4	20	0.17 - 0.17	1.6	3100	34000	4.7	20	N	Below screening level.

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SOIL
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (0-10 ft)

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (mg/kg)	Concentration used for Screening (mg/kg) (1)	NJDEP RDCSRS (mg/kg)	NJDEP NRDCSRS (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)	USEPA RSL Industrial Soil (mg/kg) (2)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil 0-2ft	SVOC	Bis(2-chloroethoxy) Methane	111-91-1	ND		ND		--	20	0	0	0.17 - 0.17	ND	NC	NC	19	250	N	Not detected.
Surface Soil 0-2ft	SVOC	Bis(2-chloroethyl)ether	111-44-4	ND		ND		--	20	0	0	0.33 - 0.33	ND	0.4	2	0.23	1	N	Not detected.
Surface Soil 0-2ft	SVOC	Bis(2-chloroisopropyl)ether	108-60-1	ND		ND		--	20	0	0	0.33 - 0.33	ND	23	67	310	4700	N	Not detected.
Surface Soil 0-2ft	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	0.13	J	37	J	B-16	20	18	90	0.17 - 0.17	37	35	140	39	160	Y	Equal to or above screening level.
Surface Soil 0-2ft	SVOC	Caprolactam	105-60-2	ND		ND		--	20	0	0	0.33 - 0.33	ND	31000	340000	3100	40000	N	Not detected.
Surface Soil 0-2ft	SVOC	Carbazole	86-74-8	0.14	J	0.14	J	B-16	20	1	5	0.33 - 0.33	0.14	24	96	NC	NC	N	Below screening level.
Surface Soil 0-2ft	SVOC	Chrysene	218-01-9	0.098	J	0.19		B-16	20	3	15	0.17 - 0.17	0.19	62	230	16	290	N	Below screening level.
Surface Soil 0-2ft	SVOC	Dibenz(a,h)anthracene	53-70-3	ND		ND		--	20	0	0	0.17 - 0.17	ND	0.2	0.2	0.016	0.29	N	Not detected.
Surface Soil 0-2ft	SVOC	Diethyl phthalate	84-66-2	0.11	J	0.11	J	B-16	20	1	5	0.17 - 0.17	0.11	49000	550000	5100	66000	N	Below screening level.
Surface Soil 0-2ft	SVOC	Dimethylphthalate	131-11-3	ND		ND		--	20	0	0	0.17 - 0.17	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	SVOC	Di-n-butyl phthalate	84-74-2	0.065	J	0.6		B-16	20	3	15	0.17 - 0.17	0.6	6100	68000	630	8200	N	Below screening level.
Surface Soil 0-2ft	SVOC	Di-n-octylphthalate	117-84-0	0.15	J	3.8	J	B-16	20	5	25	0.33 - 0.33	3.8	2400	27000	63	820	N	Below screening level.
Surface Soil 0-2ft	SVOC	Fluoranthene	206-44-0	0.17	J	0.64		B-16	20	3	15	0.33 - 0.33	0.64	2300	24000	240	3000	N	Below screening level.
Surface Soil 0-2ft	SVOC	Fluorene	86-73-7	0.21	J	0.85		B-16	20	3	15	0.17 - 0.17	0.85	2300	24000	240	3000	N	Below screening level.
Surface Soil 0-2ft	SVOC	Hexachlorobenzene	118-74-1	ND		ND		--	20	0	0	0.17 - 0.17	ND	0.3	1	0.21	0.96	N	Not detected.
Surface Soil 0-2ft	SVOC	Hexachlorobutadiene	87-68-3	ND		ND		--	20	0	0	0.17 - 0.17	ND	6	25	1.2	5.3	N	Not detected.
Surface Soil 0-2ft	SVOC	Hexachlorocyclopentadiene	77-47-4	ND		ND		--	20	0	0	0.33 - 0.33	ND	45	110	0.18	0.75	N	Not detected.
Surface Soil 0-2ft	SVOC	Hexachloroethane	67-72-1	ND		ND		--	20	0	0	0.17 - 0.17	ND	35	140	1.8	8	N	Not detected.
Surface Soil 0-2ft	SVOC	Indeno (1,2,3-cd)pyrene	193-39-5	0.077	J	0.078	J	B-16	20	2	10	0.17 - 0.17	0.078	0.6	2	0.16	2.9	N	Below screening level.
Surface Soil 0-2ft	SVOC	Isophorone	78-59-1	ND		ND		--	20	0	0	0.17 - 0.17	ND	510	2000	570	2400	N	Not detected.
Surface Soil 0-2ft	SVOC	Naphthalene	91-20-3	1		16		B-16	20	3	15	0.17 - 0.17	16	6	17	3.8	17	Y	Equal to or above screening level.
Surface Soil 0-2ft	SVOC	Nitrobenzene	98-95-3	ND		ND		--	20	0	0	0.17 - 0.17	ND	31	340	5.1	22	N	Not detected.
Surface Soil 0-2ft	SVOC	N-Nitrosodi-n-propylamine	621-64-7	ND		ND		--	20	0	0	0.17 - 0.17	ND	0.2	0.3	0.078	0.33	N	Not detected.
Surface Soil 0-2ft	SVOC	N-Nitrosodiphenylamine	86-30-6	0.17	J	0.17	J	B-12	20	1	5	0.17 - 0.17	0.17	99	390	110	470	N	Below screening level.
Surface Soil 0-2ft	SVOC	Pentachlorophenol	87-86-5	ND		ND		--	20	0	0	0.33 - 0.33	ND	3	10	1	4	N	Not detected.
Surface Soil 0-2ft	SVOC	Phenanthrene	85-01-8	0.18	J	1.2		B-16	20	4	20	0.17 - 0.17	1.2	NC	300000	NC	NC	N	Below screening level.
Surface Soil 0-2ft	SVOC	Phenol	108-95-2	1.3		1.3		B-16	20	1	5	0.33 - 0.33	1.3	18000	210000	1900	25000	N	Below screening level.
Surface Soil 0-2ft	SVOC	Pyrene	129-00-0	0.19		0.4		B-16	20	3	15	0.17 - 0.17	0.4	1700	18000	180	2300	N	Below screening level.
Surface Soil 0-2ft	PEST	4,4'-DDD	72-54-8	0.0033	J	0.0033	J	B-08	20	1	5	0.0033 - 0.0033	0.0033	3	13	2.3	9.6	N	Below screening level.
Surface Soil 0-2ft	PEST	4,4'-DDE	72-55-9	0.0039	NJ	0.011	NJ	B-04	16	4	25	0.0033 - 0.0033	0.011	2	9	2	9.3	N	Below screening level.
Surface Soil 0-2ft	PEST	4,4'-DDT	50-29-3	0.0026	J	0.01		B-04	20	9	45	0.0033 - 0.0033	0.01	2	8	1.9	8.5	N	Below screening level.
Surface Soil 0-2ft	PEST	Aldrin	309-00-2	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	0.04	0.2	0.039	0.18	N	Not detected.
Surface Soil 0-2ft	PEST	alpha-Endosulfan (Endosulfan I)	959-98-8	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	470	6800	NC	NC	N	Not detected.
Surface Soil 0-2ft	PEST	beta-Endosulfan (Endosulfan II)	33213-65-9	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	470	6800	NC	NC	N	Not detected.
Surface Soil 0-2ft	PEST	BHC alpha	319-84-6	0.00079	J	0.0011	J	B-09	20	4	20	0.0017 - 0.0017	0.0011	0.1	0.5	0.086	0.36	N	Below screening level.
Surface Soil 0-2ft	PEST	BHC beta	319-85-7	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	0.4	2	0.3	1.3	N	Not detected.
Surface Soil 0-2ft	PEST	BHC delta	319-86-8	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	PEST	BHC gamma (Lindane)	58-89-9	ND		ND		--	19	0	0	0.0017 - 0.0017	ND	0.4	2	0.57	2.5	N	Not detected.
Surface Soil 0-2ft	PEST	Chlordane, alpha	5103-71-9	ND		ND		--	6	0	0	0.0017 - 0.0017	ND	0.2	1	NC	NC	N	Not detected.
Surface Soil 0-2ft	PEST	Chlordane, beta	5103-74-2	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	0.2	1	NC	NC	N	Not detected.
Surface Soil 0-2ft	PEST	Dibenzofuran	132-64-9	0.09	J	1.4		B-16	20	3	15	0.17 - 0.17	1.4	NC	NC	7.3	100	N	Below screening level.
Surface Soil 0-2ft	PEST	Dieldrin	60-57-1	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	0.04	0.2	0.034	0.14	N	Not detected.
Surface Soil 0-2ft	PEST	Endosulfan sulfate	1031-07-8	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	470	6800	NC	NC	N	Not detected.
Surface Soil 0-2ft	PEST	Endrin	72-20-8	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	23	340	1.9	25	N	Not detected.
Surface Soil 0-2ft	PEST	Endrin Aldehyde	7421-93-4	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	PEST	Endrin Ketone	53494-70-5	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	PEST	Heptachlor	76-44-8	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	0.1	0.7	0.13	0.63	N	Not detected.
Surface Soil 0-2ft	PEST	Heptachlor epoxide	1024-57-3	0.0054	J	0.017	NJ	B-04	20	6	30	0.0017 - 0.0017	0.017	0.07	0.3	0.07	0.33	N	Below screening level.
Surface Soil 0-2ft	PEST	Methoxychlor	72-43-5	0.0067	J	0.0067	J	B-16	20	1	5	0.017 - 0.017	0.0067	390	5700	32	410	N	Below screening level.
Surface Soil 0-2ft	PEST	Toxaphene	8001-35-2	ND		ND		--	20	0	0	0.17 - 0.17	ND	0.6	3	0.49	2.1	N	Not detected.
Surface Soil 0-2ft	PCB	PCB-1016 (Aroclor 1016)	12674-11-2	0.14	J+	0.14	J+	B-04	20	1	5	0.033 - 0.033	0.14	NC	NC	0.41	5.1	N	Below screening level.
Surface Soil 0-2ft	PCB	PCB-1221 (Aroclor 1221)	11104-28-2	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.2	0.83	N	Not detected.
Surface Soil 0-2ft	PCB	PCB-1232 (Aroclor 1232)	11141-16-5	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.17	0.72	N	Not detected.
Surface Soil 0-2ft	PCB	PCB-1242 (Aroclor 1242)	53469-21-9	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.23	0.95	N	Not detected.
Surface Soil 0-2ft	PCB	PCB-1248 (Aroclor 1248)**	12672-29-6	0.14	J	2.5	NJ	B-16	20	14	70	0.033 - 0.033	2.5	NC	NC	0.12	0.95	Y	Equal to or above screening level.
Surface Soil 0-2ft	PCB	PCB-1254 (Aroclor 1254)**	11097-69-1	0.032	NJ	0.15	J+	B-07	20	3	15	0.033 - 0.033	0.15	NC	NC	0.12	0.97	Y	Equal to or above screening level.
Surface Soil 0-2ft	PCB	PCB-1260 (Aroclor 1260)**	11096-82-5	0.0094	J	0.16		B-11	20	12	60	0.033 - 0.033	0.16	NC	NC	0.12	0.97	Y	Equal to or above screening level.
Surface Soil 0-2ft	PCB	PCB-1262 (Aroclor 1262)**	37324-23-5	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.12	0.97	N	Not detected.
Surface Soil 0-2ft	PCB	PCB-1268 (Aroclor 1268)**	11100-14-4	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.12	0.97	N	Not detected.
Surface Soil 0-2ft	OTHER	Carbon disulfide	75-15-0	ND		ND		--	20	0	0	0.005 - 0.005	ND	7800	110000	77	350	N	Not detected.
Surface Soil 0-2ft	INORGANIC	Antimony	7440-36-0	ND		ND		--	20	0	0	1 - 1	ND	31	450	3.1	47	N	Not detected.
Surface Soil 0-2ft	INORGANIC	Arsenic	7440-38-2	1.2		4.3		B-02	20	20	100	0.5 - 0.5	4.3	19	19	0.68	3	Y	Equal to or above screening level.
Surface Soil 0-2ft	INORGANIC	Barium	7440-39-3	31.8		198		B-04	20	20	100	5 - 5	198	16000	59000	1500	22000	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Beryllium	7440-41-7	0.21	J	0.36	J	B-10	20	6	30	0.5 - 0.5	0.36	16	140	16	230	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Cadmium	7440-43-9	0.048	J	1.5		B-16	20	15	75	0.5 - 0.5	1.5	78	78	7.1	98	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Chromium (Total)*	7440-47-3	5.8		21.3		B-16	20	20	100	1 - 1	21.3	NC	NC	0.3	6.3	Y	Equal to or above screening level.
Surface Soil 0-2ft	INORGANIC	Cobalt	7440-48-4	2		5.6		B-04	20	20	100	0.5 - 0.5	5.6	1600	590	2.3	35	Y	Equal to or above screening level.
Surface Soil 0-2ft	INORGANIC	Copper	7440-50-8	3.5		71		B-16	20	20	100	1 - 1	71	3100	45000	310	4700	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Cyanide	57-12-5	0.97		0.97		B-13	20	1	5	10 - 10	0.97	1600	23000	2.3	15	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Lead	7439-92-1	4.5		31		B-06	20	20	100	0.5 - 0.5	31	400	800	400	800	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Manganese	7439-96-5	26.3		113		B-18	20	20	100	0.5 - 0.5	113	11000	5900	180	2600	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Mercury	7439-97-6	0.029	J	0.42		B-16	20	19	95	0.025 - 0.025	0.42	23	65	1.1	4.6	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Nickel	7440-02-0	3.2		10.4		B-06	20	20	100	0.5 - 0.5	10.4	1600	23000	150	2200	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Selenium	7782-49-2	ND		ND		--	20	0	0	2.5 - 2.5	ND	390	5700	39	580	N	Not detected.
Surface Soil 0-2ft	INORGANIC	Silver	7440-22-4	ND		ND		--	20	0	0	0.5 - 0.5	ND	390	5700	39	580	N	Not detected.
Surface Soil 0-2ft	INORGANIC	Thallium	7440-28-0	0.031	J	0.04	J	B-10	20	3	15	0.5 - 0.5	0.04	5	79	0.078	1.2	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Vanadium	7440-62-2	10.2		23.5		B-02	20	20	100	2.5 - 2.5	23.5	78	1100	39	580	N	Below screening level.
Surface Soil 0-2ft	INORGANIC	Zinc	7440-66-6	16		188		B-16	20	20	100	1 - 1	188	23000	110000	2300	35000	N	Below screening level.
Surface Soil 0-2ft	HERB	2,4-(dichlorophenoxy)butyric Acid	94-82-6	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	51	660	N	Not detected.
Surface Soil 0-2ft	HERB	2,4,5-(trichlorophenoxyacetic Acid)	93-76-5	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	63	820	N	Not detected.
Surface Soil 0-2ft	HERB	2,4-D (2,4-Dichlorophenoxyacetic acid)	94-75-7	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	70	960	N	Not detected.
Surface Soil 0-2ft	HERB	Dalapon	75-99-0	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	190	2500	N	Not detected.
Surface Soil 0-2ft	HERB	Dicamba	1918-00-9	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	190	2500	N	Not detected.
Surface Soil 0-2ft	HERB	Dichloroprop	120-36-5	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	NC	NC	N	Not detected.
Surface Soil 0-2ft	HERB	Dinoseb	88-85-7	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	6.3	82	N	Not detected.
Surface Soil 0-2ft	HERB	MCPA	94-74-6	ND		ND		--	20	0	0	17 - 17	ND	NC	NC	3.2	41	N	Not detected.
Surface Soil 0-2ft	HERB	MCPP, Mecoprop	93-65-2	ND		ND		--	20	0	0	17 - 17	ND	NC	NC	6.3	82	N	Not detected.
Surface Soil 0-2ft	HERB	Silvex (2,4,5-TP)	93-72-1	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	51	660	N	Not detected.
Soil 0-10ft	VOC	1,1,1-Trichloroethane	71-55-6	ND		ND		--	27	0	0	0.005 - 0.25	ND	290	4200	810	3600	N	Not detected.

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SOIL
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

HDR

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (0-10 ft)

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (mg/kg)	Concentration used for Screening (mg/kg) (1)	NJDEP RDCSRS (mg/kg)	NJDEP NRDCSRS (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)	USEPA RSL Industrial Soil (mg/kg) (2)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Soil 0-10ft	VOC	1,1,2,2-Tetrachloroethane	79-34-5	ND		ND		--	27	0	0	0.005 - 0.25	ND	1	3	0.6	2.7	N	Not detected.
Soil 0-10ft	VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND		ND		--	27	0	0	0.005 - 0.25	ND	NC	NC	4000	17000	N	Not detected.
Soil 0-10ft	VOC	1,1,2-Trichloroethane	79-00-5	ND		ND		--	27	0	0	0.005 - 0.25	ND	2	6	0.15	0.63	N	Not detected.
Soil 0-10ft	VOC	1,1-Dichloroethane	75-34-3	ND		ND		--	26	0	0	0.005 - 0.25	ND	8	24	3.6	16	N	Not detected.
Soil 0-10ft	VOC	1,1-Dichloroethene	75-35-4	ND		ND		--	17	0	0	0.005 - 0.25	ND	11	150	23	100	N	Not detected.
Soil 0-10ft	VOC	1,2,3-Trichlorobenzene	87-61-6	0.0067		2.6	J	ERT-SB-05	26	2	8	0.005 - 0.25	2.6	NC	NC	6.3	93	N	Below screening level.
Soil 0-10ft	VOC	1,2,4-Trichlorobenzene	120-82-1	0.042		3.1		ERT-SB-05	27	4	15	0.005 - 0.25	3.1	73	820	5.8	26	N	Below screening level.
Soil 0-10ft	VOC	1,2-Dibromo-3-chloropropane	96-12-8	ND		ND		--	26	0	0	0.005 - 0.25	ND	0.08	0.2	0.0053	0.064	N	Not detected.
Soil 0-10ft	VOC	1,2-Dibromoethane	106-93-4	ND		ND		--	27	0	0	0.005 - 0.25	ND	0.008	0.04	0.036	0.16	N	Not detected.
Soil 0-10ft	VOC	1,2-Dichlorobenzene	95-50-1	0.58	J	4.3		ERT-SB-05	26	4	15	0.005 - 0.25	4.3	5300	59000	180	930	N	Below screening level.
Soil 0-10ft	VOC	1,2-Dichloroethane	107-06-2	0.0065		0.0065		B-16	27	1	4	0.005 - 0.25	0.0065	0.9	3	0.46	2	N	Below screening level.
Soil 0-10ft	VOC	1,2-Dichloropropane	78-87-5	ND		ND		--	27	0	0	0.005 - 0.25	ND	2	5	1	4.4	N	Not detected.
Soil 0-10ft	VOC	1,3-Dichlorobenzene	541-73-1	ND		ND		--	26	0	0	0.005 - 0.25	ND	5300	59000	NC	NC	N	Not detected.
Soil 0-10ft	VOC	1,4-Dichlorobenzene	106-46-7	0.029		0.029		B-17	27	1	4	0.005 - 0.25	0.029	5	13	2.6	11	N	Below screening level.
Soil 0-10ft	VOC	1,4-Dioxane	123-91-1	ND		ND		--	20	0	0	0.066 - 0.066	ND	NC	NC	5.3	24	N	Not detected.
Soil 0-10ft	VOC	2-Hexanone	591-78-6	ND		ND		--	21	0	0	0.01 - 0.5	ND	NC	NC	20	130	N	Not detected.
Soil 0-10ft	VOC	Acetone	67-64-1	0.061		0.074		B-16	27	2	7	0.01 - 0.5	0.074	70000	NC	6100	67000	N	Below screening level.
Soil 0-10ft	VOC	Benzene	71-43-2	0.016	J+	3.5		ERT-SB-05	27	6	22	0.005 - 0.25	3.5	2	5	1.2	5.1	Y	Equal to or above screening level.
Soil 0-10ft	VOC	Bromochloromethane	74-97-5	ND		ND		--	26	0	0	0.005 - 0.25	ND	NC	NC	15	63	N	Not detected.
Soil 0-10ft	VOC	Bromodichloromethane	75-27-4	ND		ND		--	27	0	0	0.005 - 0.25	ND	1	3	0.29	1.3	N	Not detected.
Soil 0-10ft	VOC	Bromoform	75-25-2	ND		ND		--	25	0	0	0.005 - 0.25	ND	81	280	19	86	N	Not detected.
Soil 0-10ft	VOC	Bromomethane	74-83-9	ND		ND		--	27	0	0	0.005 - 0.25	ND	25	59	0.68	3	N	Not detected.
Soil 0-10ft	VOC	Carbon tetrachloride	56-23-5	ND		ND		--	27	0	0	0.005 - 0.25	ND	0.6	2	0.65	2.9	N	Not detected.
Soil 0-10ft	VOC	Chlorobenzene	108-90-7	0.033		0.033		B-17	27	1	4	0.005 - 0.25	0.033	510	7400	28	130	N	Below screening level.
Soil 0-10ft	VOC	Chloroethane	75-00-3	ND		ND		--	25	0	0	0.005 - 0.25	ND	220	1100	1400	5700	N	Not detected.
Soil 0-10ft	VOC	Chloroform	67-66-3	ND		ND		--	26	0	0	0.005 - 0.25	ND	0.6	2	0.32	1.4	N	Not detected.
Soil 0-10ft	VOC	Chloromethane	74-87-3	ND		ND		--	27	0	0	0.005 - 0.25	ND	4	12	11	46	N	Not detected.
Soil 0-10ft	VOC	cis-1,2-Dichloroethylene	156-59-2	0.17		0.26		B-16	19	2	11	0.005 - 0.25	0.26	230	560	16	230	N	Below screening level.
Soil 0-10ft	VOC	cis-1,3-Dichloropropene	10061-01-5	ND		ND		--	27	0	0	0.005 - 0.25	ND	2	7	NC	NC	N	Not detected.
Soil 0-10ft	VOC	Cyclohexane	110-82-7	0.0051		0.0051		B-16	27	1	4	0.005 - 0.25	0.0051	NC	NC	650	2700	N	Below screening level.
Soil 0-10ft	VOC	Dibromochloromethane	124-48-1	ND		ND		--	26	0	0	0.005 - 0.25	ND	3	8	8.3	39	N	Not detected.
Soil 0-10ft	VOC	Dichlorodifluoromethane	75-71-8	ND		ND		--	27	0	0	0.005 - 0.25	ND	490	230000	8.7	37	N	Not detected.
Soil 0-10ft	VOC	Ethylbenzene	100-41-4	0.16	J	16		ERT-SB-05	27	7	26	0.005 - 0.25	16	7800	110000	5.8	25	Y	Equal to or above screening level.
Soil 0-10ft	VOC	Isopropylbenzene (Cumene)	98-82-8	0.14	J	5.2		ERT-SB-05	27	6	22	0.005 - 0.25	5.2	NC	NC	190	990	N	Below screening level.
Soil 0-10ft	VOC	m,p-Xylene	179601-23-1	0.0044	J	56		ERT-SB-05	27	9	33	0.005 - 0.25	56	12000	170000	NC	NC	N	Below screening level.
Soil 0-10ft	VOC	Methyl acetate	79-20-9	0.17	J	0.17	J	ERT-SB-03	7	1	14	0.005 - 0.25	0.17	78000	NC	7800	120000	N	Below screening level.
Soil 0-10ft	VOC	Methyl Ethyl Ketone (2-butanone)	78-93-3	ND		ND		--	27	0	0	0.01 - 0.5	ND	3100	44000	2700	19000	N	Not detected.
Soil 0-10ft	VOC	Methyl Isobutyl Ketone	108-10-1	ND		ND		--	27	0	0	0.01 - 0.5	ND	NC	NC	3300	14000	N	Not detected.
Soil 0-10ft	VOC	Methyl tert-butyl ether	1634-04-4	ND		ND		--	27	0	0	0.005 - 0.25	ND	110	320	47	210	N	Not detected.
Soil 0-10ft	VOC	Methylcyclohexane	108-87-2	ND		ND		--	27	0	0	0.005 - 0.25	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	VOC	Methylene chloride	75-09-2	0.002	J	3.7		ERT-SB-05	27	2	7	0.005 - 0.25	3.7	34	97	35	320	N	Below screening level.
Soil 0-10ft	VOC	o-Xylene	95-47-6	0.19	J	18		ERT-SB-05	27	7	26	0.005 - 0.25	18	12000	170000	65	280	N	Below screening level.
Soil 0-10ft	VOC	Styrene	100-42-5	0.048		1.9	J	ERT-SB-05	27	5	19	0.005 - 0.25	1.9	90	260	600	3500	N	Below screening level.
Soil 0-10ft	VOC	Tetrachloroethylene	127-18-4	0.03		3		ERT-SB-04	27	5	19	0.005 - 0.25	3	2	5	8.1	39	Y	Equal to or above screening level.
Soil 0-10ft	VOC	Toluene	108-88-3	0.0053		12		ERT-SB-05	27	8	30	0.005 - 0.25	12	6300	91000	490	4700	N	Below screening level.
Soil 0-10ft	VOC	trans-1,2-Dichloroethylene	156-60-5	ND		ND		--	17	0	0	0.005 - 0.25	ND	300	720	160	2300	N	Not detected.
Soil 0-10ft	VOC	trans-1,3-Dichloropropene	10061-02-6	ND		ND		--	27	0	0	0.005 - 0.25	ND	2	7	NC	NC	N	Not detected.
Soil 0-10ft	VOC	Trichloroethylene	79-01-6	0.096		33		ERT-SB-04	27	3	11	0.005 - 0.25	33	7	20	0.41	1.9	Y	Equal to or above screening level.
Soil 0-10ft	VOC	Trichlorofluoromethane	75-69-4	ND		ND		--	27	0	0	0.005 - 0.25	ND	23000	340000	2300	35000	N	Not detected.
Soil 0-10ft	VOC	Vinyl chloride	75-01-4	ND		ND		--	27	0	0	0.005 - 0.25	ND	0.7	2	0.059	1.7	N	Not detected.
Soil 0-10ft	SVOC	1,2,4,5-Tetrachlorobenzene	95-94-3	0.083	J	0.083	J	ERT-SB-05	27	1	4	0.17 - 0.17	0.083	NC	NC	2.3	35	N	Below screening level.
Soil 0-10ft	SVOC	2,3,4,6-Tetrachlorophenol	58-90-2	ND		ND		--	27	0	0	0.17 - 0.17	ND	NC	NC	190	2500	N	Not detected.
Soil 0-10ft	SVOC	2,4,5-Trichlorophenol	95-95-4	ND		ND		--	27	0	0	0.17 - 0.17	ND	6100	68000	630	8200	N	Not detected.
Soil 0-10ft	SVOC	2,4,6-Trichlorophenol	88-06-2	ND		ND		--	27	0	0	0.17 - 0.17	ND	19	74	6.3	82	N	Not detected.
Soil 0-10ft	SVOC	2,4-Dichlorophenol	120-83-2	0.27	J+	0.27	J+	B-12	27	1	4	0.17 - 0.17	0.27	180	2100	19	250	N	Below screening level.
Soil 0-10ft	SVOC	2,4-Dimethylphenol	105-67-9	0.16	J	2.9	J	ERT-SB-05	27	5	19	0.17 - 0.17	2.9	1200	14000	130	1600	N	Below screening level.
Soil 0-10ft	SVOC	2,4-Dinitrophenol	51-28-5	ND		ND		--	27	0	0	0.33 - 0.33	ND	120	1400	13	160	N	Not detected.
Soil 0-10ft	SVOC	2,4-Dinitrotoluene	121-14-2	ND		ND		--	27	0	0	0.17 - 0.17	ND	0.7	3	1.7	7.4	N	Not detected.
Soil 0-10ft	SVOC	2,6-Dinitrotoluene	606-20-2	ND		ND		--	27	0	0	0.17 - 0.17	ND	0.7	3	0.36	1.5	N	Not detected.
Soil 0-10ft	SVOC	2-Chloronaphthalene	91-58-7	ND		ND		--	27	0	0	0.17 - 0.17	ND	NC	NC	480	6000	N	Not detected.
Soil 0-10ft	SVOC	2-Chlorophenol	95-57-8	ND		ND		--	27	0	0	0.17 - 0.17	ND	310	2200	39	580	N	Not detected.
Soil 0-10ft	SVOC	2-Methylnaphthalene	91-57-6	0.15	J	410	J	ERT-SB-05	27	10	37	0.17 - 0.17	410	230	2400	24	300	Y	Equal to or above screening level.
Soil 0-10ft	SVOC	2-Methylphenol	95-48-7	0.16	J	3.6	J	ERT-SB-04	27	6	22	0.17 - 0.33	3.6	310	3400	320	4100	N	Below screening level.
Soil 0-10ft	SVOC	2-Nitroaniline	88-74-4	ND		ND		--	27	0	0	0.17 - 0.33	ND	39	23000	63	800	N	Not detected.
Soil 0-10ft	SVOC	2-Nitrophenol	88-75-5	ND		ND		--	27	0	0	0.17 - 0.17	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	SVOC	3,3-Dichlorobenzidine	91-94-1	ND		ND		--	27	0	0	0.17 - 0.33	ND	1	4	1.2	5.1	N	Not detected.
Soil 0-10ft	SVOC	3-Nitroaniline	99-09-2	ND		ND		--	27	0	0	0.33 - 0.33	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	SVOC	4,6-Dinitro-2-methylphenol	534-52-1	ND		ND		--	27	0	0	0.33 - 0.33	ND	6	68	0.51	6.6	N	Not detected.
Soil 0-10ft	SVOC	4-Bromophenyl-phenylether	101-55-3	ND		ND		--	27	0	0	0.17 - 0.17	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	SVOC	4-Chloro-3-methylphenol	59-50-7	ND		ND		--	27	0	0	0.17 - 0.17	ND	NC	NC	630	8200	N	Not detected.
Soil 0-10ft	SVOC	4-Chloroaniline	106-47-8	0.96	J+	0.96	J+	B-12	27	1	4	0.17 - 0.33	0.96	NC	NC	2.7	11	N	Below screening level.
Soil 0-10ft	SVOC	4-Chlorophenyl-phenylether	7005-72-3	ND		ND		--	27	0	0	0.17 - 0.17	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	SVOC	4-Methylphenol (p-Cresol)	106-44-5	0.31	J	6.4	J	ERT-SB-05	27	6	22	0.17 - 0.33	6.4	31	340	630	8200	N	Below screening level.
Soil 0-10ft	SVOC	4-Nitroaniline	100-01-6	ND		ND		--	27	0	0	0.33 - 0.33	ND	NC	NC	25	110	N	Not detected.
Soil 0-10ft	SVOC	4-Nitrophenol	100-02-7	ND		ND		--	27	0	0	0.33 - 0.33	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	SVOC	Acenaphthene	83-32-9	0.053	J	18	J	ERT-SB-05	27	10	37	0.17 - 0.17	18	3400	37000	360	4500	N	Below screening level.

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SOIL
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (0-10 ft)

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (mg/kg)	Concentration used for Screening (mg/kg) (1)	NJDEP RDCSRS (mg/kg)	NJDEP NRDCSRS (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)	USEPA RSL Industrial Soil (mg/kg) (2)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Soil 0-10ft	SVOC	Acenaphthylene	208-96-8	0.088	J	0.1	J	B-06	27	3	11	0.17 - 0.17	0.1	NC	300000	NC	NC	N	Below screening level.
Soil 0-10ft	SVOC	Acetophenone	98-86-2	0.15	J	0.67	J	ERT-SB-05	27	4	15	0.17 - 0.33	0.67	2	5	780	12000	N	Below screening level.
Soil 0-10ft	SVOC	Anthracene	120-12-7	0.14	J	0.14	J	ERT-SB-05	27	2	7	0.17 - 0.17	0.14	17000	30000	1800	23000	N	Below screening level.
Soil 0-10ft	SVOC	Atrazine	1912-24-9	ND		ND		--	27	0	0	0.17 - 0.33	ND	210	2400	2.4	10	N	Not detected.
Soil 0-10ft	SVOC	Benzaldehyde	100-52-7	0.53		0.53		B-16	27	1	4	0.17 - 0.33	0.53	6100	68000	170	820	N	Below screening level.
Soil 0-10ft	SVOC	Benzo(a)anthracene	56-55-3	0.091	J	0.16	J	B-16	27	2	7	0.17 - 0.17	0.16	0.6	2	0.16	2.9	Y	Equal to or above screening level.
Soil 0-10ft	SVOC	Benzo(a)pyrene	50-32-8	0.098	J	0.14	J	B-16	27	2	7	0.17 - 0.17	0.14	0.2	0.2	0.016	0.29	Y	Equal to or above screening level.
Soil 0-10ft	SVOC	Benzo(b)fluoranthene	205-99-2	0.096	J	0.14	J	B-16	27	2	7	0.17 - 0.17	0.14	0.6	2	0.16	2.9	N	Below screening level.
Soil 0-10ft	SVOC	Benzo(g,h,i)perylene	191-24-2	0.098	J	0.11	J	B-17	27	2	7	0.17 - 0.17	0.11	380000	30000	NC	NC	N	Below screening level.
Soil 0-10ft	SVOC	Benzo(k)fluoranthene	207-08-9	0.1	J	0.15	J	B-16	27	2	7	0.17 - 0.17	0.15	6	23	1.6	29	N	Below screening level.
Soil 0-10ft	SVOC	Benzyl Butyl Phthalate	85-68-7	0.06	J	670	J	ERT-SB-05	27	21	78	0.17 - 0.17	670	1200	14000	290	1200	Y	Equal to or above screening level.
Soil 0-10ft	SVOC	Biphenyl (diphenyl)	92-52-4	0.1	J	37	J	ERT-SB-05	27	8	30	0.17 - 0.17	37	3100	34000	4.7	20	Y	Equal to or above screening level.
Soil 0-10ft	SVOC	Bis(2-chloroethoxy) Methane	111-91-1	ND		ND		--	27	0	0	0.17 - 0.17	ND	NC	NC	19	250	N	Not detected.
Soil 0-10ft	SVOC	Bis(2-chloroethyl)ether	111-44-4	ND		ND		--	27	0	0	0.17 - 0.33	ND	0.4	2	0.23	1	N	Not detected.
Soil 0-10ft	SVOC	Bis(2-chloroisopropyl)ether	108-60-1	ND		ND		--	27	0	0	0.17 - 0.33	ND	23	67	310	4700	N	Not detected.
Soil 0-10ft	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	0.13	J	590	J	ERT-SB-04	27	24	89	0.17 - 0.17	590	35	140	39	160	Y	Equal to or above screening level.
Soil 0-10ft	SVOC	Caprolactam	105-60-2	ND		ND		--	27	0	0	0.17 - 0.33	ND	31000	340000	3100	40000	N	Not detected.
Soil 0-10ft	SVOC	Carbazole	86-74-8	0.14	J	0.14	J	B-16	27	1	4	0.17 - 0.33	0.14	24	96	NC	NC	N	Below screening level.
Soil 0-10ft	SVOC	Chrysene	218-01-9	0.098	J	0.19		B-16	27	3	11	0.17 - 0.17	0.19	62	230	16	290	N	Below screening level.
Soil 0-10ft	SVOC	Dibenz(a,h)anthracene	53-70-3	ND		ND		--	27	0	0	0.17 - 0.17	ND	0.2	0.2	0.016	0.29	N	Not detected.
Soil 0-10ft	SVOC	Diethyl phthalate	84-66-2	0.11	J	1.7	J	ERT-SB-04	27	6	22	0.17 - 0.17	1.7	49000	550000	5100	66000	N	Below screening level.
Soil 0-10ft	SVOC	Dimethylphthalate	131-11-3	ND		ND		--	27	0	0	0.17 - 0.17	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	SVOC	Di-n-butyl phthalate	84-74-2	0.053	J	9.2	J	ERT-SB-05	27	8	30	0.17 - 0.17	9.2	6100	68000	630	8200	N	Below screening level.
Soil 0-10ft	SVOC	Di-n-octylphthalate	117-84-0	0.059	J	120	J	ERT-SB-04	27	11	41	0.17 - 0.33	120	2400	27000	63	820	Y	Equal to or above screening level.
Soil 0-10ft	SVOC	Fluoranthene	206-44-0	0.17	J	1.3	J	ERT-SB-05	27	4	15	0.17 - 0.33	1.3	2300	24000	240	3000	N	Below screening level.
Soil 0-10ft	SVOC	Fluorene	86-73-7	0.075	J	11	J	ERT-SB-05	27	7	26	0.17 - 0.17	11	2300	24000	240	3000	N	Below screening level.
Soil 0-10ft	SVOC	Hexachlorobenzene	118-74-1	ND		ND		--	27	0	0	0.17 - 0.17	ND	0.3	1	0.21	0.96	N	Not detected.
Soil 0-10ft	SVOC	Hexachlorobutadiene	87-68-3	ND		ND		--	27	0	0	0.17 - 0.17	ND	6	25	1.2	5.3	N	Not detected.
Soil 0-10ft	SVOC	Hexachlorocyclopentadiene	77-47-4	ND		ND		--	27	0	0	0.17 - 0.33	ND	45	110	0.18	0.75	N	Not detected.
Soil 0-10ft	SVOC	Hexachloroethane	67-72-1	ND		ND		--	27	0	0	0.17 - 0.17	ND	35	140	1.8	8	N	Not detected.
Soil 0-10ft	SVOC	Indeno (1,2,3-cd)pyrene	193-39-5	0.077	J	0.078	J	B-16	27	2	7	0.17 - 0.17	0.078	0.6	2	0.16	2.9	N	Below screening level.
Soil 0-10ft	SVOC	Isophorone	78-59-1	ND		ND		--	27	0	0	0.17 - 0.17	ND	510	2000	570	2400	N	Not detected.
Soil 0-10ft	SVOC	Naphthalene	91-20-3	0.42	J	420	J	ERT-SB-05	27	9	33	0.17 - 0.17	420	6	17	3.8	17	Y	Equal to or above screening level.
Soil 0-10ft	SVOC	Nitrobenzene	98-95-3	ND		ND		--	27	0	0	0.17 - 0.17	ND	31	340	5.1	22	N	Not detected.
Soil 0-10ft	SVOC	N-Nitrosodi-n-propylamine	621-64-7	ND		ND		--	27	0	0	0.17 - 0.17	ND	0.2	0.3	0.078	0.33	N	Not detected.
Soil 0-10ft	SVOC	N-Nitrosodiphenylamine	86-30-6	0.17	J	2.6	J	ERT-SB-04	27	4	15	0.17 - 0.17	2.6	99	390	110	470	N	Below screening level.
Soil 0-10ft	SVOC	Pentachlorophenol	87-86-5	ND		ND		--	27	0	0	0.33 - 0.33	ND	3	10	1	4	N	Not detected.
Soil 0-10ft	SVOC	Phenanthrene	85-01-8	0.085	J	5.5	J	ERT-SB-05	27	8	30	0.17 - 0.17	5.5	NC	300000	NC	NC	N	Below screening level.
Soil 0-10ft	SVOC	Phenol	108-95-2	0.6	J	49	J	ERT-SB-04	27	6	22	0.17 - 0.33	49	18000	210000	1900	25000	N	Below screening level.
Soil 0-10ft	SVOC	Pyrene	129-00-0	0.19		0.86	J	ERT-SB-05	27	4	15	0.17 - 0.17	0.86	1700	18000	180	2300	N	Below screening level.
Soil 0-10ft	PEST	4,4'-DDD	72-54-8	0.0033	J	0.0033	J	B-08	20	1	5	0.0033 - 0.0033	0.0033	3	13	2.3	9.6	N	Below screening level.
Soil 0-10ft	PEST	4,4'-DDE	72-55-9	0.0039	NJ	0.011	NJ	B-04	16	4	25	0.0033 - 0.0033	0.011	2	9	2	9.3	N	Below screening level.
Soil 0-10ft	PEST	4,4'-DDT	50-29-3	0.0026	J	0.01		B-04	20	9	45	0.0033 - 0.0033	0.01	2	8	1.9	8.5	N	Below screening level.
Soil 0-10ft	PEST	Aldrin	309-00-2	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	0.04	0.2	0.039	0.18	N	Not detected.
Soil 0-10ft	PEST	alpha-Endosulfan (Endosulfan I)	959-98-8	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	470	6800	NC	NC	N	Not detected.
Soil 0-10ft	PEST	beta-Endosulfan (Endosulfan II)	33213-65-9	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	470	6800	NC	NC	N	Not detected.
Soil 0-10ft	PEST	BHC alpha	319-84-6	0.00079	J	0.0011	J	B-09	20	4	20	0.0017 - 0.0017	0.0011	0.1	0.5	0.086	0.36	N	Below screening level.
Soil 0-10ft	PEST	BHC beta	319-85-7	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	0.4	2	0.3	1.3	N	Not detected.
Soil 0-10ft	PEST	BHC delta	319-86-8	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	PEST	BHC gamma (Lindane)	58-89-9	ND		ND		--	19	0	0	0.0017 - 0.0017	ND	0.4	2	0.57	2.5	N	Not detected.
Soil 0-10ft	PEST	Chlordane, alpha	5103-71-9	ND		ND		--	6	0	0	0.0017 - 0.0017	ND	0.2	1	NC	NC	N	Not detected.
Soil 0-10ft	PEST	Chlordane, beta	5103-74-2	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	0.2	1	NC	NC	N	Not detected.
Soil 0-10ft	PEST	Dibenzofuran	132-64-9	0.088	J	23	J	ERT-SB-05	27	8	30	0.17 - 0.17	23	NC	NC	7.3	100	Y	Equal to or above screening level.
Soil 0-10ft	PEST	Dieldrin	60-57-1	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	0.04	0.2	0.034	0.14	N	Not detected.
Soil 0-10ft	PEST	Endosulfan sulfate	1031-07-8	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	470	6800	NC	NC	N	Not detected.
Soil 0-10ft	PEST	Endrin	72-20-8	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	23	340	1.9	25	N	Not detected.
Soil 0-10ft	PEST	Endrin Aldehyde	7421-93-4	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	PEST	Endrin Ketone	53494-70-5	ND		ND		--	20	0	0	0.0033 - 0.0033	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	PEST	Heptachlor	76-44-8	ND		ND		--	20	0	0	0.0017 - 0.0017	ND	0.1	0.7	0.13	0.63	N	Not detected.
Soil 0-10ft	PEST	Heptachlor epoxide	1024-57-3	0.0054	J	0.017	NJ	B-04	20	6	30	0.0017 - 0.0017	0.017	0.07	0.3	0.07	0.33	N	Below screening level.
Soil 0-10ft	PEST	Methoxychlor	72-43-5	0.0067	J	0.0067	J	B-16	20	1	5	0.017 - 0.017	0.0067	390	5700	32	410	N	Below screening level.
Soil 0-10ft	PEST	Toxaphene	8001-35-2	ND		ND		--	20	0	0	0.17 - 0.17	ND	0.6	3	0.49	2.1	N	Not detected.
Soil 0-10ft	PCB	PCB-1016 (Aroclor 1016)	12674-11-2	0.14	J+	0.14	J+	B-04	20	1	5	0.033 - 0.033	0.14	NC	NC	0.41	5.1	N	Below screening level.
Soil 0-10ft	PCB	PCB-1221 (Aroclor 1221)	11104-28-2	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.2	0.83	N	Not detected.
Soil 0-10ft	PCB	PCB-1232 (Aroclor 1232)	11141-16-5	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.17	0.72	N	Not detected.
Soil 0-10ft	PCB	PCB-1242 (Aroclor 1242)	53469-21-9	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.23	0.95	N	Not detected.
Soil 0-10ft	PCB	PCB-1248 (Aroclor 1248)**	12672-29-6	0.14	J	2.5	NJ	B-16	20	14	70	0.033 - 0.033	2.5	NC	NC	0.12	0.95	Y	Equal to or above screening level.
Soil 0-10ft	PCB	PCB-1254 (Aroclor 1254)**	11097-69-1	0.032	NJ	0.15	J+	B-07	20	3	15	0.033 - 0.033	0.15	NC	NC	0.12	0.97	Y	Equal to or above screening level.
Soil 0-10ft	PCB	PCB-1260 (Aroclor 1260)**	11096-82-5	0.0094	J	0.16		B-11	20	12	60	0.033 - 0.033	0.16	NC	NC	0.12	0.97	Y	Equal to or above screening level.
Soil 0-10ft	PCB	PCB-1262 (Aroclor 1262)**	37324-23-5	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.12	0.97	N	Not detected.
Soil 0-10ft	PCB	PCB-1268 (Aroclor 1268)**	11100-14-4	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	0.12	0.97	N	Not detected.
Soil 0-10ft	OTHER	Carbon disulfide	75-15-0	ND		ND		--	27	0	0	0.005 - 0.25	ND	7800	110000	77	350	N	Not detected.
Soil 0-10ft	INORGANIC	Antimony	7440-36-0	ND		ND		--	20	0	0	1 - 1	ND	31	450	3.1	47	N	Not detected.

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SOIL
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil (0-10 ft)

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (mg/kg)	Concentration used for Screening (mg/kg) (1)	NJDEP RDCSRS (mg/kg)	NJDEP NRDCSRS (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)	USEPA RSL Industrial Soil (mg/kg) (2)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Soil 0-10ft	INORGANIC	Arsenic	7440-38-2	1.2		4.3		B-02	20	20	100	0.5 - 0.5	4.3	19	19	0.68	3	Y	Equal to or above screening level.
Soil 0-10ft	INORGANIC	Barium	7440-39-3	31.8		198		B-04	20	20	100	5 - 5	198	16000	59000	1500	22000	N	Below screening level.
Soil 0-10ft	INORGANIC	Beryllium	7440-41-7	0.21	J	0.36	J	B-10	20	6	30	0.5 - 0.5	0.36	16	140	16	230	N	Below screening level.
Soil 0-10ft	INORGANIC	Cadmium	7440-43-9	0.048	J	1.5		B-16	20	15	75	0.5 - 0.5	1.5	78	78	7.1	98	N	Below screening level.
Soil 0-10ft	INORGANIC	Chromium (Total)*	7440-47-3	5.8		21.3		B-16	20	20	100	1 - 1	21.3	NC	NC	0.3	6.3	Y	Equal to or above screening level.
Soil 0-10ft	INORGANIC	Cobalt	7440-48-4	2		5.6		B-04	20	20	100	0.5 - 0.5	5.6	1600	590	2.3	35	Y	Equal to or above screening level.
Soil 0-10ft	INORGANIC	Copper	7440-50-8	3.5		71		B-16	20	20	100	1 - 1	71	3100	45000	310	4700	N	Below screening level.
Soil 0-10ft	INORGANIC	Cyanide	57-12-5	0.97		0.97		B-13	20	1	5	10 - 10	0.97	1600	23000	2.3	15	N	Below screening level.
Soil 0-10ft	INORGANIC	Lead	7439-92-1	4.5		31		B-06	20	20	100	0.5 - 0.5	31	400	800	400	800	N	Below screening level.
Soil 0-10ft	INORGANIC	Manganese	7439-96-5	26.3		113		B-18	20	20	100	0.5 - 0.5	113	11000	5900	180	2600	N	Below screening level.
Soil 0-10ft	INORGANIC	Mercury	7439-97-6	0.029	J	0.42		B-16	20	19	95	0.025 - 0.025	0.42	23	65	1.1	4.6	N	Below screening level.
Soil 0-10ft	INORGANIC	Nickel	7440-02-0	3.2		10.4		B-06	20	20	100	0.5 - 0.5	10.4	1600	23000	150	2200	N	Below screening level.
Soil 0-10ft	INORGANIC	Selenium	7782-49-2	ND		ND		--	20	0	0	2.5 - 2.5	ND	390	5700	39	580	N	Not detected.
Soil 0-10ft	INORGANIC	Silver	7440-22-4	ND		ND		--	20	0	0	0.5 - 0.5	ND	390	5700	39	580	N	Not detected.
Soil 0-10ft	INORGANIC	Thallium	7440-28-0	0.031	J	0.04	J	B-10	20	3	15	0.5 - 0.5	0.04	5	79	0.078	1.2	N	Below screening level.
Soil 0-10ft	INORGANIC	Vanadium	7440-62-2	10.2		23.5		B-02	20	20	100	2.5 - 2.5	23.5	78	1100	39	580	N	Below screening level.
Soil 0-10ft	INORGANIC	Zinc	7440-66-6	16		188		B-16	20	20	100	1 - 1	188	23000	110000	2300	35000	N	Below screening level.
Soil 0-10ft	HERB	2,4-(dichlorophenoxy)butyric Acid	94-82-6	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	51	660	N	Not detected.
Soil 0-10ft	HERB	2,4,5-(trichlorophenoxyacetic Acid)	93-76-5	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	63	820	N	Not detected.
Soil 0-10ft	HERB	2,4-D (2,4-Dichlorophenoxyacetic acid)	94-75-7	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	70	960	N	Not detected.
Soil 0-10ft	HERB	Dalapon	75-99-0	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	190	2500	N	Not detected.
Soil 0-10ft	HERB	Dicamba	1918-00-9	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	190	2500	N	Not detected.
Soil 0-10ft	HERB	Dichloroprop	120-36-5	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	NC	NC	N	Not detected.
Soil 0-10ft	HERB	Dinoseb	88-85-7	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	6.3	82	N	Not detected.
Soil 0-10ft	HERB	MCPA	94-74-6	ND		ND		--	20	0	0	17 - 17	ND	NC	NC	3.2	41	N	Not detected.
Soil 0-10ft	HERB	MCPP, Mecoprop	93-65-2	ND		ND		--	20	0	0	17 - 17	ND	NC	NC	6.3	82	N	Not detected.
Soil 0-10ft	HERB	Silvex (2,4,5-TP)	93-72-1	ND		ND		--	20	0	0	0.033 - 0.033	ND	NC	NC	51	660	N	

Notes:
(1) The maximum detected soil concentrations from 0-10 feet are used for the COPC screening.
(2) May 2016 USEPA Regional Screening Levels (RSLs) at a target risk of 1E-06 and target hazard quotient of 0.1.
Constituents that RAGS Part A identifies as essential nutrients (i.e., iron, magnesium, calcium, potassium and sodium) and that are present at low levels are not retained as COPCs.
Constituents that are detected in less than 5% of the samples are not retained as COPCs.
The COPC screening applies the minimum of the NJDEP DCSRS and USEPA Soil RSLs.
* The total chromium concentration is screened against the RSL criteria for hexavalent chromium (Cr+6) since no RSLs are available for total chromium.
** The USEPA RSLs for PCB-1016 is applied for PCB-1221, 1232 and 1242 if it is more stringent; similarly, PCB-1254's RSL is applied for PCB-1248, 1260, 1262 and 1268 if is more stringent.

Abbreviations:
COPC -- Constituent of potential concern
mg/kg -- milligrams per kilogram
NA -- Not applicable
NC -- No criteria
ND -- Not detected
NJDEP -- New Jersey Department of Environmental Protection
NRDCSRS -- NJDEP Non-Residential Direct Contact Soil Remediation Standard
PEST -- Pesticide
Qual -- Qualifier
RDCSRS -- NJDEP Residential Direct Contact Soil Remediation Standard
RSL -- USEPA Regional Screening Levels
SVOC -- Semi-volatile organic compound
USEPA -- United States Environmental Protection Agency
VOC -- Volatile organic compound

Qualifiers:
J -- Estimated concentration
J+ -- Estimated concentration biased high
NJ -- Tentative and estimated concentration

References:

NJDEP. 2012. Remediation Standards. N.J.A.C. 7:26D. May 7. Available online: http://www.nj.gov/dep/rules/rules/njac7_26d.pdf
USEPA. 2016. Regional Screening Levels Generic Tables. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SITE-WIDE GROUNDWATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	T or D	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (ug/L)	Qual	Maximum Detected Concentration (ug/L)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (ug/L)	Concentration used for Screening (ug/L) (1)	NJDEP GWQS (ug/L) (2)	Federal MCL (ug/L) (3)	USEPA RSL Resident Tapwater (ug/L) (4)	USEPA WQC Water & Organism (ug/L)	USEPA WQC Organism Only (ug/L)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Groundwater	T	VOC	1,1,1-Trichloroethane	71-55-6	0.3	J	15		MW-24	47	3	6	0.5 - 50	15	30	200	800	10000	200000	N	Below screening level.
Groundwater	T	VOC	1,1,2,2-Tetrachloroethane	79-34-5	ND		ND		--	47	0	0	0.5 - 50	ND	1	NC	0.076	0.2	3	N	Not detected.
Groundwater	T	VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND		ND		--	46	0	0	0.5 - 50	ND	20000	NC	5500	NC	NC	N	Not detected.
Groundwater	T	VOC	1,1,2-Trichloroethane	79-00-5	ND		ND		--	44	0	0	0.5 - 50	ND	3	5	0.041	0.55	8.9	N	Not detected.
Groundwater	T	VOC	1,1-Dichloroethane	75-34-3	0.79		3.6		MW-13	47	9	19	0.5 - 50	3.6	50	NC	2.8	NC	NC	Y	Equal to or above screening level.
Groundwater	T	VOC	1,1-Dichloroethene	75-35-4	0.23	J	0.29	J	MW-26	42	2	5	0.5 - 50	0.29	1	7	28	300	20000	N	Below screening level.
Groundwater	T	VOC	1,2,3-Trichlorobenzene	87-61-6	0.37	J	3.5		MW-06	47	3	6	0.5 - 50	3.5	NC	NC	0.7	NC	NC	Y	Equal to or above screening level.
Groundwater	T	VOC	1,2,4-Trichlorobenzene	120-82-1	0.29	J	9.9		MW-06	46	7	15	0.5 - 50	9.9	9	70	0.4	0.071	0.076	Y	Equal to or above screening level.
Groundwater	T	VOC	1,2-Dibromo-3-chloropropane	96-12-8	ND		ND		--	35	0	0	0.05 - 5	ND	0.02	0.2	0.00033	NC	NC	N	Not detected.
Groundwater	T	VOC	1,2-Dibromoethane	106-93-4	ND		ND		--	40	0	0	0.05 - 5	ND	0.03	0.05	0.0075	NC	NC	N	Not detected.
Groundwater	T	VOC	1,2-Dichlorobenzene	95-50-1	0.25	J	2.1		MW-17	47	9	19	0.5 - 50	2.1	600	600	30	1000	3000	N	Below screening level.
Groundwater	T	VOC	1,2-Dichloroethane	107-06-2	0.34	J	7.6		MW-17	47	4	9	0.5 - 50	7.6	2	5	0.17	9.9	650	Y	Equal to or above screening level.
Groundwater	T	VOC	1,2-Dichloropropane	78-87-5	ND		ND		--	47	0	0	0.5 - 50	ND	1	5	0.44	0.9	31	N	Not detected.
Groundwater	T	VOC	1,3-Dichlorobenzene	541-73-1	0.16	J	5.6		MW-25	47	6	13	0.5 - 50	5.6	600	NC	NC	7	10	N	Below screening level.
Groundwater	T	VOC	1,4-Dichlorobenzene	106-46-7	0.15	J	6.2		MW-25	47	10	21	0.5 - 50	6.2	75	75	0.48	300	900	Y	Equal to or above screening level.
Groundwater	T	VOC	1,4-Dioxane	123-91-1	0.13	J	1.3		MW-01	49	8	16	0.4 - 2.2	1.3	0.4	NC	0.46	NC	NC	Y	Equal to or above screening level.
Groundwater	T	VOC	2-Hexanone	591-78-6	ND		ND		--	43	0	0	5 - 500	ND	300	NC	3.8	NC	NC	N	Not detected.
Groundwater	T	VOC	Acetone	67-64-1	2.3	J	19		MW-25	43	4	9	5 - 500	19	6000	NC	1400	NC	NC	N	Below screening level.
Groundwater	T	VOC	Benzene	71-43-2	0.49	J	49		MW-25	47	10	21	0.5 - 50	49	1	5	0.46	0.58	16	Y	Equal to or above screening level.
Groundwater	T	VOC	Bromochloromethane	74-97-5	ND		ND		--	46	0	0	0.5 - 50	ND	NC	NC	8.3	NC	NC	N	Not detected.
Groundwater	T	VOC	Bromodichloromethane	75-27-4	0.59		0.59		MW-13	47	1	2	0.5 - 50	0.59	1	80	0.13	0.95	27	N	Detection frequency less than 5%.
Groundwater	T	VOC	Bromoform	75-25-2	ND		ND		--	47	0	0	0.5 - 50	ND	4	80	3.3	7	120	N	Not detected.
Groundwater	T	VOC	Bromomethane	74-83-9	ND		ND		--	42	0	0	0.5 - 50	ND	10	NC	0.75	100	10000	N	Not detected.
Groundwater	T	VOC	Carbon tetrachloride	56-23-5	ND		ND		--	35	0	0	0.1 - 10	ND	1	5	0.46	0.4	5	N	Not detected.
Groundwater	T	VOC	Chlorobenzene	108-90-7	0.89		21	J	MW-18	47	9	19	0.5 - 50	21	50	100	7.8	100	800	Y	Equal to or above screening level.
Groundwater	T	VOC	Chloroethane	75-00-3	0.39	J	2.9	J	MW-25	31	7	23	0.5 - 50	2.9	5	NC	2100	NC	NC	N	Below screening level.
Groundwater	T	VOC	Chloroform	67-66-3	1.4		5.5		MW-13	46	2	4	0.5 - 50	5.5	70	80	0.22	60	2000	N	Detection frequency less than 5%.
Groundwater	T	VOC	Chloromethane	74-87-3	ND		ND		--	42	0	0	0.5 - 50	ND	NC	NC	19	NC	NC	N	Not detected.
Groundwater	T	VOC	cis-1,2-Dichloroethylene	156-59-2	0.26	J	44		MW-06	48	14	29	0.5 - 50	44	70	70	3.6	NC	NC	Y	Equal to or above screening level.
Groundwater	T	VOC	cis-1,3-Dichloropropene	10061-01-5	0.27	J	0.27	J	MW-25	44	1	2	0.5 - 50	0.27	1	NC	NC	NC	NC	N	Below screening level.
Groundwater	T	VOC	Cyclohexane	110-82-7	0.38	J	1.9		MW-25	47	3	6	0.5 - 50	1.9	NC	NC	1300	NC	NC	N	Below screening level.
Groundwater	T	VOC	Dibromochloromethane	124-48-1	ND		ND		--	47	0	0	0.5 - 50	ND	1	80	0.87	0.8	21	N	Not detected.
Groundwater	T	VOC	Dichlorodifluoromethane	75-71-8	ND		ND		--	42	0	0	0.5 - 50	ND	1000	NC	20	NC	NC	N	Not detected.
Groundwater	T	VOC	Ethylbenzene	100-41-4	0.39	J	920		MW-25	47	11	23	0.5 - 100	920	700	700	1.5	68	130	Y	Equal to or above screening level.
Groundwater	T	VOC	Isopropylbenzene (Cumene)	98-82-8	0.63		39		MW-25	47	10	21	0.5 - 50	39	700	NC	45	NC	NC	N	Below screening level.
Groundwater	T	VOC	m,p-Xylene	179601-23-1	0.11	J	510		MW-13	47	11	23	0.5 - 100	510	1000	NC	NC	NC	NC	N	Below screening level.
Groundwater	T	VOC	Methyl acetate	79-20-9	0.98		0.98		MW-13	29	1	3	0.5 - 50	0.98	7000	NC	2000	NC	NC	N	Below screening level.
Groundwater	T	VOC	Methyl Ethyl Ketone (2-butanone)	78-93-3	ND		ND		--	42	0	0	5 - 500	ND	300	NC	560	NC	NC	N	Not detected.
Groundwater	T	VOC	Methyl Isobutyl Ketone	108-10-1	ND		ND		--	43	0	0	5 - 500	ND	NC	NC	630	NC	NC	N	Not detected.
Groundwater	T	VOC	Methyl tert-butyl ether	1634-04-4	0.51		0.68	J	MW-01B	46	2	4	0.5 - 50	0.68	70	NC	14	NC	NC	N	Below screening level.
Groundwater	T	VOC	Methylcyclohexane	108-87-2	0.57		1.5		MW-06	47	5	11	0.5 - 50	1.5	NC	NC	NC	NC	NC	Y	No screening level.
Groundwater	T	VOC	Methylene chloride	75-09-2	0.19	J	240		MW-13	46	3	7	0.5 - 50	240	3	5	11	20	1000	Y	Equal to or above screening level.
Groundwater	T	VOC	o-Xylene	95-47-6	2.3		200		MW-13	47	10	21	0.5 - 100	200	1000	NC	19	NC	NC	Y	Equal to or above screening level.
Groundwater	T	VOC	Styrene	100-42-5	3.6		3.6		MW-17	47	1	2	0.5 - 50	3.6	100	100	120	NC	NC	N	Below screening level.
Groundwater	T	VOC	Tetrachloroethylene	127-18-4	0.25	J	3000		MW-24	51	20	39	0.5 - 500	3000	1	5	4.1	10	29	Y	Equal to or above screening level.
Groundwater	T	VOC	Toluene	108-88-3	0.75		22	J	MW-13	47	8	17	0.5 - 50	22	600	1000	110	57	520	N	Below screening level.
Groundwater	T	VOC	trans-1,2-Dichloroethylene	156-60-5	0.32	J	2.4	J	MW-25	43	8	19	0.5 - 50	2.4	100	100	36	100	4000	N	Below screening level.
Groundwater	T	VOC	trans-1,3-Dichloropropene	10061-02-6	0.22	J	0.22	J	MW-25	40	1	3	0.5 - 50	0.22	1	NC	NC	NC	NC	N	Below screening level.
Groundwater	T	VOC	Trichloroethylene	79-01-6	0.081	J	160		MW-24	51	12	24	0.5 - 120	160	1	5	0.28	0.6	7	Y	Equal to or above screening level.
Groundwater	T	VOC	Trichlorofluoromethane	75-69-4	ND		ND		--	46	0	0	0.5 - 50	ND	2000	NC	520	NC	NC	N	Not detected.
Groundwater	T	VOC	Vinyl chloride	75-01-4	0.01	J	14		MW-06	37	13	35	0.05 - 5	14	1	2	0.019	0.022	1.6	Y	Equal to or above screening level.

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SITE-WIDE GROUNDWATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	T or D	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (ug/L)	Qual	Maximum Detected Concentration (ug/L)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (ug/L)	Concentration used for Screening (ug/L) (1)	NJDEP GWQS (ug/L) (2)	Federal MCL (ug/L) (3)	USEPA RSL Resident Tapwater (ug/L) (4)	USEPA WQC Water & Organism (ug/L)	USEPA WQC Organism Only (ug/L)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Groundwater	T	SVOC	1,2,4,5-Tetrachlorobenzene	95-94-3	0.93	J	0.93	J	MW-06	46	1	2	5 - 5.8	0.93	NC	NC	0.17	0.03	0.03	N	Detection frequency less than 5%.
Groundwater	T	SVOC	2,3,4,6-Tetrachlorophenol	58-90-2	ND		ND		--	46	0	0	5 - 5.8	ND	200	NC	24	NC	NC	N	Not detected.
Groundwater	T	SVOC	2,4,5-Trichlorophenol	95-95-4	ND		ND		--	46	0	0	5 - 5.8	ND	700	NC	120	300	600	N	Not detected.
Groundwater	T	SVOC	2,4,6-Trichlorophenol	88-06-2	ND		ND		--	46	0	0	5 - 5.8	ND	20	NC	1.2	1.5	2.8	N	Not detected.
Groundwater	T	SVOC	2,4-Dichlorophenol	120-83-2	ND		ND		--	46	0	0	5 - 5.8	ND	20	NC	4.6	10	60	N	Not detected.
Groundwater	T	SVOC	2,4-Dimethylphenol	105-67-9	5.7		5.7		MW-13	46	1	2	5 - 5.8	5.7	100	NC	36	100	3000	N	Below screening level.
Groundwater	T	SVOC	2,4-Dinitrophenol	51-28-5	ND		ND		--	45	0	0	10 - 12	ND	40	NC	3.9	10	300	N	Not detected.
Groundwater	T	SVOC	2,4-Dinitrotoluene	121-14-2	ND		ND		--	46	0	0	5 - 5.8	ND	NC	NC	0.24	0.049	1.7	N	Not detected.
Groundwater	T	SVOC	2,6-Dinitrotoluene	606-20-2	ND		ND		--	46	0	0	5 - 5.8	ND	NC	NC	0.049	NC	NC	N	Not detected.
Groundwater	T	SVOC	2-Chloronaphthalene	91-58-7	ND		ND		--	46	0	0	5 - 5.8	ND	600	NC	75	800	1000	N	Not detected.
Groundwater	T	SVOC	2-Chlorophenol	95-57-8	ND		ND		--	46	0	0	5 - 5.8	ND	40	NC	9.1	30	800	N	Not detected.
Groundwater	T	SVOC	2-Methylnaphthalene	91-57-6	ND		ND		--	46	0	0	5 - 5.8	ND	30	NC	3.6	NC	NC	N	Not detected.
Groundwater	T	SVOC	2-Methylphenol	95-48-7	14		14		MW-06	46	1	2	10 - 12	14	50	NC	93	NC	NC	N	Below screening level.
Groundwater	T	SVOC	2-Nitroaniline	88-74-4	ND		ND		--	46	0	0	5 - 5.8	ND	NC	NC	19	NC	NC	N	Not detected.
Groundwater	T	SVOC	2-Nitrophenol	88-75-5	ND		ND		--	46	0	0	5 - 5.8	ND	NC	NC	NC	NC	NC	N	Not detected.
Groundwater	T	SVOC	3,3-Dichlorobenzidine	91-94-1	ND		ND		--	46	0	0	10 - 12	ND	30	NC	0.13	0.049	0.15	N	Not detected.
Groundwater	T	SVOC	3-Nitroaniline	99-09-2	ND		ND		--	46	0	0	10 - 12	ND	NC	NC	NC	NC	NC	N	Not detected.
Groundwater	T	SVOC	4,6-Dinitro-2-methylphenol	534-52-1	ND		ND		--	45	0	0	10 - 12	ND	1	NC	0.15	2	30	N	Not detected.
Groundwater	T	SVOC	4-Bromophenyl-phenylether	101-55-3	ND		ND		--	46	0	0	5 - 5.8	ND	NC	NC	NC	NC	NC	N	Not detected.
Groundwater	T	SVOC	4-Chloro-3-methylphenol	59-50-7	ND		ND		--	46	0	0	5 - 5.8	ND	100	NC	140	500	2000	N	Not detected.
Groundwater	T	SVOC	4-Chloroaniline	106-47-8	9.9	J	6900		MW-06	46	5	11	10 - 2000	6900	30	NC	0.37	NC	NC	Y	Equal to or above screening level.
Groundwater	T	SVOC	4-Chlorophenyl-phenylether	7005-72-3	ND		ND		--	46	0	0	5 - 5.8	ND	NC	NC	NC	NC	NC	N	Not detected.
Groundwater	T	SVOC	4-Methylphenol (p-Cresol)	106-44-5	ND		ND		--	46	0	0	10 - 12	ND	50	NC	190	NC	NC	N	Not detected.
Groundwater	T	SVOC	4-Nitroaniline	100-01-6	ND		ND		--	46	0	0	10 - 12	ND	NC	NC	3.8	NC	NC	N	Not detected.
Groundwater	T	SVOC	4-Nitrophenol	100-02-7	ND		ND		--	46	0	0	10 - 12	ND	NC	NC	NC	NC	NC	N	Not detected.
Groundwater	T	SVOC	Acenaphthene	83-32-9	ND		ND		--	46	0	0	5 - 5.8	ND	400	NC	53	70	90	N	Not detected.
Groundwater	T	SVOC	Acenaphthylene	208-96-8	ND		ND		--	46	0	0	5 - 5.8	ND	100	NC	NC	NC	NC	N	Not detected.
Groundwater	T	SVOC	Acetophenone	98-86-2	4	J	4	J	MW-06	46	1	2	10 - 12	4	700	NC	190	NC	NC	N	Below screening level.
Groundwater	T	SVOC	Anthracene	120-12-7	ND		ND		--	46	0	0	5 - 5.8	ND	2000	NC	180	300	400	N	Not detected.
Groundwater	T	SVOC	Atrazine	1912-24-9	ND		ND		--	46	0	0	10 - 12	ND	3	3	0.3	NC	NC	N	Not detected.
Groundwater	T	SVOC	Benzaldehyde	100-52-7	ND		ND		--	46	0	0	10 - 12	ND	NC	NC	19	NC	NC	N	Not detected.
Groundwater	T	SVOC	Benzo(a)anthracene	56-55-3	ND		ND		--	46	0	0	5 - 5.8	ND	0.1	NC	0.012	0.00012	0.00013	N	Not detected.
Groundwater	T	SVOC	Benzo(a)pyrene	50-32-8	ND		ND		--	46	0	0	5 - 5.8	ND	0.1	0.2	0.0034	0.00012	0.00013	N	Not detected.
Groundwater	T	SVOC	Benzo(b)fluoranthene	205-99-2	ND		ND		--	46	0	0	5 - 5.8	ND	0.2	NC	0.034	0.0012	0.0013	N	Not detected.
Groundwater	T	SVOC	Benzo(g,h,i)perylene	191-24-2	ND		ND		--	46	0	0	5 - 5.8	ND	100	NC	NC	NC	NC	N	Not detected.
Groundwater	T	SVOC	Benzo(k)fluoranthene	207-08-9	ND		ND		--	46	0	0	5 - 5.8	ND	0.5	NC	0.34	0.012	0.013	N	Not detected.
Groundwater	T	SVOC	Benzyl Butyl Phthalate	85-68-7	1.4	J	1.4	J	MW-06	46	1	2	5 - 5.8	1.4	100	NC	16	0.1	0.1	N	Detection frequency less than 5%.
Groundwater	T	SVOC	Biphenyl (diphenyl)	92-52-4	1	J	1.6	J	MW-13	46	3	7	5 - 5.8	1.6	400	NC	0.083	NC	NC	Y	Equal to or above screening level.
Groundwater	T	SVOC	Bis(2-chloroethoxy) Methane	111-91-1	ND		ND		--	46	0	0	5 - 5.8	ND	NC	NC	5.9	NC	NC	N	Not detected.
Groundwater	T	SVOC	Bis(2-chloroethyl)ether	111-44-4	ND		ND		--	46	0	0	10 - 12	ND	7	NC	0.014	0.03	2.2	N	Not detected.
Groundwater	T	SVOC	Bis(2-chloroisopropyl)ether	108-60-1	ND		ND		--	46	0	0	10 - 12	ND	300	NC	71	200	4000	N	Not detected.
Groundwater	T	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	3.1	J	3.1	J	MW-24	46	1	2	5 - 5.8	3.1	3	6	5.6	0.32	0.37	N	Detection frequency less than 5%.
Groundwater	T	SVOC	Caprolactam	105-60-2	ND		ND		--	46	0	0	10 - 12	ND	5000	NC	990	NC	NC	N	Not detected.
Groundwater	T	SVOC	Carbazole	86-74-8	ND		ND		--	46	0	0	10 - 12	ND	NC	NC	NC	NC	NC	N	Not detected.
Groundwater	T	SVOC	Chrysene	218-01-9	ND		ND		--	46	0	0	5 - 5.8	ND	5	NC	3.4	0.12	0.13	N	Not detected.
Groundwater	T	SVOC	Dibenz(a,h)anthracene	53-70-3	ND		ND		--	46	0	0	5 - 5.8	ND	0.3	NC	0.0034	0.00012	0.00013	N	Not detected.
Groundwater	T	SVOC	Diethyl phthalate	84-66-2	1.8	J	4.6	J	MW-17	46	3	7	5 - 5.8	4.6	6000	NC	1500	600	600	N	Below screening level.
Groundwater	T	SVOC	Dimethylphthalate	131-11-3	ND		ND		--	46	0	0	5 - 5.8	ND	100	NC	NC	2000	2000	N	Not detected.
Groundwater	T	SVOC	Di-n-butyl phthalate	84-74-2	2.6	J	2.6	J	MW-25	46	1	2	5 - 5.8	2.6	700	NC	90	20	30	N	Below screening level.
Groundwater	T	SVOC	Di-n-octylphthalate	117-84-0	ND		ND		--	46	0	0	10 - 12	ND	100	NC	20	NC	NC	N	Not detected.
Groundwater	T	SVOC	Fluoranthene	206-44-0	ND		ND		--	46	0	0	10 - 12	ND	300	NC	80	20	20	N	Not detected.
Groundwater	T	SVOC	Fluorene	86-73-7	ND		ND		--	46	0	0	5 - 5.8	ND	300	NC	29	50	70	N	Not detected.
Groundwater	T	SVOC	Hexachlorobenzene	118-74-1	ND		ND		--	46	0	0	5 - 5.8	ND	0.02	1	0.0098	0.000079	0.000079	N	Not detected.
Groundwater	T	SVOC	Hexachlorobutadiene	87-68-3	ND		ND		--	46	0	0	5 - 5.8	ND	1	NC	0.14	0.01	0.01	N	Not detected.
Groundwater	T	SVOC	Hexachlorocyclopentadiene	77-47-4	ND		ND		--	46	0	0	10 - 12	ND	40	50	0.041	4	4	N	Not detected.
Groundwater	T	SVOC	Hexachloroethane	67-72-1	ND		ND		--	46	0	0	5 - 5.8	ND	7	NC	0.33	0.1	0.1	N	Not detected.
Groundwater	T	SVOC	Indeno (1,2,3-cd)pyrene	193-39-5	ND		ND		--	46	0	0	5 - 5.8	ND	0.2	NC	0.034	0.0012	0.0013	N	Not detected.
Groundwater	T	SVOC	Isophorone	78-59-1	ND		ND		--	46	0	0	5 - 5.8	ND	40	NC	78	34	1800	N	Not detected.
Groundwater	T	SVOC	Naphthalene	91-20-3	3.2	J	68		MW-13	46	4	9	5 - 5.8	68	300	NC	0.17	NC	NC	Y	Equal to or above screening level.
Groundwater	T	SVOC	Nitrobenzene	98-95-3	ND		ND		--	46	0	0	5 - 5.8	ND	6	NC	0.14	10	600	N	Not detected.
Groundwater	T	SVOC	N-Nitrosodi-n-propylamine	621-64-7	ND		ND		--	46	0	0	5 - 5.8	ND	10	NC	0.011	0.005	0.51	N	Not detected.
Groundwater	T	SVOC	N-Nitrosodiphenylamine	86-30-6	2.5	J	2.5	J	MW-25	46	2	4	5 - 5.8	2.5	10	NC	12	3.3	6	N	Below screening level.
Groundwater	T	SVOC	Pentachlorophenol	87-86-5	ND		ND		--	46	0	0	10 - 12	ND	0.3	1	0.041	0.03	0.04	N	Not detected.
Groundwater	T	SVOC	Phenanthrene	85-01-8	ND		ND		--	46	0	0	5 - 5.8	ND	NC	NC	NC	NC	NC	N	Not detected.
Groundwater	T	SVOC	Phenol	108-95-2	ND		ND		--	46	0	0	10 - 12	ND	2000	NC	580	4000	300000	N	Not detected.
Groundwater	T	SVOC	Pyrene	129-00-0	ND		ND		--	46	0	0	5 - 5.8	ND	200	NC	12	20	30	N	Not detected.
Groundwater	T	PEST	Dibenzofuran	132-64-9	ND		ND		--	46	0	0	5 - 5.8	ND	NC	NC	0.79	NC	NC	N	Not detected.

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SITE-WIDE GROUNDWATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	T or D	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (ug/L)	Qual	Maximum Detected Concentration (ug/L)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (ug/L)	Concentration used for Screening (ug/L) (1)	NJDEP GWQS (ug/L) (2)	Federal MCL (ug/L) (3)	USEPA RSL Resident Tapwater (ug/L) (4)	USEPA WQC Water & Organism (ug/L)	USEPA WQC Organism Only (ug/L)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Groundwater	T	PCB	PCB-1016 (Aroclor 1016)	12674-11-2	ND		ND		--	46	0	0	1 - 1.2	ND	0.5	NC	0.14	NC	NC	N	Not detected.
Groundwater	T	PCB	PCB-1221 (Aroclor 1221)	11104-28-2	ND		ND		--	46	0	0	1 - 1.2	ND	0.5	NC	0.0047	NC	NC	N	Not detected.
Groundwater	T	PCB	PCB-1232 (Aroclor 1232)	11141-16-5	ND		ND		--	46	0	0	1 - 1.2	ND	0.5	NC	0.0047	NC	NC	N	Not detected.
Groundwater	T	PCB	PCB-1242 (Aroclor 1242)	53469-21-9	0.13	J	0.34	J	MW-18	46	2	4	1 - 1.2	0.34	0.5	NC	0.0078	NC	NC	N	Detection frequency less than 5%.
Groundwater	T	PCB	PCB-1248 (Aroclor 1248)	12672-29-6	ND		ND		--	46	0	0	1 - 1.2	ND	0.5	NC	0.0078	NC	NC	N	Not detected.
Groundwater	T	PCB	PCB-1254 (Aroclor 1254)	11097-69-1	ND		ND		--	46	0	0	1 - 1.2	ND	0.5	NC	0.0078	NC	NC	N	Not detected.
Groundwater	T	PCB	PCB-1260 (Aroclor 1260)	11096-82-5	ND		ND		--	46	0	0	1 - 1.2	ND	0.5	NC	0.0078	NC	NC	N	Not detected.
Groundwater	T	PCB	PCB-1262 (Aroclor 1262)	37324-23-5	ND		ND		--	46	0	0	1 - 1.2	ND	0.5	NC	0.0078	NC	NC	N	Not detected.
Groundwater	T	PCB	PCB-1268 (Aroclor 1268)**	11100-14-4	ND		ND		--	46	0	0	1 - 1.2	ND	0.5	NC	0.0078	NC	NC	N	Not detected.
Groundwater	T	OTHER	Carbon disulfide	75-15-0	ND		ND		--	42	0	0	0.5 - 50	ND	700	NC	81	NC	NC	N	Not detected.
Groundwater	T	INORGANIC	Aluminum	7429-90-5	5.4	J	2270		MW-20	46	37	80	20 - 20	2270	200	NC	2000	NC	NC	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Antimony	7440-36-0	ND		ND		--	46	0	0	2 - 2	ND	6	6	0.78	5.6	640	N	Not detected.
Groundwater	T	INORGANIC	Arsenic	7440-38-2	0.1	J	7.7	J	MW-22	46	34	74	0.2 - 1	7.7	3	10	0.052	0.018	0.14	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Barium	7440-39-3	23.6		1180		MW-25	46	45	98	10 - 10	1180	6000	2000	380	1000	NC	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Beryllium	7440-41-7	0.081	J	0.72	J	MW-10	46	14	30	1 - 1	0.72	1	4	2.5	NC	NC	N	Below screening level.
Groundwater	T	INORGANIC	Cadmium	7440-43-9	0.042	J	0.7	J	L-01	46	24	52	1 - 1	0.7	4	5	0.92	NC	NC	N	Below screening level.
Groundwater	T	INORGANIC	Calcium	7440-70-2	2140		87300		MW-01	46	46	100	500 - 500	87300	NC	NC	NC	NC	NC	N	Essential nutrient.
Groundwater	T	INORGANIC	Chromium (Total)*	7440-47-3	0.13	J	2.7		MW-20	46	37	80	2 - 2	2.7	70	100	0.035	NC	NC	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Cobalt	7440-48-4	0.26	J	30.6		MW-23	46	37	80	1 - 1	30.6	100	NC	0.6	NC	NC	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Copper	7440-50-8	0.11	J	1.9	J	MW-20	46	9	20	2 - 2	1.9	1300	1300	80	1300	NC	N	Below screening level.
Groundwater	T	INORGANIC	Cyanide	57-12-5	3.9	J	102		MW-20	45	3	7	10 - 10	102	100	200	0.15	4	400	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Iron	7439-89-6	43.6	J	53800		MW-23	46	36	78	200 - 200	53800	300	NC	1400	NC	NC	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Lead	7439-92-1	0.047	J	0.5	J	MW-27	46	10	22	1 - 1	0.5	5	15	15	NC	NC	N	Below screening level.
Groundwater	T	INORGANIC	Magnesium	7439-95-4	965		49800		MW-01	46	46	100	500 - 500	49800	NC	NC	NC	NC	NC	N	Essential nutrient.
Groundwater	T	INORGANIC	Manganese	7439-96-5	22.5		14300		MW-23	46	46	100	1 - 1	14300	50	NC	43	50	100	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Mercury	7439-97-6	0.055	J	0.39	J	MW-03	46	8	17	0.2 - 0.2	0.39	2	2	0.063	NC	NC	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Nickel	7440-02-0	0.27	J	10.4		MW-18	46	43	93	1 - 1	10.4	100	NC	39	610	4600	N	Below screening level.
Groundwater	T	INORGANIC	Potassium	7440-09-7	1430		16700		L-01	46	46	100	500 - 500	16700	NC	NC	NC	NC	NC	N	Essential nutrient.
Groundwater	T	INORGANIC	Selenium	7782-49-2	0.59	J	4.6	J	MW-01	46	14	30	5 - 5	4.6	40	50	10	170	4200	N	Below screening level.
Groundwater	T	INORGANIC	Silver	7440-22-4	0.086	J	0.086	J	MW-22	45	1	2	1 - 1	0.086	40	NC	9.4	NC	NC	N	Below screening level.
Groundwater	T	INORGANIC	Sodium	7440-23-5	1340		49300		L-01	46	45	98	500 - 500	49300	50000	NC	NC	NC	NC	N	Below screening level.
Groundwater	T	INORGANIC	Thallium	7440-28-0	0.074	J	1.2		L-01	46	6	13	0.24 - 1	1.2	2	2	0.02	0.24	0.47	Y	Equal to or above screening level.
Groundwater	T	INORGANIC	Vanadium	7440-62-2	0.34	J	0.53	J	MW-24	46	5	11	5 - 5	0.53	NC	NC	8.6	NC	NC	N	Below screening level.
Groundwater	T	INORGANIC	Zinc	7440-66-6	1.1	J	220		MW-27	46	35	76	2 - 2	220	2000	NC	600	7400	26000	N	Below screening level.

Notes:
(1) The maximum detected concentrations for site-wide groundwater are used for the COPC screening. Groundwater data that do not meet the requirements in the USEPA memorandum titled Determining *Groundwater Exposure Point Concentrations, Supplemental Guidance* were not excluded from this screening, e.g., samples collected from piezometers (USEPA 2014).
(2) The NJDEP Groundwater Quality Standards incorporate NJ's Specific and Generic Interim standards.
(3) Federal Maximum Contaminant Levels (MCLs) taken from USEPA Regional Screening Level (RSL) tables.
(4) May 2016 USEPA RSLs at a target risk of 1E-06 and target hazard quotient of 0.1. Federal Maximum Contaminant Levels (MCLs) taken from USEPA Regional Screening Level (RSL) tables.
Only unfiltered (total) groundwater data is used for COPC screening.
Constituents that RAGS Part A identifies as essential nutrients (i.e., iron, magnesium, calcium, potassium and sodium) and that are present at low levels are not retained as COPCs.
Constituents that are detected in less than 5% of the samples are not retained as COPCs.
The COPC screening applies the minimum of the NJDEP GWQS, Federal MCL, USEPA Tapwater RSL and USEPA WQC.
* The total chromium concentration is screened against the RSL criteria for hexavalent chromium (Cr+6) since no RSLs are available for total chromium.
** The USEPA RSLs for PCB-1016 is applied for PCB-1221, 1232 and 1242 if it is more stringent; similarly, PCB-1254's RSL is applied for PCB-1248, 1260, 1262 and 1268 if is more stringent.

Abbreviations:
COPC -- Constituent of potential concern
GWQS -- NJDEP Groundwater Quality Standard
MCL -- Maximum Contaminant Level
NA -- Not applicable
NC -- No criteria
ND -- Not detected
NJDEP -- New Jersey Department of Environmental Protection
Qual -- Qualifier
PEST -- Pesticide
RSL -- USEPA Regional Screening Levels
SVOC -- Semi-volatile organic compound
T or D -- Total or dissolved
ug/L -- Micrograms per liter
USEPA -- United States Environmental Protection Agency
VOC -- Volatile organic compound
WQC -- Water quality criteria

Qualifiers:
J -- Estimated concentration

References:

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TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SEEP WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Seep Water
Exposure Medium: Seep Water

Exposure Point	T or D	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (ug/L)	Qual	Maximum Detected Concentration (ug/L)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (ug/L)	Concentration used for Screening (ug/L) (1)	NJDEP Human Health Freshwater (FW2) SWQS (ug/L)	NJDEP Human Health Saline Water SWQS (ug/L)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Seep Water	T	VOC	1,1,1-Trichloroethane	71-55-6	120		120		SW-03	8	1	13	0.5 - 25	120	120	2600	Y	Equal to or above screening level.
Seep Water	T	VOC	1,1,2,2-Tetrachloroethane	79-34-5	ND		ND		NA	8	0	0	0.5 - 2.5	ND	4.7	110	N	Not detected.
Seep Water	T	VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	1,1,2-Trichloroethane	79-00-5	ND		ND		NA	8	0	0	0.5 - 2.5	ND	13	350	N	Not detected.
Seep Water	T	VOC	1,1-Dichloroethane	75-34-3	10		10		SW-03	8	1	13	0.5 - 2.5	10	NC	NC	Y	No screening level.
Seep Water	T	VOC	1,1-Dichloroethene	75-35-4	14		14		SW-03	8	1	13	0.5 - 2.5	14	4.7	100	Y	Equal to or above screening level.
Seep Water	T	VOC	1,2,3-Trichlorobenzene	87-61-6	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	1,2,4-Trichlorobenzene	120-82-1	ND		ND		NA	8	0	0	0.5 - 2.5	ND	21	42	N	Not detected.
Seep Water	T	VOC	1,2-Dibromo-3-chloropropane	96-12-8	ND		ND		NA	8	0	0	0.05 - 0.05	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	1,2-Dibromoethane	106-93-4	ND		ND		NA	8	0	0	0.05 - 0.05	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	1,2-Dichlorobenzene	95-50-1	ND		ND		NA	8	0	0	0.5 - 2.5	ND	2000	6200	N	Not detected.
Seep Water	T	VOC	1,2-Dichloroethane	107-06-2	ND		ND		NA	8	0	0	0.5 - 2.5	ND	0.29	28	N	Not detected.
Seep Water	T	VOC	1,2-Dichloropropane	78-87-5	ND		ND		NA	8	0	0	0.5 - 2.5	ND	0.5	15	N	Not detected.
Seep Water	T	VOC	1,3-Dichlorobenzene	541-73-1	ND		ND		NA	8	0	0	0.5 - 2.5	ND	2200	8300	N	Not detected.
Seep Water	T	VOC	1,4-Dichlorobenzene	106-46-7	ND		ND		NA	8	0	0	0.5 - 2.5	ND	550	2200	N	Not detected.
Seep Water	T	VOC	1,4-Dioxane	123-91-1	ND		ND		NA	8	0	0	0.4 - 0.45	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	2-Hexanone	591-78-6	ND		ND		NA	8	0	0	5 - 25	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Acetone	67-64-1	ND		ND		NA	7	0	0	5 - 5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Benzene	71-43-2	ND		ND		NA	8	0	0	0.5 - 2.5	ND	0.15	3.3	N	Not detected.
Seep Water	T	VOC	Bromochloromethane	74-97-5	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Bromodichloromethane	75-27-4	ND		ND		NA	8	0	0	0.5 - 2.5	ND	0.55	17	N	Not detected.
Seep Water	T	VOC	Bromoform	75-25-2	ND		ND		NA	8	0	0	0.5 - 2.5	ND	4.3	140	N	Not detected.
Seep Water	T	VOC	Bromomethane	74-83-9	ND		ND		NA	8	0	0	0.5 - 2.5	ND	47	1500	N	Not detected.
Seep Water	T	VOC	Carbon tetrachloride	56-23-5	ND		ND		NA	8	0	0	0.1 - 0.1	ND	0.33	2.3	N	Not detected.
Seep Water	T	VOC	Chlorobenzene	108-90-7	ND		ND		NA	8	0	0	0.5 - 2.5	ND	210	2500	N	Not detected.
Seep Water	T	VOC	Chloroethane	75-00-3	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Chloroform	67-66-3	ND		ND		NA	8	0	0	0.5 - 2.5	ND	68	2100	N	Not detected.
Seep Water	T	VOC	Chloromethane	74-87-3	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	cis-1,2-Dichloroethylene	156-59-2	1	J	80		D1	13	6	46	0.5 - 21	80	NC	NC	Y	No screening level.
Seep Water	T	VOC	cis-1,3-Dichloropeopene	10061-01-5	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Cyclohexane	110-82-7	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Dibromochloromethane	124-48-1	ND		ND		NA	8	0	0	0.5 - 2.5	ND	0.4	13	N	Not detected.
Seep Water	T	VOC	Dichlorodifluoromethane	75-71-8	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Ethylbenzene	100-41-4	ND		ND		NA	8	0	0	0.5 - 2.5	ND	530	2100	N	Not detected.
Seep Water	T	VOC	Isopropylbenzene (Cumene)	98-82-8	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	m,p-Xylene	179601-23-1	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Methyl acetate	79-20-9	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Methyl Ethyl Ketone (2-butanone)	78-93-3	ND		ND		NA	8	0	0	5 - 25	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Methyl Isobutyl Ketone	108-10-1	ND		ND		NA	8	0	0	5 - 25	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Methyl tert-butyl ether	1634-04-4	ND		ND		NA	8	0	0	0.5 - 2.5	ND	70	NC	N	Not detected.
Seep Water	T	VOC	Methylcyclohexane	108-87-2	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Methylene chloride	75-09-2	ND		ND		NA	8	0	0	0.5 - 2.5	ND	2.5	310	N	Not detected.
Seep Water	T	VOC	o-Xylene	95-47-6	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Styrene	100-42-5	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Tetrachloroethylene	127-18-4	0.3	J	1700		D2	19	14	74	0.5 - 83	1700	0.34	1.6	Y	Equal to or above screening level.
Seep Water	T	VOC	Toluene	108-88-3	ND		ND		NA	8	0	0	0.5 - 2.5	ND	1300	15000	N	Not detected.
Seep Water	T	VOC	trans-1,2-Dichloroethylene	156-60-5	ND		ND		NA	8	0	0	0.5 - 2.5	ND	590	43000	N	Not detected.
Seep Water	T	VOC	trans-1,3-Dichloropropene	10061-02-6	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Trichloroethylene	79-01-6	0.34	J	150		D2	17	11	65	0.5 - 83	150	1	12	Y	Equal to or above screening level.
Seep Water	T	VOC	Trichlorofluoromethane	75-69-4	ND		ND		NA	8	0	0	0.5 - 2.5	ND	NC	NC	N	Not detected.
Seep Water	T	VOC	Vinyl chloride	75-01-4	0.013	J	0.094		SW-04	8	2	25	0.05 - 0.05	0.094	0.082	8.1	Y	Equal to or above screening level.
Seep Water	T	SVOC	1,2,4,5-Tetrachlorobenzene	95-94-3	ND		ND		NA	8	0	0	5.1 - 7	ND	0.97	1.1	N	Not detected.
Seep Water	T	SVOC	2,3,4,6-Tetrachlorophenol	58-90-2	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	2,4,5-Trichlorophenol	95-95-4	ND		ND		NA	8	0	0	5.1 - 7	ND	1800	3600	N	Not detected.
Seep Water	T	SVOC	2,4,6-Trichlorophenol	88-06-2	ND		ND		NA	8	0	0	5.1 - 7	ND	0.58	1	N	Not detected.
Seep Water	T	SVOC	2,4-Dichlorophenol	120-83-2	ND		ND		NA	8	0	0	5.1 - 7	ND	77	290	N	Not detected.
Seep Water	T	SVOC	2,4-Dimethylphenol	105-67-9	ND		ND		NA	8	0	0	5.1 - 7	ND	380	850	N	Not detected.
Seep Water	T	SVOC	2,4-Dinitrophenol	51-28-5	ND		ND		NA	8	0	0	10 - 14	ND	69	5300	N	Not detected.
Seep Water	T	SVOC	2,4-Dinitrotoluene	121-14-2	ND		ND		NA	8	0	0	5.1 - 7	ND	0.11	3.4	N	Not detected.
Seep Water	T	SVOC	2,6-Dinitrotoluene	606-20-2	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	2-Chloronaphthalene	91-58-7	ND		ND		NA	8	0	0	5.1 - 7	ND	1000	1600	N	Not detected.
Seep Water	T	SVOC	2-Chlorophenol	95-57-8	ND		ND		NA	8	0	0	5.1 - 7	ND	81	150	N	Not detected.
Seep Water	T	SVOC	2-Methylnaphthalene	91-57-6	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	2-Methylphenol	95-48-7	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	2-Nitroaniline	88-74-4	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SEEP WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Seep Water
Exposure Medium: Seep Water

Exposure Point	T or D	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (ug/L)	Qual	Maximum Detected Concentration (ug/L)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (ug/L)	Concentration used for Screening (ug/L) (1)	NJDEP Human Health Freshwater (FW2) SWQS (ug/L)	NJDEP Human Health Saline Water SWQS (ug/L)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Seep Water	T	SVOC	2-Nitrophenol	88-75-5	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	3,3-Dichlorobenzidine	91-94-1	ND		ND		NA	8	0	0	10 - 14	ND	0.021	0.028	N	Not detected.
Seep Water	T	SVOC	3-Nitroaniline	99-09-2	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	4,6-Dinitro-2-methylphenol	534-52-1	ND		ND		NA	8	0	0	10 - 14	ND	13	280	N	Not detected.
Seep Water	T	SVOC	4-Bromophenyl-phenylether	101-55-3	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	4-Chloro-3-methylphenol	59-50-7	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	4-Chloroaniline	106-47-8	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	4-Chlorophenyl-phenylether	7005-72-3	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	4-Methylphenol (p-Cresol)	106-44-5	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	4-Nitroaniline	100-01-6	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	4-Nitrophenol	100-02-7	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Acenaphthene	83-32-9	ND		ND		NA	8	0	0	5.1 - 7	ND	670	990	N	Not detected.
Seep Water	T	SVOC	Acenaphthylene	208-96-8	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Acetophenone	98-86-2	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Anthracene	120-12-7	ND		ND		NA	8	0	0	5.1 - 7	ND	8300	40000	N	Not detected.
Seep Water	T	SVOC	Atrazine	1912-24-9	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Benzaldehyde	100-52-7	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Benzo(a)anthracene	56-55-3	ND		ND		NA	8	0	0	5.1 - 7	ND	0.038	0.18	N	Not detected.
Seep Water	T	SVOC	Benzo(a)pyrene	50-32-8	ND		ND		NA	8	0	0	5.1 - 7	ND	0.0038	0.018	N	Not detected.
Seep Water	T	SVOC	Benzo(b)fluoranthene	205-99-2	ND		ND		NA	8	0	0	5.1 - 7	ND	0.038	0.18	N	Not detected.
Seep Water	T	SVOC	Benzo(g,h,i)perylene	191-24-2	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Benzo(k)fluoranthene	207-08-9	ND		ND		NA	8	0	0	5.1 - 7	ND	0.38	1.8	N	Not detected.
Seep Water	T	SVOC	Benzyl Butyl Phthalate	85-68-7	ND		ND		NA	8	0	0	5.1 - 7	ND	150	190	N	Not detected.
Seep Water	T	SVOC	Biphenyl (diphenyl)	92-52-4	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Bis(2-chloroethoxy) Methane	111-91-1	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Bis(2-chloroethyl)ether	111-44-4	ND		ND		NA	8	0	0	10 - 14	ND	0.03	0.53	N	Not detected.
Seep Water	T	SVOC	Bis(2-chloroisopropyl)ether	108-60-1	ND		ND		NA	8	0	0	10 - 14	ND	1400	65000	N	Not detected.
Seep Water	T	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	ND		ND		NA	8	0	0	5.1 - 7	ND	1.2	2.2	N	Not detected.
Seep Water	T	SVOC	Caprolactam	105-60-2	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Carbazole	86-74-8	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Chrysene	218-01-9	ND		ND		NA	8	0	0	5.1 - 7	ND	3.8	18	N	Not detected.
Seep Water	T	SVOC	Dibenz(a,h)anthracene	53-70-3	ND		ND		NA	8	0	0	5.1 - 7	ND	0.0038	0.018	N	Not detected.
Seep Water	T	SVOC	Diethyl phthalate	84-66-2	ND		ND		NA	8	0	0	5.1 - 7	ND	17000	44000	N	Not detected.
Seep Water	T	SVOC	Dimethylphthalate	131-11-3	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Di-n-butyl phthalate	84-74-2	ND		ND		NA	8	0	0	5.1 - 7	ND	2000	4500	N	Not detected.
Seep Water	T	SVOC	Di-n-octylphthalate	117-84-0	ND		ND		NA	8	0	0	10 - 14	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Fluoranthene	206-44-0	ND		ND		NA	8	0	0	10 - 14	ND	130	140	N	Not detected.
Seep Water	T	SVOC	Fluorene	86-73-7	ND		ND		NA	8	0	0	5.1 - 7	ND	1100	5300	N	Not detected.
Seep Water	T	SVOC	Hexachlorobenzene	118-74-1	ND		ND		NA	8	0	0	5.1 - 7	ND	0.00028	0.00029	N	Not detected.
Seep Water	T	SVOC	Hexachlorobutadiene	87-68-3	ND		ND		NA	8	0	0	5.1 - 7	ND	0.44	18	N	Not detected.
Seep Water	T	SVOC	Hexachlorocyclopentadiene	77-47-4	ND		ND		NA	8	0	0	10 - 14	ND	40	1100	N	Not detected.
Seep Water	T	SVOC	Hexachloroethane	67-72-1	ND		ND		NA	8	0	0	5.1 - 7	ND	1.4	3.3	N	Not detected.
Seep Water	T	SVOC	Indeno (1,2,3-cd)pyrene	193-39-5	ND		ND		NA	8	0	0	5.1 - 7	ND	0.038	0.18	N	Not detected.
Seep Water	T	SVOC	Isophorone	78-59-1	ND		ND		NA	8	0	0	5.1 - 7	ND	35	960	N	Not detected.
Seep Water	T	SVOC	Naphthalene	91-20-3	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Nitrobenzene	98-95-3	ND		ND		NA	8	0	0	5.1 - 7	ND	17	690	N	Not detected.
Seep Water	T	SVOC	N-Nitrosodi-n-propylamine	621-64-7	ND		ND		NA	8	0	0	5.1 - 7	ND	0.005	0.51	N	Not detected.
Seep Water	T	SVOC	N-Nitrosodiphenylamine	86-30-6	ND		ND		NA	8	0	0	5.1 - 7	ND	3.3	6	N	Not detected.
Seep Water	T	SVOC	Pentachlorophenol	87-86-5	ND		ND		NA	8	0	0	10 - 14	ND	0.27	3	N	Not detected.
Seep Water	T	SVOC	Phenanthrene	85-01-8	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	SVOC	Phenol	108-95-2	ND		ND		NA	8	0	0	10 - 14	ND	10000	860000	N	Not detected.
Seep Water	T	SVOC	Pyrene	129-00-0	ND		ND		NA	8	0	0	5.1 - 7	ND	830	4000	N	Not detected.
Seep Water	T	PEST	Dibenzofuran	132-64-9	ND		ND		NA	8	0	0	5.1 - 7	ND	NC	NC	N	Not detected.
Seep Water	T	PCB	PCB-1016 (Aroclor 1016)	12674-11-2	ND		ND		NA	8	0	0	1 - 1.1	ND	NC	NC	N	Not detected.
Seep Water	T	PCB	PCB-1221 (Aroclor 1221)	11104-28-2	ND		ND		NA	8	0	0	1 - 1.1	ND	NC	NC	N	Not detected.
Seep Water	T	PCB	PCB-1232 (Aroclor 1232)	11141-16-5	ND		ND		NA	8	0	0	1 - 1.1	ND	NC	NC	N	Not detected.
Seep Water	T	PCB	PCB-1242 (Aroclor 1242)	53469-21-9	ND		ND		NA	8	0	0	1 - 1.1	ND	NC	NC	N	Not detected.
Seep Water	T	PCB	PCB-1248 (Aroclor 1248)	12672-29-6	ND		ND		NA	8	0	0	1 - 1.1	ND	NC	NC	N	Not detected.
Seep Water	T	PCB	PCB-1254 (Aroclor 1254)	11097-69-1	ND		ND		NA	8	0	0	1 - 1.1	ND	NC	NC	N	Not detected.
Seep Water	T	PCB	PCB-1260 (Aroclor 1260)	11096-82-5	ND		ND		NA	8	0	0	1 - 1.1	ND	NC	NC	N	Not detected.
Seep Water	T	PCB	PCB-1262 (Aroclor 1262)	37324-23-5	ND		ND		NA	8	0	0	1 - 1.1	ND	NC	NC	N	Not detected.
Seep Water	T	PCB	PCB-1268 (Aroclor 1268)	11100-14-4	ND		ND		NA	8	0	0	1 - 1.1	ND	NC	NC	N	Not detected.
Seep Water	T	OTHER	Carbon disulfide	75-15-0	0.28	J	0.28	J	SW-04	8	1	13	0.5 - 2.5	0.28	NC	NC	Y	No screening level.

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SEEP WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Seep Water
Exposure Medium: Seep Water

Exposure Point	T or D	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (ug/L)	Qual	Maximum Detected Concentration (ug/L)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (ug/L)	Concentration used for Screening (ug/L) (1)	NJDEP Human Health Freshwater (FW2) SWQS (ug/L)	NJDEP Human Health Saline Water SWQS (ug/L)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Seep Water	T	INORGANIC	Aluminum	7429-90-5	437		32600		SW-04	8	8	100	20 - 20	32600	NC	NC	Y	No screening level.
Seep Water	T	INORGANIC	Antimony	7440-36-0	2.2	J	2.2	J	SW-04	8	1	13	2 - 2	2.2	5.6	640	N	Below screening level.
Seep Water	T	INORGANIC	Arsenic	7440-38-2	0.79	J	35.8		SW-04	8	8	100	0.2 - 0.2	35.8	0.017	0.061	Y	Equal to or above screening level.
Seep Water	T	INORGANIC	Barium	7440-39-3	28.2		533	J	SW-04	8	8	100	10 - 10	533	2000	NC	N	Below screening level.
Seep Water	T	INORGANIC	Beryllium	7440-41-7	0.11	J	11.6		SW-04	8	7	88	1 - 1	11.6	6	42	Y	Equal to or above screening level.
Seep Water	T	INORGANIC	Cadmium	7440-43-9	0.065	J	10.2		SW-04	8	8	100	1 - 1	10.2	3.4	16	Y	Equal to or above screening level.
Seep Water	T	INORGANIC	Calcium	7440-70-2	599		18300		SW-04	8	8	100	500 - 500	18300	NC	NC	N	Essential nutrient.
Seep Water	T	INORGANIC	Chromium (Total)	7440-47-3	0.85	J	40.3		SW-04	8	7	88	2 - 2	40.3	92	750	N	Below screening level.
Seep Water	T	INORGANIC	Cobalt	7440-48-4	0.75	J	91.2		SW-04	8	8	100	1 - 1	91.2	NC	NC	Y	No screening level.
Seep Water	T	INORGANIC	Copper	7440-50-8	1.5	J	88.5		SW-04	8	7	88	2 - 2	88.5	1300	NC	N	Below screening level.
Seep Water	T	INORGANIC	Cyanide	57-12-5	10.8		10.8		SW-03	8	2	25	10 - 10	10.8	140	140	N	Below screening level.
Seep Water	T	INORGANIC	Iron	7439-89-6	362		19500		SW-04	8	8	100	200 - 200	19500	NC	NC	N	Essential nutrient.
Seep Water	T	INORGANIC	Lead	7439-92-1	1.7		471	J	SW-04	8	8	100	1 - 1	471	5	NC	Y	Equal to or above screening level.
Seep Water	T	INORGANIC	Magnesium	7439-95-4	1280		6420		SW-05	8	8	100	500 - 500	6420	NC	NC	N	Essential nutrient.
Seep Water	T	INORGANIC	Manganese	7439-96-5	34.7		7470		SW-04	8	8	100	1 - 1	7470	NC	100	Y	Equal to or above screening level.
Seep Water	T	INORGANIC	Mercury	7439-97-6	0.07	J	1.2		SW-04	8	3	38	0.2 - 0.2	1.2	0.05	0.051	Y	Equal to or above screening level.
Seep Water	T	INORGANIC	Nickel	7440-02-0	1.1		87.7		SW-04	8	8	100	1 - 1	87.7	500	1700	N	Below screening level.
Seep Water	T	INORGANIC	Potassium	7440-09-7	1380		2960		SW-04	8	8	100	500 - 500	2960	NC	NC	N	Essential nutrient.
Seep Water	T	INORGANIC	Selenium	7782-49-2	0.48	J	28		SW-04	8	5	63	5 - 5	28	170	4200	N	Below screening level.
Seep Water	T	INORGANIC	Silver	7440-22-4	0.014	J	0.84	J	SW-04	8	4	50	1 - 1	0.84	170	40000	N	Below screening level.
Seep Water	T	INORGANIC	Sodium	7440-23-5	1290		24200		SW-08	8	8	100	500 - 500	24200	NC	NC	N	Essential nutrient.
Seep Water	T	INORGANIC	Thallium	7440-28-0	0.71	J	0.71	J	SW-04	8	1	13	0.24 - 0.24	0.71	0.24	0.47	Y	Equal to or above screening level.
Seep Water	T	INORGANIC	Vanadium	7440-62-2	0.84	J	106		SW-04	8	8	100	5 - 5	106	NC	NC	Y	No screening level.
Seep Water	T	INORGANIC	Zinc	7440-66-6	8.6		284		SW-04	8	8	100	2 - 2	284	7400	26000	N	Below screening level.

Notes:
(1) The maximum detected concentrations are used for the COPC screening.
Only unfiltered (total) seep water data are used for COPC screening.
Constituents that RAGS Part A identifies as essential nutrients (i.e., iron, magnesium, calcium, potassium and sodium) and that are present at low levels are not retained as COPCs.
Constituents that are detected in less than 5% of the samples are not retained as COPCs.
The COPC screening applies the minimum of the NJDEP SWQS.

Abbreviations:
COPC -- Constituent of potential concern
NA -- Not applicable
NC -- No criteria
ND -- Not detected
NJDEP -- New Jersey Department of Environmental Protection
PEST -- Pesticide
Qual -- Qualifier
RSL -- USEPA Regional Screening Levels
SVOC -- Semi-volatile organic compound
SWQS -- NJDEP Surface water quality standard
T or D -- Total or dissolved
ug/L -- Micrograms per liter
USEPA -- United States Environmental Protection Agency
VOC -- Volatile organic compound
WQC -- Water quality criteria

Qualifier:
J -- Estimated concentration

References:
NJDEP. 2011. Surface Water Quality Standards. N.J.A.C. 7:9B. April 4. Available online: http://www.nj.gov/dep/rules/rules/njac7_9b.pdf

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SURFACE WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

HDR

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	T or D	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (ug/L)	Qual	Maximum Detected Concentration (ug/L)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (ug/L)	Concentration used for Screening (ug/L) (1)	USEPA RSL Resident Tapwater (ug/L) (2)	USEPA WQC Organism Only (ug/L)	NJDEP Human Health Freshwater (FW2) SWQS (ug/L)	NJDEP Human Health Saline Water SWQS (ug/L)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Water	T	VOC	1,1,1-Trichloroethane	71-55-6	0.5		4.1		SW-10	8	3	38	0.5 - 0.5	4.1	800	200000	120	2600	N	Below screening level.
Surface Water	T	VOC	1,1,2,2-Tetrachloroethane	79-34-5	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.076	3	4.7	110	N	Not detected.
Surface Water	T	VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND		ND		NA	8	0	0	0.5 - 0.5	ND	5500	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	1,1,2-Trichloroethane	79-00-5	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.041	8.9	13	350	N	Not detected.
Surface Water	T	VOC	1,1-Dichloroethane	75-34-3	0.19	J	0.69		SW-10	8	4	50	0.5 - 0.5	0.69	2.8	NC	NC	NC	N	Below screening level.
Surface Water	T	VOC	1,1-Dichloroethene	75-35-4	0.46	J	0.49	J	SW-10	8	2	25	0.5 - 0.5	0.49	28	20000	4.7	100	N	Below screening level.
Surface Water	T	VOC	1,2,3-Trichlorobenzene	87-61-6	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.7	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	1,2,4-Trichlorobenzene	120-82-1	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.4	0.076	21	42	N	Not detected.
Surface Water	T	VOC	1,2-Dibromo-3-chloropropane	96-12-8	ND		ND		NA	8	0	0	0.05 - 0.05	ND	0.00033	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	1,2-Dibromoethane	106-93-4	ND		ND		NA	8	0	0	0.05 - 0.05	ND	0.0075	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	1,2-Dichlorobenzene	95-50-1	0.35	J	0.35	J	SW-13	8	1	13	0.5 - 0.5	0.35	30	3000	2000	6200	N	Below screening level.
Surface Water	T	VOC	1,2-Dichloroethane	107-06-2	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.17	650	0.29	28	N	Not detected.
Surface Water	T	VOC	1,2-Dichloropropane	78-87-5	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.44	31	0.5	15	N	Not detected.
Surface Water	T	VOC	1,3-Dichlorobenzene	541-73-1	1.1		1.1		SW-13	8	1	13	0.5 - 0.5	1.1	NC	10	2200	8300	N	Below screening level.
Surface Water	T	VOC	1,4-Dichlorobenzene	106-46-7	1.5		1.5		SW-13	8	1	13	0.5 - 0.5	1.5	0.48	900	550	2200	Y	Equal to or above screening level.
Surface Water	T	VOC	1,4-Dioxane	123-91-1	0.18	J	0.18	J	SW-13	8	1	13	0.42 - 0.45	0.18	0.46	NC	NC	NC	N	Below screening level.
Surface Water	T	VOC	2-Hexanone	591-78-6	ND		ND		NA	8	0	0	5 - 5	ND	3.8	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Acetone	67-64-1	ND		ND		NA	5	0	0	5 - 5	ND	1400	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Benzene	71-43-2	1.8		1.8		SW-13	8	1	13	0.5 - 0.5	1.8	0.46	16	0.15	3.3	Y	Equal to or above screening level.
Surface Water	T	VOC	Bromochloromethane	74-97-5	ND		ND		NA	8	0	0	0.5 - 0.5	ND	8.3	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Bromodichloromethane	75-27-4	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.13	27	0.55	17	N	Not detected.
Surface Water	T	VOC	Bromoform	75-25-2	ND		ND		NA	8	0	0	0.5 - 0.5	ND	3.3	120	4.3	140	N	Not detected.
Surface Water	T	VOC	Bromomethane	74-83-9	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.75	10000	47	1500	N	Not detected.
Surface Water	T	VOC	Carbon tetrachloride	56-23-5	ND		ND		NA	8	0	0	0.1 - 0.1	ND	0.46	5	0.33	2.3	N	Not detected.
Surface Water	T	VOC	Chlorobenzene	108-90-7	0.26	J	4.7		SW-13	8	2	25	0.5 - 0.5	4.7	7.8	800	210	2500	N	Below screening level.
Surface Water	T	VOC	Chloroethane	75-00-3	0.46	J	0.46	J	SW-13	8	1	13	0.5 - 0.5	0.46	2100	NC	NC	NC	N	Below screening level.
Surface Water	T	VOC	Chloroform	67-66-3	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.22	2000	68	2100	N	Not detected.
Surface Water	T	VOC	Chloromethane	74-87-3	ND		ND		NA	8	0	0	0.5 - 0.5	ND	19	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	cis-1,2-Dichloroethylene	156-59-2	0.11	J	61		D3	16	12	75	0.5 - 25	61	3.6	NC	NC	NC	Y	Equal to or above screening level.
Surface Water	T	VOC	cis-1,3-Dichloropeopene	10061-01-5	ND		ND		NA	8	0	0	0.5 - 0.5	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Cyclohexane	110-82-7	ND		ND		NA	8	0	0	0.5 - 0.5	ND	1300	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Dibromochloromethane	124-48-1	ND		ND		NA	8	0	0	0.5 - 0.5	ND	0.87	21	0.4	13	N	Not detected.
Surface Water	T	VOC	Dichlorodifluoromethane	75-71-8	ND		ND		NA	8	0	0	0.5 - 0.5	ND	20	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Ethylbenzene	100-41-4	0.91		0.91		SW-13	8	1	13	0.5 - 0.5	0.91	1.5	130	530	2100	N	Below screening level.
Surface Water	T	VOC	Isopropylbenzene (Cumene)	98-82-8	0.97		0.97		SW-13	8	1	13	0.5 - 0.5	0.97	45	NC	NC	NC	N	Below screening level.
Surface Water	T	VOC	m,p-Xylene	179601-23-1	ND		ND		NA	8	0	0	0.5 - 0.5	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Methyl acetate	79-20-9	ND		ND		NA	8	0	0	0.5 - 0.5	ND	2000	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Methyl Ethyl Ketone (2-butanone)	78-93-3	ND		ND		NA	8	0	0	5 - 5	ND	560	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Methyl Isobutyl Ketone	108-10-1	ND		ND		NA	8	0	0	5 - 5	ND	630	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Methyl tert-butyl ether	1634-04-4	ND		ND		NA	8	0	0	0.5 - 0.5	ND	14	NC	70	NC	N	Not detected.
Surface Water	T	VOC	Methylcyclohexane	108-87-2	ND		ND		NA	8	0	0	0.5 - 0.5	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Methylene chloride	75-09-2	ND		ND		NA	8	0	0	0.5 - 0.5	ND	11	1000	2.5	310	N	Not detected.
Surface Water	T	VOC	o-Xylene	95-47-6	ND		ND		NA	8	0	0	0.5 - 0.5	ND	19	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Styrene	100-42-5	ND		ND		NA	8	0	0	0.5 - 0.5	ND	120	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Tetrachloroethylene	127-18-4	0.69		490		D3	16	10	63	0.5 - 25	490	4.1	29	0.34	1.6	Y	Equal to or above screening level.
Surface Water	T	VOC	Toluene	108-88-3	ND		ND		NA	8	0	0	0.5 - 0.5	ND	110	520	1300	15000	N	Not detected.
Surface Water	T	VOC	trans-1,2-Dichloroethylene	156-60-5	ND		ND		NA	8	0	0	0.5 - 0.5	ND	36	4000	590	43000	N	Not detected.
Surface Water	T	VOC	trans-1,3-Dichloropropene	10061-02-6	ND		ND		NA	8	0	0	0.5 - 0.5	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Trichloroethylene	79-01-6	0.15	J	62		D3	12	6	50	0.5 - 25	62	0.28	7	1	12	Y	Equal to or above screening level.
Surface Water	T	VOC	Trichlorofluoromethane	75-69-4	ND		ND		NA	8	0	0	0.5 - 0.5	ND	520	NC	NC	NC	N	Not detected.
Surface Water	T	VOC	Vinyl chloride	75-01-4	0.014	J	0.33		SW-13	8	7	88	0.05 - 0.05	0.33	0.019	1.6	0.082	8.1	Y	Equal to or above screening level.
Surface Water	T	SVOC	1,2,4,5-Tetrachlorobenzene	95-94-3	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.17	0.03	0.97	1.1	N	Not detected.
Surface Water	T	SVOC	2,3,4,6-Tetrachlorophenol	58-90-2	ND		ND		NA	8	0	0	5.1 - 5.7	ND	24	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	2,4,5-Trichlorophenol	95-95-4	ND		ND		NA	8	0	0	5.1 - 5.7	ND	120	600	1800	3600	N	Not detected.
Surface Water	T	SVOC	2,4,6-Trichlorophenol	88-06-2	ND		ND		NA	8	0	0	5.1 - 5.7	ND	1.2	2.8	0.58	1	N	Not detected.
Surface Water	T	SVOC	2,4-Dichlorophenol	120-83-2	ND		ND		NA	8	0	0	5.1 - 5.7	ND	4.6	60	77	290	N	Not detected.
Surface Water	T	SVOC	2,4-Dimethylphenol	105-67-9	ND		ND		NA	8	0	0	5.1 - 5.7	ND	36	3000	380	850	N	Not detected.
Surface Water	T	SVOC	2,4-Dinitrophenol	51-28-5	ND		ND		NA	8	0	0	10 - 11	ND	3.9	300	69	5300	N	Not detected.
Surface Water	T	SVOC	2,4-Dinitrotoluene	121-14-2	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.24	1.7	0.11	3.4	N	Not detected.
Surface Water	T	SVOC	2,6-Dinitrotoluene	606-20-2	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.049	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	2-Chloronaphthalene	91-58-7	ND		ND		NA	8	0	0	5.1 - 5.7	ND	75	1000	1000	1600	N	Not detected.
Surface Water	T	SVOC	2-Chlorophenol	95-57-8	ND		ND		NA	8	0	0	5.1 - 5.7	ND	9.1	800	81	150	N	Not detected.
Surface Water	T	SVOC	2-Methylnaphthalene	91-57-6	ND		ND		NA	8	0	0	5.1 - 5.7	ND	3.6	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	2-Methylphenol	95-48-7	ND		ND		NA	8	0	0	10 - 11	ND	93	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	2-Nitroaniline	88-74-4	ND		ND		NA	8	0	0	5.1 - 5.7	ND	19	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	2-Nitrophenol	88-75-5	ND		ND		NA	8	0	0	5.1 - 5.7	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	3,3-Dichlorobenzidine	91-94-1	ND		ND		NA	8	0	0	10 - 11	ND	0.13	0.15	0.021	0.028	N	Not detected.
Surface Water	T	SVOC	3-Nitroaniline	99-09-2	ND		ND		NA	8	0	0	10 - 11	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	4,6-Dinitro-2-methylphenol	534-52-1	ND		ND		NA	8	0	0	10 - 11	ND	0.15	30	13	280	N	Not detected.
Surface Water	T	SVOC	4-Bromophenyl-phenylether	101-55-3	ND		ND		NA	8	0	0	5.1 - 5.7	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	4-Chloro-3-methylphenol	59-50-7	ND		ND		NA	8	0	0	5.1 - 5.7	ND	140	2000	NC	NC	N	Not detected.
Surface Water	T	SVOC	4-Chloroaniline	106-47-8	27		27		SW-13	8	1	13	10 - 11	27	0.37	NC	NC	NC	Y	Equal to or above screening level.
Surface Water	T	SVOC	4-Chlorophenyl-phenylether	7005-72-3	ND		ND		NA	8	0	0	5.1 - 5.7	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	4-Methylphenol (p-Cresol)	106-44-5	ND		ND		NA	8	0	0	10 - 11	ND	190	NC	NC	NC	N	Not detected.

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SURFACE WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	T or D	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (ug/L)	Qual	Maximum Detected Concentration (ug/L)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (ug/L)	Concentration used for Screening (ug/L) (1)	USEPA RSL Resident Tapwater (ug/L) (2)	USEPA WQC Organism Only (ug/L)	NJDEP Human Health Freshwater (FW2) SWQS (ug/L)	NJDEP Human Health Saline Water SWQS (ug/L)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Water	T	SVOC	4-Nitroaniline	100-01-6	ND		ND		NA	8	0	0	10 - 11	ND	3.8	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	4-Nitrophenol	100-02-7	ND		ND		NA	8	0	0	10 - 11	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Acenaphthene	83-32-9	ND		ND		NA	8	0	0	5.1 - 5.7	ND	53	90	670	990	N	Not detected.
Surface Water	T	SVOC	Acenaphthylene	208-96-8	ND		ND		NA	8	0	0	5.1 - 5.7	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Acetophenone	98-86-2	ND		ND		NA	8	0	0	10 - 11	ND	190	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Anthracene	120-12-7	ND		ND		NA	8	0	0	5.1 - 5.7	ND	180	400	8300	40000	N	Not detected.
Surface Water	T	SVOC	Atrazine	1912-24-9	ND		ND		NA	8	0	0	10 - 11	ND	0.3	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Benzaldehyde	100-52-7	ND		ND		NA	8	0	0	10 - 11	ND	19	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Benzo(a)anthracene	56-55-3	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.012	0.00013	0.038	0.18	N	Not detected.
Surface Water	T	SVOC	Benzo(a)pyrene	50-32-8	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.0034	0.00013	0.0038	0.018	N	Not detected.
Surface Water	T	SVOC	Benzo(b)fluoranthene	205-99-2	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.034	0.0013	0.038	0.18	N	Not detected.
Surface Water	T	SVOC	Benzo(g,h,i)perylene	191-24-2	ND		ND		NA	8	0	0	5.1 - 5.7	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Benzo(k)fluoranthene	207-08-9	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.34	0.013	0.38	1.8	N	Not detected.
Surface Water	T	SVOC	Benzyl Butyl Phthalate	85-68-7	ND		ND		NA	8	0	0	5.1 - 5.7	ND	16	0.1	150	190	N	Not detected.
Surface Water	T	SVOC	Biphenyl (diphenyl)	92-52-4	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.083	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Bis(2-chloroethoxy) Methane	111-91-1	ND		ND		NA	8	0	0	5.1 - 5.7	ND	5.9	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Bis(2-chloroethyl)ether	111-44-4	ND		ND		NA	8	0	0	10 - 11	ND	0.014	2.2	0.03	0.53	N	Not detected.
Surface Water	T	SVOC	Bis(2-chloroisopropyl)ether	108-60-1	ND		ND		NA	8	0	0	10 - 11	ND	71	4000	1400	65000	N	Not detected.
Surface Water	T	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	ND		ND		NA	8	0	0	5.1 - 5.7	ND	5.6	0.37	1.2	2.2	N	Not detected.
Surface Water	T	SVOC	Caprolactam	105-60-2	ND		ND		NA	8	0	0	10 - 11	ND	990	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Carbazole	86-74-8	ND		ND		NA	8	0	0	10 - 11	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Chrysene	218-01-9	ND		ND		NA	8	0	0	5.1 - 5.7	ND	3.4	0.13	3.8	18	N	Not detected.
Surface Water	T	SVOC	Dibenz(a,h)anthracene	53-70-3	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.0034	0.00013	0.0038	0.018	N	Not detected.
Surface Water	T	SVOC	Diethyl phthalate	84-66-2	ND		ND		NA	8	0	0	5.1 - 5.7	ND	1500	600	17000	44000	N	Not detected.
Surface Water	T	SVOC	Dimethylphthalate	131-11-3	ND		ND		NA	8	0	0	5.1 - 5.7	ND	NC	2000	NC	NC	N	Not detected.
Surface Water	T	SVOC	Di-n-butyl phthalate	84-74-2	ND		ND		NA	8	0	0	5.1 - 5.7	ND	90	30	2000	4500	N	Not detected.
Surface Water	T	SVOC	Di-n-octylphthalate	117-84-0	ND		ND		NA	8	0	0	10 - 11	ND	20	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Fluoranthene	206-44-0	ND		ND		NA	8	0	0	10 - 11	ND	80	20	130	140	N	Not detected.
Surface Water	T	SVOC	Fluorene	86-73-7	ND		ND		NA	8	0	0	5.1 - 5.7	ND	29	70	1100	5300	N	Not detected.
Surface Water	T	SVOC	Hexachlorobenzene	118-74-1	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.0098	0.000079	0.00028	0.00029	N	Not detected.
Surface Water	T	SVOC	Hexachlorobutadiene	87-68-3	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.14	0.01	0.44	18	N	Not detected.
Surface Water	T	SVOC	Hexachlorocyclopentadiene	77-47-4	ND		ND		NA	8	0	0	10 - 11	ND	0.041	4	40	1100	N	Not detected.
Surface Water	T	SVOC	Hexachloroethane	67-72-1	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.33	0.1	1.4	3.3	N	Not detected.
Surface Water	T	SVOC	Indeno (1,2,3-cd)pyrene	193-39-5	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.034	0.0013	0.038	0.18	N	Not detected.
Surface Water	T	SVOC	Isophorone	78-59-1	ND		ND		NA	8	0	0	5.1 - 5.7	ND	78	1800	35	960	N	Not detected.
Surface Water	T	SVOC	Naphthalene	91-20-3	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.17	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Nitrobenzene	98-95-3	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.14	600	17	690	N	Not detected.
Surface Water	T	SVOC	N-Nitrosodi-n-propylamine	621-64-7	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.011	0.51	0.005	0.51	N	Not detected.
Surface Water	T	SVOC	N-Nitrosodiphenylamine	86-30-6	ND		ND		NA	8	0	0	5.1 - 5.7	ND	12	6	3.3	6	N	Not detected.
Surface Water	T	SVOC	Pentachlorophenol	87-86-5	ND		ND		NA	8	0	0	10 - 11	ND	0.041	0.04	0.27	3	N	Not detected.
Surface Water	T	SVOC	Phenanthrene	85-01-8	ND		ND		NA	8	0	0	5.1 - 5.7	ND	NC	NC	NC	NC	N	Not detected.
Surface Water	T	SVOC	Phenol	108-95-2	ND		ND		NA	8	0	0	10 - 11	ND	580	300000	10000	860000	N	Not detected.
Surface Water	T	SVOC	Pyrene	129-00-0	ND		ND		NA	8	0	0	5.1 - 5.7	ND	12	30	830	4000	N	Not detected.
Surface Water	T	PEST	Dibenzofuran	132-64-9	ND		ND		NA	8	0	0	5.1 - 5.7	ND	0.79	NC	NC	NC	N	Not detected.
Surface Water	T	PCB	PCB-1016 (Aroclor 1016)	12674-11-2	ND		ND		NA	8	0	0	1 - 1.1	ND	0.14	NC	NC	NC	N	Not detected.
Surface Water	T	PCB	PCB-1221 (Aroclor 1221)	11104-28-2	ND		ND		NA	8	0	0	1 - 1.1	ND	0.0047	NC	NC	NC	N	Not detected.
Surface Water	T	PCB	PCB-1232 (Aroclor 1232)	11141-16-5	ND		ND		NA	8	0	0	1 - 1.1	ND	0.0047	NC	NC	NC	N	Not detected.
Surface Water	T	PCB	PCB-1242 (Aroclor 1242)	53469-21-9	ND		ND		NA	8	0	0	1 - 1.1	ND	0.0078	NC	NC	NC	N	Not detected.
Surface Water	T	PCB	PCB-1248 (Aroclor 1248)	12672-29-6	ND		ND		NA	8	0	0	1 - 1.1	ND	0.0078	NC	NC	NC	N	Not detected.
Surface Water	T	PCB	PCB-1254 (Aroclor 1254)	11097-69-1	ND		ND		NA	8	0	0	1 - 1.1	ND	0.0078	NC	NC	NC	N	Not detected.
Surface Water	T	PCB	PCB-1260 (Aroclor 1260)	11096-82-5	ND		ND		NA	8	0	0	1 - 1.1	ND	0.0078	NC	NC	NC	N	Not detected.
Surface Water	T	PCB	PCB-1262 (Aroclor 1262)**	37324-23-5	ND		ND		NA	8	0	0	1 - 1.1	ND	0.0078	NC	NC	NC	N	Not detected.
Surface Water	T	PCB	PCB-1268 (Aroclor 1268)**	11100-14-4	ND		ND		NA	8	0	0	1 - 1.1	ND	0.0078	NC	NC	NC	N	Not detected.
Surface Water	T	OTHER	Carbon disulfide	75-15-0	ND		ND		NA	8	0	0	0.5 - 0.5	ND	81	NC	NC	NC	N	Not detected.
Surface Water	T	INORGANIC	Aluminum	7429-90-5	22.5		233		SW-09	8	8	100	20 - 20	233	2000	NC	NC	NC	N	Below screening level.
Surface Water	T	INORGANIC	Antimony	7440-36-0	ND		ND		NA	8	0	0	2 - 2	ND	0.78	640	5.6	640	N	Not detected.
Surface Water	T	INORGANIC	Arsenic	7440-38-2	0.34		3.2		SW-13	8	7	88	0.2 - 0.2	3.2	0.052	0.14	0.017	0.061	Y	Equal to or above screening level.
Surface Water	T	INORGANIC	Barium	7440-39-3	79.2		177		SW-13	8	8	100	10 - 10	177	380	NC	2000	NC	N	Below screening level.
Surface Water	T	INORGANIC	Beryllium	7440-41-7	0.062	J	0.15	J	SW-09	8	7	88	1 - 1	0.15	2.5	NC	6	42	N	Below screening level.
Surface Water	T	INORGANIC	Cadmium	7440-43-9	0.049	J	0.2	J	SW-12	8	8	100	1 - 1	0.2	0.92	NC	3.4	16	N	Below screening level.
Surface Water	T	INORGANIC	Calcium	7440-70-2	10100		22000		SW-11	8	8	100	500 - 500	22000	NC	NC	NC	NC	N	Essential nutrient.
Surface Water	T	INORGANIC	Chromium (Total)*	7440-47-3	0.22	J	0.85	J	SW-12	8	7	88	2 - 2	0.85	0.035	NC	92	750	Y	Equal to or above screening level.
Surface Water	T	INORGANIC	Cobalt	7440-48-4	0.53	J	3.2		SW-13	8	7	88	1 - 1	3.2	0.6	NC	NC	NC	Y	Equal to or above screening level.
Surface Water	T	INORGANIC	Copper	7440-50-8	0.18	J	2		SW-12	8	7	88	2 - 2	2	80	NC	1300	NC	N	Below screening level.
Surface Water	T	INORGANIC	Cyanide	57-12-5	ND		ND		NA	8	0	0	10 - 10	ND	0.15	400	140	140	N	Not detected.
Surface Water	T	INORGANIC	Iron	7439-89-6	305		29500		SW-13	8	8	100	200 - 200	29500	1400	NC	NC	NC	Y	Equal to or above screening level.
Surface Water	T	INORGANIC	Lead	7439-92-1	0.19	J	1.2		SW-12	8	7	88	1 - 1	1.2	15	NC	5	NC	N	Below screening level.

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SURFACE WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	T or D	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (ug/L)	Qual	Maximum Detected Concentration (ug/L)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (ug/L)	Concentration used for Screening (ug/L) (1)	USEPA RSL Resident Tapwater (ug/L) (2)	USEPA WQC Organism Only (ug/L)	NJDEP Human Health Freshwater (FW2) SWQS (ug/L)	NJDEP Human Health Saline Water SWQS (ug/L)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Water	T	INORGANIC	Magnesium	7439-95-4	7300		11200		SW-11	8	8	100	500 - 500	11200	NC	NC	NC	NC	N	Essential nutrient.
Surface Water	T	INORGANIC	Manganese	7439-96-5	198		4630		SW-13	8	8	100	1 - 1	4630	43	100	NC	100	Y	Equal to or above screening level.
Surface Water	T	INORGANIC	Mercury	7439-97-6	ND		ND		NA	8	0	0	0.2 - 0.2	ND	0.063	NC	0.05	0.051	N	Not detected.
Surface Water	T	INORGANIC	Nickel	7440-02-0	1.1		2.5		SW-13	8	4	50	1 - 1	2.5	39	4600	500	1700	N	Below screening level.
Surface Water	T	INORGANIC	Potassium	7440-09-7	2730		4780		SW-11	8	8	100	500 - 500	4780	NC	NC	NC	NC	N	Essential nutrient.
Surface Water	T	INORGANIC	Selenium	7782-49-2	0.52	J	0.81	J	SW-11	8	6	75	5 - 5	0.81	10	4200	170	4200	N	Below screening level.
Surface Water	T	INORGANIC	Silver	7440-22-4	ND		ND		NA	8	0	0	1 - 1	ND	9.4	NC	170	40000	N	Not detected.
Surface Water	T	INORGANIC	Sodium	7440-23-5	6600		88600		SW-12	8	8	100	500 - 500	88600	NC	NC	NC	NC	N	Essential nutrient.
Surface Water	T	INORGANIC	Thallium	7440-28-0	ND		ND		NA	8	0	0	0.24 - 0.24	ND	0.02	0.47	0.24	0.47	N	Not detected.
Surface Water	T	INORGANIC	Vanadium	7440-62-2	0.33	J	0.95	J	SW-12	8	5	63	5 - 5	0.95	8.6	NC	NC	NC	N	Below screening level.
Surface Water	T	INORGANIC	Zinc	7440-66-6	1.8	J	18.7		SW-12	8	7	88	2 - 2	18.7	600	26000	7400	26000	N	Below screening level.

Notes:
(1) The maximum detected concentrations are used for the COPC screening.
(2) May 2016 USEPA RSLs at a target risk of 1E-06 and target hazard quotient of 0.1.
Only unfiltered (total) surface water data are used for COPC screening.
Constituents that RAGS Part A identifies as essential nutrients (i.e., iron, magnesium, calcium, potassium and sodium) and that are present at low levels are not retained as COPCs.
Constituents that are detected in less than 5% of the samples are not retained as COPCs.
The COPC screening applies the minimum of the NJDEP SWQS, USEPA WQC Organism Only and USEPA Tapwater RSLs.
* The total chromium concentration is screened against the RSL criteria for hexavalent chromium (Cr+6) since no RSLs are available for total chromium.
** The USEPA RSLs for PCB-1016 is applied for PCB-1221, 1232 and 1242 if it is more stringent; similarly, PCB-1254's RSL is applied for PCB-1248, 1260, 1262 and 1268 if is more stringent.

Abbreviations:
COPC -- Constituent of potential concern
NA -- Not applicable
NC -- No criteria
ND -- Not detected
NJDEP -- New Jersey Department of Environmental Protection
PEST -- Pesticide
Qual -- Qualifier
RSL -- USEPA Regional Screening Levels
SVOC -- Semi-volatile organic compound
T or D -- Total or dissolved
ug/L -- Micrograms per liter
USEPA -- United States Environmental Protection Agency
VOC -- Volatile organic compound

Qualifier:
J -- Estimated concentration

References:
NJDEP. 2011. Surface Water Quality Standards. N.J.A.C. 7:9B. April 4. Available online: http://www.nj.gov/dep/rules/rules/njac7_9b.pdf
USEPA. 2015. National Recommended Water Quality Criteria. Jun. Website Last Updated Jan 15, 2016. Available online: https://www.epa.gov/wqc/national-recommended-water-quality-criteria
USEPA. 2016. Regional Screening Levels Generic Tables. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

TABLE 2.5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SEDIMENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits	Concentration used for Screening (mg/kg) (1)	NJDEP RDCSRS (mg/kg)	NJDEP NRDCSRS (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)	USEPA RSL Industrial Soil (mg/kg) (2)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Sediment	VOC	cis-1,2-Dichloroethylene	156-59-2	ND		ND		NA	1	0		0.0046 - 0.0046	ND	230	560	16	230	N	Not detected.
Sediment	VOC	Tetrachloroethylene	127-18-4	0.076	J-	0.076	J-	E3	2	1	50	0.0046 - 0.039	0.076	2	5	8.1	39	N	Below screening level.
Sediment	VOC	Trichloroethylene	79-01-6	ND		ND		NA	1	0		0.0046 - 0.0046	ND	7	20	0.41	1.9	N	Not detected.

Notes:
(1) The maximum detected concentrations are used for the COPC screening.
(2) May 2016 USEPA Regional Screening Levels (RSLs) at a target risk of 1E-06 and target hazard quotient of 0.1.
Constituents that RAGS Part A identifies as essential nutrients (i.e., iron, magnesium, calcium, potassium and sodium) and that are present at low levels are not retained as COPCs.
Constituents that are detected in less than 5% of the samples are not retained as COPCs.
The sediment data are from a couple of samples reported in historical reports; no sediment samples from within the stream were collected by HDR in 2016 per the Work Plan.
The COPC screening applies the minimum of the NJDEP RDCSRS and NRDCSRS and USEPA RSLs.

Abbreviations:
COPC -- Constituent of potential concern
mg/kg -- milligrams per kilogram
NJDEP -- New Jersey Department of Environmental Protection
NRDCSRS -- NJDEP Non-Residential Direct Contact Soil Remediation Standard
Qual -- Qualifier
RDCSRS -- NJDEP Residential Direct Contact Soil Remediation Standard
RSL -- USEPA Regional Screening Levels
USEPA -- United States Environmental Protection Agency
VOC -- Volatile organic compound

Qualifiers:
J- -- Estimated concentration biased low

References:
NJDEP. 2012. Remediation Standards. N.J.A.C. 7:26D. May 7. Available online: http://www.nj.gov/dep/rules/rules/njac7_26d.pdf
USEPA. 2016. Regional Screening Levels Generic Tables. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

TABLE 2.6
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SEEP SEDIMENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Seep Sediment
Exposure Medium: Seep Sediment

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits	Concentration used for Screening (mg/kg) (1)	NJDEP RDCSRS (mg/kg)	NJDEP NRDCSRS (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)	USEPA RSL Industrial Soil (mg/kg) (2)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Seep Sediment	VOC	1,1,1-Trichloroethane	71-55-6	0.61		0.61		SED-03	8	1	13	0.009 - 0.03	0.61	290	4200	810	3600	N	Below screening level.
Seep Sediment	VOC	1,1,2,2-Tetrachloroethane	79-34-5	ND		ND		NA	8	0	0	0.009 - 0.03	ND	1	3	0.6	2.7	N	Not detected.
Seep Sediment	VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND		ND		NA	8	0	0	0.009 - 0.03	ND	NC	NC	4000	17000	N	Not detected.
Seep Sediment	VOC	1,1,2-Trichloroethane	79-00-5	ND		ND		NA	8	0	0	0.009 - 0.03	ND	2	6	0.15	0.63	N	Not detected.
Seep Sediment	VOC	1,1-Dichloroethane	75-34-3	0.0095	J	0.0095	J	SED-03	8	1	13	0.009 - 0.03	0.0095	8	24	3.6	16	N	Below screening level.
Seep Sediment	VOC	1,1-Dichloroethene	75-35-4	ND		ND		NA	8	0	0	0.009 - 0.03	ND	11	150	23	100	N	Not detected.
Seep Sediment	VOC	1,2,3-Trichlorobenzene	87-61-6	ND		ND		NA	8	0	0	0.009 - 0.03	ND	NC	NC	6.3	93	N	Not detected.
Seep Sediment	VOC	1,2,4-Trichlorobenzene	120-82-1	0.012	J+	0.012	J+	SED-06	8	1	13	0.009 - 0.03	0.012	73	820	5.8	26	N	Below screening level.
Seep Sediment	VOC	1,2-Dibromo-3-chloropropane	96-12-8	ND		ND		NA	8	0	0	0.009 - 0.03	ND	0.08	0.2	0.0053	0.064	N	Not detected.
Seep Sediment	VOC	1,2-Dibromoethane	106-93-4	ND		ND		NA	8	0	0	0.009 - 0.03	ND	0.008	0.04	0.036	0.16	N	Not detected.
Seep Sediment	VOC	1,2-Dichlorobenzene	95-50-1	0.071	J+	0.071	J+	SED-06	8	1	13	0.009 - 0.03	0.071	5300	59000	180	930	N	Below screening level.
Seep Sediment	VOC	1,2-Dichloroethane	107-06-2	ND		ND		NA	8	0	0	0.009 - 0.03	ND	0.9	3	0.46	2	N	Not detected.
Seep Sediment	VOC	1,2-Dichloropropane	78-87-5	ND		ND		NA	8	0	0	0.009 - 0.03	ND	2	5	1	4.4	N	Not detected.
Seep Sediment	VOC	1,3-Dichlorobenzene	541-73-1	0.088	J+	0.088	J+	SED-06	8	1	13	0.009 - 0.03	0.088	5300	59000	NC	NC	N	Below screening level.
Seep Sediment	VOC	1,4-Dichlorobenzene	106-46-7	0.16	J+	0.16	J+	SED-06	8	1	13	0.009 - 0.03	0.16	5	13	2.6	11	N	Below screening level.
Seep Sediment	VOC	1,4-Dioxane	123-91-1	ND		ND		NA	8	0	0	0.11 - 0.26	ND	NC	NC	5.3	24	N	Not detected.
Seep Sediment	VOC	2-Hexanone	591-78-6	ND		ND		NA	8	0	0	0.018 - 0.06	ND	NC	NC	20	130	N	Not detected.
Seep Sediment	VOC	Acetone	67-64-1	0.12		0.85	J	SED-06	8	6	75	0.018 - 0.06	0.85	70000	NC	6100	67000	N	Below screening level.
Seep Sediment	VOC	Benzene	71-43-2	0.03	J	0.03	J	SED-06	8	1	13	0.009 - 0.03	0.03	2	5	1.2	5.1	N	Below screening level.
Seep Sediment	VOC	Bromochloromethane	74-97-5	ND		ND		NA	8	0	0	0.009 - 0.03	ND	NC	NC	15	63	N	Not detected.
Seep Sediment	VOC	Bromodichloromethane	75-27-4	ND		ND		NA	8	0	0	0.009 - 0.03	ND	1	3	0.29	1.3	N	Not detected.
Seep Sediment	VOC	Bromoform	75-25-2	ND		ND		NA	8	0	0	0.009 - 0.03	ND	81	280	19	86	N	Not detected.
Seep Sediment	VOC	Bromomethane	74-83-9	ND		ND		NA	8	0	0	0.009 - 0.03	ND	25	59	0.68	3	N	Not detected.
Seep Sediment	VOC	Carbon tetrachloride	56-23-5	ND		ND		NA	8	0	0	0.009 - 0.03	ND	0.6	2	0.65	2.9	N	Not detected.
Seep Sediment	VOC	Chlorobenzene	108-90-7	0.47	J	0.47	J	SED-06	8	1	13	0.009 - 0.03	0.47	510	7400	28	130	N	Below screening level.
Seep Sediment	VOC	Chloroethane	75-00-3	ND		ND		NA	8	0	0	0.009 - 0.03	ND	220	1100	1400	5700	N	Not detected.
Seep Sediment	VOC	Chloroform	67-66-3	ND		ND		NA	8	0	0	0.009 - 0.03	ND	0.6	2	0.32	1.4	N	Not detected.
Seep Sediment	VOC	Chloromethane	74-87-3	ND		ND		NA	8	0	0	0.009 - 0.03	ND	4	12	11	46	N	Not detected.
Seep Sediment	VOC	cis-1,2-Dichloroethylene	156-59-2	0.0024	J	0.23	J-	D1	12	5	42	0.009 - 0.04	0.23	230	560	16	230	N	Below screening level.
Seep Sediment	VOC	cis-1,3-Dichloropeopene	10061-01-5	ND		ND		NA	8	0	0	0.009 - 0.03	ND	2	7	NC	NC	N	Not detected.
Seep Sediment	VOC	Cyclohexane	110-82-7	ND		ND		NA	8	0	0	0.009 - 0.03	ND	NC	NC	650	2700	N	Not detected.
Seep Sediment	VOC	Dibromochloromethane	124-48-1	ND		ND		NA	8	0	0	0.009 - 0.03	ND	3	8	8.3	39	N	Not detected.
Seep Sediment	VOC	Dichlorodifluoromethane	75-71-8	ND		ND		NA	8	0	0	0.009 - 0.03	ND	490	230000	8.7	37	N	Not detected.
Seep Sediment	VOC	Ethylbenzene	100-41-4	ND		ND		NA	8	0	0	0.009 - 0.03	ND	7800	110000	5.8	25	N	Not detected.
Seep Sediment	VOC	Isopropylbenzene (Cumene)	98-82-8	0.0032	J	0.047	J	SED-06	8	2	25	0.009 - 0.03	0.047	NC	NC	190	990	N	Below screening level.
Seep Sediment	VOC	m,p-Xylene	179601-23-1	ND		ND		NA	8	0	0	0.009 - 0.03	ND	12000	170000	NC	NC	N	Not detected.
Seep Sediment	VOC	Methyl acetate	79-20-9	0.47	J	0.47	J	SED-03	8	1	13	0.009 - 0.03	0.47	78000	NC	7800	120000	N	Below screening level.
Seep Sediment	VOC	Methyl Ethyl Ketone (2-butanone)	78-93-3	0.032		0.32	J	SED-06	8	4	50	0.018 - 0.06	0.32	3100	44000	2700	19000	N	Below screening level.
Seep Sediment	VOC	Methyl Isobutyl Ketone	108-10-1	ND		ND		NA	8	0	0	0.018 - 0.06	ND	NC	NC	3300	14000	N	Not detected.
Seep Sediment	VOC	Methyl tert-butyl ether	1634-04-4	ND		ND		NA	8	0	0	0.009 - 0.03	ND	110	320	47	210	N	Not detected.
Seep Sediment	VOC	Methylcyclohexane	108-87-2	0.0062	J	0.0062	J	SED-06	8	1	13	0.009 - 0.03	0.0062	NC	NC	NC	NC	Y	No screening level.
Seep Sediment	VOC	Methylene chloride	75-09-2	ND		ND		NA	8	0	0	0.009 - 0.03	ND	34	97	35	320	N	Not detected.
Seep Sediment	VOC	o-Xylene	95-47-6	ND		ND		NA	8	0	0	0.009 - 0.03	ND	12000	170000	65	280	N	Not detected.
Seep Sediment	VOC	Styrene	100-42-5	ND		ND		NA	8	0	0	0.009 - 0.03	ND	90	260	600	3500	N	Not detected.
Seep Sediment	VOC	Tetrachloroethylene	127-18-4	0.0072	J-	11	J	D1	17	11	65	0.0053 - 0.83	11	2	5	8.1	39	Y	Equal to or above screening level.
Seep Sediment	VOC	Toluene	108-88-3	ND		ND		NA	8	0	0	0.009 - 0.03	ND	6300	91000	490	4700	N	Not detected.
Seep Sediment	VOC	trans-1,2-Dichloroethylene	156-60-5	ND		ND		NA	8	0	0	0.009 - 0.03	ND	300	720	160	2300	N	Not detected.
Seep Sediment	VOC	trans-1,3-Dichloropropene	10061-02-6	ND		ND		NA	8	0	0	0.009 - 0.03	ND	2	7	NC	NC	N	Not detected.
Seep Sediment	VOC	Trichloroethylene	79-01-6	0.0066	J	1	J-	D1	15	9	60	0.0053 - 0.04	1	7	20	0.41	1.9	Y	Equal to or above screening level.
Seep Sediment	VOC	Trichlorofluoromethane	75-69-4	ND		ND		NA	8	0	0	0.009 - 0.03	ND	23000	340000	2300	35000	N	Not detected.
Seep Sediment	VOC	Vinyl chloride	75-01-4	ND		ND		NA	8	0	0	0.009 - 0.03	ND	0.7	2	0.059	1.7	N	Not detected.
Seep Sediment	SVOC	1,2,4,5-Tetrachlorobenzene	95-94-3	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	2.3	35	N	Not detected.
Seep Sediment	SVOC	2,3,4,6-Tetrachlorophenol	58-90-2	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	190	2500	N	Not detected.
Seep Sediment	SVOC	2,4,5-Trichlorophenol	95-95-4	ND		ND		NA	8	0	0	0.26 - 0.63	ND	6100	68000	630	8200	N	Not detected.
Seep Sediment	SVOC	2,4,6-Trichlorophenol	88-06-2	ND		ND		NA	8	0	0	0.26 - 0.63	ND	19	74	6.3	82	N	Not detected.
Seep Sediment	SVOC	2,4-Dichlorophenol	120-83-2	ND		ND		NA	8	0	0	0.26 - 0.63	ND	180	2100	19	250	N	Not detected.
Seep Sediment	SVOC	2,4-Dimethylphenol	105-67-9	ND		ND		NA	8	0	0	0.26 - 0.63	ND	1200	14000	130	1600	N	Not detected.
Seep Sediment	SVOC	2,4-Dinitrophenol	51-28-5	ND		ND		NA	8	0	0	0.5 - 1.2	ND	120	1400	13	160	N	Not detected.
Seep Sediment	SVOC	2,4-Dinitrotoluene	121-14-2	ND		ND		NA	8	0	0	0.26 - 0.63	ND	0.7	3	1.7	7.4	N	Not detected.
Seep Sediment	SVOC	2,6-Dinitrotoluene	606-20-2	ND		ND		NA	8	0	0	0.26 - 0.63	ND	0.7	3	0.36	1.5	N	Not detected.
Seep Sediment	SVOC	2-Chloronaphthalene	91-58-7	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	480	6000	N	Not detected.
Seep Sediment	SVOC	2-Chlorophenol	95-57-8	ND		ND		NA	8	0	0	0.26 - 0.63	ND	310	2200	39	580	N	Not detected.
Seep Sediment	SVOC	2-Methylnaphthalene	91-57-6	ND		ND		NA	8	0	0	0.26 - 0.63	ND	230	2400	24	300	N	Not detected.
Seep Sediment	SVOC	2-Methylphenol	95-48-7	ND		ND		NA	8	0	0	0.5 - 1.2	ND	310	3400	320	4100	N	Not detected.
Seep Sediment	SVOC	2-Nitroaniline	88-74-4	ND		ND		NA	8	0	0	0.26 - 0.63	ND	39	23000	63	800	N	Not detected.
Seep Sediment	SVOC	2-Nitrophenol	88-75-5	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	NC	NC	N	Not detected.
Seep Sediment	SVOC	3,3-Dichlorobenzidine	91-94-1	ND		ND		NA	8	0	0	0.5 - 1.2	ND	1	4	1.2	5.1	N	Not detected.
Seep Sediment	SVOC	3-Nitroaniline	99-09-2	ND		ND		NA	8	0	0	0.5 - 1.2	ND	NC	NC	NC	NC	N	Not detected.
Seep Sediment	SVOC	4,6-Dinitro-2-methylphenol	534-52-1	ND		ND		NA	8	0	0	0.5 - 1.2	ND	6	68	0.51	6.6	N	Not detected.
Seep Sediment	SVOC	4-Bromophenyl-phenylether	101-55-3	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	NC	NC	N	Not detected.
Seep Sediment	SVOC	4-Chloro-3-methylphenol	59-50-7	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	630	8200	N	Not detected.

TABLE 2.6
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SEEP SEDIMENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Seep Sediment
Exposure Medium: Seep Sediment

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits	Concentration used for Screening (mg/kg) (1)	NJDEP RDCSRS (mg/kg)	NJDEP NRDCSRS (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)	USEPA RSL Industrial Soil (mg/kg) (2)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Seep Sediment	SVOC	4-Chloroaniline	106-47-8	ND		ND		NA	8	0	0	0.5 - 1.2	ND	NC	NC	2.7	11	N	Not detected.
Seep Sediment	SVOC	4-Chlorophenyl-phenylether	7005-72-3	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	NC	NC	N	Not detected.
Seep Sediment	SVOC	4-Methylphenol (p-Cresol)	106-44-5	ND		ND		NA	8	0	0	0.5 - 1.2	ND	31	340	630	8200	N	Not detected.
Seep Sediment	SVOC	4-Nitroaniline	100-01-6	ND		ND		NA	8	0	0	0.5 - 1.2	ND	NC	NC	25	110	N	Not detected.
Seep Sediment	SVOC	4-Nitrophenol	100-02-7	ND		ND		NA	8	0	0	0.5 - 1.2	ND	NC	NC	NC	NC	N	Not detected.
Seep Sediment	SVOC	Acenaphthene	83-32-9	ND		ND		NA	8	0	0	0.26 - 0.63	ND	3400	37000	360	4500	N	Not detected.
Seep Sediment	SVOC	Acenaphthylene	208-96-8	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	300000	NC	NC	N	Not detected.
Seep Sediment	SVOC	Acetophenone	98-86-2	ND		ND		NA	8	0	0	0.5 - 1.2	ND	2	5	780	12000	N	Not detected.
Seep Sediment	SVOC	Anthracene	120-12-7	ND		ND		NA	8	0	0	0.26 - 0.63	ND	17000	30000	1800	23000	N	Not detected.
Seep Sediment	SVOC	Atrazine	1912-24-9	ND		ND		NA	8	0	0	0.5 - 1.2	ND	210	2400	2.4	10	N	Not detected.
Seep Sediment	SVOC	Benzaldehyde	100-52-7	ND		ND		NA	8	0	0	0.5 - 1.2	ND	6100	68000	170	820	N	Not detected.
Seep Sediment	SVOC	Benzo(a)anthracene	56-55-3	0.092	J	0.25	J	SED-08	8	2	25	0.26 - 0.63	0.25	0.6	2	0.16	2.9	Y	Equal to or above screening level.
Seep Sediment	SVOC	Benzo(a)pyrene	50-32-8	0.065	J	0.26	J	SED-08	8	3	38	0.26 - 0.63	0.26	0.2	0.2	0.016	0.29	Y	Equal to or above screening level.
Seep Sediment	SVOC	Benzo(b)fluoranthene	205-99-2	0.028	J	0.38	J	SED-08	8	5	63	0.26 - 0.63	0.38	0.6	2	0.16	2.9	Y	Equal to or above screening level.
Seep Sediment	SVOC	Benzo(g,h,i)perylene	191-24-2	0.099	J	0.099	J	SED-08	8	1	13	0.26 - 0.63	0.099	380000	30000	NC	NC	N	Below screening level.
Seep Sediment	SVOC	Benzo(k)fluoranthene	207-08-9	0.073	J	0.18	J	SED-08	8	2	25	0.26 - 0.63	0.18	6	23	1.6	29	N	Below screening level.
Seep Sediment	SVOC	Benzyl Butyl Phthalate	85-68-7	0.051	J	0.051	J	SED-05	8	1	13	0.26 - 0.63	0.051	1200	14000	290	1200	N	Below screening level.
Seep Sediment	SVOC	Biphenyl (diphenyl)	92-52-4	ND		ND		NA	8	0	0	0.26 - 0.63	ND	3100	34000	4.7	20	N	Not detected.
Seep Sediment	SVOC	Bis(2-chloroethoxy) Methane	111-91-1	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	19	250	N	Not detected.
Seep Sediment	SVOC	Bis(2-chloroethyl)ether	111-44-4	ND		ND		NA	8	0	0	0.5 - 1.2	ND	0.4	2	0.23	1	N	Not detected.
Seep Sediment	SVOC	Bis(2-chloroisopropyl)ether	108-60-1	ND		ND		NA	8	0	0	0.5 - 1.2	ND	23	67	310	4700	N	Not detected.
Seep Sediment	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	ND		ND		NA	8	0	0	0.26 - 0.63	ND	35	140	39	160	N	Not detected.
Seep Sediment	SVOC	Caprolactam	105-60-2	ND		ND		NA	8	0	0	0.5 - 1.2	ND	31000	340000	3100	40000	N	Not detected.
Seep Sediment	SVOC	Carbazole	86-74-8	ND		ND		NA	8	0	0	0.5 - 1.2	ND	24	96	NC	NC	N	Not detected.
Seep Sediment	SVOC	Chrysene	218-01-9	0.072	J	0.29	J	SED-08	8	3	38	0.26 - 0.63	0.29	62	230	16	290	N	Below screening level.
Seep Sediment	SVOC	Dibenz(a,h)anthracene	53-70-3	ND		ND		NA	8	0	0	0.26 - 0.63	ND	0.2	0.2	0.016	0.29	N	Not detected.
Seep Sediment	SVOC	Diethyl phthalate	84-66-2	ND		ND		NA	8	0	0	0.26 - 0.63	ND	49000	550000	5100	66000	N	Not detected.
Seep Sediment	SVOC	Dimethylphthalate	131-11-3	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	NC	NC	N	Not detected.
Seep Sediment	SVOC	Di-n-butyl phthalate	84-74-2	ND		ND		NA	8	0	0	0.26 - 0.63	ND	6100	68000	630	8200	N	Not detected.
Seep Sediment	SVOC	Di-n-octylphthalate	117-84-0	ND		ND		NA	8	0	0	0.5 - 1.2	ND	2400	27000	63	820	N	Not detected.
Seep Sediment	SVOC	Fluoranthene	206-44-0	0.03	J	0.57	J	SED-08	8	4	50	0.5 - 1.2	0.57	2300	24000	240	3000	N	Below screening level.
Seep Sediment	SVOC	Fluorene	86-73-7	ND		ND		NA	8	0	0	0.26 - 0.63	ND	2300	24000	240	3000	N	Not detected.
Seep Sediment	SVOC	Hexachlorobenzene	118-74-1	ND		ND		NA	8	0	0	0.26 - 0.63	ND	0.3	1	0.21	0.96	N	Not detected.
Seep Sediment	SVOC	Hexachlorobutadiene	87-68-3	ND		ND		NA	8	0	0	0.26 - 0.63	ND	6	25	1.2	5.3	N	Not detected.
Seep Sediment	SVOC	Hexachlorocyclopentadiene	77-47-4	ND		ND		NA	8	0	0	0.5 - 1.2	ND	45	110	0.18	0.75	N	Not detected.
Seep Sediment	SVOC	Hexachloroethane	67-72-1	ND		ND		NA	8	0	0	0.26 - 0.63	ND	35	140	1.8	8	N	Not detected.
Seep Sediment	SVOC	Indeno (1,2,3-cd)pyrene	193-39-5	0.097	J	0.097	J	SED-08	8	1	13	0.26 - 0.63	0.097	0.6	2	0.16	2.9	N	Below screening level.
Seep Sediment	SVOC	Isophorone	78-59-1	ND		ND		NA	8	0	0	0.26 - 0.63	ND	510	2000	570	2400	N	Not detected.
Seep Sediment	SVOC	Naphthalene	91-20-3	ND		ND		NA	8	0	0	0.26 - 0.63	ND	6	17	3.8	17	N	Not detected.
Seep Sediment	SVOC	Nitrobenzene	98-95-3	ND		ND		NA	8	0	0	0.26 - 0.63	ND	31	340	5.1	22	N	Not detected.
Seep Sediment	SVOC	N-Nitrosodi-n-propylamine	621-64-7	ND		ND		NA	8	0	0	0.26 - 0.63	ND	0.2	0.3	0.078	0.33	N	Not detected.
Seep Sediment	SVOC	N-Nitrosodiphenylamine	86-30-6	ND		ND		NA	8	0	0	0.26 - 0.63	ND	99	390	110	470	N	Not detected.
Seep Sediment	SVOC	Pentachlorophenol	87-86-5	ND		ND		NA	8	0	0	0.5 - 1.2	ND	3	10	1	4	N	Not detected.
Seep Sediment	SVOC	Phenanthrene	85-01-8	0.089	J	0.41	J	SED-08	8	3	38	0.26 - 0.63	0.41	NC	300000	NC	NC	N	Below screening level.
Seep Sediment	SVOC	Phenol	108-95-2	ND		ND		NA	8	0	0	0.5 - 1.2	ND	18000	210000	1900	25000	N	Not detected.
Seep Sediment	SVOC	Pyrene	129-00-0	0.03	J	0.58	J	SED-08	8	4	50	0.26 - 0.63	0.58	1700	18000	180	2300	N	Below screening level.
Seep Sediment	PEST	Dibenzofuran	132-64-9	ND		ND		NA	8	0	0	0.26 - 0.63	ND	NC	NC	7.3	100	N	Not detected.
Seep Sediment	PCB	PCB-1016 (Aroclor 1016)	12674-11-2	ND		ND		NA	8	0	0	0.05 - 0.12	ND	0.2	1	0.41	5.1	N	Not detected.
Seep Sediment	PCB	PCB-1221 (Aroclor 1221)	11104-28-2	ND		ND		NA	8	0	0	0.05 - 0.12	ND	0.2	1	0.2	0.83	N	Not detected.
Seep Sediment	PCB	PCB-1232 (Aroclor 1232)	11141-16-5	ND		ND		NA	8	0	0	0.05 - 0.12	ND	0.2	1	0.17	0.72	N	Not detected.
Seep Sediment	PCB	PCB-1242 (Aroclor 1242)	53469-21-9	ND		ND		NA	8	0	0	0.05 - 0.12	ND	0.2	1	0.23	0.95	N	Not detected.
Seep Sediment	PCB	PCB-1248 (Aroclor 1248)**	12672-29-6	0.006	J	0.006	J	SED-02	8	1	13	0.05 - 0.12	0.006	0.2	1	0.12	0.95	N	Below screening level.
Seep Sediment	PCB	PCB-1254 (Aroclor 1254)	11097-69-1	ND		ND		NA	8	0	0	0.05 - 0.12	ND	0.2	1	0.12	0.97	N	Not detected.
Seep Sediment	PCB	PCB-1260 (Aroclor 1260)**	11096-82-5	0.003	J	0.041	J	SED-08	8	8	100	0.05 - 0.12	0.041	0.2	1	0.12	0.97	N	Below screening level.
Seep Sediment	PCB	PCB-1262 (Aroclor 1262)**	37324-23-5	ND		ND		NA	8	0	0	0.05 - 0.12	ND	0.2	1	0.12	0.97	N	Not detected.
Seep Sediment	PCB	PCB-1268 (Aroclor 1268)**	11100-14-4	ND		ND		NA	8	0	0	0.05 - 0.12	ND	0.2	1	0.12	0.97	N	Not detected.
Seep Sediment	OTHER	Carbon disulfide	75-15-0	0.018	J	0.018	J	SED-06	8	1	13	0.009 - 0.03	0.018	7800	110000	77	350	N	Below screening level.
Seep Sediment	INORGANIC	Aluminum	7429-90-5	1180		18100	J	SED-08	8	8	100	20 - 20	18100	78000	NC	7700	110000	Y	Equal to or above screening level.
Seep Sediment	INORGANIC	Antimony	7440-36-0	ND		ND		NA	8	0	0	1 - 1	ND	31	450	3.1	47	N	Not detected.
Seep Sediment	INORGANIC	Arsenic	7440-38-2	1.3		14.2	J	SED-06	8	8	100	0.5 - 0.5	14.2	19	19	0.68	3	Y	Equal to or above screening level.
Seep Sediment	INORGANIC	Barium	7440-39-3	12		177	J	SED-06	8	8	100	5 - 5	177	16000	59000	1500	22000	N	Below screening level.
Seep Sediment	INORGANIC	Beryllium	7440-41-7	0.2	J	0.69	J	SED-07	8	8	100	0.5 - 0.5	0.69	16	140	16	230	N	Below screening level.
Seep Sediment	INORGANIC	Cadmium	7440-43-9	0.064	J	0.87	J	SED-07	8	8	100	0.5 - 0.5	0.87	78	78	7.1	98	N	Below screening level.
Seep Sediment	INORGANIC	Calcium	7440-70-2	1500	J	1500	J	SED-06	8	1	13	500 - 500	1500	NC	NC	NC	NC	N	Essential nutrient.
Seep Sediment	INORGANIC	Chromium (Total)*	7440-47-3	1.3	J	28.7	J	SED-03	8	8	100	1 - 1	28.7	NC	NC	0.3	6.3	Y	Equal to or above screening level.
Seep Sediment	INORGANIC	Cobalt	7440-48-4	0.89		57.2	J	SED-06	8	8	100	0.5 - 0.5	57.2	1600	590	2.3	35	Y	Equal to or above screening level.
Seep Sediment	INORGANIC	Copper	7440-50-8	2.1		13.3	J	SED-08	8	8	100	1 - 1	13.3	3100	45000	310	4700	N	Below screening level.
Seep Sediment	INORGANIC	Cyanide	57-12-5	3.5	J	3.5	J	SED-03	8	1	13	0.5 - 0.5	3.5	1600	23000	2.3	15	Y	Equal to or above screening level.
Seep Sediment	INORGANIC	Iron	7439-89-6	1060		38200	J	SED-06	8	8	100	10 - 10	38200	NC	NC	5500	82000	Y	Equal to or above screening level.
Seep Sediment	INORGANIC	Lead	7439-92-1	13.5		71.3	J	SED-07	8	8	100	0.5 - 0.5	71.3	400	800	400	800	N	Below screening level.
Seep Sediment	INORGANIC	Magnesium	7439-95-4	ND		ND		NA	8	0	0	500 - 500	ND	NC	NC	NC	NC	N	Not detected.
Seep Sediment	INORGANIC	Manganese	7439-96-5	19.9		7480	J	SED-03	8	8	100	0.5 - 0.5	7480	11000	5900	180	2600	Y	Equal to or above screening level.

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TABLE 2.6
OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SEEP SEDIMENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Seep Sediment
Exposure Medium: Seep Sediment

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits	Concentration used for Screening (mg/kg) (1)	NJDEP RDCSRS (mg/kg)	NJDEP NRDCSRS (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)	USEPA RSL Industrial Soil (mg/kg) (2)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Seep Sediment	INORGANIC	Mercury	7439-97-6	0.038	J	0.64	J	SED-03	8	8	100	0.1 - 0.1	0.64	23	65	1.1	4.6	N	Below screening level.
Seep Sediment	INORGANIC	Nickel	7440-02-0	1.2		6.7	J	SED-06	8	8	100	0.5 - 0.5	6.7	1600	23000	150	2200	N	Below screening level.
Seep Sediment	INORGANIC	Potassium	7440-09-7	42.7	J	633	J	SED-08	8	8	100	500 - 500	633	NC	NC	NC	NC	N	Essential nutrient.
Seep Sediment	INORGANIC	Selenium	7782-49-2	0.4	J	4.7	J	SED-03	8	8	100	2.5 - 2.5	4.7	390	5700	39	580	N	Below screening level.
Seep Sediment	INORGANIC	Silver	7440-22-4	0.012	J	0.074	J	SED-06	8	8	100	0.5 - 0.5	0.074	390	5700	39	580	N	Below screening level.
Seep Sediment	INORGANIC	Sodium	7440-23-5	ND		ND		NA	8	0	0	500 - 500	ND	NC	NC	NC	NC	N	Not detected.
Seep Sediment	INORGANIC	Thallium	7440-28-0	ND		ND		NA	8	0	0	0.5 - 0.5	ND	5	79	0.078	1.2	N	Not detected.
Seep Sediment	INORGANIC	Vanadium	7440-62-2	4.2		15.5	J	SED-08	8	8	100	2.5 - 2.5	15.5	78	1100	39	580	N	Below screening level.
Seep Sediment	INORGANIC	Zinc	7440-66-6	4.5		59.3	J	SED-07	8	8	100	1 - 1	59.3	23000	110000	2300	35000	N	Below screening level.

Notes:
(1) The maximum detected concentrations are used for the COPC screening.
(2) May 2016 USEPA Regional Screening Levels (RSLs) at a target risk of 1E-06 and target hazard quotient of 0.1.
Constituents that RAGS Part A identifies as essential nutrients (i.e., iron, magnesium, calcium, potassium and sodium) and that are present at low levels are not retained as COPCs.
Constituents that are detected in less than 5% of the samples are not retained as COPCs.
The COPC screening applies the minimum of the NJDEP RDCSRS and NRDCSRS and USEPA RSLs.
* The total chromium concentration is screened against the RSL criteria for hexavalent chromium (Cr+6) since no RSLs are available for total chromium.
** The USEPA RSLs for PCB-1016 is applied for PCB-1221, 1232 and 1242 if it is more stringent; similarly, PCB-1254's RSL is applied for PCB-1248, 1260, 1262 and 1268 if is more stringent.

Abbreviations:
COPC -- Constituent of potential concern
mg/kg -- milligrams per kilogram
NA -- Not applicable
NC -- No criteria
ND -- Not detected
NJDEP -- New Jersey Department of Environmental Protection
NRDCSRS -- NJDEP Non-Residential Direct Contact Soil Remediation Standard
PEST -- Pesticide
Qual -- Qualifier
RDCSRS -- NJDEP Residential Direct Contact Soil Remediation Standard
RSL -- USEPA Regional Screening Levels
SVOC -- Semi-volatile organic compound
USEPA -- United States Environmental Protection Agency
VOC -- Volatile organic compound

Qualifiers:
J -- Estimated concentration
J+ -- Estimated concentration biased high

References:
NJDEP. 2012. Remediation Standards. N.J.A.C. 7:26D. May 7. Available online: http://www.nj.gov/dep/rules/rules/njac7_26d.pdf
USEPA. 2016. Regional Screening Levels Generic Tables. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

TABLE 2.SUPP.1
SUMMARY OF HUMAN HEALTH COPCS
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Constituent Group	Constituent	CASRN	Surface Soil (0-2 ft)	Soil (0-10 ft)	Site-wide Groundwater	Seep Water	Surface Water	Sediment	Seep Sediment
VOC	1,1,1-Trichloroethane	71-55-6	No	No	No	Yes	No	No	No
VOC	1,1-Dichloroethane	75-34-3	No	No	Yes	Yes	No	No	No
VOC	1,1-Dichloroethene	75-35-4	No	No	No	Yes	No	No	No
VOC	1,2,3-Trichlorobenzene	87-61-6	No	No	Yes	No	No	No	No
VOC	1,2,4-Trichlorobenzene	120-82-1	No	No	Yes	No	No	No	No
VOC	1,2-Dichloroethane	107-06-2	No	No	Yes	No	No	No	No
VOC	1,4-Dichlorobenzene	106-46-7	No	No	Yes	No	Yes	No	No
VOC	1,4-Dioxane	123-91-1	No	No	Yes	No	No	No	No
VOC	Benzene	71-43-2	No	Yes	Yes	No	Yes	No	No
VOC	Chlorobenzene	108-90-7	No	No	Yes	No	No	No	No
VOC	cis-1,2-Dichloroethylene	156-59-2	No	No	Yes	Yes	Yes	No	No
VOC	Ethylbenzene	100-41-4	No	Yes	Yes	No	No	No	No
VOC	Methylcyclohexane	108-87-2	No	No	Yes	No	No	No	Yes
VOC	Methylene chloride	75-09-2	No	No	Yes	No	No	No	No
VOC	o-Xylene	95-47-6	No	No	Yes	No	No	No	No
VOC	Tetrachloroethylene	127-18-4	No	Yes	Yes	Yes	Yes	No	Yes
VOC	Trichloroethylene	79-01-6	No	Yes	Yes	Yes	Yes	No	Yes
VOC	Vinyl chloride	75-01-4	No	No	Yes	Yes	Yes	No	No
SVOC	2-Methylnaphthalene	91-57-6	No	Yes	No	No	No	No	No
SVOC	4-Chloroaniline	106-47-8	No	No	Yes	No	Yes	No	No
SVOC	Benzo(a)anthracene	56-55-3	Yes	Yes	No	No	No	No	Yes
SVOC	Benzo(a)pyrene	50-32-8	Yes	Yes	No	No	No	No	Yes
SVOC	Benzo(b)fluoranthene	205-99-2	No	No	No	No	No	No	Yes
SVOC	Benzyl Butyl Phthalate	85-68-7	No	Yes	No	No	No	No	No
SVOC	Biphenyl (diphenyl)	92-52-4	No	Yes	Yes	No	No	No	No
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	Yes	Yes	No	No	No	No	No
SVOC	Di-n-octylphthalate	117-84-0	No	Yes	No	No	No	No	No
SVOC	Naphthalene	91-20-3	Yes	Yes	Yes	No	No	No	No
PEST	Dibenzofuran	132-64-9	No	Yes	No	No	No	No	No
PCB	PCB-1248 (Aroclor 1248)	12672-29-6	Yes	Yes	No	No	No	No	No
PCB	PCB-1254 (Aroclor 1254)	11097-69-1	Yes	Yes	No	No	No	No	No
PCB	PCB-1260 (Aroclor 1260)	11096-82-5	Yes	Yes	No	No	No	No	No
OTHER	Carbon disulfide	75-15-0	No	No	No	Yes	No	No	No
INORGANIC	Aluminum	7429-90-5	No	No	Yes	Yes	No	No	Yes
INORGANIC	Arsenic	7440-38-2	Yes	Yes	Yes	Yes	Yes	No	Yes
INORGANIC	Barium	7440-39-3	No	No	Yes	No	No	No	No
INORGANIC	Beryllium	7440-41-7	No	No	No	Yes	No	No	No
INORGANIC	Cadmium	7440-43-9	No	No	No	Yes	No	No	No
INORGANIC	Chromium (Total)	7440-47-3	Yes	Yes	Yes	No	Yes	No	Yes
INORGANIC	Cobalt	7440-48-4	Yes	Yes	Yes	Yes	Yes	No	Yes
INORGANIC	Cyanide	57-12-5	No	No	Yes	No	No	No	Yes
INORGANIC	Iron	7439-89-6	No	No	Yes	No	Yes	No	Yes
INORGANIC	Lead	7439-92-1	No	No	No	Yes	No	No	No
INORGANIC	Manganese	7439-96-5	No	No	Yes	Yes	Yes	No	Yes
INORGANIC	Mercury	7439-97-6	No	No	Yes	Yes	No	No	No
INORGANIC	Thallium	7440-28-0	No	No	Yes	Yes	No	No	No
INORGANIC	Vanadium	7440-62-2	No	No	No	Yes	No	No	No

Note:
The COPC list consists of constituents that are identified as a COPC in at least one medium. COPCs are identified with a "Yes" and shaded.
The sediment data are from a couple of samples reported in historical reports; no sediment samples from within the stream were collected by HDR in 2016 per the Work Plan.

Abbreviations:
PEST -- Pesticide
SVOC -- Semi-volatile organic compound
VOC -- Volatile organic compound

TABLE 3.1
EXPOSURE POINT CONCENTRATION SUMMARY FOR SURFACE SOIL (0-2FT)
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil (0-2 ft)

COPC Group	COPC	CASRN	Medium-Specific COPC	Units	Maximum Detected Concentration	Qual	95% UCL	95% UCL Method	ProUCL Notes	Sample Count	Detect Count	Detection Frequency (%)	Exposure Point Concentration (EPC)		
													Value	Statistic	Rationale
SVOC	Benzo(a)anthracene	56-55-3	Yes	mg/kg	0.16	J	0.185	95% KM (t) UCL	a, b, e, i	20	2	10	0.16	Max	Lower of the max and UCL
SVOC	Benzo(a)pyrene	50-32-8	Yes	mg/kg	0.14	J	0.155	95% KM (t) UCL	a, b, e, i	20	2	10	0.14	Max	Lower of the max and UCL
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	Yes	mg/kg	37	J	13.73	95% KM (Chebyshev) UCL		20	18	90	13.73	UCL	Lower of the max and UCL
SVOC	Naphthalene	91-20-3	Yes	mg/kg	16		2.845	95% KM (t) UCL	f	20	3	15	2.845	UCL	Lower of the max and UCL
PCB	PCB-1248 (Aroclor 1248)	12672-29-6	Yes	mg/kg	2.5	NJ	1.062	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		20	14	70	1.062	UCL	Lower of the max and UCL
PCB	PCB-1254 (Aroclor 1254)	11097-69-1	Yes	mg/kg	0.15	J+	0.0506	95% KM (t) UCL	f	20	3	15	0.0506	UCL	Lower of the max and UCL
PCB	PCB-1260 (Aroclor 1260)	11096-82-5	Yes	mg/kg	0.16		0.0747	95% KM (t) UCL		20	12	60	0.0747	UCL	Lower of the max and UCL
INORGANIC	Arsenic	7440-38-2	Yes	mg/kg	4.3		2.686	95% Student's-t UCL		20	20	100	2.686	UCL	Lower of the max and UCL
INORGANIC	Chromium (Total)	7440-47-3	Yes	mg/kg	21.3		13.7	95% Student's-t UCL		20	20	100	13.7	UCL	Lower of the max and UCL
INORGANIC	Cobalt	7440-48-4	Yes	mg/kg	5.6		3.349	95% Student's-t UCL		20	20	100	3.349	UCL	Lower of the max and UCL

Notes:

The exposure point concentration (EPC) is the 95% upper confidence limit (UCL) of the arithmetic mean. When the UCL is greater than the maximum detected concentration or ProUCL did not calculate an UCL, the maximum detected concentration is chosen.
The most appropriate UCL is chosen from those ProUCL suggests based on the distribution of the dataset and ProUCL guidance. ProUCL outputs are provided in Attachmei
These EPCs for soil (0-2ft) will be used in the worker, resident and recreator scenarios.
EPCs were calculated for COPCs across all media and medium-specific COPCs are marked.

Abbreviations:

COPC -- Constituent of potential concern
EPC -- Exposure point concentration
Qual -- Qualifier
NA -- Not analyzed or applicable
ND -- Not detected
UCL -- 95% Upper confidence limit

ProUCL Notes and Warnings:

a The lowest UCL is chosen when ProUCL suggested more than one UCL, except when a H-UCL is identified because ProUCL does not recommend using it.
b One or more recommended UCL not available.
c All data are non-detects.
d Data set has only 1 Distinct Detected Values.
e Data set has only 2 Detected Values.
f Data set has only 3 Detected Values.
g The data set was not processed.
i Suggested UCL exceeds the maximum observation.

References:

USEPA. 2016. ProUCL Version 5.1.02. September 19. Available online: https://www.epa.gov/land-research/proucl-software
USEPA. 2015. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: https://www.epa.gov/land-research/proucl-version-5100-documentation-downloads

TABLE 3.2
EXPOSURE POINT CONCENTRATION SUMMARY FOR SOIL (0-10FT)
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil (0-10 ft)

COPC Group	COPC	CASRN	Medium-Specific COPC	Units	Maximum Detected Concentration	Qual	95% UCL	95% UCL Method	ProUCL Notes	Sample Count	Detect Count	Detection Frequency (%)	Exposure Point Concentration (EPC)		
													Value	Statistic	Rationale
VOC	Benzene	71-43-2	Yes	mg/kg	3.5		0.456	95% KM (t) UCL		27	6	22	0.456	UCL	Lower of the max and UCL
VOC	Ethylbenzene	100-41-4	Yes	mg/kg	16		2.169	95% KM (t) UCL		27	7	26	2.169	UCL	Lower of the max and UCL
VOC	Tetrachloroethylene	127-18-4	Yes	mg/kg	3		0.477	95% KM (t) UCL		27	5	19	0.477	UCL	Lower of the max and UCL
VOC	Trichloroethylene	79-01-6	Yes	mg/kg	33		3.74	95% KM (t) UCL	f	27	3	11	3.74	UCL	Lower of the max and UCL
SVOC	2-Methylnaphthalene	91-57-6	Yes	mg/kg	410	J	190.5	99% KM (Chebyshev) UCL		27	10	37	190.5	UCL	Lower of the max and UCL
SVOC	Benzo(a)anthracene	56-55-3	Yes	mg/kg	0.16	J	0.184	95% KM (t) UCL	a, b, e, i	27	2	7	0.16	Max	Lower of the max and UCL
SVOC	Benzo(a)pyrene	50-32-8	Yes	mg/kg	0.14	J	0.155	95% KM (t) UCL	a, b, e, i	27	2	7	0.14	Max	Lower of the max and UCL
SVOC	Benzyl Butyl Phthalate	85-68-7	Yes	mg/kg	670	J	355.2	99% KM (Chebyshev) UCL		27	21	78	355.2	UCL	Lower of the max and UCL
SVOC	Biphenyl (diphenyl)	92-52-4	Yes	mg/kg	37	J	10.17	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		27	8	30	10.17	UCL	Lower of the max and UCL
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	Yes	mg/kg	590	J	213.8	97.5% KM (Chebyshev) UCL		27	24	89	213.8	UCL	Lower of the max and UCL
SVOC	Di-n-octylphthalate	117-84-0	Yes	mg/kg	120	J	29.9	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		27	11	41	29.9	UCL	Lower of the max and UCL
SVOC	Naphthalene	91-20-3	Yes	mg/kg	420	J	108.4	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		27	9	33	108.4	UCL	Lower of the max and UCL
PEST	Dibenzofuran	132-64-9	Yes	mg/kg	23	J	5.934	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		27	8	30	5.934	UCL	Lower of the max and UCL
PCB	PCB-1248 (Aroclor 1248)	12672-29-6	Yes	mg/kg	2.5	NJ	1.062	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		20	14	70	1.062	UCL	Lower of the max and UCL
PCB	PCB-1254 (Aroclor 1254)	11097-69-1	Yes	mg/kg	0.15	J+	0.0506	95% KM (t) UCL	f	20	3	15	0.0506	UCL	Lower of the max and UCL
PCB	PCB-1260 (Aroclor 1260)	11096-82-5	Yes	mg/kg	0.16		0.0747	95% KM (t) UCL		20	12	60	0.0747	UCL	Lower of the max and UCL
INORGANIC	Arsenic	7440-38-2	Yes	mg/kg	4.3		2.686	95% Student's-t UCL		20	20	100	2.686	UCL	Lower of the max and UCL
INORGANIC	Chromium (Total)	7440-47-3	Yes	mg/kg	21.3		13.7	95% Student's-t UCL		20	20	100	13.7	UCL	Lower of the max and UCL
INORGANIC	Cobalt	7440-48-4	Yes	mg/kg	5.6		3.349	95% Student's-t UCL	a	20	20	100	3.349	UCL	Lower of the max and UCL

Notes:
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL) of the arithmetic mean. When the UCL is greater than the maximum detected concentration or ProUCL did not calculate an UCL, the maximum detected concentration is chosen.
The most appropriate UCL is chosen from those ProUCL suggests based on the distribution of the databset and ProUCL guidance. ProUCL outputs are provided in Attachmei
These EPCs for soil (0-10ft) will be used in the construction worker scenaric
EPCs were calculated for COPCs across all media and medium-specific COPCs are markec

Abbreviations:
COPC -- Constituent of potential concern
EPC -- Exposure point concentration
Qual -- Qualifier
NA -- Not analyzed or applicable
ND -- Not detected
UCL -- 95% Upper confidence limit

ProUCL Notes and Warnings:
a The lowest UCL is chosen when ProUCL suggested more than one UCL, except when a H-UCL is identified because ProUCL does not recommend using it.
b One or more recommended UCL not available.
c All data are non-detects.
d Data set has only 1 Distinct Detected Values.
e Data set has only 2 Detected Values.
f Data set has only 3 Detected Values.
g The data set was not processed.
h Sample size is small (e.g., <10).
i Suggested UCL exceeds the maximum observation.
j The data set appears gamma distributed at 5% significance level and the lowest gamma UCL is chosen.

References:
NJDEP. 2012. Technical Guidance for the Attainment of Remediation Standards and Site-Specific Criteria. Version 1.0. Section A.2.1.4. September 24. Available online: http://www.nj.gov/dep/srp/guidance/srra/attainment_compliance.pdf
USEPA. 2016. ProUCL Version 5.1.02. September 19. Available online: https://www.epa.gov/land-research/proucl-software
USEPA. 2015. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: https://www.epa.gov/land-research/proucl-version-5100-documentation-downloads

TABLE 3.3
EXPOSURE POINT CONCENTRATION SUMMARY FOR SITE-WIDE GROUNDWATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

T or D	COPC Group	COPC	CASRN	Medium-Specific COPC	Units	Maximum Detected Concentration	Qual	95% UCL	95% UCL Method	ProUCL Notes	Sample Count	Detect Count	Detection Frequency (%)	Exposure Point Concentration (EPC) Value	Statistic	Rationale
T	VOC	1,1-Dichloroethane	75-34-3	Yes	ug/L	3.6		1.053	95% KM (t) UCL		47	9	19	1.053	UCL	Lower of the max and UCL
T	VOC	1,2,3-Trichlorobenzene	87-61-6	Yes	ug/L	3.5		0.691	95% KM (t) UCL	f	47	3	6	0.691	UCL	Lower of the max and UCL
T	VOC	1,2,4-Trichlorobenzene	120-82-1	Yes	ug/L	9.9		2.12	95% KM (Chebyshev) UCL		46	7	15	2.12	UCL	Lower of the max and UCL
T	VOC	1,2-Dichloroethane	107-06-2	Yes	ug/L	7.6		0.952	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		47	4	9	0.952	UCL	Lower of the max and UCL
T	VOC	1,4-Dichlorobenzene	106-46-7	Yes	ug/L	6.2		0.901	95% KM (t) UCL		47	10	21	0.901	UCL	Lower of the max and UCL
T	VOC	1,4-Dioxane	123-91-1	Yes	ug/L	1.3		0.435	95% KM (t) UCL		49	8	16	0.435	UCL	Lower of the max and UCL
T	VOC	Benzene	71-43-2	Yes	ug/L	49		6.312	95% KM (t) UCL		47	10	21	6.312	UCL	Lower of the max and UCL
T	VOC	Chlorobenzene	108-90-7	Yes	ug/L	21	J	3.933	95% KM (t) UCL		47	9	19	3.933	UCL	Lower of the max and UCL
T	VOC	cis-1,2-Dichloroethylene	156-59-2	Yes	ug/L	44		6.649	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		48	14	29	6.649	UCL	Lower of the max and UCL
T	VOC	Ethylbenzene	100-41-4	Yes	ug/L	920		195.8	97.5% KM (Chebyshev) UCL		47	11	23	195.8	UCL	Lower of the max and UCL
T	VOC	Methylcyclohexane	108-87-2	Yes	ug/L	1.5		0.62	95% KM (t) UCL		47	5	11	0.62	UCL	Lower of the max and UCL
T	VOC	Methylene chloride	75-09-2	Yes	ug/L	240		16.13	95% KM (t) UCL	f	46	3	7	16.13	UCL	Lower of the max and UCL
T	VOC	o-Xylene	95-47-6	Yes	ug/L	200		28.39	95% KM (t) UCL		47	10	21	28.39	UCL	Lower of the max and UCL
T	VOC	Tetrachloroethylene	127-18-4	Yes	ug/L	3000		545.9	97.5% KM (Chebyshev) UCL		51	20	39	545.9	UCL	Lower of the max and UCL
T	VOC	Trichloroethylene	79-01-6	Yes	ug/L	160		18.49	95% KM (Chebyshev) UCL		51	12	24	18.49	UCL	Lower of the max and UCL
T	VOC	Vinyl chloride	75-01-4	Yes	ug/L	14		2.566	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		37	13	35	2.566	UCL	Lower of the max and UCL
T	SVOC	4-Chloroaniline	106-47-8	Yes	ug/L	6900		1007	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		46	5	11	1007	UCL	Lower of the max and UCL
T	SVOC	Biphenyl (diphenyl)	92-52-4	Yes	ug/L	1.6	J	1.63	95% KM (t) UCL	f, i	46	3	7	1.6	Max	Lower of the max and UCL
T	SVOC	Naphthalene	91-20-3	Yes	ug/L	68		8.153	95% KM (t) UCL		46	4	9	8.153	UCL	Lower of the max and UCL
T	INORGANIC	Aluminum	7429-90-5	Yes	ug/L	2270		189.7	KM H-UCL		46	37	80	189.7	UCL	Lower of the max and UCL
T	INORGANIC	Arsenic	7440-38-2	Yes	ug/L	7.7	J	2.976	95% KM (t) UCL		46	34	74	2.976	UCL	Lower of the max and UCL
T	INORGANIC	Barium	7440-39-3	Yes	ug/L	1180		283.7	95% KM (Chebyshev) UCL		46	45	98	283.7	UCL	Lower of the max and UCL
T	INORGANIC	Chromium (Total)	7440-47-3	Yes	ug/L	2.7		1.084	95% KM (t) UCL		46	37	80	1.084	UCL	Lower of the max and UCL
T	INORGANIC	Cobalt	7440-48-4	Yes	ug/L	30.6		8.086	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		46	37	80	8.086	UCL	Lower of the max and UCL
T	INORGANIC	Cyanide	57-12-5	Yes	ug/L	102		10.66	95% KM (t) UCL	f	45	3	7	10.66	UCL	Lower of the max and UCL
T	INORGANIC	Iron	7439-89-6	Yes	ug/L	53800		24364	97.5% KM (Chebyshev) UCL		46	36	78	24364	UCL	Lower of the max and UCL
T	INORGANIC	Manganese	7439-96-5	Yes	ug/L	14300		4352	95% Chebyshev (Mean, Sd) UCL		46	46	100	4352	UCL	Lower of the max and UCL
T	INORGANIC	Mercury	7439-97-6	Yes	ug/L	0.39	J	0.116	95% KM (t) UCL		46	8	17	0.116	UCL	Lower of the max and UCL
T	INORGANIC	Thallium	7440-28-0	Yes	ug/L	1.2		0.29	95% KM (t) UCL		46	6	13	0.29	UCL	Lower of the max and UCL

Notes:

These EPCs for groundwater will be used in the resident, worker and construction worker scenarios. Only unfiltered (total) groundwater data are evaluated.
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL) of the arithmetic mean. When the UCL is greater than the maximum detected concentration or ProUCL did not calculate an UCL, the maximum detected concentration is chosen.
The most appropriate UCL is chosen from those ProUCL suggests based on the distribution of the databset and ProUCL guidance. ProUCL outputs are provided in Attachment B
EPCs were calculated for COPCs across all media and medium-specific COPCs are marked.

Abbreviations:

COPC -- Constituent of potential concern
EPC -- Exposure point concentration
Qual -- Qualifier
NA -- Not analyzed or applicable
ND -- Not detected
UCL -- 95% Upper confidence limit

ProUCL Notes and Warnings:

a The lowest UCL is chosen when ProUCL suggested more than one UCL, except when a H-UCL is identified because ProUCL does not recommend using it.
b One or more recommended UCL not available.
c All data are non-detects.
d Data set has only 1 Distinct Detected Values.
e Data set has only 2 Detected Values.
f Data set has only 3 Detected Values.
g The data set was not processed.
i Suggested UCL exceeds the maximum observation.
j The data set appears gamma distributed at 5% significance level and the lowest gamma UCL is chosen.

References:

USEPA. 2016. ProUCL Version 5.1.02. September 19. Available online: https://www.epa.gov/land-research/proucl-software
USEPA. 2015. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: https://www.epa.gov/land-research/proucl-version-5100-documentation-downloads

TABLE 3.4
EXPOSURE POINT CONCENTRATION SUMMARY FOR SEEP WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Seep Water
Exposure Medium: Seep water

T or D	COPC Group	COPC	CASRN	Medium-Specific COPC	Units	Maximum Detected Concentration	Qual	95% UCL	95% UCL Method	ProUCL Notes	Sample Count	Detect Count	Detection Frequency (%)	Exposure Point Concentration (EPC) Value	Statistic	Rationale
T	VOC	1,1,1-Trichloroethane	71-55-6	Yes	ug/L	120		--	No UCL calculated, insufficient detects	d, g, h	8	1	13	120	Max	Lower of the max and UCL
T	VOC	1,1-Dichloroethane	75-34-3	Yes	ug/L	10		--	No UCL calculated, insufficient detects	d, g, h	8	1	13	10	Max	Lower of the max and UCL
T	VOC	1,1-Dichloroethene	75-35-4	Yes	ug/L	14		--	No UCL calculated, insufficient detects	d, g, h	8	1	13	14	Max	Lower of the max and UCL
T	VOC	cis-1,2-Dichloroethylene	156-59-2	Yes	ug/L	80		22.09	95% KM (t) UCL		13	6	46	22.09	UCL	Lower of the max and UCL
T	VOC	Tetrachloroethylene	127-18-4	Yes	ug/L	1700		591	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		19	14	74	591	UCL	Lower of the max and UCL
T	VOC	Trichloroethylene	79-01-6	Yes	ug/L	150		62.51	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		17	11	65	62.51	UCL	Lower of the max and UCL
T	VOC	Vinyl chloride	75-01-4	Yes	ug/L	0.094		0.0815	95% KM (Chebyshev) UCL	e, h	8	2	25	0.0815	UCL	Lower of the max and UCL
T	OTHER	Carbon disulfide	75-15-0	Yes	ug/L	0.28	J	--	No UCL calculated, insufficient detects	d, g, h	8	1	13	0.28	Max	Lower of the max and UCL
T	INORGANIC	Aluminum	7429-90-5	Yes	ug/L	32600		189992	95% Hall's Bootstrap UCL	h, i	8	8	100	32600	Max	Lower of the max and UCL
T	INORGANIC	Arsenic	7440-38-2	Yes	ug/L	35.8		81.13	95% Hall's Bootstrap UCL	h, i	8	8	100	35.8	Max	Lower of the max and UCL
T	INORGANIC	Beryllium	7440-41-7	Yes	ug/L	11.6		10.81	97.5% KM (Chebyshev) UCL	h, i	8	7	88	10.81	UCL	Lower of the max and UCL
T	INORGANIC	Cadmium	7440-43-9	Yes	ug/L	10.2		14.08	99% Chebyshev (Mean, Sd) UCl	h, i	8	8	100	10.2	Max	Lower of the max and UCl
T	INORGANIC	Cobalt	7440-48-4	Yes	ug/L	91.2		74.53	95% Adjusted Gamma UCL	h	8	8	100	74.53	UCL	Lower of the max and UCL
T	INORGANIC	Lead	7439-92-1	Yes	ug/L	471	J	644.5	99% Chebyshev (Mean, Sd) UCL	h, i	8	8	100	471	Max	Lower of the max and UCL
T	INORGANIC	Manganese	7439-96-5	Yes	ug/L	7470		7043	95% Adjusted Gamma UCL	h	8	8	100	7043	UCL	Lower of the max and UCl
T	INORGANIC	Mercury	7439-97-6	Yes	ug/L	1.2		0.533	95% KM (t) UCL	f, h	8	3	38	0.533	UCL	Lower of the max and UCL
T	INORGANIC	Thallium	7440-28-0	Yes	ug/L	0.71	J	--	No UCL calculated, insufficient detects	d, g, h, i	8	1	13	0.71	Max	Lower of the max and UCL
T	INORGANIC	Vanadium	7440-62-2	Yes	ug/L	106		148.2	99% Chebyshev (Mean, Sd) UCL	h, i	8	8	100	106	Max	Lower of the max and UCL

Notes:

Only unfiltered (total) seep water data are evaluated. These EPCs for seep water will be used in the recreator scenario.

The exposure point concentration (EPC) is the 95% upper confidence limit (UCL) of the arithmetic mean. When the UCL is greater than the maximum detected concentration or ProUCL did not calculate an UCL, the maximum detected concentration is chosen.

The most appropriate UCL is chosen from those ProUCL suggests based on the distribution of the databset and ProUCL guidance. ProUCL outputs are provided in Attachme

EPCs were calculated for COPCs across all media and medium-specific COPCs are marked.

Abbreviations:

COPC -- Constituent of potential concern
EPC -- Exposure point concentration
Qual -- Qualifier
NA -- Not analyzed or applicable
ND -- Not detected
UCL -- 95% Upper confidence limit

ProUCL Notes and Warnings:

a The lowest UCL is chosen when ProUCL suggested more than one UCL, except when a H-UCL is identified because ProUCL does not recommend using it.
b One or more recommended UCL not available.
c All data are non-detects.
d Data set has only 1 Distinct Detected Values.
e Data set has only 2 Detected Values.
f Data set has only 3 Detected Values.
g The data set was not processed.
h Sample size is small (e.g., <10).
i Suggested UCL exceeds the maximum observation.

References:

USEPA. 2016. ProUCL Version 5.1.02. September 19. Available online: https://www.epa.gov/land-research/proucl-software

USEPA. 2015. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: https://www.epa.gov/land-research/proucl-version-5100-documentation-downloads

TABLE 3.5
EXPOSURE POINT CONCENTRATION SUMMARY FOR SURFACE WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface water

T or D	COPC Group	COPC	CASRN	Medium-Specific COPC	Units	Maximum Detected Concentration	Qual	95% UCL	95% UCL Method	ProUCL Notes	Sample Count	Detect Count	Detection Frequency (%)	Exposure Point Concentration (EPC)		
														Value	Statistic	Rationale
T	VOC	1,4-Dichlorobenzene	106-46-7	Yes	ug/L	1.5		--	No UCL calculated, insufficient detects	d, g, h	8	1	13	1.5	Max	Lower of the max and UCL
T	VOC	Benzene	71-43-2	Yes	ug/L	1.8		--	No UCL calculated, insufficient detects	d, g, h	8	1	13	1.8	Max	Lower of the max and UCL
T	VOC	cis-1,2-Dichloroethylene	156-59-2	Yes	ug/L	61		21.02	95% KM (Chebyshev) UCL		16	12	75	21.02	UCL	Lower of the max and UCL
T	VOC	Tetrachloroethylene	127-18-4	Yes	ug/L	490		227.7	975% KM (Chebyshev) UCL		16	10	63	227.7	UCL	Lower of the max and UCL
T	VOC	Trichloroethylene	79-01-6	Yes	ug/L	62		59.15	99% KM (Chebyshev) UCL		12	6	50	59.15	UCL	Lower of the max and UCL
T	VOC	Vinyl chloride	75-01-4	Yes	ug/L	0.33		0.317	95% KM Bootstrap t UCL	a, h	8	7	88	0.317	UCL	Lower of the max and UCL
T	SVOC	4-Chloroaniline	106-47-8	Yes	ug/L	27		--	No UCL calculated, insufficient detects	d, g, h	8	1	13	27	Max	Lower of the max and UCL
T	INORGANIC	Arsenic	7440-38-2	Yes	ug/L	3.2		2.331	95% KM (Chebyshev) UCL	h	8	7	88	2.331	UCL	Lower of the max and UCL
T	INORGANIC	Chromium (Total)	7440-47-3	Yes	ug/L	0.85	J	0.615	95% KM (t) UCL	h	8	7	88	0.615	UCL	Lower of the max and UCL
T	INORGANIC	Cobalt	7440-48-4	Yes	ug/L	3.2		1.636	KM H-UCL	h	8	7	88	1.636	UCL	Lower of the max and UCL
T	INORGANIC	Iron	7439-89-6	Yes	ug/L	29500		95996	95% Hall's Bootstrap UCL	h, i	8	8	100	29500	Max	Lower of the max and UCL
T	INORGANIC	Manganese	7439-96-5	Yes	ug/L	4630		8253	95% Hall's Bootstrap UCL	h, i	8	8	100	4630	Max	Lower of the max and UCL

Notes:

Only unfiltered (total) surface water data are evaluated. These EPCs for surface water will be used in the recreator scenario.
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL) of the arithmetic mean. When the UCL is greater than the maximum detected concentration or ProUCL did not calculate an UCL, the maximum detected concentration is chosen.
The most appropriate UCL is chosen from those ProUCL suggests based on the distribution of the databset and ProUCL guidance. ProUCL outputs are provided in Attachme
EPCs were calculated for COPCs across all media and medium-specific COPCs are marked.

Abbreviations:

COPC -- Constituent of potential concern
EPC -- Exposure point concentration
Qual -- Qualifier
NA -- Not analyzed or applicable
ND -- Not detected
UCL -- 95% Upper confidence limit

ProUCL Notes and Warnings:

a The lowest UCL is chosen when ProUCL suggested more than one UCL, except when a H-UCL is identified because ProUCL does not recommend using it.
b One or more recommended UCL not available.
c All data are non-detects.
d Data set has only 1 Distinct Detected Values.
e Data set has only 2 Detected Values.
f Data set has only 3 Detected Values.
g The data set was not processed.
h Sample size is small (e.g., <10).
i Suggested UCL exceeds the maximum observation.

References:

USEPA. 2016. ProUCL Version 5.1.02. September 19. Available online: https://www.epa.gov/land-research/proucl-software
USEPA. 2015. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: https://www.epa.gov/land-research/proucl-version-5100-documentation-downloads

TABLE 3.6
EXPOSURE POINT CONCENTRATION SUMMARY FOR SEEP SEDIMENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Seep Sediment
Exposure Medium: Seep Sediment

COPC Group	COPC	CASRN	Medium-Specific COPC	Units	Maximum Detected Concentration	Qual	95% UCL	95% UCL Method	ProUCL Notes	Sample Count	Detect Count	Detection Frequency (%)	Exposure Point Concentration (EPC)		
													Value	Statistic	Rationale
VOC	Methylcyclohexane	108-87-2	Yes	mg/kg	0.0062	J	--	No UCL calculated, insufficient detects	d, g, h	8	1	13	0.0062	Max	Lower of the max and UCL
VOC	Tetrachloroethylene	127-18-4	Yes	mg/kg	11	J	4.834	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		17	11	65	4.834	UCL	Lower of the max and UCL
VOC	Trichloroethylene	79-01-6	Yes	mg/kg	1	J-	0.459	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		15	9	60	0.459	UCL	Lower of the max and UCL
SVOC	Benzo(a)anthracene	56-55-3	Yes	mg/kg	0.25	J	0.515	95% KM (Chebyshev) UCL	e, h, i	8	2	25	0.25	Max	Lower of the max and UCL
SVOC	Benzo(a)pyrene	50-32-8	Yes	mg/kg	0.26	J	0.222	95% KM (t) UCL	f, h	8	3	38	0.222	UCL	Lower of the max and UCL
SVOC	Benzo(b)fluoranthene	205-99-2	Yes	mg/kg	0.38	J	0.227	95% KM (t) UCL	h	8	5	63	0.227	UCL	Lower of the max and UCL
INORGANIC	Aluminum	7429-90-5	Yes	mg/kg	18100	J	10041	95% Student's-t UCL	h	8	8	100	10041	UCL	Lower of the max and UCL
INORGANIC	Arsenic	7440-38-2	Yes	mg/kg	14.2	J	9.375	95% Adjusted Gamma UCL	h	8	8	100	9.375	UCL	Lower of the max and UCL
INORGANIC	Chromium (Total)	7440-47-3	Yes	mg/kg	28.7	J	19.34	95% Adjusted Gamma UCL	h	8	8	100	19.34	UCL	Lower of the max and UCL
INORGANIC	Cobalt	7440-48-4	Yes	mg/kg	57.2	J	42.38	95% Chebyshev (Mean, Sd) UCL	h	8	8	100	42.38	UCL	Lower of the max and UCL
INORGANIC	Cyanide	57-12-5	Yes	mg/kg	3.5	J	--	No UCL calculated, insufficient detects	d, g, h	8	1	13	3.5	Max	Lower of the max and UCL
INORGANIC	Iron	7439-89-6	Yes	mg/kg	38200	J	26643	95% Chebyshev (Mean, Sd) UCL	h	8	8	100	26643	UCL	Lower of the max and UCL
INORGANIC	Manganese	7439-96-5	Yes	mg/kg	7480	J	8291	95% Adjusted Gamma UCL	i, h	8	8	100	7480	Max	Lower of the max and UCL

Notes:

The exposure point concentration (EPC) is the 95% upper confidence limit (UCL) of the arithmetic mean. When the UCL is greater than the maximum detected concentration or ProUCL did not calculate an UCL, the maximum detected concentration is c
The most appropriate UCL is chosen from those ProUCL suggests based on the distribution of the databset and ProUCL guidance. ProUCL outputs are provided in Attachmei
These EPCs for seep sediment will be used in the recreator scenario.
EPCs were calculated for COPCs across all media and medium-specific COPCs are marked.

Abbreviations:

COPC -- Constituent of potential concern
EPC -- Exposure point concentration
Qual -- Qualifier
NA -- Not analyzed or applicable
ND -- Not detected
UCL -- 95% Upper confidence limit

ProUCL Notes and Warnings:

a The lowest UCL is chosen when ProUCL suggested more than one UCL, except when a H-UCL is identified because ProUCL does not recommend using it.
b One or more recommended UCL not available.
c All data are non-detects.
d Data set has only 1 Distinct Detected Values.
e Data set has only 2 Detected Values.
f Data set has only 3 Detected Values.
g The data set was not processed.
h Sample size is small (e.g., <10).
i Suggested UCL exceeds the maximum observation.

References:

USEPA. 2016. ProUCL Version 5.1.02. September 19. Available online: https://www.epa.gov/land-research/proucl-software
USEPA. 2015. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: https://www.epa.gov/land-research/proucl-version-5100-documentation-downloads

TABLE 4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SOIL
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Ingestion	Construction Worker	Adult	Soil (0-10 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	Intake (mg/kg-day) = (CS x IR x CF x FI x EF x ED x RBA) / (BW x AT)
				AT	Averaging Time-noncancer	365	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2014	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				FI	Fraction Ingested	1	unitless	USEPA RSL Equations	
				ED	Exposure Duration	1	years	USEPA 2014	
				EF	Exposure Frequency	250	days/yr	USEPA 2014	
				IR	Ingestion Rate	330	mg/day	USEPA RSL Equations	
				RBA	Relative Bioavailability	Chemical-specific	unitless	USEPA RSL User Guide	
	Worker	Adult	Surface Soil (0-2 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	Intake (mg/kg-day) = (CS x IR x CF x FI x EF x ED x RBA) / (BW x AT)
				AT	Averaging Time-noncancer	9125	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2014	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				FI	Fraction Ingested	1	unitless	USEPA RSL Equations	
				ED	Exposure Duration	25	years	USEPA 2014	
				EF	Exposure Frequency	250	days/yr	USEPA 2011	
				IR	Ingestion Rate	100	mg/day	USEPA 2014	
				RBA	Relative Bioavailability	Chemical-specific	unitless	USEPA RSL User Guide	
	Resident	Adult	Surface Soil (0-2 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	For noncancer, the Intake (mg/kg-day) = (CS x IR x CF x FI x EF x ED x RBA) / (BW x AT), separately for adult and child using IR-adult or IR-child. For cancer, the ingestion rate was calculated for an adult (birth - 26 yrs), adjusting for age-specific exposure factors, where IR-Adj = ∑ (ED * IR) / BW. Intake (mg/kg-day) = (CS x (IR-Adj-adult + IR-Adj-child) x CF x FI x EF x RBA) / AT For MMOA cancer risks, the IR-Adj was weighted for each age bin using Age-Dependent Adjustment Factors (ADAFs), where 0-<2 yrs applied an ADAF of 10, 2-<6 yrs applied an ADAF of 3, 6-<16 yrs applied an ADAF of 3, and 6-26 yrs applied and ADAF of 1. For TCE cancer risks, the Intake (mg/kg-day) = (CS x EF x CF x RBA x (CAF x (IR-Adj-adult + IR-Adj-child) + MAF x (IR-Adj-0-2 + IR-Adj-2-6 + IR-Adj-6-16 + IR-Adj-16-26))) / AT. For VC cancer, the intake (mg/kg-day) = CS x CF x RBA x [(EF x (IR-Adj-adult + IR-Adj-child) / AT) + (IR-child / BW-child)]
				AT	Averaging Time-noncancer	7300	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2014	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				FI	Fraction Ingested	1	unitless	USEPA RSL Equations	
				ED	Exposure Duration	20	years	USEPA 2014	
				EF	Exposure Frequency	350	days/yr	USEPA 2011	
				IR-adult	Ingestion Rate	100	mg/day	USEPA 2014	
				IR-Adj-adult	Ingestion Rate Age-Adjusted	38	mg-yr/day-kg	Calculated	
				IR-Adj-6-16	Ingestion Rate Age-Adjusted MMOA 6-<16	74	mg-yr/day-kg	Calculated	
				IR-Adj-16-26	Ingestion Rate Age-Adjusted MMOA 16-<26	13	mg-yr/day-kg	Calculated	
				RBA	Relative Bioavailability	Chemical-specific	unitless	USEPA RSL User Guide	
				CAFo	TCE Cancer Adjustment Factor-oral	0.804	unitless	USEPA RSL Equations	
				MAFo	TCE Mutagen Adjustment Factor-oral	0.202	unitless	USEPA RSL Equations	
		Child (0-6 years)	Surface Soil (0-2 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	2190	days	USEPA 2011	
				BW	Body Weight	15	kg	USEPA 2014	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				FI	Fraction Ingested	1	unitless	USEPA RSL Equations	
				ED	Exposure Duration	6	years	USEPA 2014	
				EF	Exposure Frequency	350	days/yr	USEPA 2011	
				IR-child	Ingestion Rate	200	mg/day	USEPA 2011	
				IR-Adj-child	Ingestion Rate Age-Adjusted	91	mg-yr/day-kg	Calculated	
				IR-Adj-0-2	Ingestion Rate Age-Adjusted MMOA 0-<2	443	mg-yr/day-kg	Calculated	
				IR-Adj-2-6	Ingestion Rate Age-Adjusted MMOA 2-<6	140	mg-yr/day-kg	Calculated	

TABLE 4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SOIL
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Dermal	Construction Worker	Adult	Soil (0-10 ft)	ABSd	Dermal Absorption Factor	Chemical-specific	unitless	USEPA 2004	Dermally Absorbed Dose (DAD) (mg/kg-day) = (DA-event x EF x ED x EV x SA) / (BW x AT), where DA-event (mg/cm^2-event)= Csoil x CF x AF x ABSd
				AF	Dermal Adherence Factor	0.3	mg/cm^2-event	USEPA RSL Equations	
				AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	365	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2011	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				ED	Exposure Duration	1	years	USEPA 2011	
				EF	Exposure Frequency	250	days/yr	USEPA 2011	
				EV	Events Frequency	1	events/day	USEPA 2004	
				SA	Skin Surface Area	3527	cm^2	USEPA RSL Equations	
	Worker	Adult	Surface Soil (0-2 ft)	ABSd	Dermal Absorption Factor	Chemical-specific	unitless	USEPA 2004	DAD (mg/kg-day) = (DA-event x EF x ED x EV x SA) / (BW x AT), where DA-event (mg/cm^2-event)= Csoil x CF x AF x ABSd
				AF	Adherence Factor	0.12	mg/cm^2-event	USEPA 2011	
				AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	9125	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2011	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				ED	Exposure Duration	25	years	USEPA 2011	
				EF	Exposure Frequency	250	days/yr	USEPA 2011	
				EV	Events Frequency	1	events/day	USEPA 2004	
				SA	Skin Surface Area	3527	cm^2	USEPA RSL Equations	
	Resident	Adult	Surface Soil (0-2 ft)	ABSd	Dermal Absorption Factor	Chemical-specific	unitless	USEPA 2004	For noncancer, the DAD (mg/kg-day) = (DA-event x EF x ED x EV x SA) / (BW x AT), where DA-event (mg/cm^2-event)= Csoil x CF x AF x ABSd. Separate calculations are performed for adult and child using SA-adult or SA-child. For cancer, the DAD was calculated for an adult (birth - 26 yrs), adjusting for age-specific exposure factors, where SA-Adj = ∑ (ED * SA) / BW. DAD (mg/kg-day) = (CS x CF x ABSd x EF x EV x (AF-adult x SA-Adj-adult + AF-child x SA-Adj-child)) / AT For MMOA cancer risks, the IR-Adj was weighted for each age bin using ADAFs, where 0-<2 yrs applied an ADAF of 10, 2-<6 yrs applied an ADAF of 3, 6-<16 yrs applied an ADAF of 3, and 6-26 yrs applied and ADAF of 1. For TCE cancer risks, the DAD (mg/kg-day) = (CS x EF x EV x CF x ABSd x (CAF x (AF-adult x SA-Adj-adult + AF-child x SA-Adj-child) + MAF x (AF-child x SA-Adj-0-2 + AF-child x SA-Adj-2-6 + AF-adult x SA-Adj-6-16 +AF-adult x SA-Adj-16-26))) / AT. For VC cancer, the DAD (mg/kg-day) = CS x CF x ABSd x EV x ((EF x (AF-adult x SA-Adj-adult + AF-child x SA-Adj-child) / AT) + (AF-child x SA-child / BW-child))
				AF	Adherence Factor	0.07	mg/cm^2-event	USEPA 2011	
				AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	7300	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2011	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				ED	Exposure Duration	20	years	USEPA 2011	
				EF	Exposure Frequency	350	days/yr	USEPA 2011	
				EV	Events Frequency	1	events/day	USEPA 2004	
				SA-adult	Skin Surface Area	6032	cm^2	USEPA 2014	
				SA-Adj-adult	Skin Surface Area Age-Adjusted	2278	cm^2-yr/kg	Calculated	
				SA-Adj-6-16	Skin Surface Area Age-Adjusted MMOA 6-<16	4438	cm^2-yr/kg	Calculated	
				SA-Adj-16-26	Skin Surface Area Age-Adjusted MMOA 16-<26	798	cm^2-yr/kg	Calculated	
				CAFo	TCE Cancer Adjustment Factor-oral	0.804	unitless	USEPA RSL Equations	
				MAFo	TCE Mutagen Adjustment Factor-oral	0.202	unitless	USEPA RSL Equations	
		Child (0-6 years)	Surface Soil (0-2 ft)	ABSd	Dermal Absorption Factor	Chemical-specific	unitless	USEPA 2004	
				AF	Adherence Factor	0.2	mg/cm^2-event	USEPA 2011	
				AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	2190	days	USEPA 2011	
				BW	Body Weight	15	kg	USEPA 2011	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				ED	Exposure Duration	6	years	USEPA 2011	
				EF	Exposure Frequency	350	days/yr	USEPA 2011	
				EV	Events Frequency	1	events/day	USEPA 2004	
				SA-child	Skin Surface Area	2373	cm^2	USEPA 2014	
				SA-Adj-child	Skin Surface Area Age-Adjusted	1080	cm^2-yr/kg	Calculated	
				SA-Adj-0-2	Skin Surface Area Age-Adjusted MMOA 0-<2	5255	cm^2-yr/kg	Calculated	
				SA-Adj-2-6	Skin Surface Area Age-Adjusted MMOA 2-<6	1664	cm^2-yr/kg	Calculated	

TABLE 4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SOIL
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Inhalation Outdoor Particulate / Vapor	Construction Worker	Adult	Soil (0-10 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	Exposure Concentration (EC) (mg/m^3) = (CA x ET x EF x ED x CF) / AT, where CA = CS / (PEF+VF)
				AT	Averaging Time-noncancer	365	days	USEPA 2011	
				CA	Chemical Concentration in Air	Chemical-specific	mg/m^3	Calculated	
				CF	Conversion Factor	0.042	day/hr	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				ED	Exposure Duration	1	years	USEPA 2011	
				EF	Exposure Frequency	250	days/yr	USEPA 2011	
				ET	Exposure Time	8	hr/day	USEPA 2011	
				PEF	Particulates Emissions Factor	37,800,000	m^3/kg	USEPA RSL Calculator - see Attachment C	
				VF	Volatilization Factor	Calculated	m^3/kg	USEPA RSL Calculator - see Attachment C	
	Worker	Adult	Surface Soil (0-2 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	EC (mg/m^3) = (CA x ET x EF x ED x CF) / AT, where CA = CS / (PEF+VF)
				AT	Averaging Time-noncancer	9125	days	USEPA 2011	
				CA	Chemical Concentration in Air	Chemical-specific	mg/m^3	Calculated	
				CF	Conversion Factor	0.042	day/hr	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				ED	Exposure Duration	25	years	USEPA 2011	
				EF	Exposure Frequency	250	days/yr	USEPA 2014	
				ET	Exposure Time	8	hr/day	USEPA 2011	
				PEF	Particulates Emissions Factor	1,470,000,000	m^3/kg	USEPA RSL Calculator - see Attachment C	
				VF	Volatilization Factor	Calculated	m^3/kg	USEPA RSL Calculator - see Attachment C	
	Resident	Adult	Surface Soil (0-2 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	For noncancer, EC (mg/m^3) = (CA x ET x EF x CF x ED) / AT, where CA = CS / (PEF+VF) For cancer, the EC is not age-adjusted for inhalation per RAGS Part F. The calculations applies ED-adj instead. EC (mg/m^3) = (CA x ET x EF x CF x ED-adj) / AT, where CA = CS / (PEF+VF) For MMOA cancer risks, the ED was weighted for each age bin using ADAFs, where 0-<2 yrs applied an ADAF of 10, 2-<6 yrs applied an ADAF of 3, 6-<16 yrs applied an ADAF of 3, and 6-26 yrs applied and ADAF of 1. EC (mg/m^3) = (CA x ET x EF x CF x (ED-0-2 x 10 + ED-2-6 x 3 + ED-6-16 x 3 + ED-16-26 x 1)) / AT, where CA = CS / (PEF+VF) For TCE cancer risks, the EC (mg/m^3) = (CA x ET x EF x CF x ((CAFi x ED-adj) + (MAF x (ED-0-2 x 10 + ED-2-6 x 3 + ED-6-16 x 3 + ED-16-26 x 1)))) / AT, where CA = CS / (PEF+VF) For VC cancer, the CA is calculated using the volatilization pathway (as opposed to also including the particulate pathway) as presented in the USEPA RSL equations. EC (mg/m^3) = (CA x ET x EF x CF x ED-adj) / AT + CA, where CA = CS / (VF)
				AT	Averaging Time-noncancer	7300	days	USEPA 2011	
				CA	Chemical Concentration in Air	Chemical-specific	mg/m^3	Calculated	
				CF	Conversion Factor	0.042	day/hr	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				ED	Exposure Duration	20	years	USEPA 2011	
				ED-adj	Exposure Duration-cancer aggregate	26	years	USEPA RSL Equations	
				EF	Exposure Frequency	350	days/yr	USEPA 2011	
				ET	Exposure Time	24	hr/day	USEPA 2014	
				PEF	Particulates Emissions Factor	1,470,000,000	m^3/kg	USEPA RSL Calculator - see Attachment C	
				VF	Volatilization Factor	Calculated	m^3/kg	USEPA RSL Calculator - see Attachment C	
				CAFi	TCE Cancer Adjustment Factor-inhalation	0.756	unitless	USEPA RSL Equations	
				MAFi	TCE Mutagen Adjustment Factor-inhalation	0.244	unitless	USEPA RSL Equations	

TABLE 4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SOIL
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Inhalation cont.		Child (0-6 years)	Surface Soil (0-2 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	2190	days	USEPA 2011	
				CA	Chemical Concentration in Air	Chemical-specific	mg/m^3	Calculated	
				CF	Conversion Factor	0.042	day/hr	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				ED	Exposure Duration	6	years	USEPA 2011	
				EF	Exposure Frequency	350	days/yr	USEPA 2011	
				ET	Exposure Time	24	hr/day	USEPA 2014	
				PEF	Particulates Emissions Factor	1,470,000,000	m^3/kg	USEPA RSL Calculator - see Attachment C	
				VF	Volatilization Factor	Calculated	m^3/kg	USEPA RSL Calculator - see Attachment C	

Note:
The recreator's exposure frequency assumes visits to surface water bodies 2 days/week during summer (4 weeks each in May, June, July, Aug) and 1 day/week during spring and fall (4 weeks each in Mar, Apr, Sept, Oct, Nov), which is a total of 52 days/year.
The recreator's exposure time is based on the average of the time spent outdoors on Table 16-1 for each age group from the Exposure Factors Handbook (2011). The time spent playing on the grass and time spent playing in the dirt was also considered.
The worker is the composite of an indoor worker and outdoor worker.

Abbreviations:
Adj -- Adjusted to include both adult and child exposure factors
DAD -- Dermally absorbed dose
EC -- Exposure concentration
EPC -- Exposure point concentration
RSL -- USEPA Regional Screening Level
TCE -- Trichloroethene
USEPA -- United States Environmental Protection Agency

References:
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USEPA. 2004. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online: https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part
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USEPA. 2016. Regional Screening Levels Equations. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls
USEPA. 2016. Regional Screening Levels Calculator. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

TABLE 4.2
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR GROUNDWATER
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current / Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Ingestion	Construction Worker	Adult	Groundwater Excavation (Incidental Ingestion)	AT	Averaging Time-cancer	25550	days	EPA 2011	Intake (mg/kg-day) = (CW x IR x CF x EF x ED) / (BW x AT)
				AT	Averaging Time-noncancer	365	days	EPA 2011	
				BW	Body Weight	80	kg	EPA 2014	
				CF	Conversion Factor	0.001	mg/µg	--	
				CW	Chemical Concentration in Water	EPC	µg/L	--	
				ED	Exposure Duration	1	years	EPA 2014	
				EF	Exposure Frequency	250	days/yr	EPA 2011	
				IR	Ingestion Rate	0.02	L/day	VADEQ 2016	
	Resident	Adult	Tap Water	AT	Averaging Time-cancer	25550	days	EPA 2011	For noncancer, Intake (mg/kg-day) = (CW x IR x CF x EF x ED) / (BW x AT), separately for adult and child using IR-adult or IR-child. For cancer, the ingestion rate was calculated for an adult (birth - 26 yrs), adjusting for age-specific exposure factors, where IR-Adj = ∑ (ED * IR) / BW. Intake (mg/kg-day) = (CW x (IR-Adj-adult + IR-Adj-child) x CF x EF) / AT For MMOA cancer, the IR-Adj was weighted for each age bin using Age-Dependent Adjustment Factors (ADAFs), where 0-<2 yrs applied an ADAF of 10, 2-<6 yrs applied an ADAF of 3, 6-<16 yrs applied an ADAF of 3, and 16-26 yrs applied and ADAF of 1. For TCE cancer, the intake (mg/kg-day) = (CW x [CAF x (IR-Adj-adult + IR-Adj-child) + MAF x (IR-Adj-0-2 + IR-Adj-2-6 + IR-Adj-6-16 + IR-Adj-16-26)] x EF x CF) / AT. Adult intake equation is aggregate of child and adult age ranges. For VC cancer, the intake (mg/kg-day) = CW x CF x [(EF x (IR-Adj-adult + IR-Adj-child) / AT) + (IR-child / BW-child)] Blood lead in children will be evaluated using the EPA Integrated Exposure Uptake Biokinetic (IEUBK) Model.
				AT	Averaging Time-noncancer	7300	days	EPA 2011	
				BW	Body Weight	80	kg	EPA 2014	
				CF	Conversion Factor	0.001	mg/µg	--	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Table 3.1	
				ED	Exposure Duration	20	years	EPA 2014	
				EF	Exposure Frequency	350	days/yr	EPA 2011	
				IR-adult	Ingestion Rate	2.5	L/day	EPA 2014	
				IR-Adj-adult	Ingestion Rate Age-Adjusted	0.7	L-yr/day-kg	Calculated - Table 4.Supp.1	
				IR-Adj-6-16	Ingestion Rate Age-Adjusted MMOA 6-<16	1.1	L-yr/day-kg	Calculated - Table 4.Supp.2	
				IR-Adj-16-26	Ingestion Rate Age-Adjusted MMOA 16-<26	0.33	L-yr/day-kg	Calculated - Table 4.Supp.2	
				CAFo	TCE Cancer Adjustment Factor-oral	0.804	unitless	USEPA RSL Equations	
				MAFo	TCE Mutagen Adjustment Factor-oral	0.202	unitless	USEPA RSL Equations	
		Child (0-6 years)	Tap Water	AT	Averaging Time-cancer	25550	days	EPA 2011	
				AT	Averaging Time-noncancer	2190	days	EPA 2011	
				BW	Body Weight	15	kg	EPA 2014	
				CF	Conversion Factor	0.001	mg/µg	--	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Table 3.1	
				ED	Exposure Duration	6	years	EPA 2014	
				EF	Exposure Frequency	350	days/yr	EPA 2011	
				IR-child	Ingestion Rate	0.78	L/day	EPA 2014	
				IR-Adj-child	Ingestion Rate Age-Adjusted	0.42	L-yr/day-kg	Calculated - Table 4.Supp.1	
				IR-Adj-0-2	Ingestion Rate Age-Adjusted MMOA 0-<2	2.1	L-yr/day-kg	Calculated - Table 4.Supp.2	
				IR-Adj-2-6	Ingestion Rate Age-Adjusted MMOA 2-<6	0.65	L-yr/day-kg	Calculated - Table 4.Supp.2	
Dermal	Construction Worker	Adult	Groundwater Excavation	AT	Averaging Time-cancer	25550	days	EPA 2011	Dermally Absorbed Dose (mg/kg-day) = (DA-event x EV x SA x EF x ED) / (BW x AT) where for organic compounds, if t-event ≤ t*: DA-event (mg/cm^2-event) = 2 x FA x Kp x Cw x (sqrt((6 x τevent x tevent) / (π))) x CF1 x CF2, where CF1 = 0.001 mg/ug and CF2 = 0.001 L/cm^3 OR if tevent>t*: DAevent (mg/cm^2-event) = FA x Kp x CW x (tevent/(1+B) + 2 x τevent x ((1 + 3B + 3B^2)/(1+B)^2)) x CF1 x CF2 where for inorganic compounds, DA-event (mg/cm^2-event) = Kp x CW x tevent x CF1 x CF2
				AT	Averaging Time-noncancer	365	days	EPA 2011	
				B	Ratio of permeability coefficent of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Chemical-specific	--	EPA 2004	
				BW	Body Weight	80	kg	EPA 2014	
				CW	Chemical Concentration in Water	EPC	µg/L	--	
				DA-event	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	Calculated	
				t-event	Event Time	4	hr/event	VADEQ 2016	
				EV	Event Frequency	1	events/day	EPA 2004	
				EF	Exposure Frequency	250	days/year	EPA 2011	
				ED	Exposure Duration	1	years	EPA 2014	
				FA	Fraction Absorbed Water	Chemical-specific	--	EPA 2004	
				Kp	Permeability Constant	Chemical-specific	cm/hr	EPA 2004	
				SA	Skin Surface Area Available for Contact	3527	cm^2	EPA 2014	
				tau-event	Lag time per event	Chemical-specific	hr/event	EPA 2004	

TABLE 4.2
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR GROUNDWATER
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current / Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Dermal	Worker	Adult	Tap Water	AT	Averaging Time-cancer	25550	days	EPA 2011	Dermally Absorbed Dose (mg/kg-day) = (DA-event x EV x SA x EF x ED) / (BW x AT) where for organic compounds, if t-event ≤ t*: DA-event (mg/cm^2-event) = 2 x FA x Kp x Cw x (sqrt((6 x τevent x tevent) / (π))) x CF1 x CF2, where CF1 = 0.001 mg/ug and CF2 = 0.001 L/cm^3 OR if tevent>t*: DAevent (mg/cm^2-event) = FA x Kp x CW x (tevent/(1+B) + 2 x τevent x ((1 + 3B + 3B^2)/(1+B)^2)) x CF1 x CF2 where for inorganic compounds, DA-event (mg/cm^2-event) = Kp x CW x tevent x CF1 x CF2
				AT	Averaging Time-noncancer	9125	days	EPA 2011	
				B	Ratio of permeability coefficent of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Chemical-specific	--	EPA 2004	
				BW	Body Weight	80	kg	EPA 2014	
				CW	Chemical Concentration in Water	EPC	µg/L	--	
				DA-event	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	Calculated	
				t-event	Event Time	1	hr/event	Professional judgment	
				EV	Event Frequency	1	events/day	EPA 2004	
				EF	Exposure Frequency	250	days/yr	USEPA 2014	
				ED	Exposure Duration	25	years	EPA 2014	
				FA	Fraction Absorbed Water	Chemical-specific	--	EPA 2004	
				Kp	Permeability Constant	Chemical-specific	cm/hr	EPA 2004	
				SA	Skin Surface Area Available for Contact	3527	cm^2	EPA 2014	
				tau-event	Lag time per event	Chemical-specific	hr/event	EPA 2004	
	Resident	Adult	Tap Water	AT	Averaging Time-cancer	25550	days	EPA 2011	For noncancer, Dermally Absorbed Dose (DAD) (mg/kg-day) = (DA-event x EV x SA x EF x ED) / (BW x AT). Separate calculations are performed for adult and child using SA-adult or SA-child. where for organic compounds, if t-event ≤ t*: DA-event (mg/cm^2-event) = 2 x FA x Kp x Cw x (sqrt((6 x τevent x tevent) / (π))) x CF1 x CF2, where CF1 = 0.001 mg/ug and CF2 = 0.001 L/cm^3 OR if tevent>t*: DAevent (mg/cm2-event) = FA x Kp x CW x (tevent/(1+B) + 2 x τevent x ((1 + 3B + 3B^2)/(1+B)^2)) x CF1 x CF2 where for inorganic compounds, DA-event (mg/cm^2-event) = Kp x CW x tevent x CF1 x CF2 For cancer, the DAD was calculated for an adult (birth - 26 yrs), adjusting for age-specific exposure factors, where SA-Adj = ∑ (ED * SA) / BW. (DAD) (mg/kg-day) = ((DA-event-adult x SA-Adj-adult + DA-event-child x SA-Adj-child) x EV x EF) / AT For MMOA cancer, the IR-Adj was weighted for each age bin using ADAFs, where 0-<2 yrs applied an ADAF of 10, 2-<6 yrs applied an ADAF of 3, 6-<16 yrs applied an ADAF of 3, and 6-26 yrs applied and ADAF of 1. For TCE cancer, the DAD (mg/kg-day) = ([CAFo x (DA-event-adult x SA-Adj-adult + DA-event-child x SA-Adj-child) + MAFo x (DA-event-adult x (SA-Adj-6-16 + SA-Adj-16-26) + DA-event-child x (SA-Adj-0-2 + SA-Adj-2-6))] x EV x EF) / AT Adult intake equation is aggregate of child and adult age ranges. For VC cancer, the DAD (mg/kg-day) = (EV x EF x (DA-event-adult x SA-Adj-adult + DA-event-child x SA-Adj-child) / AT) + (DA-event-child x (EV x SA-child / BW-child))
				AT	Averaging Time-noncancer	7300	days	EPA 2011	
				B	Ratio of permeability coefficent of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Chemical-specific	--	EPA 2004	
				BW	Body Weight	80	kg	EPA 2014	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Table 3.1	
				DA-event-adult	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	Calculated - Table 4.Supp.3	
				t-event	Event Time	0.71	hr/event	EPA 2014	
				EV	Event Frequency	1	events/day	EPA 2004	
				EF	Exposure Frequency	350	days/year	EPA 2011	
				ED	Exposure Duration	20	years	EPA 2014	
				FA	Fraction Absorbed Water	Chemical-specific	--	EPA 2004	
				Kp	Permeability Constant	Chemical-specific	cm/hr	EPA 2004	
				SA-adult	Skin Surface Area Available for Contact	19652	cm^2	EPA 2014 - See Notes	
				SA-Adj-adult	Skin Surface Area Age-Adjusted	5508	cm^2-yr/kg	Calculated - Table 4.Supp.1	
				SA-Adj-6-16	Skin Surface Area Age-Adjusted MMOA 6-<16	9293	cm^2-yr/kg	Calculated - Table 4.Supp.2	
				SA-Adj-16-26	Skin Surface Area Age-Adjusted MMOA 16-<26	2410	cm^2-yr/kg	Calculated - Table 4.Supp.2	
				tau-event	Lag time per event	Chemical-specific	hr/event	EPA 2004	
				CAFo	TCE Cancer Adjustment Factor-oral	0.804	unitless	USEPA RSL Equations	
				MAFo	TCE Mutagen Adjustment Factor-oral	0.202	unitless	USEPA RSL Equations	
		Child (0-6 years)	Tap Water	AT	Averaging Time-cancer	25550	days	EPA 2011	
				AT	Averaging Time-noncancer	2190	days	EPA 2011	
				B	Ratio of permeability coefficent of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Chemical-specific	--	EPA 2004	
				BW	Body Weight	15	kg	EPA 2014	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Table 3.1	
				DA-event-child	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	Calculated - Table 4.Supp.3	
				t-event	Event Time	0.54	hr/event	EPA 2014	
				EV	Event Frequency	1	events/day	EPA 2004	
				EF	Exposure Frequency	350	days/year	EPA 2011	
				ED	Exposure Duration	6	years	EPA 2014	
				FA	Fraction Absorbed Water	Chemical-specific	--	EPA 2004	
				Kp	Permeability Constant	Chemical-specific	cm/hr	EPA 2004	
				SA-child	Skin Surface Area Available for Contact	6365	cm^2	EPA 2014 - See Notes	
				SA-Adj-child	Skin Surface Area Age-Adjusted	2649	cm^2-yr/kg	Calculated - Table 4.Supp.1	
				SA-Adj-0-2	Skin Surface Area Age-Adjusted MMOA 0-<2	9814	cm^2-yr/kg	Calculated - Table 4.Supp.2	
				SA-Adj-2-6	Skin Surface Area Age-Adjusted MMOA 2-<6	5004	cm^2-yr/kg	Calculated - Table 4.Supp.2	
				tau-event	Lag time per event	Chemical-specific	hr/event	EPA 2004	

TABLE 4.2
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR GROUNDWATER
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current / Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Inhalation	Construction Worker	Adult	Groundwater Excavation	AT	Averaging Time-cancer	25550	days	EPA 2011	Exposure Concentration (mg/m^3) = (CA x ET x ED x EF x CF) / AT CA calculated using VADEQ's groundwater in trench calculator, which is described further in the calculator.
				AT	Averaging Time-noncancer	365	days	EPA 2011	
				CW	Chemical Concentration in Water	EPC	µg/L	--	
				CA	Chemical Concentration in Air	Calculated	mg/m^3	--	
				CF	Conversion Factor	0.042	day/hr	--	
				ET	Exposure Time	4	hr/day	VADEQ 2016	
				EF	Exposure Frequency	250	days/year	EPA 2011	
				ED	Exposure Duration	1	years	EPA 2014	
	Resident	Adult	Water Vapors in Bathroom Air	AT	Averaging Time-cancer	25550	days	EPA 2011	The Andelman shower model as modified by Schaum et al. calculates chemical concentrations in air using chemical concentrations in water; the model is applied to VOCs only. For noncancer, Exposure Concentration (EC) (mg/m^3) = (CA x ET x ED x EF x CF) / AT, separately for adult and child using CA-adult or CA-child. For cancer, EC (mg/m^3) = ((CA-adult x ET-adult x ED-adult + CA-child x ET-child x ED-child) x EF x CF) / AT For MMOA cancer, EC (mg/m^3) = ((CA-adult x ET-adult + CA-child x ET-child) x (ED-0-2 x 10 + ED-2-6 x 3 + ED-6-16 x 3 + ED-16-26 x 1) x EF x CF) / AT For TCE cancer, the EC (mg/m3) = ((CA-adult x ET-adult + CA-child x ET-child) x [CAFi x ED-adj + MAF x (ED-0-2 x 10 + ED-2-6 x 3 + ED-6-16 x 3 + ED-16-26 x 1)] x EF x CF) / AT Adult intake equation is aggregate of child and adult age ranges. For VC cancer, EC (mg/m^3) = ((CA-adult x ET-adult + CA-child x ET-child) x ED-adj x EF x CF) / AT + CA-child
				AT	Averaging Time-noncancer	7300	days	EPA 2011	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Table 3.1	
				CA-adult	Chemical Concentration in Air from Shower	Calculated	mg/m^3	Calculated - Table 4.Supp.4	
				CF	Conversion Factor	0.042	day/hr	1 day / 24 hours	
				ET	Exposure Time	0.71	hr/day	EPA 2014	
				EF	Exposure Frequency	350	days/year	EPA 2011	
				ED	Exposure Duration	20	years	EPA 2014	
				ED-adj	TCE Exposure Duration-cancer aggregate	26	years	EPA 2011	
				CAFi	TCE Cancer Adjustment Factor-inhalation	0.756	unitless	USEPA RSL Equations	
				MAFi	TCE Mutagen Adjustment Factor-inhalation	0.244	unitless	USEPA RSL Equations	
		Child (0-6 years)	Water Vapors in Bathroom Air	AT	Averaging Time-cancer	25550	days	EPA 2011	
				AT	Averaging Time-noncancer	2190	days	EPA 2011	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Table 3.1	
				CA-child	Chemical Concentration in Air from Shower	Calculated	mg/m^3	Calculated - Table 4.Supp.4	
				CF	Conversion Factor	0.042	day/hr	1 day / 24 hours	
				ET	Exposure Time	0.54	hr/day	EPA 2014	
				EF	Exposure Frequency	350	days/year	EPA 2011	
				ED	Exposure Duration	6	years	EPA 2014	

Notes:
Intake equations are derived from EPA's RSL equations and also taken from EPA's Risk Assessment Guidance for Superfund (RAGS).
The skin surface area available for contact is the weighted average of mean values for males and females combined for total surface area, which includes the head, trunk, arms, hands, legs and feet (EPA 2014).

Abbreviations:
Adj -- Adjusted to include both adult and child exposure factors
DAD -- Dermally absorbed dose
EC -- Exposure concentration
EPC -- Exposure point concentration
RSL -- USEPA Regional Screening Level
TCE -- Trichloroethene
USEPA -- United States Environmental Protection Agency

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TABLE 4.3
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SURFACE & SEEP WATER
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Incidental Ingestion	Recreator (wader)	Adult	Surface Water	AT	Averaging Time-cancer	25550	days	EPA 2011	For noncancer, Intake (mg/kg-day) = (CW x IR x CF x EF x ED x ET x EV) / (BW x AT) For cancer, the ingestion rate was calculated for an adult (birth - 26 yrs), adjusting for age-specific exposure factors, where IR-Adj = ∑ (ED * IR * ET * EV) / BW. Intake (mg/kg-day) = (CW x (IR-Adj-adult + IR-Adj-child) x CF x EF) / AT For MMOA cancer, the IR-Adj was weighted for each age bin using Age-Dependent Adjustment Factors (ADAFs), where 0-<2 yrs applied an ADAF of 10, 2-<6 yrs applied an ADAF of 3, 6-<16 yrs applied an ADAF of 3, and 16-26 yrs applied and ADAF of 1. For TCE cancer, the intake (mg/kg-day) = (CW x [CAF x (IR-Adj-adult + IR-Adj-child) + MAF x (IR-Adj-0-2 + IR-Adj-2-6 + IR-Adj-6-16 + IR-Adj-16-26)] x CF x EF) / AT. Adult intake equation is aggregate of child and adult age ranges. For VC cancer, the intake (mg/kg-day) = CW x CF x [(EF x (IR-Adj-adult + IR-Adj-child) / AT) + (IR-child / BW-child)]
				AT	Averaging Time-noncancer	7300	days	EPA 2011	
				BW	Body Weight	80	kg	EPA 2014	
				CF	Conversion Factor	0.001	mg/µg	--	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Tables 3.2 and 3.3	
				ED	Exposure Duration	20	years	EPA 2014	
				EF	Exposure Frequency	52	days/yr	Professional judgment - see Notes	
				ET	Event Time	2.6	hr/event	EPA 1989 / EPA 2011	
				EV	Event Frequency	1	events/day	EPA 2004	
				IR	Ingestion Rate	0.0037	L/hour	EPA 2011	
				IR-Adj-adult	Ingestion Rate Age-Adjusted	0.0036	L-yr/day-kg	Calculated - Table 4.Supp.1	
				IR-Adj-6-16	Ingestion Rate Age-Adjusted MMOA 6-<16	0.0071	L-yr/day-kg	Calculated - Table 4.Supp.2	
				IR-Adj-16-26	Ingestion Rate Age-Adjusted MMOA 16-<26	0.0013	L-yr/day-kg	Calculated - Table 4.Supp.2	
				CAFo	TCE Cancer Adjustment Factor-oral	0.804	unitless	USEPA RSL Equations EPA 2015c	
				MAFo	TCE Mutagen Adjustment Factor-oral	0.202	unitless	USEPA RSL Equations EPA 2015c	
		Child (0-6 years)	Surface Water	AT	Averaging Time-cancer	25550	days	EPA 2011	
				AT	Averaging Time-noncancer	2190	days	EPA 2011	
				BW	Body Weight	15	kg	EPA 2014	
				CF	Conversion Factor	0.001	mg/µg	--	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Tables 3.2 and 3.3	
				ED	Exposure Duration	6	years	EPA 2014	
				EF	Exposure Frequency	52	days/yr	Professional judgment - see Notes	
				ET	Event Time	2.6	hr/event	EPA 1989 / EPA 2011	
				EV	Event Frequency	1	events/day	EPA 2004	
				IR	Ingestion Rate	0.0037	L/hour	EPA 2011	
				IR-Adj-child	Ingestion Rate Age-Adjusted	0.0044	L-yr/day-kg	Calculated - Table 4.Supp.1	
				IR-Adj-0-2	Ingestion Rate Age-Adjusted MMOA 0-<2	0.021	L-yr/day-kg	Calculated - Table 4.Supp.2	
				IR-Adj-2-6	Ingestion Rate Age-Adjusted MMOA 2-<6	0.0067	L-yr/day-kg	Calculated - Table 4.Supp.2	
Dermal	Recreator (wader)	Adult	Surface Water	AT	Averaging Time-cancer	25550	days	EPA 2011	For noncancer, Dermally Absorbed Dose (DAD) (mg/kg-day) = (DA-event x EV x SA x EF x ED) / (BW x AT) where for organic compounds, if t-event ≤ t*: DA-event (mg/cm^2-event) = 2 x FA x Kp x Cw x (sqrt((6 x τevent x tevent) / (π))) x CF1 x CF2, where CF1 = 0.001 mg/ug and CF2 = 0.001 L/cm^3 OR if tevent>t*: DAevent (mg/cm^2-event) = FA x Kp x CW x (tevent/(1+B) + 2 x τevent x ((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2 where for inorganic compounds, DA-event (mg/cm^2-event) = Kp x CW x tevent x CF1 x CF2 For cancer, the DAD was calculated for an adult (birth - 26 yrs), adjusting for age-specific exposure factors, where SA-Adj = ∑ (ED * SA) / BW. (DAD) (mg/kg-day) = ((DA-event-adult x SA-Adj-adult + DA-event-child x SA-Adj-child) x EV x EF) / AT
				AT	Averaging Time-noncancer	7300	days	EPA 2011	
				B	Ratio of permeability coefficent of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Chemical-specific	--	EPA 2004	
				BW	Body Weight	80	kg	EPA 2014	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Tables 3.2 and 3.3	
				DA-event	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	Calculated	
				t-event	Event Time	2.6	hr/event	EPA 1989 / EPA 2011	
				EV	Event Frequency	1	events/day	EPA 2004	
				EF	Exposure Frequency	52	days/yr	Professional judgment - see Notes	
				ED	Exposure Duration	20	years	EPA 2014	
				FA	Fraction Absorbed Water	Chemical-specific	--	EPA 2004	
				Kp	Permeability Constant	Chemical-specific	cm/hr	EPA 2004	
				SA	Skin Surface Area Available for Contact	10070	cm^2	EPA 2011 / see also Table 4.Supp.1	
				SA-Adj-adult	Skin Surface Area Age-Adjusted	3035	cm^2-yr/kg	Calculated - Table 4.Supp.1	
				SA-Adj-6-16	Skin Surface Area Age-Adjusted MMOA 6-<16	5107	cm^2-yr/kg	Calculated - Table 4.Supp.2	
				SA-Adj-16-26	Skin Surface Area Age-Adjusted MMOA 16-<26	1333	cm^2-yr/kg	Calculated - Table 4.Supp.2	
				tau-event	Lag time per event	Chemical-specific	hr/event	EPA 2004	
				CAFo	TCE Cancer Adjustment Factor-oral	0.804	unitless	USEPA RSL Equations EPA 2015c	
				MAFo	TCE Mutagen Adjustment Factor-oral	0.202	unitless	USEPA RSL Equations EPA 2015c	

TABLE 4.3
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SURFACE & SEEP WATER
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Dermal		Child (0-6 years)	Surface Water	AT	Averaging Time-cancer	25550	days	EPA 2011	Equations continued: For MMOA cancer, the IR-Adj was weighted for each age bin using ADAFs, where 0-<2 yrs applied an ADAF of 10, 2-<6 yrs applied an ADAF of 3, 6-<16 yrs applied an ADAF of 3, and 6-26 yrs applied and ADAF of 1. For TCE cancer, the DAD (mg/kg-day) = ([CAFo x (DA-event-adult x SA-Adj-adult + DA-event-child x SA-Adj-child) + MAFo x (DA-event-adult x (SA-Adj-6-16 + SA-Adj-16-26) + DA-event-child x (SA-Adj-0-2 + SA-Adj-2-6))] x EV x EF) / AT Adult intake equation is aggregate of child and adult age ranges. For VC cancer, the DAD (mg/kg-day) = (EV x EF x (DA-event-adult x SA-Adj-adult + DA-event-child x SA-Adj-child) / AT) + (DA-event-child x (EV x SA-child / BW-child))
				AT	Averaging Time-noncancer	2190	days	EPA 2011	
				B	Ratio of permeability coefficent of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Chemical-specific	--	EPA 2004	
				BW	Body Weight	15	kg	EPA 2014	
				CW	Chemical Concentration in Water	EPC	µg/L	Calculated - Tables 3.2 and 3.3	
				DA-event	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	Calculated - Table 4.Supp.3	
				t-event	Event Time	2.6	hr/event	EPA 1989 / EPA 2011	
				EV	Event Frequency	1	events/day	EPA 2004	
				EF	Exposure Frequency	52	days/yr	Professional judgment - see Notes	
				ED	Exposure Duration	6	years	EPA 2014	
				FA	Fraction Absorbed Water	Chemical-specific	--	EPA 2004	
				Kp	Permeability Constant	Chemical-specific	cm/hr	EPA 2004	
				SA	Skin Surface Area Available for Contact	3870	cm^2	EPA 2011 / see also Table 4.Supp.1	
				SA-Adj-child	Skin Surface Area Age-Adjusted	1308	cm^2-yr/kg	Calculated - Table 4.Supp.1	
				SA-Adj-0-2	Skin Surface Area Age-Adjusted MMOA 0-<2	4609	cm^2-yr/kg	Calculated - Table 4.Supp.2	
				SA-Adj-2-6	Skin Surface Area Age-Adjusted MMOA 2-<6	2542	cm^2-yr/kg	Calculated - Table 4.Supp.2	
				tau-event	Lag time per event	Chemical-specific	hr/event	EPA 2004	

Notes:
Intake equations are derived from EPA's RSL equations and also taken from EPA's Risk Assessment Guidance for Superfund (RAGS).
The event time of 2.6 hours is based on the national average time spent swimming from RAGS Part A (1989) and an UCL range of about 160-180 minutes (2.6 - 3 hours) for swimming from the Exposure Factors Handbook (2011).
The exposure frequency assumes the recreator visits surface water bodies 2 days/week during summer (4 weeks each in May, June, July, Aug) and 1 day/week during spring and fall (4 weeks each in Mar, Apr, Sept, Oct, Nov), which is a total of 52 days/year.
For skin surface area available for contact for a wader, the sum of mean values for the arms, hands, legs and feet are calculated for each age group and then the maximum of these values ares used as the surface area (EPA 2011, Table 7-2). Refer to Table 4.Supp.1 for more detail.
The incidental ingestion rate of water for a wader is 3.7 mL/hour for an adult and child, which is the mean value from Table 3-93 of the Exposure Factors Handbook (2011).

Abbreviations:
Adj -- Adjusted to include both adult and child exposure factors
DAD -- Dermally absorbed dose
EC -- Exposure concentration
EPC -- Exposure point concentration
RSL -- USEPA Regional Screening Level
TCE -- Trichloroethene
USEPA -- Environmental Protection Agency

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TABLE 4.4
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SEEP SEDIMENT
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Ingestion	Recreator (wader)	Adult	Sediment	AT	Averaging Time-cancer	25550	days	USEPA 2011	For noncancer, the Intake (mg/kg-day) = (CS x IR x CF x FI x EF x ED x RBA) / (BW x AT), separately for adult and child using IR-adult or IR-child. For cancer, the ingestion rate was calculated for an adult (birth - 26 yrs), adjusting for age-specific exposure factors, where IR-Adj = ∑ (ED * IR) / BW. Intake (mg/kg-day) = (CS x (IR-Adj-adult + IR-Adj-child) x CF x FI x EF x RBA) / AT For MMOA cancer risks, the IR-Adj was weighted for each age bin using Age-Dependent Adjustment Factors (ADAFs), where 0-<2 yrs applied an ADAF of 10, 2-<6 yrs applied an ADAF of 3, 6-<16 yrs applied an ADAF of 3, and 6-26 yrs applied and ADAF of 1. For TCE cancer risks, the Intake (mg/kg-day) = (CS x EF x CF x RBA x (CAF x (IR-Adj-adult + IR-Adj-child) + MAF x (IR-Adj-0-2 + IR-Adj-2-6 + IR-Adj-6-16 + IR-Adj-16-26))) / AT. For VC cancer, the intake (mg/kg-day) = CS x CF x RBA x [(EF x (IR-Adj-adult + IR-Adj-child) / AT) + (IR-child / BW-child)]
				AT	Averaging Time-noncancer	7300	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2014	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Sediment	EPC	mg/kg	--	
				FI	Fraction Ingested	1	unitless	Professional judgment	
				ED	Exposure Duration	20	years	USEPA 2014	
				EF	Exposure Frequency	52	days/yr	Professional judgment - see Notes	
				IR-adult	Ingestion Rate	100	mg/day	USEPA 2014	
				IR-Adj-adult	Ingestion Rate Age-Adjusted	38	mg-yr/day-kg	Calculated	
				IR-Adj-6-16	Ingestion Rate Age-Adjusted MMOA 6-<16	74	mg-yr/day-kg	Calculated	
				IR-Adj-16-26	Ingestion Rate Age-Adjusted MMOA 16-<26	13	mg-yr/day-kg	Calculated	
				RBA	Relative Bioavailability	Chemical-specific	unitless	USEPA RSL User Guide	
				CAFo	TCE Cancer Adjustment Factor-oral	0.804	unitless	USEPA RSL Equations	
				MAFo	TCE Mutagen Adjustment Factor-oral	0.202	unitless	USEPA RSL Equations	
		Child (0-6 years)	Sediment	AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	2190	days	USEPA 2011	
				BW	Body Weight	15	kg	USEPA 2014	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Sediment	EPC	mg/kg	--	
				FI	Fraction Ingested	1	unitless	Professional judgment	
				ED	Exposure Duration	6	years	USEPA 2014	
				EF	Exposure Frequency	52	days/yr	Professional judgment - see Notes	
				IR-child	Ingestion Rate	200	mg/day	USEPA 2014	
				IR-Adj-child	Ingestion Rate Age-Adjusted	91	mg-yr/day-kg	Calculated	
				IR-Adj-0-2	Ingestion Rate Age-Adjusted MMOA 0-<2	443	mg-yr/day-kg	Calculated	
				IR-Adj-2-6	Ingestion Rate Age-Adjusted MMOA 2-<6	140	mg-yr/day-kg	Calculated	
Dermal	Recreator (wader)	Adult	Sediment	ABSd	Dermal Absorption Factor	Chemical-specific	unitless	USEPA 2004	For noncancer, the DAD (mg/kg-day) = (DA-event x EF x ED x EV x SA) / (BW x AT), where DA-event (mg/cm^2-event)= CS x CF x AF x ABSd. Separate calculations are performed for adult and child using SA-adult or SA-child. For cancer, the DAD was calculated for an adult (birth - 26 yrs), adjusting for age-specific exposure factors, where SA-Adj = ∑ (ED * SA) / BW. DAD (mg/kg-day) = (CS x CF x ABSd x EF x EV x (AF-adult x SA-Adj-adult + AF-child x SA-Adj-child)) / AT For MMOA cancer risks, the SA-Adj was weighted for each age bin using ADAFs, where 0-<2 yrs applied an ADAF of 10, 2-<6 yrs applied an ADAF of 3, 6-<16 yrs applied an ADAF of 3, and 6-26 yrs applied and ADAF of 1. For TCE cancer risks, the DAD (mg/kg-day) = (CS x EF x EV x CF x ABSd x (CAF x (AF-adult x SA-Adj-adult + AF-child x SA-Adj-child) + MAF x (AF-child x SA-Adj-0-2 + AF-child x SA-Adj-2-6 + AF-adult x SA-Adj-6-16 +AF-adult x SA-Adj-16-26))) / AT.
				AF	Adherence Factor	0.07	mg/cm^2-event	USEPA 2011	
				AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	7300	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2011	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Sediment	EPC	mg/kg	--	
				ED	Exposure Duration	20	years	USEPA 2011	
				EF	Exposure Frequency	52	days/yr	Professional judgment - see Notes	
				EV	Events Frequency	1	events/day	USEPA 2004	
				SA-adult	Skin Surface Area	6032	cm^2	USEPA 2011	
				SA-Adj-adult	Skin Surface Area Age-Adjusted	2278	cm^2-yr/kg	Calculated	
				SA-Adj-6-16	Skin Surface Area Age-Adjusted MMOA 6-<16	4438	cm^2-yr/kg	Calculated	
				SA-Adj-16-26	Skin Surface Area Age-Adjusted MMOA 16-<26	798	cm^2-yr/kg	Calculated	
				CAFo	TCE Cancer Adjustment Factor-oral	0.804	unitless	USEPA RSL Equations	
				MAFo	TCE Mutagen Adjustment Factor-oral	0.202	unitless	USEPA RSL Equations	

TABLE 4.4
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SEEP SEDIMENT
REASONABLE MAXIMUM EXPOSURE
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Dermal	Recreator (wader)	Child (0-6 years)	Sediment	ABSd	Dermal Absorption Factor	Chemical-specific	unitless	USEPA 2004	For VC cancer, the DAD (mg/kg-day) = CS x CF x ABSd x EV x ((EF x (AF-adult x SA-Adj-adult + AF-child x SA-Adj-child) / AT) + (AF-child x SA-child / BW-child))
				AF	Adherence Factor	0.2	mg/cm^2-event	USEPA 2011	
				AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	2190	days	USEPA 2011	
				BW	Body Weight	15	kg	USEPA 2011	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Sediment	EPC	mg/kg	--	
				ED	Exposure Duration	6	years	USEPA 2011	
				EF	Exposure Frequency	52	days/yr	Professional judgment - see Notes	
				EV	Events Frequency	1	events/day	USEPA 2004	
				SA-child	Skin Surface Area	2373	cm^2	USEPA 2011	
				SA-Adj-child	Skin Surface Area Age-Adjusted	1080	cm^2-yr/kg	Calculated	
				SA-Adj-0-2	Skin Surface Area Age-Adjusted MMOA 0-<2	5255	cm^2-yr/kg	Calculated	
				SA-Adj-2-6	Skin Surface Area Age-Adjusted MMOA 2-<6	1664	cm^2-yr/kg	Calculated	

Note:
The exposure frequency assumes the recreator visits surface water bodies 2 days/week during summer (4 weeks each in May, June, July, Aug) and 1 day/week during spring and fall (4 weeks each in Mar, Apr, Sept, Oct, Nov), which is a total of 52 days/year.

Abbreviations:
Adj -- Adjusted to include both adult and child exposure factors
DAD -- Dermally absorbed dose
EC -- Exposure concentration
EPC -- Exposure point concentration
RSL -- USEPA Regional Screening Level
TCE -- Trichloroethene
USEPA -- United States Environmental Protection Agency

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USEPA. 2016. Regional Screening Levels Calculator. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

TABLE 4.SUPP.1
CALCULATION OF AGE-ADJUSTED EXPOSURE FACTORS FOR A RESIDENT AND RECREATOR
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

			Intake Rate				Dermal Surface Area				Age-Adjusted Exposure Factors	Intake Rate				Dermal Surface Area			
AGE	Exposure Duration	Body Weight (1)	Soil IR-SO (2)	Sediment IR-SE (2)	Tap Water IR-W (3)	Surface Water IR-SW (4)	Soil SA (2)	Sediment SA (2)	Tap Water SA (6)	Surface Water SA (7)	AGE GROUP	IR-SO-Adj	IR-SE-Adj	IR-W-Adj	IR-SW-Adj	SA-SO-Adj	SA-SE-Adj	SA-W-Adj	SA-SW-Adj
year	years	kg	mg/day	mg/day	L/day	L/hour	cm^2	cm^2	cm^2	cm^2		mg-yr/day-kg	mg-yr/day-kg	L-yr/day-kg	L-yr/day-kg	cm2-yr/kg	cm2-yr/kg	cm^2-yr/kg	cm^2-yr/kg
Birth to 1 month	0.083	4.8	200	200	0.839	0.0037	2,373	2,373	2,900	1,340									
1 to <3 months	0.17	5.9	200	200	0.896	0.0037	2,373	2,373	3,300	1,510									
3 to 6 < months	0.25	7.4	200	200	1.06	0.0037	2,373	2,373	3,800	1,750									
6 to <12 months	0.5	9.2	200	200	1.06	0.0037	2,373	2,373	4,500	2,080									
1 to < 2 yrs	1	11.4	200	200	0.837	0.0037	2,373	2,373	5,300	2,540									
2 to <3 yrs	1	13.8	200	200	0.877	0.0037	2,373	2,373	6,100	3,080									
3 to < 6 yrs	3	18.6	200	200	0.959	0.0037	2,373	2,373	7,600	3,870	0-<6 yrs	91	91	0.42	0.00	1,080	1,080	2,649	1,308
6 to <11 yrs	5	31.8	100	100	1.32	0.0037	6,032	6,032	10,800	5,860									
11 to <16 yrs	5	56.8	100	100	1.82	0.0037	6,032	6,032	15,900	8,870									
16 to <18 yrs	2	71.6	100	100	1.78	0.0037	6,032	6,032	18,400	10,070									
18 to < 21 yrs	3	71.6	100	100	2.37	0.0037	6,032	6,032	18,400	10,070									
21 to < 26 yrs	5	80	100	100	2.96	0.0037	6,032	6,032	18,000	10,070	6-<26 yrs	38	38	0.7	0.004	2,278	2,278	5,508	3,035

Equations:

IR-SO-Adj (mg-yr/day-kg) = ∑ (ED * IR-SO / BW)
IR-SE-Adj (mg-yr/day-kg) = ∑ (ED * IR-SE / BW)
IR-W-Adj (L-yr/day-kg) = ∑ (ED * IR-W / BW)
IR-SW-Adj (L-yr/day-kg) = ∑ (ED * IR-SW * ET * EV / BW)
IR-F-Adj (g-yr/day-kg) = ∑ (ED * IR-F / BW)
SA-SO-Adj (cm^2-yr/kg) = ∑ (ED * SA-SO / BW)
SA-SE-Adj (cm^2-yr/kg) = ∑ (ED * SA-SE / BW)
SA-W-Adj (cm^2-yr/kg) = ∑ (ED * SA-W / BW)
SA-SW-Adj (cm^2-yr/kg) = ∑ (ED * SA-SW / BW)

where ET is 2.6 hour/event and EV is 1 event per day

Note:

USEPA Risk Assessment Guidance for Superfund (RAGS) Part A recommends applying 95th or 90th percentile values for ingestion rate and exposure duration and applying the mean values for surface area and body weight (Exhibit 6-13 and Section 6.6.1).

Abbreviations:

BW -- Body weight
ED -- Exposure duration
ET -- Event time
EV -- Event frequency
IR-SO -- Ingestion rate of soil
IR-SE -- Ingestion rate of sediment
IR-W -- Ingestion rate of tap water
IR-SW -- Ingestion rate of surface water
IR-F -- Ingestion rate of fish
SA-SO -- Skin surface area for soil
SA-SE -- Skin surface area for sediment
SA-W -- Skin surface area for tap water
SA-SW -- Skin surface area for surface water

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(1) USEPA. 2011. Exposure Factors Handbook. Table 8-1 - Recommended Values for Body Weight. Mean. September. Available online: http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252
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(4) USEPA. 2011. Exposure Factors Handbook. Table 3-5 - Recommended Values for Water Ingestion While Swimming. Mean converted from mL/hour to L/hour. September. Available online: http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252 and also reference: EPA. 2015. Pathway Analysis Report Planning Tables April 6, 2015. Memorandum. May 7.
(6) USEPA. 2011. Exposure Factors Handbook. Table 7-1 - Recommended Values for Total Body Surface Area. Mean value. September. Available online: http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252
(7) USEPA. 2011. Exposure Factors Handbook. Table 7-2 - Recommended Values for Surface Area of Body Parts. Sum of mean values for arms, hands, legs and feet. September. Available online: http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252
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TABLE 4.SUPP.2
CALCULATION OF AGE-ADJUSTED EXPOSURE FACTORS FOR COPCS WITH A MUTAGENIC MODE OF ACTION FOR A RESIDENT AND RECREATOR
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

											Age-Adjusted Exposure Factors									
			Intake Rate				Dermal Surface Area						Intake Rate				Dermal Surface Area			
AGE	Exposure Duration	Body Weight (1)	Soil IR-SO (2)	Sediment IR-SE (2)	Tap Water IR-W (3)	Surface Water IR-SW (4)	Soil SA (2)	Sediment SA (2)	Tap Water SA (6)	Surface Water SA (7)	AGE GROUP	ADAF (8)	IR-SO-Adj	IR-SE-Adj	IR-W-Adj	IR-SW-Adj	SA-SO-Adj	SA-SE-Adj	SA-W-Adj	SA-SW-Adj
year	years	kg	mg/day	mg/day	L/day	L/hour	cm^2	cm^2	cm^2	cm^2			mg-yr/day-kg	mg-yr/day-kg	L-yr/day-kg	L-yr/day-kg	cm2-yr/kg	cm2-yr/kg	cm^2-yr/kg	cm^2-yr/kg
Birth to 1 month	0.083	4.8	200	200	0.839	0.0037	2,373	2,373	2,900	1,340										
1 to <3 months	0.17	5.9	200	200	0.896	0.0037	2,373	2,373	3,300	1,510										
3 to 6 < months	0.25	7.4	200	200	1.06	0.0037	2,373	2,373	3,800	1,750										
6 to <12 months	0.5	9.2	200	200	1.06	0.0037	2,373	2,373	4,500	2,080										
1 to < 2 yrs	1	11.4	200	200	0.837	0.0037	2,373	2,373	5,300	2,540	0-<2 yrs	10	443	443	2.1	0.02	5,255	5,255	9,814	4,609
2 to <3 yrs	1	13.8	200	200	0.877	0.0037	2,373	2,373	6,100	3,080										
3 to < 6 yrs	3	18.6	200	200	0.959	0.0037	2,373	2,373	7,600	3,870	2-<6 yrs	3	140	140	0.65	0.007	1,664	1,664	5,004	2,542
6 to <11 yrs	5	31.8	100	100	1.32	0.0037	6,032	6,032	10,800	5,860										
11 to <16 yrs	5	56.8	100	100	1.82	0.0037	6,032	6,032	15,900	8,870	6-<16 yrs	3	74	74	1.1	0.007	4,438	4,438	9,293	5,107
16 to <18 yrs	2	71.6	100	100	1.78	0.0037	6,032	6,032	18,400	10,070										
18 to < 21 yrs	3	71.6	100	100	2.37	0.0037	6,032	6,032	18,400	10,070										
21 to < 26 yrs	5	80	100	100	2.96	0.0037	6,032	6,032	18,000	10,070	16-<26 yrs	1	13	13	0.33	0.0013	798	798	2,410	1,333

Equations:

IR-SO-Adj (mg-yr/day-kg) = ∑ (ED * IR-SO / BW)
IR-SE-Adj (mg-yr/day-kg) = ∑ (ED * IR-SE / BW)
IR-W-Adj (L-yr/day-kg) = ∑ (ED * IR-W / BW)
IR-SW-Adj (L-yr/day-kg) = ∑ (ED * IR-SW * ET * EV / BW)
IR-F-Adj (g-yr/day-kg) = ∑ (ED * IR-F / BW)
SA-SO-Adj (cm^2-yr/kg) = ∑ (ED * SA-SO / BW)
SA-SE-Adj (cm^2-yr/kg) = ∑ (ED * SA-SE / BW)
SA-W-Adj (cm^2-yr/kg) = ∑ (ED * SA-W / BW)
SA-SW-Adj (cm^2-yr/kg) = ∑ (ED * SA-SW / BW)

where ET is 2.6 hour/event and EV is 1 event per day.

where the summation of 0-<2 yrs was multiplied by an ADAF of 10, 2-<6 yrs multiplied by 3, 6-<16 yrs multiplied by 3, and 6-26 yrs multiplied by 1.

Note:

USEPA Risk Assessment Guidance for Superfund (RAGS) Part A recommends applying 95th or 90th percentile values for ingestion rate and exposure duration and applying the mean values for surface area and body weight (Exhibit 6-13 and Section 6.6.1).

Abbreviations:

ADAF -- Age-Dependent Adjustment Factor
BW -- Body weight
ED -- Exposure duration
ET -- Event time
EV -- Event frequency
IR-SO -- Ingestion rate of soil
IR-SE -- Ingestion rate of sediment
IR-W -- Ingestion rate of tap water
IR-SW -- Ingestion rate of surface water
IR-F -- Ingestion rate of fish
SA-SO -- Skin surface area for soil
SA-SE -- Skin surface area for sediment
SA-W -- Skin surface area for tap water
SA-SW -- Skin surface area for surface water

References:

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(2) USEPA. 2014. Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. OSWER Directive 9200.1-120. February. Available online: http://www.epa.gov/oswer/riskassessment/sghandbook/exposure.htm
(3) USEPA. 2011. Exposure Factors Handbook. Table 3-1 - Recommended Values for Drinking Water Ingestion Rates. 95th Percentile, L/day. September. Available online: http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252
(4) USEPA. 2011. Exposure Factors Handbook. Table 3-5 - Recommended Values for Water Ingestion While Swimming. Mean converted from mL/hour to L/hour. September. Available online: http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252 and also reference: EPA. 2015. Pathway Analysis Report Planning Tables April 6, 2015. Memorandum. May 7.

(5) USEPA. 2011. Exposure Factors Handbook. Table 10-66 - Mean Consumption Rates for Individuals Who Fish or Crab in the Newark Bay Area. Adult IR-F is based on average daily consumption for people that fish. Child IR-F is half of the adult's IR-F. Available online: http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252
(6) USEPA. 2011. Exposure Factors Handbook. Table 7-1 - Recommended Values for Total Body Surface Area. Mean value. September. Available online: http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252
(7) USEPA. 2011. Exposure Factors Handbook. Table 7-2 - Recommended Values for Surface Area of Body Parts. Sum of mean values for arms, hands, legs and feet. September. Available online: http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252
(8) USEPA. 2005. Supplemental Guidance for Assessing Susceptibility from Early Life Exposure to Carcinogens. EPA/630/R-03/003F. March. Available online: http://www.epa.gov/ttnatw01/childrens_supplement_final.pdf

TABLE 4.SUPP.3A
CALCULATION OF DA-EVENT FOR DERMAL EXPOSURE TO SITE-WIDE GROUNDWATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	Casrn	EPC (1)	Permeability Coefficient	Ratio of Permeability Coefficients	Lag Time	Time to Reach Steady State	Fraction Absorbed	Duration of Event (t-event)				DA-event							
			Cw	K_p	B	τ_{event}	t*	FA	Construction Worker	Outdoor Worker	Resident Adult	Resident Child (0-6 yrs)	Construction Worker		Worker		Resident Adult		Resident Child (0-6 yrs)	
			ug/L	cm/hr	unitless	hr/event	hr	unitless	hr/event	hr/event	hr/event	hr/event	mg/cm2-event	Eqn	mg/cm2-event	Eqn	mg/cm2-event	Eqn	mg/cm2-event	Eqn
VOC	1,1,1-Trichloroethane	71-55-6	1.443	0.013	0.056	0.59	1.41	1	4	1	0.71	0.54	9.1E-08	3	3.9E-08	2	3.2E-08	2	2.8E-08	2
VOC	1,1-Dichloroethane	75-34-3	1.053	0.0068	0.026	0.38	0.90	1	4	1	0.71	0.54	3.3E-08	3	1.2E-08	3	1.0E-08	2	8.9E-09	2
VOC	1,1-Dichloroethene	75-35-4	0.29	0.012	0.044	0.37	0.88	1	4	1	0.71	0.54	1.6E-08	3	5.9E-09	3	4.8E-09	2	4.2E-09	2
VOC	1,2,3-Trichlorobenzene	87-61-6	0.691	0.074	0.38	1.09	2.62	1	4	1	0.71	0.54	3.0E-07	3	1.5E-07	2	1.2E-07	2	1.1E-07	2
VOC	1,2,4-Trichlorobenzene	120-82-1	2.12	0.071	0.37	1.09	2.62	1	4	1	0.71	0.54	8.7E-07	3	4.3E-07	2	3.6E-07	2	3.2E-07	2
VOC	1,2-Dichloroethane	107-06-2	0.952	0.0042	0.016	0.38	0.90	1	4	1	0.71	0.54	1.9E-08	3	7.0E-09	3	5.7E-09	2	5.0E-09	2
VOC	1,4-Dichlorobenzene	106-46-7	0.901	0.045	0.21	0.70	1.68	1	4	1	0.71	0.54	2.0E-07	3	9.4E-08	2	8.0E-08	2	6.9E-08	2
VOC	1,4-Dioxane	123-91-1	0.435	0.00033	0.0012	0.33	0.79	1	4	1	0.71	0.54	6.7E-10	3	2.4E-10	3	1.9E-10	2	1.7E-10	2
VOC	Benzene	71-43-2	6.312	0.015	0.051	0.29	0.69	1	4	1	0.71	0.54	4.1E-07	3	1.5E-07	3	1.2E-07	3	1.0E-07	2
VOC	Chlorobenzene	108-90-7	3.933	0.028	0.12	0.45	1.08	1	4	1	0.71	0.54	5.1E-07	3	2.1E-07	2	1.7E-07	2	1.5E-07	2
VOC	cis-1,2-Dichloroethylene	156-59-2	6.649	0.011	0.042	0.37	0.88	1	4	1	0.71	0.54	3.4E-07	3	1.3E-07	3	1.0E-07	2	9.0E-08	2
VOC	Ethylbenzene	100-41-4	195.8	0.049	0.20	0.41	0.99	1	4	1	0.71	0.54	4.2E-05	3	1.8E-05	3	1.4E-05	2	1.3E-05	2
VOC	Methylcyclohexane	108-87-2	0.62					1	4	1	0.71	0.54		3		3		3		3
VOC	Methylene chloride	75-09-2	16.13	0.0035	0.013	0.31	0.75	1	4	1	0.71	0.54	2.6E-07	3	9.3E-08	3	7.5E-08	2	6.5E-08	2
VOC	o-Xylene	95-47-6	28.39	0.047	0.19	0.41	0.99	1	4	1	0.71	0.54	5.8E-06	3	2.4E-06	3	2.0E-06	2	1.7E-06	2
VOC	Tetrachloroethylene	127-18-4	545.9	0.033	0.17	0.89	2.14	1	4	1	0.71	0.54	1.0E-04	3	4.8E-05	2	4.0E-05	2	3.5E-05	2
VOC	Trichloroethylene	79-01-6	18.49	0.012	0.051	0.57	1.37	1	4	1	0.71	0.54	1.1E-06	3	4.5E-07	2	3.8E-07	2	3.3E-07	2
VOC	Vinyl chloride	75-01-4	2.566	0.0084	0.025	0.24	0.57	1	4	1	0.71	0.54	9.4E-08	3	3.1E-08	3	2.5E-08	3	2.1E-08	2
SVOC	4-Chloroaniline	106-47-8	1007	0.0050	0.022	0.54	1.31	1	4	1	0.71	0.54	2.5E-05	3	1.0E-05	2	8.6E-06	2	7.5E-06	2
SVOC	Biphenyl (diphenyl)	92-52-4	1.6	0.094	0.45	0.77	1.84	1	4	1	0.71	0.54	7.4E-07	3	3.7E-07	2	3.1E-07	2	2.7E-07	2
SVOC	Naphthalene	91-20-3	8.153	0.047	0.20	0.55	1.32	1	4	1	0.71	0.54	1.8E-06	3	7.8E-07	2	6.6E-07	2	5.7E-07	2
INORGANIC	Aluminum	7429-90-5	189.7	0.001	0.0020	0.15	0.36	1	4	1	0.71	0.54	8.1E-07	3	2.5E-07	3	1.9E-07	3	1.6E-07	3
INORGANIC	Arsenic	7440-38-2	2.976	0.001	0.0034	0.29	0.69	1	4	1	0.71	0.54	1.4E-08	3	4.7E-09	3	3.8E-09	3	3.2E-09	2
INORGANIC	Barium	7440-39-3	283.7	0.001	0.0045	0.63	1.52	1	4	1	0.71	0.54	1.5E-06	3	6.2E-07	2	5.3E-07	2	4.6E-07	2
INORGANIC	Beryllium	7440-41-7	0.386	0.001	0.0013	0.12	0.29	1	4	1	0.71	0.54	1.6E-09	3	4.8E-10	3	3.7E-10	3	3.0E-10	3
INORGANIC	Cadmium	7440-43-9	0.289	0.001	0.0041	0.45	1.08	1	4	1	0.71	0.54	1.4E-09	3	5.3E-10	2	4.5E-10	2	3.9E-10	2
INORGANIC	Chromium (Total)	7440-47-3	1.084	0.002	0.0028	0.21	0.49	1	4	1	0.71	0.54	9.5E-09	3	3.1E-09	3	2.4E-09	3	2.1E-09	3
INORGANIC	Cobalt	7440-48-4	8.086	0.0004	0.0012	0.22	0.54	1	4	1	0.71	0.54	1.4E-08	3	4.7E-09	3	3.7E-09	3	3.2E-09	3
INORGANIC	Cyanide	57-12-5	10.66	0.001	0.0020	0.15	0.35	1	4	1	0.71	0.54	4.6E-08	3	1.4E-08	3	1.1E-08	3	8.9E-09	3
INORGANIC	Iron	7439-89-6	24364	0.001	0.00287	0.22	0.52	1	4	1	0.71	0.54	1.1E-04	3	3.5E-05	3	2.8E-05	3	2.4E-05	3
INORGANIC	Lead	7439-92-1	0.228	0.0001	0.0006	1.52	3.65	1	4	1	0.71	0.54	1.6E-10	3	7.8E-11	2	6.5E-11	2	5.7E-11	2
INORGANIC	Manganese	7439-96-5	4352	0.001	0.0029	0.21	0.51	1	4	1	0.71	0.54	1.9E-05	3	6.2E-06	3	4.9E-06	3	4.2E-06	3
INORGANIC	Mercury	7439-97-6	0.116	0.001	0.0054	1.40	3.35	1	4	1	0.71	0.54	7.9E-10	3	3.8E-10	2	3.2E-10	2	2.8E-10	2
INORGANIC	Thallium	7440-28-0	0.29	0.001	0.0055	1.49	3.57	1	4	1	0.71	0.54	2.0E-09	3	9.8E-10	2	8.2E-10	2	7.2E-10	2
INORGANIC	Vanadium	7440-62-2	0.499	0.001	0.0027451	0.2028209	0.4867702	1	4	1	0.71	0.54	2.2E-09	3	7.0E-10	3	5.6E-10	3	4.7E-10	3

Equations:

Inorganics: DAevent (mg/cm^2-event) =

(Eq 1) DA_{event} =
Kp x CW x tevent x CF1 x CF2
where CF1 = 0.001 mg/ug and CF2 = 0.001 L/cm3

Organics: DA_{event} (mg/cm^2-event) =

(Eq 2) $t_{event} \leq t^*$: DA_{event} (mg/cm^2-event) =
$2 \times FA \times K_p \times C_w \times (\mathrm{sqrt}((6 \times \tau_{event} \times t_{event}) / (\pi))) \times CF1 \times CF2$

(Eq 3) $t_{event} > t^*$: DA_{event} (mg/cm^2-event) =
$FA \times K_p \times C_W \times (t_{event}/(1+B) + 2 \times \tau_{event} \times ((1 + 3B + 3B^2)/(1+B)^2)) \times CF1 \times CF2$

Note:
(1) The EPC is the lower of the 95% upper confidence limit and maximum detected concentration. See Table 3s.
Hexavalent chromium's permeability coefficient value is input as a surrogate for chromium total.

Abbreviations:
CF1 -- Conversion Factor 1 (0.001 mg/ug)
CF2 -- Conversion Factor 2 (0.001 L/cm^3)
Cw -- Groundwater or surface water concentration
PEST -- Pesticide
SVOC -- Semi-volatile organic compound
VOC -- Volatile organic compound

Reference:
USEPA. 2004. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online: https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part-e

TABLE 4.SUPP.3B
CALCULATION OF DA-EVENT FOR DERMAL EXPOSURE TO SURFACE WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	Casrn	EPC (1)	Permeability Coefficient	Ratio of Permeability Coefficients	Lag Time	Time to Reach Steady State	Fraction Absorbed	Duration of Event (t-event)		DA-event			
			Cw	K_p	B	τ_{event}	t*	FA	Recreator Adult	Recreator Child (0-6 yrs)	Recreator Adult		Recreator Child (0-6 yrs)	
			ug/L	cm/hr	unitless	hr/event	hr	unitless	hr/event	hr/event	mg/cm2-event	Eqn	mg/cm2-event	Eqn
VOC	1,1,1-Trichloroethane	71-55-6	2.59	0.013	0.056	0.59	1.41	1	2.6	2.6	1.2E-07	3	1.2E-07	3
VOC	1,1-Dichloroethane	75-34-3	0.566	0.0068	0.026	0.38	0.90	1	2.6	2.6	1.3E-08	3	1.3E-08	3
VOC	1,1-Dichloroethene	75-35-4	0.49	0.012	0.044	0.37	0.88	1	2.6	2.6	1.9E-08	3	1.9E-08	3
VOC	1,4-Dichlorobenzene	106-46-7	1.5	0.045	0.21	0.70	1.68	1	2.6	2.6	2.6E-07	3	2.6E-07	3
VOC	1,4-Dioxane	123-91-1	0.18	0.00033	0.0012	0.33	0.79	1	2.6	2.6	1.9E-10	3	1.9E-10	3
VOC	Benzene	71-43-2	1.8	0.015	0.051	0.29	0.69	1	2.6	2.6	8.3E-08	3	8.3E-08	3
VOC	Chlorobenzene	108-90-7	4.7	0.028	0.12	0.45	1.08	1	2.6	2.6	4.4E-07	3	4.4E-07	3
VOC	cis-1,2-Dichloroethylene	156-59-2	21.02	0.011	0.042	0.37	0.88	1	2.6	2.6	7.5E-07	3	7.5E-07	3
VOC	Ethylbenzene	100-41-4	0.91	0.049	0.20	0.41	0.99	1	2.6	2.6	1.4E-07	3	1.4E-07	3
VOC	Tetrachloroethylene	127-18-4	227.7	0.033	0.17	0.89	2.14	1	2.6	2.6	3.3E-05	3	3.3E-05	3
VOC	Trichloroethylene	79-01-6	59.15	0.012	0.051	0.57	1.37	1	2.6	2.6	2.5E-06	3	2.5E-06	3
VOC	Vinyl chloride	75-01-4	0.317	0.0084	0.025	0.24	0.57	1	2.6	2.6	8.0E-09	3	8.0E-09	3
SVOC	4-Chloroaniline	106-47-8	27	0.0050	0.022	0.54	1.31	1	2.6	2.6	4.9E-07	3	4.9E-07	3
INORGANIC	Aluminum	7429-90-5	166	0.001	0.0020	0.15	0.36	1	2.6	2.6	4.8E-07	3	4.8E-07	3
INORGANIC	Arsenic	7440-38-2	2.331	0.001	0.0034	0.29	0.69	1	2.6	2.6	7.4E-09	3	7.4E-09	3
INORGANIC	Barium	7440-39-3	134	0.001	0.0045	0.63	1.52	1	2.6	2.6	5.2E-07	3	5.2E-07	3
INORGANIC	Beryllium	7440-41-7	0.147	0.001	0.0013	0.12	0.29	1	2.6	2.6	4.2E-10	3	4.2E-10	3
INORGANIC	Cadmium	7440-43-9	0.165	0.001	0.0041	0.45	1.08	1	2.6	2.6	5.8E-10	3	5.8E-10	3
INORGANIC	Chromium (Total)	7440-47-3	0.615	0.002	0.0028	0.21	0.49	1	2.6	2.6	3.7E-09	3	3.7E-09	3
INORGANIC	Cobalt	7440-48-4	1.636	0.0004	0.0012	0.22	0.54	1	2.6	2.6	2.0E-09	3	2.0E-09	3
INORGANIC	Iron	7439-89-6	29500	0.001	0.00287	0.22	0.52	1	2.6	2.6	8.9E-05	3	8.9E-05	3
INORGANIC	Lead	7439-92-1	0.908	0.0001	0.0006	1.52	3.65	1	2.6	2.6	5.0E-10	2	5.0E-10	2
INORGANIC	Manganese	7439-96-5	4630	0.001	0.0029	0.21	0.51	1	2.6	2.6	1.4E-05	3	1.4E-05	3
INORGANIC	Vanadium	7440-62-2	0.786	0.001	0.0027451	0.2028209	0.4867702	1	2.6	2.6	2.4E-09	3	2.4E-09	3

Equations:

Inorganics: DAevent (mg/cm^2-event) =

(Eq 1) DA_{event} =
Kp x CW x tevent x CF1 x CF2
where CF1 = 0.001 mg/ug and CF2 = 0.001 L/cm3

Organics: DA_{event} (mg/cm^2-event) =

(Eq 2) $t_{event} \leq t^*$: DA_{event} (mg/cm^2-event) =
$2 \times FA \times K_p \times C_w \times (\mathrm{sqrt}((6 \times \tau_{event} \times t_{event}) / (\pi))) \times CF1 \times CF2$

(Eq 3) $t_{event} > t^*$: DA_{event} (mg/cm^2-event) =
$FA \times K_p \times C_W \times (t_{event}/(1+B) + 2 \times \tau_{event} \times ((1 + 3B + 3B^2)/(1+B)^2)) \times CF1 \times CF2$

Note:
(1) The EPC is the lower of the 95% upper confidence limit and maximum detected concentration. See Table 3s.
Hexavalent chromium's permeability coefficient value is input as a surrogate for chromium total.

Abbreviations:
CF1 -- Conversion Factor 1 (0.001 mg/ug)
CF2 -- Conversion Factor 2 (0.001 L/cm^3)
Cw -- Groundwater or surface water concentration
PEST -- Pesticide
SVOC -- Semi-volatile organic compound
VOC -- Volatile organic compound

Reference:
USEPA. 2004. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online:

TABLE 4.SUPP.3C
CALCULATION OF DA-EVENT FOR DERMAL EXPOSURE TO SEEP WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	Casrn	EPC (1)	Permeability Coefficient	Ratio of Permeability Coefficients	Lag Time	Time to Reach Steady State	Fraction Absorbed	Duration of Event (t-event)		DA-event			
			Cw	K_p	B	τ_{event}	t*	FA	Recreator Adult	Recreator Child (0-6 yrs)	Recreator Adult		Recreator Child (0-6 yrs)	
			ug/L	cm/hr	unitless	hr/event	hr	unitless	hr/event	hr/event	mg/cm2-event	Eqn	mg/cm2-event	Eqn
VOC	1,1,1-Trichloroethane	71-55-6	120	0.013	0.056	0.59	1.41	1	2.6	2.6	5.6E-06	3	5.6E-06	3
VOC	1,1-Dichloroethane	75-34-3	10	0.0068	0.026	0.38	0.90	1	2.6	2.6	2.2E-07	3	2.2E-07	3
VOC	1,1-Dichloroethene	75-35-4	14	0.012	0.044	0.37	0.88	1	2.6	2.6	5.3E-07	3	5.3E-07	3
VOC	cis-1,2-Dichloroethylene	156-59-2	22.09	0.011	0.042	0.37	0.88	1	2.6	2.6	7.9E-07	3	7.9E-07	3
VOC	Tetrachloroethylene	127-18-4	591	0.033	0.17	0.89	2.14	1	2.6	2.6	8.5E-05	3	8.5E-05	3
VOC	Trichloroethylene	79-01-6	62.51	0.012	0.051	0.57	1.37	1	2.6	2.6	2.7E-06	3	2.7E-06	3
VOC	Vinyl chloride	75-01-4	0.0815	0.0084	0.025	0.24	0.57	1	2.6	2.6	2.1E-09	3	2.1E-09	3
OTHER	Carbon disulfide	75-15-0	0.28	0.0114	0.0383	0.28	0.67	1	2.6	2.6	9.9E-09	3	9.9E-09	3
INORGANIC	Aluminum	7429-90-5	32600	0.001	0.0020	0.15	0.36	1	2.6	2.6	9.4E-05	3	9.4E-05	3
INORGANIC	Arsenic	7440-38-2	35.8	0.001	0.0034	0.29	0.69	1	2.6	2.6	1.1E-07	3	1.1E-07	3
INORGANIC	Barium	7440-39-3	378.4	0.001	0.0045	0.63	1.52	1	2.6	2.6	1.5E-06	3	1.5E-06	3
INORGANIC	Beryllium	7440-41-7	10.81	0.001	0.0013	0.12	0.29	1	2.6	2.6	3.1E-08	3	3.1E-08	3
INORGANIC	Cadmium	7440-43-9	10.2	0.001	0.0041	0.45	1.08	1	2.6	2.6	3.6E-08	3	3.6E-08	3
INORGANIC	Chromium (Total)	7440-47-3	40.3	0.002	0.0028	0.21	0.49	1	2.6	2.6	2.4E-07	3	2.4E-07	3
INORGANIC	Cobalt	7440-48-4	74.53	0.0004	0.0012	0.22	0.54	1	2.6	2.6	9.1E-08	3	9.1E-08	3
INORGANIC	Cyanide	57-12-5	10.8	0.001	0.0020	0.15	0.35	1	2.6	2.6	3.1E-08	3	3.1E-08	3
INORGANIC	Iron	7439-89-6	14115	0.001	0.00287	0.22	0.52	1	2.6	2.6	4.3E-05	3	4.3E-05	3
INORGANIC	Lead	7439-92-1	471	0.0001	0.0006	1.52	3.65	1	2.6	2.6	2.6E-07	2	2.6E-07	2
INORGANIC	Manganese	7439-96-5	7043	0.001	0.0029	0.21	0.51	1	2.6	2.6	2.1E-05	3	2.1E-05	3
INORGANIC	Mercury	7439-97-6	0.533	0.001	0.0054	1.40	3.35	1	2.6	2.6	2.8E-09	2	2.8E-09	2
INORGANIC	Thallium	7440-28-0	0.71	0.001	0.0055	1.49	3.57	1	2.6	2.6	3.9E-09	2	3.9E-09	2
INORGANIC	Vanadium	7440-62-2	106	0.001	0.0027451	0.2028209	0.4867702	1	2.6	2.6	3.2E-07	3	3.2E-07	3

Equations:

Inorganics: DAevent (mg/cm^2-event) =

(Eq 1) DA_{event} =
Kp x CW x tevent x CF1 x CF2
where CF1 = 0.001 mg/ug and CF2 = 0.001 L/cm3

Organics: DA_{event} (mg/cm^2-event) =

(Eq 2) $t_{event} \leq t^*$: DA_{event} (mg/cm^2-event) =
$2 \times FA \times K_p \times C_w \times (\mathrm{sqrt}((6 \times \tau_{event} \times t_{event}) / (\pi))) \times CF1 \times CF2$

(Eq 3) $t_{event} > t^*$: DA_{event} (mg/cm^2-event) =
$FA \times K_p \times C_W \times (t_{event}/(1+B) + 2 \times \tau_{event} \times ((1 + 3B + 3B^2)/(1+B)^2)) \times CF1 \times CF2$

Note:
(1) The EPC is the lower of the 95% upper confidence limit and maximum detected concentration. See Table 3s.
Hexavalent chromium's permeability coefficient value is input as a surrogate for chromium total.

Abbreviations:
CF1 -- Conversion Factor 1 (0.001 mg/ug)
CF2 -- Conversion Factor 2 (0.001 L/cm^3)
Cw -- Groundwater or surface water concentration
PEST -- Pesticide
SVOC -- Semi-volatile organic compound
VOC -- Volatile organic compound

Reference:
USEPA. 2004. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online:

TABLE 4.SUPP.4
BATHROOM AIR CONCENTRATIONS FROM EXPOSURE TO TAPWATER FOR A RESIDENT USING SITE-WIDE GROUNDWATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	CASRN	EPC (1)	Adult		Child (0-6 years)	
			CW	$C_{a\text{-}max}$	C_a	C_{amax}	C_a
			mg/L	mg/m^3	mg/m^3	mg/m^3	mg/m^3
VOC	1,1-Dichloroethane	75-34-3	0.00105	0.039	0.033	0.052	0.036
VOC	1,2,3-Trichlorobenzene	87-61-6	0.00069	0.026	0.021	0.034	0.024
VOC	1,2,4-Trichlorobenzene	120-82-1	0.0021	0.080	0.066	0.105	0.073
VOC	1,2-Dichloroethane	107-06-2	0.00095	0.036	0.029	0.047	0.033
VOC	1,4-Dichlorobenzene	106-46-7	0.0009	0.034	0.028	0.045	0.031
VOC	1,4-Dioxane	123-91-1	0.00044	0.016	0.013	0.022	0.015
VOC	Benzene	71-43-2	0.0063	0.237	0.195	0.312	0.217
VOC	Chlorobenzene	108-90-7	0.0039	0.147	0.122	0.195	0.135
VOC	cis-1,2-Dichloroethylene	156-59-2	0.0066	0.249	0.205	0.329	0.229
VOC	Ethylbenzene	100-41-4	0.1958	7.34	6.05	9.692	6.731
VOC	Methylcyclohexane	108-87-2	0.00062	0.023	0.019	0.031	0.021
VOC	Methylene chloride	75-09-2	0.016	0.605	0.498	0.798	0.554
VOC	o-Xylene	95-47-6	0.028	1.06	0.88	1.41	0.98
VOC	Tetrachloroethylene	127-18-4	0.546	20.47	16.87	27.02	18.77
VOC	Trichloroethylene	79-01-6	0.018	0.693	0.571	0.915	0.636
VOC	Vinyl chloride	75-01-4	0.0026	0.096	0.079	0.127	0.088

Variables	Units	Exposure Assumptions
C_a = concentration of chemical in air	mg/m^3	Solved by Eq 1
C_{amax} = maximum concentration of chemical in air	mg/m^3	Solved by Eq 2
t_1 = Adult time in shower	hr	0.25
t_1 = Child time in shower	hr	0.33
t_2 = Adult time in bathroom after shower	hr	0.46
t_2 = Child time in bathroom after shower	hr	0.21
f = fraction volatilized for chemical	unitless	0.9
F_w = shower water flow rate	L/hr	1000
V_a = bathroom volume	m^3	6

Equation 1:	C_a =	$((C_{amax}/2) * t_1 + C_{amax} * t_2) / (t_1 + t_2)$
Equation 2:	C_{amax} =	$(C_w * f * F_w * t_1) / V_a$

Note:
(1) The EPC is the lower of the 95% UCL and maximum detected concentration - see Table 3s.
The most conservative value of the ranges for each exposure parameter, as presented in Schaum et al 1994, is applied for the calculations. The shower model air chemical concentrations are calculated for only VOCs.

Total exposure times for are 0.71 hr for an adult and 0.54 hr for a child (0-6 years). Professional judgement is used to split up the time spent in the shower versus in the bathroom after shower. An adult is assumed to spend approximately 15 minutes showering followed by 28 minutes in the bathroom, for a total of 43 minutes (0.71 hr). A child is assumed to spend approximately 20 minutes bathing followed by 13 minutes in the bathroom for a total of 32 minutes (0.54 hr).

Abbreviation:
CW -- Groundwater water concentration
EPC -- Exposure point concentration
VOC -- Volatile organic compound

Reference:
Wang, Rhoda G.M. et al. 1994. Water Consumption and Health: Integration of Exposure Assessment, Toxicology, and Risk Assessment. Wang. Macel Dekker, Inc., New York. Estimating Dermal and Inhalation Exposure to Volatile Chemicals in Domestic Water, Schaum et al., Pages 307-320.

TABLE 4.SUPP.5
CONSTITUENT-SPECIFIC FACTORS
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	CASRN	Inhalation Volatilization Factor for Soil Vapor (m^3/kg) (1)			Dermal Absorption Fraction for Soil/Sediment (unitless) (2)	Ingestion Relative Bioavailability Factor for Soil/Sediment (unitless) (3)
			Construction Worker	Worker	Resident		
VOC	1,1,1-Trichloroethane	71-55-6	156	963	963		1
VOC	1,1-Dichloroethane	75-34-3	197	1,220	1,220		1
VOC	1,1-Dichloroethene	75-35-4	109	675	675		1
VOC	1,2,3-Trichlorobenzene	87-61-6	3,050	18,800	18,800		1
VOC	1,2,4-Trichlorobenzene	120-82-1	2,830	17,500	17,500		1
VOC	1,2-Dichloroethane	107-06-2	433	2,670	2,670		1
VOC	1,4-Dichlorobenzene	106-46-7	989	6,100	6,100		1
VOC	1,4-Dioxane	123-91-1	3,750	23,100	23,100		1
VOC	Benzene	71-43-2	335	2,060	2,060		1
VOC	Chlorobenzene	108-90-7	610	3,760	3,760		1
VOC	cis-1,2-Dichloroethylene	156-59-2	237	1,460	1,460		1
VOC	Ethylbenzene	100-41-4	536	3,310	3,310		1
VOC	Methylcyclohexane	108-87-2	94	578	578		1
VOC	Methylene chloride	75-09-2	207	1,280	1,280		1
VOC	o-Xylene	95-47-6	611	3,770	3,770		1
VOC	Tetrachloroethylene	127-18-4	222	1,370	1,370		1
VOC	Trichloroethylene	79-01-6	209	1,290	1,290		1
VOC	Vinyl chloride	75-01-4	91	558	558		1
SVOC	2-Methylnaphthalene	91-57-6	5,490	33,900	33,900	0.13	1
SVOC	4-Chloroaniline	106-47-8				0.1	1
SVOC	Benzo(a)anthracene	56-55-3	418,000	2,580,000	2,580,000	0.13	1
SVOC	Benzo(a)pyrene	50-32-8				0.13	1
SVOC	Benzo(b)fluoranthene	205-99-2				0.13	1
SVOC	Benzyl Butyl Phthalate	85-68-7				0.1	1
SVOC	Biphenyl (diphenyl)	92-52-4	10,800	66,500	66,500		1
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7				0.1	1
SVOC	Di-n-octylphthalate	117-84-0				0.1	1
SVOC	Naphthalene	91-20-3	4,390	27,000	27,000	0.13	1
PEST	Dibenzofuran	132-64-9	14,700	90,900	90,900	0.03	1
PCB	PCB-1248 (Aroclor 1248)	12672-29-6	59,200	365,000	365,000	0.14	1
PCB	PCB-1254 (Aroclor 1254)	11097-69-1	79,800	492,000	492,000	0.14	1
PCB	PCB-1260 (Aroclor 1260)	11096-82-5	124,000	767,000	767,000	0.14	1
OTHER	Carbon disulfide	75-15-0	110	681	681		1
INORGANIC	Aluminum	7429-90-5					1
INORGANIC	Arsenic	7440-38-2				0.03	0.6
INORGANIC	Barium	7440-39-3					1
INORGANIC	Beryllium	7440-41-7					1
INORGANIC	Cadmium	7440-43-9				0.001	1
INORGANIC	Chromium (Total)	7440-47-3					1
INORGANIC	Cobalt	7440-48-4					1
INORGANIC	Cyanide	57-12-5	5,050	31,100	31,100		1
INORGANIC	Iron	7439-89-6					1
INORGANIC	Lead	7439-92-1					1
INORGANIC	Manganese	7439-96-5					1
INORGANIC	Mercury	7439-97-6	3,290	20,300	20,300		1
INORGANIC	Thallium	7440-28-0					1
INORGANIC	Vanadium	7440-62-2					1

Notes:

(1) Volatilization Factors (VF) are determined using the USEPA RSL calculator for the different receptor scenarios. If not available, the default is zero. The input values for the calculator are presented in Attachment C.

(2) Dermal absorption factors are taken from Exhibit 3-4 of USEPA RAGS Part E unless a value is provided in the more recently updated USEPA RSL tables. If not available, the default is zero.

(3) A relative bioavailability factor (RBA) of 0.6 for arsenic is included in the calculation of the ingestion dose, consistent with USEPA methodology in the USEPA RSL tables. The default value is one.

Abbreviations:

COPC -- Constituent of potential concern
PEST -- Pesticide
RBA -- Relative bioavailability factor
SVOC -- Semi-volatile organic compound
VF -- Volatilization factor
VOC -- Volatile organic compound

References:

USEPA. 2016. Regional Screening Level (RSL) Calculator. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

TABLE 5.1
NONCANCER TOXICITY DATA -- ORAL/DERMAL
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	CASRN	Chronic / Subchronic	Oral Reference Dose (RfD)		GIABS	Oral Absorption Efficiency for Dermal	Absorbed RfD for Dermal		Primary Target Organ(s)	Combined Uncertainty / Modifying Factors	Source	Source Date
				Value	Units			Value	Units				
VOC	1,1,1-Trichloroethane	71-55-6	Chronic	2	mg/kg-day	1	100%	2	mg/kg-day	Developmental	1000	IRIS	9/28/2007
VOC	1,1-Dichloroethane	75-34-3	Chronic	0.2	mg/kg-day	1	100%	0.2	mg/kg-day	Renal	3000	PPRTV	9/27/2006
VOC	1,1-Dichloroethene	75-35-4	Chronic	0.05	mg/kg-day	1	100%	0.05	mg/kg-day	Hepatic	100 / 1	IRIS	8/13/2002
VOC	1,2,3-Trichlorobenzene	87-61-6	Subchronic	0.0008	mg/kg-day	1	100%	0.0008	mg/kg-day	Hepatic, Endocrine	1000	PPRTV Appendix	9/11/2009
VOC	1,2,4-Trichlorobenzene	120-82-1	Chronic	0.01	mg/kg-day	1	100%	0.01	mg/kg-day	Endocrine	1000 / 1	IRIS	5/1/1992
VOC	1,2-Dichloroethane	107-06-2	Subchronic	0.006	mg/kg-day	1	100%	0.006	mg/kg-day	Renal	10000	PPRTV Appendix	10/1/2010
VOC	1,4-Dichlorobenzene	106-46-7	Subchronic	0.07	mg/kg-day	1	100%	0.07	mg/kg-day	Hepatic	100	ATSDR	7/1/2006
VOC	1,4-Dioxane	123-91-1	Subchronic	0.03	mg/kg-day	1	100%	0.03	mg/kg-day	Hepatic, Renal	300	IRIS	8/11/2010
VOC	Benzene	71-43-2	Chronic	0.004	mg/kg-day	1	100%	0.004	mg/kg-day	Lymphatic	300 / 1	IRIS	4/17/2003
VOC	Chlorobenzene	108-90-7	Subchronic	0.02	mg/kg-day	1	100%	0.02	mg/kg-day	Hepatic	1000	IRIS	7/1/1993
VOC	cis-1,2-Dichloroethylene	156-59-2	Chronic	0.002	mg/kg-day	1	100%	0.002	mg/kg-day	Renal	3000	IRIS	9/30/2010
VOC	Ethylbenzene	100-41-4	Chronic	0.1	mg/kg-day	1	100%	0.1	mg/kg-day	Hepatic, Renal	1000 / 1	IRIS	1/31/1987
VOC	Methylcyclohexane	108-87-2											
VOC	Methylene chloride	75-09-2	Chronic	0.006	mg/kg-day	1	100%	0.006	mg/kg-day	Hepatic	30	IRIS	11/18/2011
VOC	o-Xylene	95-47-6	Chronic	0.2	mg/kg-day	1	100%	0.2	mg/kg-day	Developmental	1000 / 1	EPA RSL Users Guide / IRIS	2/21/2003
VOC	Tetrachloroethylene	127-18-4	Chronic	0.006	mg/kg-day	1	100%	0.006	mg/kg-day	Nervous	1000	IRIS	2/10/2012
VOC	Trichloroethylene	79-01-6	Chronic	0.0005	mg/kg-day	1	100%	0.0005	mg/kg-day	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	100,1000,10 multiple studies	IRIS	9/28/2011
VOC	Vinyl chloride	75-01-4	Chronic	0.003	mg/kg-day	1	100%	0.003	mg/kg-day	Hepatic	30	IRIS	8/7/2000
SVOC	2-Methylnaphthalene	91-57-6	Chronic	0.004	mg/kg-day	1	100%	0.004	mg/kg-day	Respiratory	1000 / 1	IRIS	12/22/2003
SVOC	4-Chloroaniline	106-47-8	Chronic	0.004	mg/kg-day	1	100%	0.004	mg/kg-day	Lymphatic	3000 / 1	IRIS	8/22/1988
SVOC	Benzo(a)anthracene	56-55-3	Subchronic	0.00003	mg/kg-day	1	100%	0.00003	mg/kg-day	Developmental	300	IRIS	1/19/2017
SVOC	Benzo(a)pyrene	50-32-8	Subchronic	0.0003	mg/kg-day	1	100%	0.0003	mg/kg-day	Developmental	300	IRIS	1/19/2017
SVOC	Benzo(b)fluoranthene	205-99-2	Subchronic	0.00003	mg/kg-day	1	100%	0.00003	mg/kg-day	Developmental	300	IRIS	1/19/2017
SVOC	Benzyl Butyl Phthalate	85-68-7	Chronic	0.2	mg/kg-day	1	100%	0.2	mg/kg-day	Hepatic	1000 / 1	IRIS	9/1/1989
SVOC	Biphenyl (diphenyl)	92-52-4	Chronic	0.5	mg/kg-day	1	100%	0.5	mg/kg-day	Renal	30 / 10	IRIS	8/27/2013
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	Chronic	0.02	mg/kg-day	1	100%	0.02	mg/kg-day	Hepatic	1000	IRIS	5/1/1991
SVOC	Di-n-octylphthalate	117-84-0	Chronic	0.01	mg/kg-day	1	100%	0.01	mg/kg-day	Hepatic	3000	PPRTV	12/20/2012
SVOC	Naphthalene	91-20-3	Subchronic	0.02	mg/kg-day	1	100%	0.02	mg/kg-day	Developmental	3000 / 1	IRIS	9/17/1998
PEST	Dibenzofuran	132-64-9	Chronic	0.001	mg/kg-day	1	100%	0.001	mg/kg-day	Low confidence in principal study for target organ identification	10000	PPRTV Appendix	6/11/2007
PCB	PCB-1248 (Aroclor 1248)	12672-29-6	Chronic	0.00002	mg/kg-day	1	100%	0.00002	mg/kg-day	Lymphatic, Integumentary, Nervous	300 / 1	IRIS	10/1/1994
PCB	PCB-1254 (Aroclor 1254)	11097-69-1	Chronic	0.00002	mg/kg-day	1	100%	0.00002	mg/kg-day	Lymphatic, Integumentary, Nervous	300 / 1	IRIS	10/1/1994
PCB	PCB-1260 (Aroclor 1260)	11096-82-5	Chronic	0.00002	mg/kg-day	1	100%	0.00002	mg/kg-day	Lymphatic, Integumentary, Nervous	300 / 1	IRIS	10/1/1994
OTHER	Carbon disulfide	75-15-0	Chronic	0.1	mg/kg-day	1	100%	0.1	mg/kg-day	Developmental	100 / 1	IRIS	9/30/1987
INORGANIC	Aluminum	7429-90-5	Subchronic	1	mg/kg-day	1	100%	1	mg/kg-day	Nervous	100	PPRTV	10/23/2006
INORGANIC	Arsenic	7440-38-2	Chronic	0.0003	mg/kg-day	1	100%	0.0003	mg/kg-day	Integumentary	3	IRIS	2/1/1993
INORGANIC	Barium	7440-39-3	Subchronic	0.2	mg/kg-day	0.07	7%	0.014	mg/kg-day	Renal	300	IRIS	7/11/2005
INORGANIC	Beryllium	7440-41-7	Chronic	0.002	mg/kg-day	0.007	1%	0.000014	mg/kg-day	Digestive	300	IRIS	4/3/1998
INORGANIC	Cadmium	7440-43-9	Chronic	0.0005	mg/kg-day	0.05	5%	0.000025	mg/kg-day	Renal	10 / 1	IRIS	2/1/1994
INORGANIC	Chromium (Total)	7440-47-3	Chronic	0.003	mg/kg-day	0.025	3%	0.000075	mg/kg-day	Low confidence in principal study for target organ identification	300 / 3	EPA IRIS	9/3/1998
INORGANIC	Cobalt	7440-48-4	Subchronic	0.0003	mg/kg-day	1	100%	0.0003	mg/kg-day	Endocrine	3000	PPRTV	8/25/2008
INORGANIC	Cyanide	57-12-5	Subchronic	0.0006	mg/kg-day	1	100%	0.0006	mg/kg-day	Reproductive	3000	IRIS	9/28/2010
INORGANIC	Iron	7439-89-6	Subchronic	0.7	mg/kg-day	1	100%	0.7	mg/kg-day	Digestive	1.5	PPRTV	9/11/2006
INORGANIC	Lead	7439-92-1				1	100%						
INORGANIC	Manganese	7439-96-5	Chronic	0.024	mg/kg-day	0.04	4%	0.00096	mg/kg-day	Nervous	3	EPA RSL Users Guide	5/1/1996
INORGANIC	Mercury	7439-97-6				1	100%						
INORGANIC	Thallium	7440-28-0	Chronic	0.00001	mg/kg-day	1	100%	0.00001	mg/kg-day	Integumentary	3000	PPRTV Appendix	11/1/2012
INORGANIC	Vanadium	7440-62-2	Chronic	0.005	mg/kg-day	0.026	3%	0.00013	mg/kg-day	Integumentary	RfD of Vn Pentoxide x 56% for molecular weight of Vn	EPA RSL Users Guide	12/1/1996

Note:
The oral RfDs are taken from the USEPA Regional Screening Levels (RSLs) table, which gathers toxicity reference values from multiple sources using an established hierarchy.
The absorbed RfD for dermal is calculated by the following equation: RfD-oral x GIABS.
USEPA recommends that the oral RfD should not be adjusted to estimate the absorbed dose for compounds when the absorption efficiency is greater than 50%.
Hexavalent chromium's toxicity value is input as a surrogate for chromium total.
PCB-1016's RfD is applied for PCB-1242 while PCB-1254's RfD is applied for PCB-1248 and 1260.
The RfD of 0.0003 mg/kg-day for benzo(a)pyrene is applied to benzo(a)anthracene and benzo(b)fluoranthene. The toxicity values are then multiplied their respective TEFs (1 for benzo(a)pyrene and 0.1 for benzo(a)anthracene and benzo(b)fluoranthene from RSL User's Guide Section 2.3.5).

Abbreviations:
GIABS -- Gastrointestinal absorption factor
INORG -- Inorganic
NA -- Not available
PEST -- Pesticide
RfD -- Reference dose
RSLs -- EPA Regional Screening Levels
SVOC -- Semi-volatile organic compound
VOC -- Volatile organic compound

References:
USEPA. 2004. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online: https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part
USEPA. 2016. Regional Screening Levels Tables. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

Toxicity Sources:
ATSDR. 2014. Minimal Risk Levels (MRLs). December. Available online: http://www.atsdr.cdc.gov/mrls/index.asp
Cal EPA. 2007. Toxicity Criteria Database. Office of Environmental Health Hazard Assessment (OEHHA). Available online: http://oehha.ca.gov/chemicals
USEPA. 2011. Health Effects Assessment Summary Tables (HEAST). December. Available online : https://epa-heast.ornl.gov/
USEPA. 2014. Provisional Peer Reviewed Toxicity Values for Superfund (PPRTV). September. Available online: https://hhpprtv.ornl.gov/index.html
USEPA. 2016. Regional Screening Levels User's Guide. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls
USEPA. 2015. Integrated Risk Information System (IRIS). February 27. Available online: https://www.epa.gov/iris

TABLE 5.2
NONCANCER TOXICITY DATA -- INHALATION
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	CASRN	Chronic / Subchronic	Inhalation Reference Concentration (RfC)		Primary Target Organ(s)	Combined Uncertainty / Modifying Factors	Source	Source Date
				Value	Units				
VOC	1,1,1-Trichloroethane	71-55-6	Chronic	5	mg/m3	Hepatic	100	IRIS	9/28/2007
VOC	1,1-Dichloroethane	75-34-3							
VOC	1,1-Dichloroethene	75-35-4	Chronic	0.2	mg/m3	Hepatic	30 / 1	IRIS	8/13/2002
VOC	1,2,3-Trichlorobenzene	87-61-6							
VOC	1,2,4-Trichlorobenzene	120-82-1	Chronic	0.002	mg/m3	Endocrine	3000	PPRTV	6/16/2009
VOC	1,2-Dichloroethane	107-06-2	Chronic	0.007	mg/m3	Nervous	3000	PPRTV	10/1/2010
VOC	1,4-Dichlorobenzene	106-46-7	Subchronic	0.8	mg/m3	Hepatic	100 / 1	IRIS	11/1/1996
VOC	1,4-Dioxane	123-91-1	Chronic	0.03	mg/m3	Integumentary	1000	IRIS	9/20/2013
VOC	Benzene	71-43-2	Subchronic	0.03	mg/m3	Lymphatic	300 / 1	IRIS	4/17/2003
VOC	Chlorobenzene	108-90-7	Chronic	0.05	mg/m3	Hepatic, Renal	1000	PPRTV	10/12/2006
VOC	cis-1,2-Dichloroethylene	156-59-2							
VOC	Ethylbenzene	100-41-4	Chronic	1	mg/m3	Developmental	300	IRIS	3/1/1991
VOC	Methylcyclohexane	108-87-2							
VOC	Methylene chloride	75-09-2	Chronic	0.6	mg/m3	Hepatic	30	IRIS	11/18/2011
VOC	o-Xylene	95-47-6	Subchronic	0.1	mg/m3	Nervous	300 / 1	EPA RSL Users Guide / IRIS	2/21/2003
VOC	Tetrachloroethylene	127-18-4	Chronic	0.04	mg/m3	Nervous	1000	IRIS	2/10/2012
VOC	Trichloroethylene	79-01-6	Chronic	0.002	mg/m3	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	100,10 multiple studies	IRIS	9/28/2011
VOC	Vinyl chloride	75-01-4	Chronic	0.1	mg/m3	Hepatic	30	IRIS	8/7/2000
SVOC	2-Methylnaphthalene	91-57-6							
SVOC	4-Chloroaniline	106-47-8							
SVOC	Benzo(a)anthracene	56-55-3	Subchronic	0.0000002	mg/m3	Developmental	3000	IRIS	1/19/2017
SVOC	Benzo(a)pyrene	50-32-8	Subchronic	0.000002	mg/m3	Developmental	3000	IRIS	1/19/2017
SVOC	Benzo(b)fluoranthene	205-99-2	Subchronic	0.0000002	mg/m3	Developmental	3000	IRIS	1/19/2017
SVOC	Benzyl Butyl Phthalate	85-68-7							
SVOC	Biphenyl (diphenyl)	92-52-4	Subchronic	0.0004	mg/m3	Respiratory, Hepatic, Renal	3000	PPRTV Appendix	4/4/2011
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7							
SVOC	Di-n-octylphthalate	117-84-0							
SVOC	Naphthalene	91-20-3	Chronic	0.003	mg/m3	Nervous, Respiratory	3000 / 1	IRIS	9/17/1998
PEST	Dibenzofuran	132-64-9							
PCB	PCB-1248 (Aroclor 1248)	12672-29-6							
PCB	PCB-1254 (Aroclor 1254)	11097-69-1							
PCB	PCB-1260 (Aroclor 1260)	11096-82-5							
OTHER	Carbon disulfide	75-15-0	Chronic	0.7	mg/m3	Nervous	30 / 1	IRIS	8/1/1995
INORGANIC	Aluminum	7429-90-5	Chronic	0.005	mg/m3	Nervous	300	PPRTV	10/23/2006
INORGANIC	Arsenic	7440-38-2	Chronic	0.000015	mg/m3	Developmental, Reproductive, Cardiovascular	None indicated	CAL EPA	12/1/2008
INORGANIC	Barium	7440-39-3	Subchronic	0.0005	mg/m3	Developmental	1000	HEAST	9/1/1984
INORGANIC	Beryllium	7440-41-7	Chronic	0.00002	mg/m3	Respiratory	10	IRIS	4/3/1998
INORGANIC	Cadmium	7440-43-9	Subchronic	0.00001	mg/m3	Renal	9	ATSDR	9/1/2012
INORGANIC	Chromium (Total)	7440-47-3	Subchronic	0.0001	mg/m3	Respiratory	300 / 1	IRIS	9/3/1998
INORGANIC	Cobalt	7440-48-4	Subchronic	0.000006	mg/m3	Respiratory	300	PPRTV	10/23/2006
INORGANIC	Cyanide	57-12-5	Subchronic	0.0008	mg/m3	Reproductive	3000	EPA RSL Users Guide	9/28/2010
INORGANIC	Iron	7439-89-6							
INORGANIC	Lead	7439-92-1							
INORGANIC	Manganese	7439-96-5	Chronic	0.00005	mg/m3	Nervous	100 / 1	IRIS	12/1/1993
INORGANIC	Mercury	7439-97-6	Chronic	0.0003	mg/m3	Nervous	30 / 1	IRIS	6/1/1995
INORGANIC	Thallium	7440-28-0							
INORGANIC	Vanadium	7440-62-2	Chronic	0.0001	mg/m3	Respiratory	30	ATSDR	9/1/2012

Note:
The inhalation RfCs are taken from the USEPA Regional Screening Levels (RSLs) table, which gathers toxicity reference values from multiple sources using an established hierarchy.
Hexavalent chromium's toxicity value is input as a surrogate for chromium total.
The RfC of 0.000002 mg/m^3 for benzo(a)pyrene is applied to benzo(a)anthracene and benzo(b)fluoranthene. The toxicity values are then multiplied their respective TEFs (1 for benzo(a)pyrene and 0.1 for benzo(a)anthracene and benzo(b)fluoranthene from RSL User's Guide Section 2.3.5).

Abbreviation:
INORG -- Inorganic
NA -- Not available
PEST -- Pesticide
RfC -- Reference concentration
RSLs -- EPA Regional Screening Levels
SVOC -- Semi-volatile organic compound
VOC -- Volatile organic compound

References:
USEPA. 2016. Regional Screening Levels Tables. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

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TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	CASRN	Mutagenic	Oral Slope Factor (CSFo)		GIABS	Oral Absorption Efficiency for Dermal	Absorbed CSFd for Dermal		Weight of Evidence / Cancer Guidelines Description	Source	Source Date
				Value	Units			Value	Units			
VOC	1,1,1-Trichloroethane	71-55-6	N			1	100%			Data are inadequate for assessment (IRIS)		
VOC	1,1-Dichloroethane	75-34-3	N	0.0057	(mg/kg-day)-1	1	100%	0.0057	(mg/kg-day)-1	C	CAL EPA	1/20/2011
VOC	1,1-Dichloroethene	75-35-4	N			1	100%			Data are inadequate for assessment (IRIS)		
VOC	1,2,3-Trichlorobenzene	87-61-6	N			1	100%					
VOC	1,2,4-Trichlorobenzene	120-82-1	N	0.029	(mg/kg-day)-1	1	100%	0.029	(mg/kg-day)-1	D (IRIS) / Likely to be carcinogenic to humans (PPRTV)	PPRTV	6/16/2009
VOC	1,2-Dichloroethane	107-06-2	N	0.091	(mg/kg-day)-1	1	100%	0.091	(mg/kg-day)-1	B2	IRIS	1/1/1991
VOC	1,4-Dichlorobenzene	106-46-7	N	0.0054	(mg/kg-day)-1	1	100%	0.0054	(mg/kg-day)-1	B2	CAL EPA	2/1/1997
VOC	1,4-Dioxane	123-91-1	N	0.1	(mg/kg-day)-1	1	100%	0.1	(mg/kg-day)-1	Likely to be carcinogenic to humans	IRIS	9/20/2013
VOC	Benzene	71-43-2	N	0.055	(mg/kg-day)-1	1	100%	0.055	(mg/kg-day)-1	A / Known human carcinogen	IRIS	1/9/2000
VOC	Chlorobenzene	108-90-7	N			1	100%					
VOC	cis-1,2-Dichloroethylene	156-59-2	N			1	100%					
VOC	Ethylbenzene	100-41-4	N	0.011	(mg/kg-day)-1	1	100%	0.011	(mg/kg-day)-1	D (IRIS)	CAL EPA	1/20/2011
VOC	Methylcyclohexane	108-87-2	N			1	100%					
VOC	Methylene chloride	75-09-2	Y	0.002	(mg/kg-day)-1	1	100%	0.002	(mg/kg-day)-1	Likely to be carcinogenic to humans	IRIS	11/18/2011
VOC	o-Xylene	95-47-6	N			1	100%			Data are inadequate for assessment (IRIS)		
VOC	Tetrachloroethylene	127-18-4	N	0.0021	(mg/kg-day)-1	1	100%	0.0021	(mg/kg-day)-1	Likely to be carcinogenic in humans	IRIS	2/10/2012
VOC	Trichloroethylene	79-01-6	Y	0.046	(mg/kg-day)-1	1	100%	0.046	(mg/kg-day)-1	Carcinogenic to humans	IRIS	9/28/2011
VOC	Vinyl chloride	75-01-4	Y	0.72	(mg/kg-day)-1	1	100%	0.72	(mg/kg-day)-1	Known/likely human carcinogen	IRIS	8/7/2000
SVOC	2-Methylnaphthalene	91-57-6	N			1	100%			Data are Inadequate for assessment (IRIS)		
SVOC	4-Chloroaniline	106-47-8	N	0.2	(mg/kg-day)-1	1	100%	0.2	(mg/kg-day)-1	Likely to be carcinogenic to humans	PPRTV	9/30/2008
SVOC	Benzo(a)anthracene	56-55-3	Y	0.1	(mg/kg-day)-1	1	100%	0.1	(mg/kg-day)-1	Carcinogenic to humans - based on BaP	IRIS	1/19/2017
SVOC	Benzo(a)pyrene	50-32-8	Y	1	(mg/kg-day)-1	1	100%	1	(mg/kg-day)-1	Carcinogenic to humans	IRIS	1/19/2017
SVOC	Benzo(b)fluoranthene	205-99-2	Y	0.1	(mg/kg-day)-1	1	100%	0.1	(mg/kg-day)-1	Carcinogenic to humans - based on BaP	IRIS	1/19/2017
SVOC	Benzyl Butyl Phthalate	85-68-7	N	0.0019	(mg/kg-day)-1	1	100%	0.0019	(mg/kg-day)-1	C	PPRTV	10/1/2002
SVOC	Biphenyl (diphenyl)	92-52-4	N	0.008	(mg/kg-day)-1	1	100%	0.008	(mg/kg-day)-1	Suggestive evidence of carcinogenic potential	IRIS	8/27/2013
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	N	0.014	(mg/kg-day)-1	1	100%	0.014	(mg/kg-day)-1	B2	IRIS	2/1/1993
SVOC	Di-n-octylphthalate	117-84-0	N			1	100%					
SVOC	Naphthalene	91-20-3	N			1	100%			Data are inadequate for assessment (IRIS)		
PEST	Dibenzofuran	132-64-9	N			1	100%			D (IRIS)		
PCB	PCB-1248 (Aroclor 1248)	12672-29-6	N	2	(mg/kg-day)-1	1	100%	2	(mg/kg-day)-1	B2	EPA RSL Users Guide	10/1/1996
PCB	PCB-1254 (Aroclor 1254)	11097-69-1	N	2	(mg/kg-day)-1	1	100%	2	(mg/kg-day)-1	B2	EPA RSL Users Guide	10/1/1996
PCB	PCB-1260 (Aroclor 1260)	11096-82-5	N	2	(mg/kg-day)-1	1	100%	2	(mg/kg-day)-1	B2	EPA RSL Users Guide	10/1/1996
OTHER	Carbon disulfide	75-15-0	N			1	100%					
INORGANIC	Aluminum	7429-90-5	N			1	100%					
INORGANIC	Arsenic	7440-38-2	N	1.5	(mg/kg-day)-1	1	100%	1.5	(mg/kg-day)-1	A	IRIS	4/10/1998
INORGANIC	Barium	7440-39-3	N			0.07	7%					
INORGANIC	Beryllium	7440-41-7	N			0.007	1%					
INORGANIC	Cadmium	7440-43-9	N			0.05	5%					
INORGANIC	Chromium (Total)	7440-47-3	Y	0.5	(mg/kg-day)-1	0.025	3%	20	(mg/kg-day)-1	Likely to be carcinogenic (oral route)	New Jersey / EPA RSL Users Guide	4/8/2009
INORGANIC	Cobalt	7440-48-4	N			1	100%					
INORGANIC	Cyanide	57-12-5	N			1	100%					
INORGANIC	Iron	7439-89-6	N			1	100%					
INORGANIC	Lead	7439-92-1	N			1	100%					
INORGANIC	Manganese	7439-96-5	N			0.04	4%					
INORGANIC	Mercury	7439-97-6	N			1	100%			D (IRIS)		
INORGANIC	Thallium	7440-28-0	N			1	100%			Data are inadequate for assessment (IRIS)		
INORGANIC	Vanadium	7440-62-2	N			0.026	3%					

Note:
The oral SFs are taken from the USEPA Regional Screening Levels (RSLs) table, which gathers toxicity reference values from multiple sources using an established hierarchy.
The absorbed SFd for dermal is calculated by the following equation: SF-oral / GIABS.
USEPA recommends that the oral SF should not be adjusted to estimate the absorbed dose for compounds when the absorption efficiency is greater than 50%.
Hexavalent chromium's toxicity value is input as a surrogate for chromium total. There are mixed views about its mutagencity, but the RSLs evaluated it as mutagenic; therefore the same was performed here.
The CSFo of 1 $(mg/kg\text{-}day)^{-1}$ for benzo(a)pyrene is applied to benzo(a)anthracene and benzo(b)fluoranthene. The toxicity values are then multiplied their respective TEFs (1 for benzo(a)pyrene and 0.1 for benzo(a)anthracene and benzo(b)fluoranthene from RSL User's Guide Section 2.3.5).

Abbreviations:
GIABS -- Gastrointestinal absorption factor
INORG -- Inorganic
NA -- Not available
PEST -- Pesticide
RSLs -- EPA Regional Screening Levels
SFd -- Dermal slope factor
SFo -- Oral cancer slope factor
SVOC -- Semi-volatile organic compound
VOC -- Volatile organic compound

References:

USEPA. 2004. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online: https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part
USEPA. 2005. Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens. EPA/630/R-03/003F. March. Available online: https://www.epa.gov/risk/supplemental-guidance-assessing-susceptibility-early-life-exposure-carcinogens
USEPA. 2016. Regional Screening Levels Tables. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls

Toxicity Sources:

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USEPA. 2016. Regional Screening Levels User's Guide. May. Available online: https://www.epa.gov/risk/regional-screening-levels-rsls
USEPA. 2015. Integrated Risk Information System (IRIS). February 27. Available online: https://www.epa.gov/iris

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	CASRN	Mutagenic	Inhalation Unit Risk (IUR)		Weight of Evidence / Cancer Guidelines Description	Source	Source Date
				Value	Units			
VOC	1,1,1-Trichloroethane	71-55-6	N			Data are inadequate for assessment (IRIS)		
VOC	1,1-Dichloroethane	75-34-3	N	0.0000016	(ug/m3)-1	C	CAL EPA	1/20/2011
VOC	1,1-Dichloroethene	75-35-4	N			Data are inadequate for assessment (IRIS)		
VOC	1,2,3-Trichlorobenzene	87-61-6	N					
VOC	1,2,4-Trichlorobenzene	120-82-1	N					
VOC	1,2-Dichloroethane	107-06-2	N	0.000026	(ug/m3)-1	B2	IRIS	1/1/1991
VOC	1,4-Dichlorobenzene	106-46-7	N	0.000011	(ug/m3)-1	B2	CAL EPA	2/1/1997
VOC	1,4-Dioxane	123-91-1	N	0.000005	(ug/m3)-1	Likely to be carcinogenic to humans	IRIS	11/18/2011
VOC	Benzene	71-43-2	N	0.0000078	(ug/m3)-1	A / Known human carcinogen	IRIS	1/19/2000
VOC	Chlorobenzene	108-90-7	N					
VOC	cis-1,2-Dichloroethylene	156-59-2	N					
VOC	Ethylbenzene	100-41-4	N	0.0000025	(ug/m3)-1	D (IRIS)	CAL EPA	1/20/2011
VOC	Methylcyclohexane	108-87-2	N					
VOC	Methylene chloride	75-09-2	Y	0.00000001	(ug/m3)-1	Likely to be carcinogenic to humans	IRIS	11/18/2011
VOC	o-Xylene	95-47-6	N			Data are inadequate for assessment (IRIS)		
VOC	Tetrachloroethylene	127-18-4	N	0.00000026	(ug/m3)-1	Likely to be carcinogenic in humans	IRIS	2/10/2012
VOC	Trichloroethylene	79-01-6	Y	0.0000041	(ug/m3)-1	Carcinogenic to humans	IRIS	9/28/2011
VOC	Vinyl chloride	75-01-4	Y	0.0000044	(ug/m3)-1	Known/likely human carcinogen	IRIS	8/7/2000
SVOC	2-Methylnaphthalene	91-57-6	N			Data are Inadequate for assessment (IRIS)		
SVOC	4-Chloroaniline	106-47-8	N					
SVOC	Benzo(a)anthracene	56-55-3	Y	0.00006	(ug/m3)-1	Carcinogenic to humans - based on BaP	IRIS	1/19/2017
SVOC	Benzo(a)pyrene	50-32-8	Y	0.0006	(ug/m3)-1	Carcinogenic to humans	IRIS	1/19/2017
SVOC	Benzo(b)fluoranthene	205-99-2	Y	0.00006	(ug/m3)-1	Carcinogenic to humans - based on BaP	IRIS	1/19/2017
SVOC	Benzyl Butyl Phthalate	85-68-7	N					
SVOC	Biphenyl (diphenyl)	92-52-4	N					
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	N	0.0000024	(ug/m3)-1	B2	CAL EPA	12/1/1997
SVOC	Di-n-octylphthalate	117-84-0	N					
SVOC	Naphthalene	91-20-3	N	0.000034	(ug/m3)-1	2B (Cal EPA) / Data are inadequate for assessment (IRIS)	CAL EPA	1/20/2011
PEST	Dibenzofuran	132-64-9	N			D (IRIS)		
PCB	PCB-1248 (Aroclor 1248)	12672-29-6	N	0.00057	(ug/m3)-1	B2	EPA RSL Users Guide	10/1/1996
PCB	PCB-1254 (Aroclor 1254)	11097-69-1	N	0.00057	(ug/m3)-1	B2	EPA RSL Users Guide	10/1/1996
PCB	PCB-1260 (Aroclor 1260)	11096-82-5	N	0.00057	(ug/m3)-1	B2	EPA RSL Users Guide	10/1/1996
OTHER	Carbon disulfide	75-15-0	N					
INORGANIC	Aluminum	7429-90-5	N					
INORGANIC	Arsenic	7440-38-2	N	0.0043	(ug/m3)-1	A / Known human carcinogen	IRIS	4/10/1998
INORGANIC	Barium	7440-39-3	N					
INORGANIC	Beryllium	7440-41-7	N	0.0024	(ug/m3)-1	B1 / Probable human carcinogen	IRIS	4/3/1988
INORGANIC	Cadmium	7440-43-9	N	0.0018	(ug/m3)-1	B1	IRIS	6/1/1992
INORGANIC	Chromium (Total)	7440-47-3	Y	0.084	(ug/m3)-1	A / Known human carcinogen	RSL Users Guide	9/3/1998
INORGANIC	Cobalt	7440-48-4	N	0.009	(ug/m3)-1	Likely to be carcinogenic to humans	PPRTV	8/25/2008
INORGANIC	Cyanide	57-12-5	N					
INORGANIC	Iron	7439-89-6	N					
INORGANIC	Lead	7439-92-1	N					
INORGANIC	Manganese	7439-96-5	N					
INORGANIC	Mercury	7439-97-6	N			D (IRIS)		
INORGANIC	Thallium	7440-28-0	N			Data are inadequate for assessment (IRIS)		
INORGANIC	Vanadium	7440-62-2	N					

Note:
The IURs are taken from the USEPA Regional Screening Levels (RSLs) table, which gathers toxicity reference values from multiple sources using an established hierarchy.
Hexavalent chromium's toxicity value is input as a surrogate for chromium total.
The IUR of 0.0006 $(ug/m3)^{-1}$ for benzo(a)pyrene is applied to benzo(a)anthracene and benzo(b)fluoranthene. The toxicity values are then multiplied their respective TEFs (1 for benzo(a)pyrene and 0.1 for benzo(a)anthracene and benzo(b)fluoranthene from RSL User's Guide Section 2.3.5).

Abbreviation:
INORG -- Inorganic
IUR -- Inhalation unit risk
NA -- Not available
PEST -- Pesticide
RSLs -- EPA Regional Screening Levels
SVOC -- Semi-volatile organic compound
VOC -- Volatile organic compound

References:
USEPA. 2004. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online: https://ww
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TABLE 7.1
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A CONSTRUCTION WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
									Exposure Intake		CSF/IUR			Exposure Intake		RfD/RfC		
							Value	Units	Value	Units	Value	Units	Cancer Risk	Value	Units	Value	Units	Hazard Quotient
Soil	Soil	Soil (0-10 ft)	Ingestion	VOC	Benzene	71-43-2	4.6E-01	mg/kg	1.8E-08	mg/kg-day	5.5E-02	(mg/kg-day)-1	1.0E-09	1.3E-06	mg/kg-day	4.0E-03	mg/kg-day	3.2E-04
				VOC	Ethylbenzene	100-41-4	2.2E+00	mg/kg	8.8E-08	mg/kg-day	1.1E-02	(mg/kg-day)-1	9.6E-10	6.1E-06	mg/kg-day	1.0E-01	mg/kg-day	6.1E-05
				VOC	Tetrachloroethylene	127-18-4	4.8E-01	mg/kg	1.9E-08	mg/kg-day	2.1E-03	(mg/kg-day)-1	4.0E-11	1.3E-06	mg/kg-day	6.0E-03	mg/kg-day	2.2E-04
				VOC	Trichloroethylene	79-01-6	3.7E+00	mg/kg	1.5E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	6.9E-09	1.1E-05	mg/kg-day	5.0E-04	mg/kg-day	2.1E-02
				SVOC	2-Methylnaphthalene	91-57-6	1.9E+02	mg/kg	7.7E-06	mg/kg-day				5.4E-04	mg/kg-day	4.0E-03	mg/kg-day	1.3E-01
				SVOC	Benzo(a)anthracene	56-55-3	1.6E-01	mg/kg	6.5E-09	mg/kg-day	1.0E-01	(mg/kg-day)-1	6.5E-10	4.5E-07	mg/kg-day	3.0E-05	mg/kg-day	1.5E-02
				SVOC	Benzo(a)pyrene	50-32-8	1.4E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day)-1	5.7E-09	4.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				SVOC	Benzyl Butyl Phthalate	85-68-7	3.6E+02	mg/kg	1.4E-05	mg/kg-day	1.9E-03	(mg/kg-day)-1	2.7E-08	1.0E-03	mg/kg-day	2.0E-01	mg/kg-day	5.0E-03
				SVOC	Biphenyl (diphenyl)	92-52-4	1.0E+01	mg/kg	4.1E-07	mg/kg-day	8.0E-03	(mg/kg-day)-1	3.3E-09	2.9E-05	mg/kg-day	5.0E-01	mg/kg-day	5.7E-05
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	2.1E+02	mg/kg	8.6E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	1.2E-07	6.0E-04	mg/kg-day	2.0E-02	mg/kg-day	3.0E-02
				SVOC	Di-n-octylphthalate	117-84-0	3.0E+01	mg/kg	1.2E-06	mg/kg-day				8.4E-05	mg/kg-day	1.0E-02	mg/kg-day	8.4E-03
				SVOC	Naphthalene	91-20-3	1.1E+02	mg/kg	4.4E-06	mg/kg-day				3.1E-04	mg/kg-day	2.0E-02	mg/kg-day	1.5E-02
				PEST	Dibenzofuran	132-64-9	5.9E+00	mg/kg	2.4E-07	mg/kg-day				1.7E-05	mg/kg-day	1.0E-03	mg/kg-day	1.7E-02
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	1.1E+00	mg/kg	4.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	8.6E-08	3.0E-06	mg/kg-day	2.0E-05	mg/kg-day	1.5E-01
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	5.1E-02	mg/kg	2.0E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.1E-09	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	7.5E-02	mg/kg	3.0E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.0E-09	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				INORGANIC	Arsenic	7440-38-2	2.7E+00	mg/kg	6.5E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.8E-08	4.6E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02
				INORGANIC	Chromium (Total)	7440-47-3	1.4E+01	mg/kg	5.5E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.8E-07	3.9E-05	mg/kg-day	3.0E-03	mg/kg-day	1.3E-02
				INORGANIC	Cobalt	7440-48-4	3.3E+00	mg/kg	1.4E-07	mg/kg-day				9.5E-06	mg/kg-day	3.0E-04	mg/kg-day	3.2E-02
			Ingestion Total										**6.4E-07**					**4.8E-01**
Soil	Soil	Soil (0-10 ft)	Dermal	VOC	Benzene	71-43-2	4.6E-01	mg/kg			5.5E-02	(mg/kg-day)-1				4.0E-03	mg/kg-day	
				VOC	Ethylbenzene	100-41-4	2.2E+00	mg/kg			1.1E-02	(mg/kg-day)-1				1.0E-01	mg/kg-day	
				VOC	Tetrachloroethylene	127-18-4	4.8E-01	mg/kg			2.1E-03	(mg/kg-day)-1				6.0E-03	mg/kg-day	
				VOC	Trichloroethylene	79-01-6	3.7E+00	mg/kg			4.6E-02	(mg/kg-day)-1				5.0E-04	mg/kg-day	
				SVOC	2-Methylnaphthalene	91-57-6	1.9E+02	mg/kg	3.2E-06	mg/kg-day				2.2E-04	mg/kg-day	4.0E-03	mg/kg-day	9.0E-07
				SVOC	Benzo(a)anthracene	56-55-3	1.6E-01	mg/kg	2.7E-09	mg/kg-day	1.0E-01	(mg/kg-day)-1	2.7E-10	1.9E-07	mg/kg-day	3.0E-05	mg/kg-day	5.7E-12
				SVOC	Benzo(a)pyrene	50-32-8	1.4E-01	mg/kg	2.4E-09	mg/kg-day	1.0E+00	(mg/kg-day)-1	2.4E-09	1.6E-07	mg/kg-day	3.0E-04	mg/kg-day	4.9E-11
				SVOC	Benzyl Butyl Phthalate	85-68-7	3.6E+02	mg/kg	4.6E-06	mg/kg-day	1.9E-03	(mg/kg-day)-1	8.7E-09	3.2E-04	mg/kg-day	2.0E-01	mg/kg-day	6.4E-05
				SVOC	Biphenyl (diphenyl)	92-52-4	1.0E+01	mg/kg			8.0E-03	(mg/kg-day)-1				5.0E-01	mg/kg-day	
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	2.1E+02	mg/kg	2.8E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	3.9E-08	1.9E-04	mg/kg-day	2.0E-02	mg/kg-day	3.9E-06
				SVOC	Di-n-octylphthalate	117-84-0	3.0E+01	mg/kg	3.9E-07	mg/kg-day				2.7E-05	mg/kg-day	1.0E-02	mg/kg-day	2.7E-07
				SVOC	Naphthalene	91-20-3	1.1E+02	mg/kg	1.8E-06	mg/kg-day				1.3E-04	mg/kg-day	2.0E-02	mg/kg-day	2.6E-06
				PEST	Dibenzofuran	132-64-9	5.9E+00	mg/kg	2.3E-08	mg/kg-day				1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-09
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	1.1E+00	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.8E-08	1.3E-06	mg/kg-day	2.0E-05	mg/kg-day	2.7E-11
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	5.1E-02	mg/kg	9.2E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-09	6.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-12
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	7.5E-02	mg/kg	1.4E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.7E-09	9.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-12
				INORGANIC	Arsenic	7440-38-2	2.7E+00	mg/kg	1.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-08	7.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.2E-10
				INORGANIC	Chromium (Total)	7440-47-3	1.4E+01	mg/kg			2.0E+01	(mg/kg-day)-1				7.5E-05	mg/kg-day	
				INORGANIC	Cobalt	7440-48-4	3.3E+00	mg/kg								3.0E-04	mg/kg-day	
			Dermal Total										**1.1E-07**					**7.2E-05**
Soil	Soil	Soil (0-10 ft)	Outdoor Inhalation	VOC	Benzene	71-43-2	1.2E-08	mg/m3	3.9E-11	mg/m3	7.8E-03	(mg/m3)-1	3.1E-13	2.8E-09	mg/m3	3.0E-02	mg/m3	9.2E-08
				VOC	Ethylbenzene	100-41-4	5.7E-08	mg/m3	1.9E-10	mg/m3	2.5E-03	(mg/m3)-1	4.7E-13	1.3E-08	mg/m3	1.0E+00	mg/m3	1.3E-08
				VOC	Tetrachloroethylene	127-18-4	1.3E-08	mg/m3	4.1E-11	mg/m3	2.6E-04	(mg/m3)-1	1.1E-14	2.9E-09	mg/m3	4.0E-02	mg/m3	7.2E-08
				VOC	Trichloroethylene	79-01-6	9.9E-08	mg/m3	3.2E-10	mg/m3	4.1E-03	(mg/m3)-1	1.3E-12	2.3E-08	mg/m3	2.0E-03	mg/m3	1.1E-05
				SVOC	2-Methylnaphthalene	91-57-6	5.0E-06	mg/m3	1.6E-08	mg/m3				1.2E-06	mg/m3			
				SVOC	Benzo(a)anthracene	56-55-3	4.2E-09	mg/m3	1.4E-11	mg/m3	6.0E-02	(mg/m3)-1	8.2E-13	9.6E-10	mg/m3	2.0E-07	mg/m3	4.8E-03
				SVOC	Benzo(a)pyrene	50-32-8	3.7E-09	mg/m3	1.2E-11	mg/m3	6.0E-01	(mg/m3)-1	7.2E-12	8.5E-10	mg/m3	2.0E-06	mg/m3	4.2E-04
				SVOC	Benzyl Butyl Phthalate	85-68-7	9.4E-06	mg/m3	3.1E-08	mg/m3				2.1E-06	mg/m3			
				SVOC	Biphenyl (diphenyl)	92-52-4	2.7E-07	mg/m3	8.8E-10	mg/m3				6.1E-08	mg/m3	4.0E-04	mg/m3	1.5E-04
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	5.7E-06	mg/m3	1.8E-08	mg/m3	2.4E-03	(mg/m3)-1	4.4E-11	1.3E-06	mg/m3			
				SVOC	Di-n-octylphthalate	117-84-0	7.9E-07	mg/m3	2.6E-09	mg/m3				1.8E-07	mg/m3			
				SVOC	Naphthalene	91-20-3	2.9E-06	mg/m3	9.4E-09	mg/m3	3.4E-02	(mg/m3)-1	3.2E-10	6.5E-07	mg/m3	3.0E-03	mg/m3	2.2E-04
				PEST	Dibenzofuran	132-64-9	1.6E-07	mg/m3	5.1E-10	mg/m3				3.6E-08	mg/m3			
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	2.8E-08	mg/m3	9.1E-11	mg/m3	5.7E-01	(mg/m3)-1	5.2E-11	6.4E-09	mg/m3			
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	1.3E-09	mg/m3	4.4E-12	mg/m3	5.7E-01	(mg/m3)-1	2.5E-12	3.0E-10	mg/m3			
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	2.0E-09	mg/m3	6.4E-12	mg/m3	5.7E-01	(mg/m3)-1	3.7E-12	4.5E-10	mg/m3			
				INORGANIC	Arsenic	7440-38-2	7.1E-08	mg/m3	2.3E-10	mg/m3	4.3E+00	(mg/m3)-1	1.0E-09	1.6E-08	mg/m3	1.5E-05	mg/m3	1.1E-03
				INORGANIC	Chromium (Total)	7440-47-3	3.6E-07	mg/m3	1.2E-09	mg/m3	8.4E+01	(mg/m3)-1	9.9E-08	8.3E-08	mg/m3	1.0E-04	mg/m3	8.3E-04
				INORGANIC	Cobalt	7440-48-4	8.9E-08	mg/m3	2.9E-10	mg/m3	9.0E+00	(mg/m3)-1	2.6E-09	2.0E-08	mg/m3	6.0E-06	mg/m3	3.4E-03
			Outdoor Inhalation Total										**1.0E-07**					**1.1E-02**
Soil (0-10ft) Total													**8.5E-07**					**4.9E-01**

TABLE 7.1
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A CONSTRUCTION WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
									Exposure Intake		CSF/IUR		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Groundwater	Incidental Ingestion															
				VOC	1,1-Dichloroethane	75-34-3	1.1E+00	ug/L	2.6E-09	mg/kg-day	5.7E-03	(mg/kg-day)-1	1.5E-11	1.8E-07	mg/kg-day	2.0E-01	mg/kg-day	9.0E-07
				VOC	1,2,3-Trichlorobenzene	87-61-6	6.9E-01	ug/L	1.7E-09	mg/kg-day				1.2E-07	mg/kg-day	8.0E-04	mg/kg-day	1.5E-04
				VOC	1,2,4-Trichlorobenzene	120-82-1	2.1E+00	ug/L	5.2E-09	mg/kg-day	2.9E-02	(mg/kg-day)-1	1.5E-10	3.6E-07	mg/kg-day	1.0E-02	mg/kg-day	3.6E-05
				VOC	1,2-Dichloroethane	107-06-2	9.5E-01	ug/L	2.3E-09	mg/kg-day	9.1E-02	(mg/kg-day)-1	2.1E-10	1.6E-07	mg/kg-day	6.0E-03	mg/kg-day	2.7E-05
				VOC	1,4-Dichlorobenzene	106-46-7	9.0E-01	ug/L	2.2E-09	mg/kg-day	5.4E-03	(mg/kg-day)-1	1.2E-11	1.5E-07	mg/kg-day	7.0E-02	mg/kg-day	2.2E-06
				VOC	1,4-Dioxane	123-91-1	4.4E-01	ug/L	1.1E-09	mg/kg-day	1.0E-01	(mg/kg-day)-1	1.1E-10	7.4E-08	mg/kg-day	3.0E-02	mg/kg-day	2.5E-06
				VOC	Benzene	71-43-2	6.3E+00	ug/L	1.5E-08	mg/kg-day	5.5E-02	(mg/kg-day)-1	8.5E-10	1.1E-06	mg/kg-day	4.0E-03	mg/kg-day	2.7E-04
				VOC	Chlorobenzene	108-90-7	3.9E+00	ug/L	9.6E-09	mg/kg-day				6.7E-07	mg/kg-day	2.0E-02	mg/kg-day	3.4E-05
				VOC	cis-1,2-Dichloroethylene	156-59-2	6.6E+00	ug/L	1.6E-08	mg/kg-day				1.1E-06	mg/kg-day	2.0E-03	mg/kg-day	5.7E-04
				VOC	Ethylbenzene	100-41-4	2.0E+02	ug/L	4.8E-07	mg/kg-day	1.1E-02	(mg/kg-day)-1	5.3E-09	3.4E-05	mg/kg-day	1.0E-01	mg/kg-day	3.4E-04
				VOC	Methylcyclohexane	108-87-2	6.2E-01	ug/L	1.5E-09	mg/kg-day				1.1E-07	mg/kg-day			
				VOC	Methylene chloride	75-09-2	1.6E+01	ug/L	3.9E-08	mg/kg-day	2.0E-03	(mg/kg-day)-1	7.9E-11	2.8E-06	mg/kg-day	6.0E-03	mg/kg-day	4.6E-04
				VOC	o-Xylene	95-47-6	2.8E+01	ug/L	6.9E-08	mg/kg-day				4.9E-06	mg/kg-day	2.0E-01	mg/kg-day	2.4E-05
				VOC	Tetrachloroethylene	127-18-4	5.5E+02	ug/L	1.3E-06	mg/kg-day	2.1E-03	(mg/kg-day)-1	2.8E-09	9.3E-05	mg/kg-day	6.0E-03	mg/kg-day	1.6E-02
				VOC	Trichloroethylene	79-01-6	1.8E+01	ug/L	4.5E-08	mg/kg-day	4.6E-02	(mg/kg-day)-1	2.1E-09	3.2E-06	mg/kg-day	5.0E-04	mg/kg-day	6.3E-03
				VOC	Vinyl chloride	75-01-4	2.6E+00	ug/L	6.3E-09	mg/kg-day	7.2E-01	(mg/kg-day)-1	4.5E-09	4.4E-07	mg/kg-day	3.0E-03	mg/kg-day	1.5E-04
				SVOC	4-Chloroaniline	106-47-8	1.0E+03	ug/L	2.5E-06	mg/kg-day	2.0E-01	(mg/kg-day)-1	4.9E-07	1.7E-04	mg/kg-day	4.0E-03	mg/kg-day	4.3E-02
				SVOC	Biphenyl (diphenyl)	92-52-4	1.6E+00	ug/L	3.9E-09	mg/kg-day	8.0E-03	(mg/kg-day)-1	3.1E-11	2.7E-07	mg/kg-day	5.0E-01	mg/kg-day	5.5E-07
				SVOC	Naphthalene	91-20-3	8.2E+00	ug/L	2.0E-08	mg/kg-day				1.4E-06	mg/kg-day	2.0E-02	mg/kg-day	7.0E-05
				INORGANIC	Aluminum	7429-90-5	1.9E+02	ug/L	4.6E-07	mg/kg-day				3.2E-05	mg/kg-day	1.0E+00	mg/kg-day	3.2E-05
				INORGANIC	Arsenic	7440-38-2	3.0E+00	ug/L	7.3E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-08	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.7E-03
				INORGANIC	Barium	7440-39-3	2.8E+02	ug/L	6.9E-07	mg/kg-day				4.9E-05	mg/kg-day	2.0E-01	mg/kg-day	2.4E-04
				INORGANIC	Chromium (Total)	7440-47-3	1.1E+00	ug/L	2.7E-09	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.3E-09	1.9E-07	mg/kg-day	3.0E-03	mg/kg-day	6.2E-05
				INORGANIC	Cobalt	7440-48-4	8.1E+00	ug/L	2.0E-08	mg/kg-day				1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03
				INORGANIC	Cyanide	57-12-5	1.1E+01	ug/L	2.6E-08	mg/kg-day				1.8E-06	mg/kg-day	6.0E-04	mg/kg-day	3.0E-03
				INORGANIC	Iron	7439-89-6	2.4E+04	ug/L	6.0E-05	mg/kg-day				4.2E-03	mg/kg-day	7.0E-01	mg/kg-day	6.0E-03
				INORGANIC	Manganese	7439-96-5	4.4E+03	ug/L	1.1E-05	mg/kg-day				7.5E-04	mg/kg-day	2.4E-02	mg/kg-day	3.1E-02
				INORGANIC	Mercury	7439-97-6	1.2E-01	ug/L	2.8E-10	mg/kg-day				2.0E-08	mg/kg-day			
				INORGANIC	Thallium	7440-28-0	2.9E-01	ug/L	7.1E-10	mg/kg-day				5.0E-08	mg/kg-day	1.0E-05	mg/kg-day	5.0E-03
			Ingestion Total										**5.2E-07**					**1.2E-01**
Groundwater	Groundwater	Groundwater	Dermal															
				VOC	1,1-Dichloroethane	75-34-3	1.1E+00	ug/L	1.4E-08	mg/kg-day	5.7E-03	(mg/kg-day)-1	8.2E-11	1.0E-06	mg/kg-day	2.0E-01	mg/kg-day	5.0E-06
				VOC	1,2,3-Trichlorobenzene	87-61-6	6.9E-01	ug/L	1.3E-07	mg/kg-day				9.0E-06	mg/kg-day	8.0E-04	mg/kg-day	1.1E-02
				VOC	1,2,4-Trichlorobenzene	120-82-1	2.1E+00	ug/L	3.8E-07	mg/kg-day	2.9E-02	(mg/kg-day)-1	1.1E-08	2.6E-05	mg/kg-day	1.0E-02	mg/kg-day	2.6E-03
				VOC	1,2-Dichloroethane	107-06-2	9.5E-01	ug/L	8.1E-09	mg/kg-day	9.1E-02	(mg/kg-day)-1	7.4E-10	5.7E-07	mg/kg-day	6.0E-03	mg/kg-day	9.5E-05
				VOC	1,4-Dichlorobenzene	106-46-7	9.0E-01	ug/L	8.8E-08	mg/kg-day	5.4E-03	(mg/kg-day)-1	4.7E-10	6.1E-06	mg/kg-day	7.0E-02	mg/kg-day	8.8E-05
				VOC	1,4-Dioxane	123-91-1	4.4E-01	ug/L	2.9E-10	mg/kg-day	1.0E-01	(mg/kg-day)-1	2.9E-11	2.0E-08	mg/kg-day	3.0E-02	mg/kg-day	6.8E-07
				VOC	Benzene	71-43-2	6.3E+00	ug/L	1.8E-07	mg/kg-day	5.5E-02	(mg/kg-day)-1	9.8E-09	1.3E-05	mg/kg-day	4.0E-03	mg/kg-day	3.1E-03
				VOC	Chlorobenzene	108-90-7	3.9E+00	ug/L	2.2E-07	mg/kg-day				1.5E-05	mg/kg-day	2.0E-02	mg/kg-day	7.7E-04
				VOC	cis-1,2-Dichloroethylene	156-59-2	6.6E+00	ug/L	1.5E-07	mg/kg-day				1.0E-05	mg/kg-day	2.0E-03	mg/kg-day	5.1E-03
				VOC	Ethylbenzene	100-41-4	2.0E+02	ug/L	1.8E-05	mg/kg-day	1.1E-02	(mg/kg-day)-1	2.0E-07	1.3E-03	mg/kg-day	1.0E-01	mg/kg-day	1.3E-02
				VOC	Methylcyclohexane	108-87-2	6.2E-01	ug/L										
				VOC	Methylene chloride	75-09-2	1.6E+01	ug/L	1.1E-07	mg/kg-day	2.0E-03	(mg/kg-day)-1	2.3E-10	7.9E-06	mg/kg-day	6.0E-03	mg/kg-day	1.3E-03
				VOC	o-Xylene	95-47-6	2.8E+01	ug/L	2.5E-06	mg/kg-day				1.8E-04	mg/kg-day	2.0E-01	mg/kg-day	8.8E-04
				VOC	Tetrachloroethylene	127-18-4	5.5E+02	ug/L	4.3E-05	mg/kg-day	2.1E-03	(mg/kg-day)-1	9.1E-08	3.0E-03	mg/kg-day	6.0E-03	mg/kg-day	5.1E-01
				VOC	Trichloroethylene	79-01-6	1.8E+01	ug/L	4.6E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	2.1E-08	3.2E-05	mg/kg-day	5.0E-04	mg/kg-day	6.5E-02
				VOC	Vinyl chloride	75-01-4	2.6E+00	ug/L	4.1E-08	mg/kg-day	7.2E-01	(mg/kg-day)-1	2.9E-08	2.8E-06	mg/kg-day	3.0E-03	mg/kg-day	9.5E-04
				SVOC	4-Chloroaniline	106-47-8	1.0E+03	ug/L	1.1E-05	mg/kg-day	2.0E-01	(mg/kg-day)-1	2.2E-06	7.6E-04	mg/kg-day	4.0E-03	mg/kg-day	1.9E-01
				SVOC	Biphenyl (diphenyl)	92-52-4	1.6E+00	ug/L	3.2E-07	mg/kg-day	8.0E-03	(mg/kg-day)-1	2.6E-09	2.2E-05	mg/kg-day	5.0E-01	mg/kg-day	4.5E-05
				SVOC	Naphthalene	91-20-3	8.2E+00	ug/L	7.6E-07	mg/kg-day				5.3E-05	mg/kg-day	2.0E-02	mg/kg-day	2.7E-03
				INORGANIC	Aluminum	7429-90-5	1.9E+02	ug/L	3.5E-07	mg/kg-day				2.5E-05	mg/kg-day	1.0E+00	mg/kg-day	2.5E-05
				INORGANIC	Arsenic	7440-38-2	3.0E+00	ug/L	5.9E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.8E-09	4.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				INORGANIC	Barium	7440-39-3	2.8E+02	ug/L	6.4E-07	mg/kg-day				4.5E-05	mg/kg-day	1.4E-02	mg/kg-day	3.2E-03
				INORGANIC	Chromium (Total)	7440-47-3	1.1E+00	ug/L	4.1E-09	mg/kg-day	2.0E+01	(mg/kg-day)-1	8.2E-08	2.9E-07	mg/kg-day	7.5E-05	mg/kg-day	3.8E-03
				INORGANIC	Cobalt	7440-48-4	8.1E+00	ug/L	6.2E-09	mg/kg-day				4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				INORGANIC	Cyanide	57-12-5	1.1E+01	ug/L	2.0E-08	mg/kg-day				1.4E-06	mg/kg-day	6.0E-04	mg/kg-day	2.3E-03
				INORGANIC	Iron	7439-89-6	2.4E+04	ug/L	4.6E-05	mg/kg-day				3.3E-03	mg/kg-day	7.0E-01	mg/kg-day	4.6E-03
				INORGANIC	Manganese	7439-96-5	4.4E+03	ug/L	8.3E-06	mg/kg-day				5.8E-04	mg/kg-day	9.6E-04	mg/kg-day	6.0E-01
				INORGANIC	Mercury	7439-97-6	1.2E-01	ug/L	3.4E-10	mg/kg-day				2.4E-08	mg/kg-day			
				INORGANIC	Thallium	7440-28-0	2.9E-01	ug/L	8.7E-10	mg/kg-day				6.1E-08	mg/kg-day	1.0E-05	mg/kg-day	6.1E-03
			Dermal Total										**2.6E-06**					**1.4E+00**

TABLE 7.1
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A CONSTRUCTION WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
									Exposure Intake		CSF/IUR		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Groundwater	Outdoor Inhalation															
				VOC	1,1-Dichloroethane	75-34-3	8.4E-03	mg/m3	1.4E-05	mg/m3	1.6E-03	(mg/m3)-1	2.2E-08	9.6E-04	mg/m3			
				VOC	1,2,3-Trichlorobenzene	87-61-6	4.0E-03	mg/m3	6.5E-06	mg/m3				4.5E-04	mg/m3			
				VOC	1,2,4-Trichlorobenzene	120-82-1	1.2E-02	mg/m3	2.0E-05	mg/m3				1.4E-03	mg/m3	2.0E-03	mg/m3	6.8E-01
				VOC	1,2-Dichloroethane	107-06-2	7.3E-03	mg/m3	1.2E-05	mg/m3	2.6E-02	(mg/m3)-1	3.1E-07	8.3E-04	mg/m3	7.0E-03	mg/m3	1.2E-01
				VOC	1,4-Dichlorobenzene	106-46-7	5.8E-03	mg/m3	9.5E-06	mg/m3	1.1E-02	(mg/m3)-1	1.0E-07	6.7E-04	mg/m3	8.0E-01	mg/m3	8.3E-04
				VOC	1,4-Dioxane	123-91-1	2.8E-04	mg/m3	4.6E-07	mg/m3	5.0E-03	(mg/m3)-1	2.3E-09	3.3E-05	mg/m3	3.0E-02	mg/m3	1.1E-03
				VOC	Benzene	71-43-2	5.7E-02	mg/m3	9.3E-05	mg/m3	7.8E-03	(mg/m3)-1	7.2E-07	6.5E-03	mg/m3	3.0E-02	mg/m3	2.2E-01
				VOC	Chlorobenzene	108-90-7	2.9E-02	mg/m3	4.8E-05	mg/m3				3.4E-03	mg/m3	5.0E-02	mg/m3	6.7E-02
				VOC	cis-1,2-Dichloroethylene	156-59-2	5.4E-02	mg/m3	8.7E-05	mg/m3				6.1E-03	mg/m3			
				VOC	Ethylbenzene	100-41-4	1.5E+00	mg/m3	2.5E-03	mg/m3	2.5E-03	(mg/m3)-1	6.2E-06	1.7E-01	mg/m3	1.0E+00	mg/m3	1.7E-01
				VOC	Methylcyclohexane	108-87-2	5.0E-03	mg/m3	8.2E-06	mg/m3				5.7E-04	mg/m3			
				VOC	Methylene chloride	75-09-2	1.4E-01	mg/m3	2.2E-04	mg/m3	1.0E-05	(mg/m3)-1	2.2E-09	1.6E-02	mg/m3	6.0E-01	mg/m3	2.6E-02
				VOC	o-Xylene	95-47-6	2.2E-01	mg/m3	3.6E-04	mg/m3				2.5E-02	mg/m3	1.0E-01	mg/m3	2.5E-01
				VOC	Tetrachloroethylene	127-18-4	3.4E+00	mg/m3	5.5E-03	mg/m3	2.6E-04	(mg/m3)-1	1.4E-06	3.9E-01	mg/m3	4.0E-02	mg/m3	9.7E+00
				VOC	Trichloroethylene	79-01-6	1.3E-01	mg/m3	2.1E-04	mg/m3	4.1E-03	(mg/m3)-1	8.6E-07	1.5E-02	mg/m3	2.0E-03	mg/m3	7.4E+00
				VOC	Vinyl chloride	75-01-4	2.6E-02	mg/m3	4.2E-05	mg/m3	4.4E-03	(mg/m3)-1	1.9E-07	3.0E-03	mg/m3	1.0E-01	mg/m3	3.0E-02
				SVOC	4-Chloroaniline	106-47-8	4.3E-02	mg/m3	7.1E-05	mg/m3				4.9E-03	mg/m3			
				SVOC	Biphenyl (diphenyl)	92-52-4	8.8E-03	mg/m3	1.4E-05	mg/m3				1.0E-03	mg/m3	4.0E-04	mg/m3	2.5E+00
				SVOC	Naphthalene	91-20-3	5.2E-02	mg/m3	8.5E-05	mg/m3	3.4E-02	(mg/m3)-1	2.9E-06	5.9E-03	mg/m3	3.0E-03	mg/m3	2.0E+00
				INORGANIC	Aluminum	7429-90-5										5.0E-03	mg/m3	
				INORGANIC	Arsenic	7440-38-2					4.3E+00	(mg/m3)-1				1.5E-05	mg/m3	
				INORGANIC	Barium	7440-39-3										5.0E-04	mg/m3	
				INORGANIC	Chromium (Total)	7440-47-3					8.4E+01	(mg/m3)-1				1.0E-04	mg/m3	
				INORGANIC	Cobalt	7440-48-4					9.0E+00	(mg/m3)-1				6.0E-06	mg/m3	
				INORGANIC	Cyanide	57-12-5										8.0E-04	mg/m3	
				INORGANIC	Iron	7439-89-6												
				INORGANIC	Manganese	7439-96-5										5.0E-05	mg/m3	
				INORGANIC	Mercury	7439-97-6	6.6E-04	mg/m3	1.1E-06	mg/m3				7.5E-05	mg/m3	3.0E-04	mg/m3	2.5E-01
				INORGANIC	Thallium	7440-28-0												
			Outdoor Inhalation Total										**1.3E-05**					**2.3E+01**
Groundwater Total													**1.6E-05**					**2.5E+01**
Receptor Total													**1.7E-05**					**2.5E+01**

Notes:
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL), except when the UCL was greater than the maximum detected concentration or ProUCL did not calculate an UCL.
The constituent of potential concern (COPC) list is based on exceedances from screening of maximum detected concentrations against the May 2016 USEPA Regional Screening Levels at a target risk of 1E-06 and target hazard quotient of 0.1.
Cumulative risk estimates that are greater than or equal to the acceptable cancer limit of 1E-06 and noncancer limit of 0.1 are shaded.
The single-chemical cancer risks incorporate the one hit equations for cancer risks > 0.01, per RAGs Part A Chapter 8: Risk = 1 - exp(-Dose x SF).
RAGS Part E does not provide dermal soil absorption fraction values (ABSd) for most VOCs and inorganics; therefore a dermally absorbed dose is not calculated.

Abbreviations:
COPC -- Constituent of potential concern
CSF -- Oral cancer slope factor
EPC -- Exposure point concentration
IUR - Inhalation unit risk
NA -- Not applicable.
RfC -- Inhalation reference concentration
RfD -- Oral reference dose

TABLE 7.2
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
									Exposure Intake		CSF/IUR		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Surface Soil (0-2 ft)	Ingestion	SVOC	Benzo(a)anthracene	56-55-3	1.6E-01	mg/kg	4.9E-08	mg/kg-day	1.0E-01	(mg/kg-day)-1	4.9E-09	1.4E-07	mg/kg-day	3.0E-05	mg/kg-day	4.6E-03
				SVOC	Benzo(a)pyrene	50-32-8	1.4E-01	mg/kg	4.3E-08	mg/kg-day	1.0E+00	(mg/kg-day)-1	4.3E-08	1.2E-07	mg/kg-day	3.0E-04	mg/kg-day	4.0E-04
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	1.4E+01	mg/kg	4.2E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	5.9E-08	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	5.9E-04
				SVOC	Naphthalene	91-20-3	2.8E+00	mg/kg	8.7E-07	mg/kg-day				2.4E-06	mg/kg-day	2.0E-02	mg/kg-day	1.2E-04
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	1.1E+00	mg/kg	3.2E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.5E-07	9.1E-07	mg/kg-day	2.0E-05	mg/kg-day	4.5E-02
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	5.1E-02	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.1E-08	4.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.2E-03
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	7.5E-02	mg/kg	2.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.6E-08	6.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.2E-03
				INORGANIC	Arsenic	7440-38-2	2.7E+00	mg/kg	4.9E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.4E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03
				INORGANIC	Chromium (Total)	7440-47-3	1.4E+01	mg/kg	4.2E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.1E-06	1.2E-05	mg/kg-day	3.0E-03	mg/kg-day	3.9E-03
				INORGANIC	Cobalt	7440-48-4	3.3E+00	mg/kg	1.0E-06	mg/kg-day				2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.6E-03
			Ingestion Total										**3.7E-06**					**7.5E-02**
Soil	Soil	Surface Soil (0-2 ft)	Dermal	SVOC	Benzo(a)anthracene	56-55-3	1.6E-01	mg/kg	2.7E-08	mg/kg-day	1.0E-01	(mg/kg-day)-1	2.7E-09	7.5E-08	mg/kg-day	3.0E-05	mg/kg-day	2.5E-03
				SVOC	Benzo(a)pyrene	50-32-8	1.4E-01	mg/kg	2.4E-08	mg/kg-day	1.0E+00	(mg/kg-day)-1	2.4E-08	6.6E-08	mg/kg-day	3.0E-04	mg/kg-day	2.2E-04
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	1.4E+01	mg/kg	1.8E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	2.5E-08	5.0E-06	mg/kg-day	2.0E-02	mg/kg-day	2.5E-04
				SVOC	Naphthalene	91-20-3	2.8E+00	mg/kg	4.8E-07	mg/kg-day				1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.7E-05
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	1.1E+00	mg/kg	1.9E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.8E-07	5.4E-07	mg/kg-day	2.0E-05	mg/kg-day	2.7E-02
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	5.1E-02	mg/kg	9.2E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-08	2.6E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	7.5E-02	mg/kg	1.4E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.7E-08	3.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-03
				INORGANIC	Arsenic	7440-38-2	2.7E+00	mg/kg	1.0E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.7E-04
				INORGANIC	Chromium (Total)	7440-47-3	1.4E+01	mg/kg			2.0E+01	(mg/kg-day)-1				7.5E-05	mg/kg-day	
				INORGANIC	Cobalt	7440-48-4	3.3E+00	mg/kg								3.0E-04	mg/kg-day	
			Dermal Total										**6.4E-07**					**3.4E-02**
Soil	Soil	Surface Soil (0-2 ft)	Outdoor Inhalation	SVOC	Benzo(a)anthracene	56-55-3	1.1E-10	mg/m3	8.9E-12	mg/m3	6.0E-02	(mg/m3)-1	5.3E-13	2.5E-11	mg/m3	2.0E-07	mg/m3	1.2E-04
				SVOC	Benzo(a)pyrene	50-32-8	9.5E-11	mg/m3	7.8E-12	mg/m3	6.0E-01	(mg/m3)-1	4.7E-12	2.2E-11	mg/m3	2.0E-06	mg/m3	1.1E-05
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	9.3E-09	mg/m3	7.6E-10	mg/m3	2.4E-03	(mg/m3)-1	1.8E-12	2.1E-09	mg/m3			
				SVOC	Naphthalene	91-20-3	1.9E-09	mg/m3	1.6E-10	mg/m3	3.4E-02	(mg/m3)-1	5.4E-12	4.4E-10	mg/m3	3.0E-03	mg/m3	1.5E-07
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	7.2E-10	mg/m3	5.9E-11	mg/m3	5.7E-01	(mg/m3)-1	3.4E-11	1.6E-10	mg/m3			
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	3.4E-11	mg/m3	2.8E-12	mg/m3	5.7E-01	(mg/m3)-1	1.6E-12	7.9E-12	mg/m3			
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	5.1E-11	mg/m3	4.1E-12	mg/m3	5.7E-01	(mg/m3)-1	2.4E-12	1.2E-11	mg/m3			
				INORGANIC	Arsenic	7440-38-2	1.8E-09	mg/m3	1.5E-10	mg/m3	4.3E+00	(mg/m3)-1	6.4E-10	4.2E-10	mg/m3	1.5E-05	mg/m3	2.8E-05
				INORGANIC	Chromium (Total)	7440-47-3	9.3E-09	mg/m3	7.6E-10	mg/m3	8.4E+01	(mg/m3)-1	6.4E-08	2.1E-09	mg/m3	1.0E-04	mg/m3	2.1E-05
				INORGANIC	Cobalt	7440-48-4	2.3E-09	mg/m3	1.9E-10	mg/m3	9.0E+00	(mg/m3)-1	1.7E-09	5.2E-10	mg/m3	6.0E-06	mg/m3	8.7E-05
			Outdoor Inhalation Total										**6.6E-08**					**2.7E-04**
Surface Soil Total													**4.4E-06**					**1.1E-01**

TABLE 7.2
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
									Exposure Intake		CSF/IUR		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Tapwater	Dermal															
				VOC	1,1-Dichloroethane	75-34-3	1.1E+00	ug/L	1.3E-07	mg/kg-day	5.7E-03	(mg/kg-day)-1	7.6E-10	3.8E-07	mg/kg-day	2.0E-01	mg/kg-day	1.9E-06
				VOC	1,2,3-Trichlorobenzene	87-61-6	6.9E-01	ug/L	1.6E-06	mg/kg-day				4.4E-06	mg/kg-day	8.0E-04	mg/kg-day	5.6E-03
				VOC	1,2,4-Trichlorobenzene	120-82-1	2.1E+00	ug/L	4.7E-06	mg/kg-day	2.9E-02	(mg/kg-day)-1	1.3E-07	1.3E-05	mg/kg-day	1.0E-02	mg/kg-day	1.3E-03
				VOC	1,2-Dichloroethane	107-06-2	9.5E-01	ug/L	7.5E-08	mg/kg-day	9.1E-02	(mg/kg-day)-1	6.9E-09	2.1E-07	mg/kg-day	6.0E-03	mg/kg-day	3.5E-05
				VOC	1,4-Dichlorobenzene	106-46-7	9.0E-01	ug/L	1.0E-06	mg/kg-day	5.4E-03	(mg/kg-day)-1	5.5E-09	2.8E-06	mg/kg-day	7.0E-02	mg/kg-day	4.1E-05
				VOC	1,4-Dioxane	123-91-1	4.4E-01	ug/L	2.6E-09	mg/kg-day	1.0E-01	(mg/kg-day)-1	2.6E-10	7.2E-09	mg/kg-day	3.0E-02	mg/kg-day	2.4E-07
				VOC	Benzene	71-43-2	6.3E+00	ug/L	1.6E-06	mg/kg-day	5.5E-02	(mg/kg-day)-1	8.7E-08	4.4E-06	mg/kg-day	4.0E-03	mg/kg-day	1.1E-03
				VOC	Chlorobenzene	108-90-7	3.9E+00	ug/L	2.2E-06	mg/kg-day				6.2E-06	mg/kg-day	2.0E-02	mg/kg-day	3.1E-04
				VOC	cis-1,2-Dichloroethylene	156-59-2	6.6E+00	ug/L	1.4E-06	mg/kg-day				3.8E-06	mg/kg-day	2.0E-03	mg/kg-day	1.9E-03
				VOC	Ethylbenzene	100-41-4	2.0E+02	ug/L	1.9E-04	mg/kg-day	1.1E-02	(mg/kg-day)-1	2.1E-06	5.3E-04	mg/kg-day	1.0E-01	mg/kg-day	5.3E-03
				VOC	Methylcyclohexane	108-87-2	6.2E-01	ug/L										
				VOC	Methylene chloride	75-09-2	1.6E+01	ug/L	1.0E-06	mg/kg-day	2.0E-03	(mg/kg-day)-1	2.0E-09	2.8E-06	mg/kg-day	6.0E-03	mg/kg-day	4.7E-04
				VOC	o-Xylene	95-47-6	2.8E+01	ug/L	2.6E-05	mg/kg-day				7.3E-05	mg/kg-day	2.0E-01	mg/kg-day	3.7E-04
				VOC	Tetrachloroethylene	127-18-4	5.5E+02	ug/L	5.1E-04	mg/kg-day	2.1E-03	(mg/kg-day)-1	1.1E-06	1.4E-03	mg/kg-day	6.0E-03	mg/kg-day	2.4E-01
				VOC	Trichloroethylene	79-01-6	1.8E+01	ug/L	4.8E-06	mg/kg-day	4.6E-02	(mg/kg-day)-1	2.2E-07	1.4E-05	mg/kg-day	5.0E-04	mg/kg-day	2.7E-02
				VOC	Vinyl chloride	75-01-4	2.6E+00	ug/L	3.4E-07	mg/kg-day	7.2E-01	(mg/kg-day)-1	2.4E-07	9.5E-07	mg/kg-day	3.0E-03	mg/kg-day	3.2E-04
				SVOC	4-Chloroaniline	106-47-8	1.0E+03	ug/L	1.1E-04	mg/kg-day	2.0E-01	(mg/kg-day)-1	2.2E-05	3.1E-04	mg/kg-day	4.0E-03	mg/kg-day	7.7E-02
				SVOC	Biphenyl (diphenyl)	92-52-4	1.6E+00	ug/L	3.9E-06	mg/kg-day	8.0E-03	(mg/kg-day)-1	3.2E-08	1.1E-05	mg/kg-day	5.0E-01	mg/kg-day	2.2E-05
				SVOC	Naphthalene	91-20-3	8.2E+00	ug/L	8.4E-06	mg/kg-day				2.3E-05	mg/kg-day	2.0E-02	mg/kg-day	1.2E-03
				INORGANIC	Aluminum	7429-90-5	1.9E+02	ug/L	2.7E-06	mg/kg-day				7.4E-06	mg/kg-day	1.0E+00	mg/kg-day	7.4E-06
				INORGANIC	Arsenic	7440-38-2	3.0E+00	ug/L	5.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.6E-08	1.4E-07	mg/kg-day	3.0E-04	mg/kg-day	4.7E-04
				INORGANIC	Barium	7440-39-3	2.8E+02	ug/L	6.7E-06	mg/kg-day				1.9E-05	mg/kg-day	1.4E-02	mg/kg-day	1.3E-03
				INORGANIC	Chromium (Total)	7440-47-3	1.1E+00	ug/L	3.3E-08	mg/kg-day	2.0E+01	(mg/kg-day)-1	6.6E-07	9.2E-08	mg/kg-day	7.5E-05	mg/kg-day	1.2E-03
				INORGANIC	Cobalt	7440-48-4	8.1E+00	ug/L	5.1E-08	mg/kg-day				1.4E-07	mg/kg-day	3.0E-04	mg/kg-day	4.7E-04
				INORGANIC	Cyanide	57-12-5	1.1E+01	ug/L	1.5E-07	mg/kg-day				4.2E-07	mg/kg-day	6.0E-04	mg/kg-day	6.9E-04
				INORGANIC	Iron	7439-89-6	2.4E+04	ug/L	3.8E-04	mg/kg-day				1.1E-03	mg/kg-day	7.0E-01	mg/kg-day	1.5E-03
				INORGANIC	Manganese	7439-96-5	4.4E+03	ug/L	6.7E-05	mg/kg-day				1.9E-04	mg/kg-day	9.6E-04	mg/kg-day	2.0E-01
				INORGANIC	Mercury	7439-97-6	1.2E-01	ug/L	4.1E-09	mg/kg-day				1.1E-08	mg/kg-day			
				INORGANIC	Thallium	7440-28-0	2.9E-01	ug/L	1.1E-08	mg/kg-day				3.0E-08	mg/kg-day	1.0E-05	mg/kg-day	3.0E-03
			Dermal Total										**2.7E-05**					**5.7E-01**
Groundwater Total													**2.7E-05**					**5.7E-01**
Receptor Total													**3.1E-05**					**6.7E-01**

Notes:

The exposure point concentration (EPC) is the 95% upper confidence limit (UCL), except when the UCL was greater than the maximum detected concentration or ProUCL did not calculate an UCL.

The constituent of potential concern (COPC) list is based on exceedances from screening of maximum detected concentrations against the May 2016 USEPA Regional Screening Levels at a target risk of 1E-06 and target hazard quotient of 0.1.

Cumulative risk estimates that are greater than or equal to the acceptable cancer limit of 1E-06 and noncancer limit of 0.1 are shaded.

The single-chemical cancer risks incorporate the one hit equations for cancer risks > 0.01, per RAGs Part A Chapter 8: Risk = 1 - exp(-Dose x SF).

RAGS Part E does not provide dermal soil absorption fraction values (ABSd) for most VOCs and inorganics; therefore a dermally absorbed dose is not calculated.

Abbreviations:

COPC -- Constituent of potential concern
CSF -- Oral cancer slope factor
EPC -- Exposure point concentration
IUR - Inhalation unit risk
RfC -- Inhalation reference concentration
RfD -- Oral reference dose

TABLE 7.3
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RESIDENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	Mutagenic	EPC Adult Value	EPC Child Value	EPC Units	Cancer Risk Calculations, Adult and Child Age-Adjusted: Exposure Intake Value	Exposure Intake Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk	Non-Cancer Hazard Calculations, Adult: Exposure Intake Value	Exposure Intake Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient	Child (0-6 years): Exposure Intake Value	Exposure Intake Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Soil	Soil	Surface Soil (0-2 ft)	Ingestion	SVOC	Benzo(a)anthracene	56-55-3	Y	1.6E-01	1.6E-01	mg/kg	1.5E-06	mg/kg-day	1.0E-01	(mg/kg-day)-1	1.5E-07	1.9E-07	mg/kg-day	3.0E-05	mg/kg-day	6.4E-03	2.0E-06	mg/kg-day	3.0E-05	mg/kg-day	6.8E-02
				SVOC	Benzo(a)pyrene	50-32-8	Y	1.4E-01	1.4E-01	mg/kg	1.3E-06	mg/kg-day	1.0E+00	(mg/kg-day)-1	1.3E-06	1.7E-07	mg/kg-day	3.0E-04	mg/kg-day	5.6E-04	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.0E-03
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	N	1.4E+01	1.4E+01	mg/kg	2.4E-05	mg/kg-day	1.4E-02	(mg/kg-day)-1	3.4E-07	1.6E-05	mg/kg-day	2.0E-02	mg/kg-day	8.2E-04	1.8E-04	mg/kg-day	2.0E-02	mg/kg-day	8.8E-03
				SVOC	Naphthalene	91-20-3	N	2.8E+00	2.8E+00	mg/kg	5.0E-06	mg/kg-day				3.4E-06	mg/kg-day	2.0E-02	mg/kg-day	1.7E-04	3.6E-05	mg/kg-day	2.0E-02	mg/kg-day	1.8E-03
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	N	1.1E+00	1.1E+00	mg/kg	1.9E-06	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.7E-06	1.3E-06	mg/kg-day	2.0E-05	mg/kg-day	6.4E-02	1.4E-05	mg/kg-day	2.0E-05	mg/kg-day	6.8E-01
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	N	5.1E-02	5.1E-02	mg/kg	8.9E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-07	6.1E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03	6.5E-07	mg/kg-day	2.0E-05	mg/kg-day	3.2E-02
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	N	7.5E-02	7.5E-02	mg/kg	1.3E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.6E-07	9.0E-08	mg/kg-day	2.0E-05	mg/kg-day	4.5E-03	9.6E-07	mg/kg-day	2.0E-05	mg/kg-day	4.8E-02
				INORGANIC	Arsenic	7440-38-2	N	2.7E+00	2.7E+00	mg/kg	2.8E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.3E-06	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.4E-03	2.1E-05	mg/kg-day	3.0E-04	mg/kg-day	6.9E-02
				INORGANIC	Chromium (Total)	7440-47-3	Y	1.4E+01	1.4E+01	mg/kg	1.3E-04	mg/kg-day	5.0E-01	(mg/kg-day)-1	6.3E-05	1.6E-05	mg/kg-day	3.0E-03	mg/kg-day	5.5E-03	1.8E-04	mg/kg-day	3.0E-03	mg/kg-day	5.8E-02
				INORGANIC	Cobalt	7440-48-4	N	3.3E+00	3.3E+00	mg/kg	5.9E-06	mg/kg-day				4.0E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02	4.3E-05	mg/kg-day	3.0E-04	mg/kg-day	1.4E-01
			Ingestion Total												**7.3E-05**					**1.0E-01**					**1.1E+00**
Soil	Soil	Surface Soil (0-2 ft)	Dermal	SVOC	Benzo(a)anthracene	56-55-3	Y	1.6E-01	1.6E-01	mg/kg	5.0E-07	mg/kg-day	1.0E-01	(mg/kg-day)-1	5.0E-08	1.1E-07	mg/kg-day	3.0E-05	mg/kg-day	3.5E-03	6.3E-07	mg/kg-day	3.0E-05	mg/kg-day	2.1E-02
				SVOC	Benzo(a)pyrene	50-32-8	Y	1.4E-01	1.4E-01	mg/kg	4.4E-07	mg/kg-day	1.0E+00	(mg/kg-day)-1	4.4E-07	9.2E-08	mg/kg-day	3.0E-04	mg/kg-day	3.1E-04	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	N	1.4E+01	1.4E+01	mg/kg	7.1E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	9.9E-08	6.9E-06	mg/kg-day	2.0E-02	mg/kg-day	3.5E-04	4.2E-05	mg/kg-day	2.0E-02	mg/kg-day	2.1E-03
				SVOC	Naphthalene	91-20-3	N	2.8E+00	2.8E+00	mg/kg	1.9E-06	mg/kg-day				1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.4E-05	1.1E-05	mg/kg-day	2.0E-02	mg/kg-day	5.6E-04
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	N	1.1E+00	1.1E+00	mg/kg	7.6E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.5E-06	7.5E-07	mg/kg-day	2.0E-05	mg/kg-day	3.8E-02	4.5E-06	mg/kg-day	2.0E-05	mg/kg-day	2.3E-01
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	N	5.1E-02	5.1E-02	mg/kg	3.6E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	7.3E-08	3.6E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	N	7.5E-02	7.5E-02	mg/kg	5.4E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.1E-07	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.6E-03	3.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.6E-02
				INORGANIC	Arsenic	7440-38-2	N	2.7E+00	2.7E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.2E-07	4.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	8.1E-03
				INORGANIC	Chromium (Total)	7440-47-3	Y	1.4E+01	1.4E+01	mg/kg			2.0E+01	(mg/kg-day)-1				7.5E-05	mg/kg-day				7.5E-05	mg/kg-day	
				INORGANIC	Cobalt	7440-48-4	N	3.3E+00	3.3E+00	mg/kg								3.0E-04	mg/kg-day				3.0E-04	mg/kg-day	
			Dermal Total												**2.9E-06**					**4.8E-02**					**2.9E-01**
Soil	Soil	Surface Soil (0-2 ft)	Outdoor Inhalation	SVOC	Benzo(a)anthracene	56-55-3	Y	1.1E-10	1.1E-10	mg/m3	1.1E-10	mg/m3	6.0E-02	(mg/m3)-1	6.4E-12	1.0E-10	mg/m3	2.0E-07	mg/m3	5.2E-04	1.0E-10	mg/m3	2.0E-07	mg/m3	5.2E-04
				SVOC	Benzo(a)pyrene	50-32-8	Y	9.5E-11	9.5E-11	mg/m3	9.4E-11	mg/m3	6.0E-01	(mg/m3)-1	5.6E-11	9.1E-11	mg/m3	2.0E-06	mg/m3	4.6E-05	9.1E-11	mg/m3	2.0E-06	mg/m3	4.6E-05
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	N	9.3E-09	9.3E-09	mg/m3	3.3E-09	mg/m3	2.4E-03	(mg/m3)-1	8.0E-12	9.0E-09	mg/m3				9.0E-09	mg/m3			
				SVOC	Naphthalene	91-20-3	N	1.9E-09	1.9E-09	mg/m3	6.9E-10	mg/m3	3.4E-02	(mg/m3)-1	2.3E-11	1.9E-09	mg/m3	3.0E-03	mg/m3	6.2E-07	1.9E-09	mg/m3	3.0E-03	mg/m3	6.2E-07
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	N	7.2E-10	7.2E-10	mg/m3	2.6E-10	mg/m3	5.7E-01	(mg/m3)-1	1.5E-10	6.9E-10	mg/m3				6.9E-10	mg/m3			
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	N	3.4E-11	3.4E-11	mg/m3	1.2E-11	mg/m3	5.7E-01	(mg/m3)-1	7.0E-12	3.3E-11	mg/m3				3.3E-11	mg/m3			
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	N	5.1E-11	5.1E-11	mg/m3	1.8E-11	mg/m3	5.7E-01	(mg/m3)-1	1.0E-11	4.9E-11	mg/m3				4.9E-11	mg/m3			
				INORGANIC	Arsenic	7440-38-2	N	1.8E-09	1.8E-09	mg/m3	6.5E-10	mg/m3	4.3E+00	(mg/m3)-1	2.8E-09	1.8E-09	mg/m3	1.5E-05	mg/m3	1.2E-04	1.8E-09	mg/m3	1.5E-05	mg/m3	1.2E-04
				INORGANIC	Chromium (Total)	7440-47-3	Y	9.3E-09	9.3E-09	mg/m3	9.2E-09	mg/m3	8.4E+01	(mg/m3)-1	7.7E-07	8.9E-09	mg/m3	1.0E-04	mg/m3	8.9E-05	8.9E-09	mg/m3	1.0E-04	mg/m3	8.9E-05
				INORGANIC	Cobalt	7440-48-4	N	2.3E-09	2.3E-09	mg/m3	8.1E-10	mg/m3	9.0E+00	(mg/m3)-1	7.3E-09	2.2E-09	mg/m3	6.0E-06	mg/m3	3.6E-04	2.2E-09	mg/m3	6.0E-06	mg/m3	3.6E-04
			Outdoor Inhalation Total												**7.8E-07**					**1.1E-03**					**1.1E-03**
Surface Soil Total															**7.7E-05**					**1.5E-01**					**1.4E+00**
Groundwater	Groundwater	Tapwater	Ingestion	VOC	1,1-Dichloroethane	75-34-3	N	1.1E+00	1.1E+00	ug/L	1.6E-05	mg/kg-day	5.7E-03	(mg/kg-day)-1	9.3E-08	3.2E-05	mg/kg-day	2.0E-01	mg/kg-day	1.6E-04	5.3E-05	mg/kg-day	2.0E-01	mg/kg-day	2.6E-04
				VOC	1,2,3-Trichlorobenzene	87-61-6	N	6.9E-01	6.9E-01	ug/L	1.1E-05	mg/kg-day				2.1E-05	mg/kg-day	8.0E-04	mg/kg-day	2.6E-02	3.4E-05	mg/kg-day	8.0E-04	mg/kg-day	4.3E-02
				VOC	1,2,4-Trichlorobenzene	120-82-1	N	2.1E+00	2.1E+00	ug/L	3.3E-05	mg/kg-day	2.9E-02	(mg/kg-day)-1	9.5E-07	6.4E-05	mg/kg-day	1.0E-02	mg/kg-day	6.4E-03	1.1E-04	mg/kg-day	1.0E-02	mg/kg-day	1.1E-02
				VOC	1,2-Dichloroethane	107-06-2	N	9.5E-01	9.5E-01	ug/L	1.5E-05	mg/kg-day	9.1E-02	(mg/kg-day)-1	1.3E-06	2.9E-05	mg/kg-day	6.0E-03	mg/kg-day	4.8E-03	4.7E-05	mg/kg-day	6.0E-03	mg/kg-day	7.9E-03
				VOC	1,4-Dichlorobenzene	106-46-7	N	9.0E-01	9.0E-01	ug/L	1.4E-05	mg/kg-day	5.4E-03	(mg/kg-day)-1	7.5E-08	2.7E-05	mg/kg-day	7.0E-02	mg/kg-day	3.9E-04	4.5E-05	mg/kg-day	7.0E-02	mg/kg-day	6.4E-04
				VOC	1,4-Dioxane	123-91-1	N	4.4E-01	4.4E-01	ug/L	6.7E-06	mg/kg-day	1.0E-01	(mg/kg-day)-1	6.7E-07	1.3E-05	mg/kg-day	3.0E-02	mg/kg-day	4.3E-04	2.2E-05	mg/kg-day	3.0E-02	mg/kg-day	7.2E-04
				VOC	Benzene	71-43-2	N	6.3E+00	6.3E+00	ug/L	9.7E-05	mg/kg-day	5.5E-02	(mg/kg-day)-1	5.4E-06	1.9E-04	mg/kg-day	4.0E-03	mg/kg-day	4.7E-02	3.1E-04	mg/kg-day	4.0E-03	mg/kg-day	7.9E-02
				VOC	Chlorobenzene	108-90-7	N	3.9E+00	3.9E+00	ug/L	6.1E-05	mg/kg-day				1.2E-04	mg/kg-day	2.0E-02	mg/kg-day	5.9E-03	2.0E-04	mg/kg-day	2.0E-02	mg/kg-day	9.8E-03
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	6.6E+00	6.6E+00	ug/L	1.0E-04	mg/kg-day				2.0E-04	mg/kg-day	2.0E-03	mg/kg-day	1.0E-01	3.3E-04	mg/kg-day	2.0E-03	mg/kg-day	1.7E-01
				VOC	Ethylbenzene	100-41-4	N	2.0E+02	2.0E+02	ug/L	3.0E-03	mg/kg-day	1.1E-02	(mg/kg-day)-1	3.3E-05	5.9E-03	mg/kg-day	1.0E-01	mg/kg-day	5.9E-02	9.8E-03	mg/kg-day	1.0E-01	mg/kg-day	9.8E-02
				VOC	Methylcyclohexane	108-87-2	N	6.2E-01	6.2E-01	ug/L	9.6E-06	mg/kg-day				1.9E-05	mg/kg-day				3.1E-05	mg/kg-day			
				VOC	Methylene chloride	75-09-2	Y	1.6E+01	1.6E+01	ug/L	9.2E-04	mg/kg-day	2.0E-03	(mg/kg-day)-1	1.8E-06	4.8E-04	mg/kg-day	6.0E-03	mg/kg-day	8.1E-02	8.0E-04	mg/kg-day	6.0E-03	mg/kg-day	1.3E-01
				VOC	o-Xylene	95-47-6	N	2.8E+01	2.8E+01	ug/L	4.4E-04	mg/kg-day				8.5E-04	mg/kg-day	2.0E-01	mg/kg-day	4.3E-03	1.4E-03	mg/kg-day	2.0E-01	mg/kg-day	7.1E-03
				VOC	Tetrachloroethylene	127-18-4	N	5.5E+02	5.5E+02	ug/L	8.4E-03	mg/kg-day	2.1E-03	(mg/kg-day)-1	1.8E-05	1.6E-02	mg/kg-day	6.0E-03	mg/kg-day	2.7E+00	2.7E-02	mg/kg-day	6.0E-03	mg/kg-day	4.5E+00
				VOC	Trichloroethylene	79-01-6	Y	1.8E+01	1.8E+01	ug/L	4.4E-04	mg/kg-day	4.6E-02	(mg/kg-day)-1	2.0E-05	5.5E-04	mg/kg-day	5.0E-04	mg/kg-day	1.1E+00	9.2E-04	mg/kg-day	5.0E-04	mg/kg-day	1.8E+00
				VOC	Vinyl chloride	75-01-4	Y	2.6E+00	2.6E+00	ug/L	1.7E-04	mg/kg-day	7.2E-01	(mg/kg-day)-1	1.2E-04	7.7E-05	mg/kg-day	3.0E-03	mg/kg-day	2.6E-02	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	4.3E-02
				SVOC	4-Chloroaniline	106-47-8	N	1.0E+03	1.0E+03	ug/L	1.6E-02	mg/kg-day	2.0E-01	(mg/kg-day)-1	3.1E-03	3.0E-02	mg/kg-day	4.0E-03	mg/kg-day	7.5E+00	5.0E-02	mg/kg-day	4.0E-03	mg/kg-day	1.3E+01
				SVOC	Biphenyl (diphenyl)	92-52-4	N	1.6E+00	1.6E+00	ug/L	2.5E-05	mg/kg-day	8.0E-03	(mg/kg-day)-1	2.0E-07	4.8E-05	mg/kg-day	5.0E-01	mg/kg-day	9.6E-05	8.0E-05	mg/kg-day	5.0E-01	mg/kg-day	1.6E-04
				SVOC	Naphthalene	91-20-3	N	8.2E+00	8.2E+00	ug/L	1.3E-04	mg/kg-day				2.4E-04	mg/kg-day	2.0E-02	mg/kg-day	1.2E-02	4.1E-04	mg/kg-day	2.0E-02	mg/kg-day	2.0E-02
				INORGANIC	Aluminum	7429-90-5	N	1.9E+02	1.9E+02	ug/L	2.9E-03	mg/kg-day				5.7E-03	mg/kg-day	1.0E+00	mg/kg-day	5.7E-03	9.5E-03	mg/kg-day	1.0E+00	mg/kg-day	9.5E-03
				INORGANIC	Arsenic	7440-38-2	N	3.0E+00	3.0E+00	ug/L	4.6E-05	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.9E-05	8.9E-05	mg/kg-day	3.0E-04	mg/kg-day	3.0E-01	1.5E-04	mg/kg-day	3.0E-04	mg/kg-day	4.9E-01
				INORGANIC	Barium	7440-39-3	N	2.8E+02	2.8E+02	ug/L	4.4E-03	mg/kg-day				8.5E-03	mg/kg-day	2.0E-01	mg/kg-day	4.3E-02	1.4E-02	mg/kg-day	2.0E-01	mg/kg-day	7.1E-02
				INORGANIC	Chromium (Total)	7440-47-3	Y	1.1E+00	1.1E+00	ug/L	6.2E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.1E-05	3.2E-05	mg/kg-day	3.0E-03	mg/kg-day	1.1E-02	5.4E-05	mg/kg-day	3.0E-03	mg/kg-day	1.8E-02
				INORGANIC	Cobalt	7440-48-4	N	8.1E+00	8.1E+00	ug/L	1.2E-04	mg/kg-day				2.4E-04	mg/kg-day	3.0E-04	mg/kg-day	8.1E-01	4.0E-04	mg/kg-day	3.0E-04	mg/kg-day	1.3E+00
				INORGANIC	Cyanide	57-12-5	N	1.1E+01	1.1E+01	ug/L	1.6E-04	mg/kg-day				3.2E-04	mg/kg-day	6.0E-04	mg/kg-day	5.3E-01	5.3E-04	mg/kg-day	6.0E-04	mg/kg-day	8.9E-01
				INORGANIC	Iron	7439-89-6	N	2.4E+04	2.4E+04	ug/L	3.8E-01	mg/kg-day				7.3E-01	mg/kg-day	7.0E-01	mg/kg-day	1.0E+00	1.2E+00	mg/kg-day	7.0E-01	mg/kg-day	1.7E+00
				INORGANIC	Manganese	7439-96-5	N	4.4E+03	4.4E+03	ug/L	6.7E-02	mg/kg-day				1.3E-01	mg/kg-day	2.4E-02	mg/kg-day	5.4E+00	2.2E-01	mg/kg-day	2.4E-02	mg/kg-day	9.0E+00
				INORGANIC	Mercury	7439-97-6	N	1.2E-01	1.2E-01	ug/L	1.8E-06	mg/kg-day				3.5E-06	mg/kg-day				5.8E-06	mg/kg-day			
				INORGANIC	Thallium	7440-28-0	N	2.9E-01	2.9E-01	ug/L	4.5E-06	mg/kg-day				8.7E-06	mg/kg-day	1.0E-05	mg/kg-day	8.7E-01	1.4E-05	mg/kg-day	1.0E-05	mg/kg-day	1.4E+00
			Ingestion Total												**3.4E-03**					**2.1E+01**					**3.5E+01**

TABLE 7.3
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RESIDENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	Mutagenic	EPC			Cancer Risk Calculations					Non-Cancer Hazard Calculations									
								Adult	Child	Units	Adult and Child Age-Adjusted					Adult					Child (0-6 years)				
								Value	Value		Exposure Intake		CSF/Unit Risk		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient	Exposure Intake		RfD/RfC		Hazard Quotient
											Value	Units	Value	Units		Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Tapwater	Dermal																						
				VOC	1,1-Dichloroethane	75-34-3	N	1.1E+00	1.1E+00	ug/L	1.1E-06	mg/kg-day	5.7E-03	(mg/kg-day)-1	6.2E-09	2.4E-06	mg/kg-day	2.0E-01	mg/kg-day	1.2E-05	3.6E-06	mg/kg-day	2.0E-01	mg/kg-day	1.8E-05
				VOC	1,2,3-Trichlorobenzene	87-61-6	N	6.9E-01	6.9E-01	ug/L	1.3E-05	mg/kg-day				2.9E-05	mg/kg-day	8.0E-04	mg/kg-day	3.7E-02	4.4E-05	mg/kg-day	8.0E-04	mg/kg-day	5.5E-02
				VOC	1,2,4-Trichlorobenzene	120-82-1	N	2.1E+00	2.1E+00	ug/L	3.9E-05	mg/kg-day	2.9E-02	(mg/kg-day)-1	1.1E-06	8.6E-05	mg/kg-day	1.0E-02	mg/kg-day	8.6E-03	1.3E-04	mg/kg-day	1.0E-02	mg/kg-day	1.3E-02
				VOC	1,2-Dichloroethane	107-06-2	N	9.5E-01	9.5E-01	ug/L	6.1E-07	mg/kg-day	9.1E-02	(mg/kg-day)-1	5.6E-08	1.3E-06	mg/kg-day	6.0E-03	mg/kg-day	2.2E-04	2.0E-06	mg/kg-day	6.0E-03	mg/kg-day	3.4E-04
				VOC	1,4-Dichlorobenzene	106-46-7	N	9.0E-01	9.0E-01	ug/L	8.5E-06	mg/kg-day	5.4E-03	(mg/kg-day)-1	4.6E-08	1.9E-05	mg/kg-day	7.0E-02	mg/kg-day	2.7E-04	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	4.0E-04
				VOC	1,4-Dioxane	123-91-1	N	4.4E-01	4.4E-01	ug/L	2.1E-08	mg/kg-day	1.0E-01	(mg/kg-day)-1	2.1E-09	4.5E-08	mg/kg-day	3.0E-02	mg/kg-day	1.5E-06	6.8E-08	mg/kg-day	3.0E-02	mg/kg-day	2.3E-06
				VOC	Benzene	71-43-2	N	6.3E+00	6.3E+00	ug/L	1.3E-05	mg/kg-day	5.5E-02	(mg/kg-day)-1	7.0E-07	2.8E-05	mg/kg-day	4.0E-03	mg/kg-day	7.1E-03	4.2E-05	mg/kg-day	4.0E-03	mg/kg-day	1.0E-02
				VOC	Chlorobenzene	108-90-7	N	3.9E+00	3.9E+00	ug/L	1.9E-05	mg/kg-day				4.1E-05	mg/kg-day	2.0E-02	mg/kg-day	2.0E-03	6.1E-05	mg/kg-day	2.0E-02	mg/kg-day	3.1E-03
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	6.6E+00	6.6E+00	ug/L	1.1E-05	mg/kg-day				2.4E-05	mg/kg-day	2.0E-03	mg/kg-day	1.2E-02	3.7E-05	mg/kg-day	2.0E-03	mg/kg-day	1.8E-02
				VOC	Ethylbenzene	100-41-4	N	2.0E+02	2.0E+02	ug/L	1.5E-03	mg/kg-day	1.1E-02	(mg/kg-day)-1	1.7E-05	3.4E-03	mg/kg-day	1.0E-01	mg/kg-day	3.4E-02	5.1E-03	mg/kg-day	1.0E-01	mg/kg-day	5.1E-02
				VOC	Methylcyclohexane	108-87-2	N	6.2E-01	6.2E-01	ug/L															
				VOC	Methylene chloride	75-09-2	Y	1.6E+01	1.6E+01	ug/L	2.5E-05	mg/kg-day	2.0E-03	(mg/kg-day)-1	5.0E-08	1.8E-05	mg/kg-day	6.0E-03	mg/kg-day	2.9E-03	2.6E-05	mg/kg-day	6.0E-03	mg/kg-day	4.4E-03
				VOC	o-Xylene	95-47-6	N	2.8E+01	2.8E+01	ug/L	2.1E-04	mg/kg-day				4.7E-04	mg/kg-day	2.0E-01	mg/kg-day	2.4E-03	7.1E-04	mg/kg-day	2.0E-01	mg/kg-day	3.6E-03
				VOC	Tetrachloroethylene	127-18-4	N	5.5E+02	5.5E+02	ug/L	4.3E-03	mg/kg-day	2.1E-03	(mg/kg-day)-1	9.0E-06	9.4E-03	mg/kg-day	6.0E-03	mg/kg-day	1.6E+00	1.4E-02	mg/kg-day	6.0E-03	mg/kg-day	2.4E+00
				VOC	Trichloroethylene	79-01-6	Y	1.8E+01	1.8E+01	ug/L	5.8E-05	mg/kg-day	4.6E-02	(mg/kg-day)-1	2.7E-06	8.9E-05	mg/kg-day	5.0E-04	mg/kg-day	1.8E-01	1.3E-04	mg/kg-day	5.0E-04	mg/kg-day	2.7E-01
				VOC	Vinyl chloride	75-01-4	Y	2.6E+00	2.6E+00	ug/L	1.2E-05	mg/kg-day	7.2E-01	(mg/kg-day)-1	8.4E-06	6.0E-06	mg/kg-day	3.0E-03	mg/kg-day	2.0E-03	8.6E-06	mg/kg-day	3.0E-03	mg/kg-day	2.9E-03
				SVOC	4-Chloroaniline	106-47-8	N	1.0E+03	1.0E+03	ug/L	9.2E-04	mg/kg-day	2.0E-01	(mg/kg-day)-1	1.8E-04	2.0E-03	mg/kg-day	4.0E-03	mg/kg-day	5.1E-01	3.0E-03	mg/kg-day	4.0E-03	mg/kg-day	7.6E-01
				SVOC	Biphenyl (diphenyl)	92-52-4	N	1.6E+00	1.6E+00	ug/L	3.3E-05	mg/kg-day	8.0E-03	(mg/kg-day)-1	2.6E-07	7.3E-05	mg/kg-day	5.0E-01	mg/kg-day	1.5E-04	1.1E-04	mg/kg-day	5.0E-01	mg/kg-day	2.2E-04
				SVOC	Naphthalene	91-20-3	N	8.2E+00	8.2E+00	ug/L	7.0E-05	mg/kg-day				1.5E-04	mg/kg-day	2.0E-02	mg/kg-day	7.7E-03	2.3E-04	mg/kg-day	2.0E-02	mg/kg-day	1.2E-02
				INORGANIC	Aluminum	7429-90-5	N	1.9E+02	1.9E+02	ug/L	2.0E-05	mg/kg-day				4.5E-05	mg/kg-day	1.0E+00	mg/kg-day	4.5E-05	6.5E-05	mg/kg-day	1.0E+00	mg/kg-day	6.5E-05
				INORGANIC	Arsenic	7440-38-2	N	3.0E+00	3.0E+00	ug/L	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.1E-07	9.0E-07	mg/kg-day	3.0E-04	mg/kg-day	3.0E-03	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.4E-03
				INORGANIC	Barium	7440-39-3	N	2.8E+02	2.8E+02	ug/L	5.6E-05	mg/kg-day				1.2E-04	mg/kg-day	1.4E-02	mg/kg-day	8.9E-03	1.9E-04	mg/kg-day	1.4E-02	mg/kg-day	1.3E-02
				INORGANIC	Chromium (Total)	7440-47-3	Y	1.1E+00	1.1E+00	ug/L	8.1E-07	mg/kg-day	2.0E+01	(mg/kg-day)-1	1.6E-05	5.7E-07	mg/kg-day	7.5E-05	mg/kg-day	7.6E-03	8.4E-07	mg/kg-day	7.5E-05	mg/kg-day	1.1E-02
				INORGANIC	Cobalt	7440-48-4	N	8.1E+00	8.1E+00	ug/L	4.0E-07	mg/kg-day				8.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.9E-03	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.3E-03
				INORGANIC	Cyanide	57-12-5	N	1.1E+01	1.1E+01	ug/L	1.1E-06	mg/kg-day				2.5E-06	mg/kg-day	6.0E-04	mg/kg-day	4.2E-03	3.6E-06	mg/kg-day	6.0E-04	mg/kg-day	6.0E-03
				INORGANIC	Iron	7439-89-6	N	2.4E+04	2.4E+04	ug/L	3.0E-03	mg/kg-day				6.6E-03	mg/kg-day	7.0E-01	mg/kg-day	9.4E-03	9.6E-03	mg/kg-day	7.0E-01	mg/kg-day	1.4E-02
				INORGANIC	Manganese	7439-96-5	N	4.4E+03	4.4E+03	ug/L	5.3E-04	mg/kg-day				1.2E-03	mg/kg-day	9.6E-04	mg/kg-day	1.2E+00	1.7E-03	mg/kg-day	9.6E-04	mg/kg-day	1.8E+00
				INORGANIC	Mercury	7439-97-6	N	1.2E-01	1.2E-01	ug/L	3.4E-08	mg/kg-day				7.5E-08	mg/kg-day				1.1E-07	mg/kg-day			
				INORGANIC	Thallium	7440-28-0	N	2.9E-01	2.9E-01	ug/L	8.8E-08	mg/kg-day				1.9E-07	mg/kg-day	1.0E-05	mg/kg-day	1.9E-02	2.9E-07	mg/kg-day	1.0E-05	mg/kg-day	2.9E-02
			Dermal Total												**2.4E-04**					**3.6E+00**					**5.4E+00**
Groundwater	Groundwater	Water Vapors in Bathroom	Inhalation																						
				VOC	1,1-Dichloroethane	75-34-3	N	3.3E-02	3.6E-02	mg/m3	3.3E-04	mg/m3	1.6E-03	(mg/m3)-1	5.3E-07	9.2E-04	mg/m3				7.8E-04	mg/m3			
				VOC	1,2,3-Trichlorobenzene	87-61-6	N	2.1E-02	2.4E-02	mg/m3	2.2E-04	mg/m3				6.1E-04	mg/m3				5.1E-04	mg/m3			
				VOC	1,2,4-Trichlorobenzene	120-82-1	N	6.6E-02	7.3E-02	mg/m3	6.7E-04	mg/m3				1.9E-03	mg/m3	2.0E-03	mg/m3	9.3E-01	1.6E-03	mg/m3	2.0E-03	mg/m3	7.9E-01
				VOC	1,2-Dichloroethane	107-06-2	N	2.9E-02	3.3E-02	mg/m3	3.0E-04	mg/m3	2.6E-02	(mg/m3)-1	7.8E-06	8.3E-04	mg/m3	7.0E-03	mg/m3	1.2E-01	7.1E-04	mg/m3	7.0E-03	mg/m3	1.0E-01
				VOC	1,4-Dichlorobenzene	106-46-7	N	2.8E-02	3.1E-02	mg/m3	2.8E-04	mg/m3	1.1E-02	(mg/m3)-1	3.1E-06	7.9E-04	mg/m3	8.0E-01	mg/m3	9.9E-04	6.7E-04	mg/m3	8.0E-01	mg/m3	8.4E-04
				VOC	1,4-Dioxane	123-91-1	N	1.3E-02	1.5E-02	mg/m3	1.4E-04	mg/m3	5.0E-03	(mg/m3)-1	6.8E-07	3.8E-04	mg/m3	3.0E-02	mg/m3	1.3E-02	3.2E-04	mg/m3	3.0E-02	mg/m3	1.1E-02
				VOC	Benzene	71-43-2	N	2.0E-01	2.2E-01	mg/m3	2.0E-03	mg/m3	7.8E-03	(mg/m3)-1	1.5E-05	5.5E-03	mg/m3	3.0E-02	mg/m3	1.8E-01	4.7E-03	mg/m3	3.0E-02	mg/m3	1.6E-01
				VOC	Chlorobenzene	108-90-7	N	1.2E-01	1.4E-01	mg/m3	1.2E-03	mg/m3				3.4E-03	mg/m3	5.0E-02	mg/m3	6.9E-02	2.9E-03	mg/m3	5.0E-02	mg/m3	5.8E-02
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	2.1E-01	2.3E-01	mg/m3	2.1E-03	mg/m3				5.8E-03	mg/m3				4.9E-03	mg/m3			
				VOC	Ethylbenzene	100-41-4	N	6.0E+00	6.7E+00	mg/m3	6.1E-02	mg/m3	2.5E-03	(mg/m3)-1	1.5E-04	1.7E-01	mg/m3	1.0E+00	mg/m3	1.7E-01	1.5E-01	mg/m3	1.0E+00	mg/m3	1.5E-01
				VOC	Methylcyclohexane	108-87-2	N	1.9E-02	2.1E-02	mg/m3	1.9E-04	mg/m3				5.4E-04	mg/m3				4.6E-04	mg/m3			
				VOC	Methylene chloride	75-09-2	Y	5.0E-01	5.5E-01	mg/m3	2.7E-02	mg/m3	1.0E-05	(mg/m3)-1	2.7E-07	1.4E-02	mg/m3	6.0E-01	mg/m3	2.4E-02	1.2E-02	mg/m3	6.0E-01	mg/m3	2.0E-02
				VOC	o-Xylene	95-47-6	N	8.8E-01	9.8E-01	mg/m3	8.9E-03	mg/m3				2.5E-02	mg/m3	1.0E-01	mg/m3	2.5E-01	2.1E-02	mg/m3	1.0E-01	mg/m3	2.1E-01
				VOC	Tetrachloroethylene	127-18-4	N	1.7E+01	1.9E+01	mg/m3	1.7E-01	mg/m3	2.6E-04	(mg/m3)-1	4.5E-05	4.8E-01	mg/m3	4.0E-02	mg/m3	1.2E+01	4.0E-01	mg/m3	4.0E-02	mg/m3	1.0E+01
				VOC	Trichloroethylene	79-01-6	Y	5.7E-01	6.4E-01	mg/m3	1.6E-02	mg/m3	4.1E-03	(mg/m3)-1	6.5E-05	1.6E-02	mg/m3	2.0E-03	mg/m3	8.1E+00	1.4E-02	mg/m3	2.0E-03	mg/m3	6.9E+00
				VOC	Vinyl chloride	75-01-4	Y	7.9E-02	8.8E-02	mg/m3	9.0E-02	mg/m3	4.4E-03	(mg/m3)-1	3.9E-04	2.2E-03	mg/m3	1.0E-01	mg/m3	2.2E-02	1.9E-03	mg/m3	1.0E-01	mg/m3	1.9E-02
				SVOC	4-Chloroaniline	106-47-8	N																		
				SVOC	Biphenyl (diphenyl)	92-52-4	N											4.0E-04	mg/m3				4.0E-04	mg/m3	
				SVOC	Naphthalene	91-20-3	N						3.4E-02	(mg/m3)-1				3.0E-03	mg/m3				3.0E-03	mg/m3	
				INORGANIC	Aluminum	7429-90-5	N											5.0E-03	mg/m3				5.0E-03	mg/m3	
				INORGANIC	Arsenic	7440-38-2	N						4.3E+00	(mg/m3)-1				1.5E-05	mg/m3				1.5E-05	mg/m3	
				INORGANIC	Barium	7440-39-3	N											5.0E-04	mg/m3				5.0E-04	mg/m3	
				INORGANIC	Chromium (Total)	7440-47-3	Y						8.4E+01	(mg/m3)-1				1.0E-04	mg/m3				1.0E-04	mg/m3	
				INORGANIC	Cobalt	7440-48-4	N						9.0E+00	(mg/m3)-1				6.0E-06	mg/m3				6.0E-06	mg/m3	
				INORGANIC	Cyanide	57-12-5	N											8.0E-04	mg/m3				8.0E-04	mg/m3	
				INORGANIC	Iron	7439-89-6	N																		
				INORGANIC	Manganese	7439-96-5	N											5.0E-05	mg/m3				5.0E-05	mg/m3	
				INORGANIC	Mercury	7439-97-6	N											3.0E-04	mg/m3				3.0E-04	mg/m3	
				INORGANIC	Thallium	7440-28-0	N																		
			Water Vapor Inhalation Total												**6.9E-04**					**2.2E+01**					**1.8E+01**
Groundwater Total															**4.3E-03**					**4.6E+01**					**5.9E+01**
Receptor Total															**4.4E-03**					**4.6E+01**					**6.0E+01**

Notes:
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL), except when the UCL was greater than the maximum detected concentration or ProUCL did not calculate an UCL.
The constituent of potential concern (COPC) list is based on exceedances from screening of maximum detected concentrations against the May 2016 USEPA Regional Screening Levels at a target risk of 1E-06 and target hazard quotient of 0.1.
Cumulative risk estimates that are greater than or equal to the acceptable cancer limit of 1E-06 and noncancer limit of 0.1 are shaded.
The single-chemical cancer risks incorporate the one hit equations for cancer risks > 0.01, per RAGs Part A Chapter 8: Risk = 1 - exp(-Dose x SF).
RAGS Part E does not provide dermal soil absorption fraction values (ABSd) for most VOCs and inorganics; therefore a dermally absorbed dose is not calculated.
The age-adjustments for a resident's cancer risk are calculated in Table 4.Supp.1.
The exposure intakes for MMOA chemicals (e.g., chromium) are adjusted for age are calculated in Tables 4.Supp.2.
The DAevent values for dermal exposure to groundwater are calculated in Table 4.Supp.3A and B.
The inhalation pathway uses groundwater-derived shower vapors (Ca) as the EPC, which are calculated using the Andelman model modified by Schaum et al, in Table 4.Supp.4A and B.
The risk estimates for chromium total are calculated using hexavalent chromium toxicity values and dermal parameters since no values have been identified for chromium total. A sensitivity analysis is performed in the Uncertainty Section by evaluating chromium total using trivalent chromium toxicity and dermal values.
For a resident's exposure to vinyl chloride in soil for a cancer endpoint, the CA is calculated using only the volatilization pathway (as opposed to also including the particulate pathway) as presented in the USEPA RSL equations.

Abbreviations:
COPC -- Constituent of potential concern
CSF -- Oral cancer slope factor
EPC -- Exposure point concentration
IUR - Inhalation unit risk
RfC -- Inhalation reference concentration
RfD -- Oral or dermal reference dose
UCL -- Upper confidence limit

TABLE 7.4
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RECREATOR
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	Mutagenic	EPC Adult Value	EPC Child Value	EPC Units	Cancer Risk Calculations, Adult and Child Age-Adjusted: Exposure Intake Value	Exposure Intake Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk	Non-Cancer Hazard Calculations, Adult: Exposure Intake Value	Exposure Intake Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient	Non-Cancer Hazard Calculations, Child (0-6 years): Exposure Intake Value	Exposure Intake Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Seep Water	Seep Water	Seep	Ingestion	VOC	1,1,1-Trichloroethane	71-55-6	N	1.2E+02	1.2E+02	ug/L	2.0E-06	mg/kg-day				2.1E-06	mg/kg-day	2.0E+00	mg/kg-day	1.0E-06	1.1E-05	mg/kg-day	2.0E+00	mg/kg-day	5.5E-06
				VOC	1,1-Dichloroethane	75-34-3	N	1.0E+01	1.0E+01	ug/L	1.6E-07	mg/kg-day	5.7E-03	(mg/kg-day)-1	9.3E-10	1.7E-07	mg/kg-day	2.0E-01	mg/kg-day	8.6E-07	9.1E-07	mg/kg-day	2.0E-01	mg/kg-day	4.6E-06
				VOC	1,1-Dichloroethene	75-35-4	N	1.4E+01	1.4E+01	ug/L	2.3E-07	mg/kg-day				2.4E-07	mg/kg-day	5.0E-02	mg/kg-day	4.8E-06	1.3E-06	mg/kg-day	5.0E-02	mg/kg-day	2.6E-05
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	2.2E+01	2.2E+01	ug/L	3.6E-07	mg/kg-day				3.8E-07	mg/kg-day	2.0E-03	mg/kg-day	1.9E-04	2.0E-06	mg/kg-day	2.0E-03	mg/kg-day	1.0E-03
				VOC	Tetrachloroethylene	127-18-4	N	5.9E+02	5.9E+02	ug/L	9.6E-06	mg/kg-day	2.1E-03	(mg/kg-day)-1	2.0E-08	1.0E-05	mg/kg-day	6.0E-03	mg/kg-day	1.7E-03	5.4E-05	mg/kg-day	6.0E-03	mg/kg-day	9.0E-03
				VOC	Trichloroethylene	79-01-6	Y	6.3E+01	6.3E+01	ug/L	1.8E-06	mg/kg-day	4.6E-02	(mg/kg-day)-1	8.1E-08	1.1E-06	mg/kg-day	5.0E-04	mg/kg-day	2.1E-03	5.7E-06	mg/kg-day	5.0E-04	mg/kg-day	1.1E-02
				VOC	Vinyl chloride	75-01-4	Y	8.2E-02	8.2E-02	ug/L	2.1E-08	mg/kg-day	7.2E-01	(mg/kg-day)-1	1.5E-08	1.4E-09	mg/kg-day	3.0E-03	mg/kg-day	4.7E-07	7.4E-09	mg/kg-day	3.0E-03	mg/kg-day	2.5E-06
				OTHER	Carbon disulfide	75-15-0	N	2.8E-01	2.8E-01	ug/L	4.6E-09	mg/kg-day				4.8E-09	mg/kg-day	1.0E-01	mg/kg-day	4.8E-08	2.6E-08	mg/kg-day	1.0E-01	mg/kg-day	2.6E-07
				INORGANIC	Aluminum	7429-90-5	N	3.3E+04	3.3E+04	ug/L	5.3E-04	mg/kg-day				5.6E-04	mg/kg-day	1.0E+00	mg/kg-day	5.6E-04	3.0E-03	mg/kg-day	1.0E+00	mg/kg-day	3.0E-03
				INORGANIC	Arsenic	7440-38-2	N	3.6E+01	3.6E+01	ug/L	5.8E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.8E-07	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03	3.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				INORGANIC	Beryllium	7440-41-7	N	1.1E+01	1.1E+01	ug/L	1.8E-07	mg/kg-day				1.9E-07	mg/kg-day	2.0E-03	mg/kg-day	9.3E-05	9.9E-07	mg/kg-day	2.0E-03	mg/kg-day	4.9E-04
				INORGANIC	Cadmium	7440-43-9	N	1.0E+01	1.0E+01	ug/L	1.7E-07	mg/kg-day				1.7E-07	mg/kg-day	5.0E-04	mg/kg-day	3.5E-04	9.3E-07	mg/kg-day	5.0E-04	mg/kg-day	1.9E-03
				INORGANIC	Cobalt	7440-48-4	N	7.5E+01	7.5E+01	ug/L	1.2E-06	mg/kg-day				1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.3E-03	6.8E-06	mg/kg-day	3.0E-04	mg/kg-day	2.3E-02
				INORGANIC	Lead	7439-92-1	N	4.7E+02	4.7E+02	ug/L	7.7E-06	mg/kg-day				8.1E-06	mg/kg-day				4.3E-05	mg/kg-day			
				INORGANIC	Manganese	7439-96-5	N	7.0E+03	7.0E+03	ug/L	1.1E-04	mg/kg-day				1.2E-04	mg/kg-day	2.4E-02	mg/kg-day	5.0E-03	6.4E-04	mg/kg-day	2.4E-02	mg/kg-day	2.7E-02
				INORGANIC	Mercury	7439-97-6	N	5.3E-01	5.3E-01	ug/L	8.7E-09	mg/kg-day				9.1E-09	mg/kg-day				4.9E-08	mg/kg-day			
				INORGANIC	Thallium	7440-28-0	N	7.1E-01	7.1E-01	ug/L	1.2E-08	mg/kg-day				1.2E-08	mg/kg-day	1.0E-05	mg/kg-day	1.2E-03	6.5E-08	mg/kg-day	1.0E-05	mg/kg-day	6.5E-03
				INORGANIC	Vanadium	7440-62-2	N	1.1E+02	1.1E+02	ug/L	1.7E-06	mg/kg-day				1.8E-06	mg/kg-day	5.0E-03	mg/kg-day	3.6E-04	9.7E-06	mg/kg-day	5.0E-03	mg/kg-day	1.9E-03
			Ingestion Total												**9.9E-07**					**1.8E-02**					**9.6E-02**
Seep Water	Seep Water	Seep	Dermal	VOC	1,1,1-Trichloroethane	71-55-6	N	1.2E+02	1.2E+02	ug/L	4.9E-05	mg/kg-day				1.0E-04	mg/kg-day	2.0E+00	mg/kg-day	5.0E-05	2.1E-04	mg/kg-day	2.0E+00	mg/kg-day	1.0E-04
				VOC	1,1-Dichloroethane	75-34-3	N	1.0E+01	1.0E+01	ug/L	2.0E-06	mg/kg-day	5.7E-03	(mg/kg-day)-1	1.1E-08	4.0E-06	mg/kg-day	2.0E-01	mg/kg-day	2.0E-05	8.2E-06	mg/kg-day	2.0E-01	mg/kg-day	4.1E-05
				VOC	1,1-Dichloroethene	75-35-4	N	1.4E+01	1.4E+01	ug/L	4.7E-06	mg/kg-day				9.6E-06	mg/kg-day	5.0E-02	mg/kg-day	1.9E-04	2.0E-05	mg/kg-day	5.0E-02	mg/kg-day	3.9E-04
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	2.2E+01	2.2E+01	ug/L	7.0E-06	mg/kg-day				1.4E-05	mg/kg-day	2.0E-03	mg/kg-day	7.1E-03	2.9E-05	mg/kg-day	2.0E-03	mg/kg-day	1.5E-02
				VOC	Tetrachloroethylene	127-18-4	N	5.9E+02	5.9E+02	ug/L	7.5E-04	mg/kg-day	2.1E-03	(mg/kg-day)-1	1.6E-06	1.5E-03	mg/kg-day	6.0E-03	mg/kg-day	2.5E-01	3.1E-03	mg/kg-day	6.0E-03	mg/kg-day	5.2E-01
				VOC	Trichloroethylene	79-01-6	Y	6.3E+01	6.3E+01	ug/L	3.4E-05	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.6E-06	4.8E-05	mg/kg-day	5.0E-04	mg/kg-day	9.6E-02	9.8E-05	mg/kg-day	5.0E-04	mg/kg-day	2.0E-01
				VOC	Vinyl chloride	75-01-4	Y	8.2E-02	8.2E-02	ug/L	5.5E-07	mg/kg-day	7.2E-01	(mg/kg-day)-1	4.0E-07	3.7E-08	mg/kg-day	3.0E-03	mg/kg-day	1.2E-05	7.6E-08	mg/kg-day	3.0E-03	mg/kg-day	2.5E-05
				OTHER	Carbon disulfide	75-15-0	N	2.8E-01	2.8E-01	ug/L	8.7E-08	mg/kg-day				1.8E-07	mg/kg-day	1.0E-01	mg/kg-day	1.8E-06	3.6E-07	mg/kg-day	1.0E-01	mg/kg-day	3.6E-06
				INORGANIC	Aluminum	7429-90-5	N	3.3E+04	3.3E+04	ug/L	8.3E-04	mg/kg-day				1.7E-03	mg/kg-day	1.0E+00	mg/kg-day	1.7E-03	3.5E-03	mg/kg-day	1.0E+00	mg/kg-day	3.5E-03
				INORGANIC	Arsenic	7440-38-2	N	3.6E+01	3.6E+01	ug/L	1.0E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.5E-06	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	6.8E-03	4.2E-06	mg/kg-day	3.0E-04	mg/kg-day	1.4E-02
				INORGANIC	Beryllium	7440-41-7	N	1.1E+01	1.1E+01	ug/L	2.7E-07	mg/kg-day				5.5E-07	mg/kg-day	1.4E-05	mg/kg-day	3.9E-02	1.1E-06	mg/kg-day	1.4E-05	mg/kg-day	8.1E-02
				INORGANIC	Cadmium	7440-43-9	N	1.0E+01	1.0E+01	ug/L	3.1E-07	mg/kg-day				6.4E-07	mg/kg-day	2.5E-05	mg/kg-day	2.6E-02	1.3E-06	mg/kg-day	2.5E-05	mg/kg-day	5.2E-02
				INORGANIC	Cobalt	7440-48-4	N	7.5E+01	7.5E+01	ug/L	8.0E-07	mg/kg-day				1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	5.4E-03	3.3E-06	mg/kg-day	3.0E-04	mg/kg-day	1.1E-02
				INORGANIC	Lead	7439-92-1	N	4.7E+02	4.7E+02	ug/L	2.3E-06	mg/kg-day				4.6E-06	mg/kg-day				9.5E-06	mg/kg-day			
				INORGANIC	Manganese	7439-96-5	N	7.0E+03	7.0E+03	ug/L	1.9E-04	mg/kg-day				3.8E-04	mg/kg-day	9.6E-04	mg/kg-day	4.0E-01	7.8E-04	mg/kg-day	9.6E-04	mg/kg-day	8.1E-01
				INORGANIC	Mercury	7439-97-6	N	5.3E-01	5.3E-01	ug/L	2.5E-08	mg/kg-day				5.0E-08	mg/kg-day				1.0E-07	mg/kg-day			
				INORGANIC	Thallium	7440-28-0	N	7.1E-01	7.1E-01	ug/L	3.4E-08	mg/kg-day				6.9E-08	mg/kg-day	1.0E-05	mg/kg-day	6.9E-03	1.4E-07	mg/kg-day	1.0E-05	mg/kg-day	1.4E-02
				INORGANIC	Vanadium	7440-62-2	N	1.1E+02	1.1E+02	ug/L	2.8E-06	mg/kg-day				5.7E-06	mg/kg-day	1.3E-04	mg/kg-day	4.4E-02	1.2E-05	mg/kg-day	1.3E-04	mg/kg-day	9.0E-02
			Dermal Total												**5.0E-06**					**8.8E-01**					**1.8E+00**
Seep Water Total															**6.0E-06**					**9.0E-01**					**1.9E+00**

TABLE 7.4
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RECREATOR
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	Mutagenic	EPC			Cancer Risk Calculations					Non-Cancer Hazard Calculations									
								Adult	Child	Units	Adult and Child Age-Adjusted					Adult					Child (0-6 years)				
								Value	Value		Exposure Intake		CSF/Unit Risk		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient	Exposure Intake		RfD/RfC		Hazard Quotient
											Value	Units	Value	Units		Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Seep Sediment	Seep	Ingestion																						
				VOC	Methylcyclohexane	108-87-2	N	6.2E-03	6.2E-03	mg/kg	1.6E-09	mg/kg-day				1.1E-09	mg/kg-day				1.2E-08	mg/kg-day			
				VOC	Tetrachloroethylene	127-18-4	N	4.8E+00	4.8E+00	mg/kg	1.3E-06	mg/kg-day	2.1E-03	(mg/kg-day)-1	2.7E-09	8.6E-07	mg/kg-day	6.0E-03	mg/kg-day	1.4E-04	9.2E-06	mg/kg-day	6.0E-03	mg/kg-day	1.5E-03
				VOC	Trichloroethylene	79-01-6	Y	4.6E-01	4.6E-01	mg/kg	2.2E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.0E-08	8.2E-08	mg/kg-day	5.0E-04	mg/kg-day	1.6E-04	8.7E-07	mg/kg-day	5.0E-04	mg/kg-day	1.7E-03
				SVOC	Benzo(a)anthracene	56-55-3	Y	2.5E-01	2.5E-01	mg/kg	3.4E-07	mg/kg-day	1.0E-01	(mg/kg-day)-1	3.4E-08	4.5E-08	mg/kg-day	3.0E-05	mg/kg-day	1.5E-03	4.7E-07	mg/kg-day	3.0E-05	mg/kg-day	1.6E-02
				SVOC	Benzo(a)pyrene	50-32-8	Y	2.2E-01	2.2E-01	mg/kg	3.0E-07	mg/kg-day	1.0E+00	(mg/kg-day)-1	3.0E-07	4.0E-08	mg/kg-day	3.0E-04	mg/kg-day	1.3E-04	4.2E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03
				SVOC	Benzo(b)fluoranthene	205-99-2	Y	2.3E-01	2.3E-01	mg/kg	3.1E-07	mg/kg-day	1.0E-01	(mg/kg-day)-1	3.1E-08	4.0E-08	mg/kg-day	3.0E-05	mg/kg-day	1.3E-03	4.3E-07	mg/kg-day	3.0E-05	mg/kg-day	1.4E-02
				INORGANIC	Aluminum	7429-90-5	N	1.0E+04	1.0E+04	mg/kg	2.6E-03	mg/kg-day				1.8E-03	mg/kg-day	1.0E+00	mg/kg-day	1.8E-03	1.9E-02	mg/kg-day	1.0E+00	mg/kg-day	1.9E-02
				INORGANIC	Arsenic	7440-38-2	N	9.4E+00	9.4E+00	mg/kg	1.5E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.2E-06	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	3.3E-03	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	3.6E-02
				INORGANIC	Chromium (Total)	7440-47-3	Y	1.9E+01	1.9E+01	mg/kg	2.6E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.3E-05	3.4E-06	mg/kg-day	3.0E-03	mg/kg-day	1.1E-03	3.7E-05	mg/kg-day	3.0E-03	mg/kg-day	1.2E-02
				INORGANIC	Cobalt	7440-48-4	N	4.2E+01	4.2E+01	mg/kg	1.1E-05	mg/kg-day				7.5E-06	mg/kg-day	3.0E-04	mg/kg-day	2.5E-02	8.1E-05	mg/kg-day	3.0E-04	mg/kg-day	2.7E-01
				INORGANIC	Cyanide	57-12-5	N	3.5E+00	3.5E+00	mg/kg	9.2E-07	mg/kg-day				6.2E-07	mg/kg-day	6.0E-04	mg/kg-day	1.0E-03	6.6E-06	mg/kg-day	6.0E-04	mg/kg-day	1.1E-02
				INORGANIC	Iron	7439-89-6	N	2.7E+04	2.7E+04	mg/kg	7.0E-03	mg/kg-day				4.7E-03	mg/kg-day	7.0E-01	mg/kg-day	6.8E-03	5.1E-02	mg/kg-day	7.0E-01	mg/kg-day	7.2E-02
				INORGANIC	Manganese	7439-96-5	N	7.5E+03	7.5E+03	mg/kg	2.0E-03	mg/kg-day				1.3E-03	mg/kg-day	2.4E-02	mg/kg-day	5.6E-02	1.4E-02	mg/kg-day	2.4E-02	mg/kg-day	5.9E-01
			Ingestion Total												**1.6E-05**					**9.8E-02**					**1.0E+00**
Sediment	Seep Sediment	Seep	Dermal																						
				VOC	Methylcyclohexane	108-87-2	N	6.2E-03	6.2E-03	mg/kg															
				VOC	Tetrachloroethylene	127-18-4	N	4.8E+00	4.8E+00	mg/kg			2.1E-03	(mg/kg-day)-1				6.0E-03	mg/kg-day				6.0E-03	mg/kg-day	
				VOC	Trichloroethylene	79-01-6	Y	4.6E-01	4.6E-01	mg/kg			4.6E-02	(mg/kg-day)-1				5.0E-04	mg/kg-day				5.0E-04	mg/kg-day	
				SVOC	Benzo(a)anthracene	56-55-3	Y	2.5E-01	2.5E-01	mg/kg	1.2E-07	mg/kg-day	1.0E-01	(mg/kg-day)-1	1.2E-08	2.4E-08	mg/kg-day	3.0E-05	mg/kg-day	8.1E-04	1.5E-07	mg/kg-day	3.0E-05	mg/kg-day	4.9E-03
				SVOC	Benzo(a)pyrene	50-32-8	Y	2.2E-01	2.2E-01	mg/kg	1.0E-07	mg/kg-day	1.0E+00	(mg/kg-day)-1	1.0E-07	2.2E-08	mg/kg-day	3.0E-04	mg/kg-day	7.2E-05	1.3E-07	mg/kg-day	3.0E-04	mg/kg-day	4.3E-04
				SVOC	Benzo(b)fluoranthene	205-99-2	Y	2.3E-01	2.3E-01	mg/kg	1.1E-07	mg/kg-day	1.0E-01	(mg/kg-day)-1	1.1E-08	2.2E-08	mg/kg-day	3.0E-05	mg/kg-day	7.4E-04	1.3E-07	mg/kg-day	3.0E-05	mg/kg-day	4.4E-03
				INORGANIC	Aluminum	7429-90-5	N	1.0E+04	1.0E+04	mg/kg								1.0E+00	mg/kg-day				1.0E+00	mg/kg-day	
				INORGANIC	Arsenic	7440-38-2	N	9.4E+00	9.4E+00	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.2E-07	2.1E-07	mg/kg-day	3.0E-04	mg/kg-day	7.0E-04	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	4.2E-03
				INORGANIC	Chromium (Total)	7440-47-3	Y	1.9E+01	1.9E+01	mg/kg			2.0E+01	(mg/kg-day)-1				7.5E-05	mg/kg-day				7.5E-05	mg/kg-day	
				INORGANIC	Cobalt	7440-48-4	N	4.2E+01	4.2E+01	mg/kg								3.0E-04	mg/kg-day				3.0E-04	mg/kg-day	
				INORGANIC	Cyanide	57-12-5	N	3.5E+00	3.5E+00	mg/kg								6.0E-04	mg/kg-day				6.0E-04	mg/kg-day	
				INORGANIC	Iron	7439-89-6	N	2.7E+04	2.7E+04	mg/kg								7.0E-01	mg/kg-day				7.0E-01	mg/kg-day	
				INORGANIC	Manganese	7439-96-5	N	7.5E+03	7.5E+03	mg/kg								9.6E-04	mg/kg-day				9.6E-04	mg/kg-day	
			Dermal Total												**4.5E-07**					**2.3E-03**					**1.4E-02**
Seep Sediment Total															**1.6E-05**					**1.0E-01**					**1.1E+00**

TABLE 7.4
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RECREATOR
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	Mutagenic	EPC Adult Value	EPC Child Value	EPC Units	Cancer Risk Calculations, Adult and Child Age-Adjusted: Exposure Intake Value	Exposure Intake Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk	Non-Cancer Hazard Calculations, Adult: Exposure Intake Value	Exposure Intake Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient	Non-Cancer Hazard Calculations, Child (0-6 years): Exposure Intake Value	Exposure Intake Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Surface Water	Surface Water	Surface Water	Ingestion																						
				VOC	1,4-Dichlorobenzene	106-46-7	N	1.5E+00	1.5E+00	ug/L	2.4E-08	mg/kg-day	5.4E-03	(mg/kg-day)-1	1.3E-10	2.6E-08	mg/kg-day	7.0E-02	mg/kg-day	3.7E-07	1.4E-07	mg/kg-day	7.0E-02	mg/kg-day	2.0E-06
				VOC	Benzene	71-43-2	N	1.8E+00	1.8E+00	ug/L	2.9E-08	mg/kg-day	5.5E-02	(mg/kg-day)-1	1.6E-09	3.1E-08	mg/kg-day	4.0E-03	mg/kg-day	7.7E-06	1.6E-07	mg/kg-day	4.0E-03	mg/kg-day	4.1E-05
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	2.1E+01	2.1E+01	ug/L	3.4E-07	mg/kg-day				3.6E-07	mg/kg-day	2.0E-03	mg/kg-day	1.8E-04	1.9E-06	mg/kg-day	2.0E-03	mg/kg-day	9.6E-04
				VOC	Tetrachloroethylene	127-18-4	N	2.3E+02	2.3E+02	ug/L	3.7E-06	mg/kg-day	2.1E-03	(mg/kg-day)-1	7.8E-09	3.9E-06	mg/kg-day	6.0E-03	mg/kg-day	6.5E-04	2.1E-05	mg/kg-day	6.0E-03	mg/kg-day	3.5E-03
				VOC	Trichloroethylene	79-01-6	Y	5.9E+01	5.9E+01	ug/L	1.7E-06	mg/kg-day	4.6E-02	(mg/kg-day)-1	7.6E-08	1.0E-06	mg/kg-day	5.0E-04	mg/kg-day	2.0E-03	5.4E-06	mg/kg-day	5.0E-04	mg/kg-day	1.1E-02
				VOC	Vinyl chloride	75-01-4	Y	3.2E-01	3.2E-01	ug/L	8.3E-08	mg/kg-day	7.2E-01	(mg/kg-day)-1	6.0E-08	5.4E-09	mg/kg-day	3.0E-03	mg/kg-day	1.8E-06	2.9E-08	mg/kg-day	3.0E-03	mg/kg-day	9.7E-06
				SVOC	4-Chloroaniline	106-47-8	N	2.7E+01	2.7E+01	ug/L	4.4E-07	mg/kg-day	2.0E-01	(mg/kg-day)-1	8.8E-08	4.6E-07	mg/kg-day	4.0E-03	mg/kg-day	1.2E-04	2.5E-06	mg/kg-day	4.0E-03	mg/kg-day	6.2E-04
				INORGANIC	Arsenic	7440-38-2	N	2.3E+00	2.3E+00	ug/L	3.8E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.7E-08	4.0E-08	mg/kg-day	3.0E-04	mg/kg-day	1.3E-04	2.1E-07	mg/kg-day	3.0E-04	mg/kg-day	7.1E-04
				INORGANIC	Chromium (Total)	7440-47-3	Y	6.2E-01	6.2E-01	ug/L	4.6E-08	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.3E-08	1.1E-08	mg/kg-day	3.0E-03	mg/kg-day	3.5E-06	5.6E-08	mg/kg-day	3.0E-03	mg/kg-day	1.9E-05
				INORGANIC	Cobalt	7440-48-4	N	1.6E+00	1.6E+00	ug/L	2.7E-08	mg/kg-day				2.8E-08	mg/kg-day	3.0E-04	mg/kg-day	9.3E-05	1.5E-07	mg/kg-day	3.0E-04	mg/kg-day	5.0E-04
				INORGANIC	Iron	7439-89-6	N	3.0E+04	3.0E+04	ug/L	4.8E-04	mg/kg-day				5.1E-04	mg/kg-day	7.0E-01	mg/kg-day	7.2E-04	2.7E-03	mg/kg-day	7.0E-01	mg/kg-day	3.9E-03
				INORGANIC	Manganese	7439-96-5	N	4.6E+03	4.6E+03	ug/L	7.5E-05	mg/kg-day				7.9E-05	mg/kg-day	2.4E-02	mg/kg-day	3.3E-03	4.2E-04	mg/kg-day	2.4E-02	mg/kg-day	1.8E-02
			Ingestion Total												**3.1E-07**					**7.2E-03**					**3.9E-02**
Surface Water	Surface Water	Surface Water	Dermal																						
				VOC	1,4-Dichlorobenzene	106-46-7	N	1.5E+00	1.5E+00	ug/L	2.3E-06	mg/kg-day	5.4E-03	(mg/kg-day)-1	1.2E-08	4.7E-06	mg/kg-day	7.0E-02	mg/kg-day	6.7E-05	9.6E-06	mg/kg-day	7.0E-02	mg/kg-day	1.4E-04
				VOC	Benzene	71-43-2	N	1.8E+00	1.8E+00	ug/L	7.3E-07	mg/kg-day	5.5E-02	(mg/kg-day)-1	4.0E-08	1.5E-06	mg/kg-day	4.0E-03	mg/kg-day	3.7E-04	3.0E-06	mg/kg-day	4.0E-03	mg/kg-day	7.6E-04
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	2.1E+01	2.1E+01	ug/L	6.7E-06	mg/kg-day				1.4E-05	mg/kg-day	2.0E-03	mg/kg-day	6.8E-03	2.8E-05	mg/kg-day	2.0E-03	mg/kg-day	1.4E-02
				VOC	Tetrachloroethylene	127-18-4	N	2.3E+02	2.3E+02	ug/L	2.9E-04	mg/kg-day	2.1E-03	(mg/kg-day)-1	6.1E-07	5.9E-04	mg/kg-day	6.0E-03	mg/kg-day	9.8E-02	1.2E-03	mg/kg-day	6.0E-03	mg/kg-day	2.0E-01
				VOC	Trichloroethylene	79-01-6	Y	5.9E+01	5.9E+01	ug/L	3.2E-05	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.5E-06	4.5E-05	mg/kg-day	5.0E-04	mg/kg-day	9.0E-02	9.3E-05	mg/kg-day	5.0E-04	mg/kg-day	1.9E-01
				VOC	Vinyl chloride	75-01-4	Y	3.2E-01	3.2E-01	ug/L	2.1E-06	mg/kg-day	7.2E-01	(mg/kg-day)-1	1.5E-06	1.4E-07	mg/kg-day	3.0E-03	mg/kg-day	4.8E-05	2.9E-07	mg/kg-day	3.0E-03	mg/kg-day	9.8E-05
				SVOC	4-Chloroaniline	106-47-8	N	2.7E+01	2.7E+01	ug/L	4.3E-06	mg/kg-day	2.0E-01	(mg/kg-day)-1	8.7E-07	8.8E-06	mg/kg-day	4.0E-03	mg/kg-day	2.2E-03	1.8E-05	mg/kg-day	4.0E-03	mg/kg-day	4.5E-03
				INORGANIC	Arsenic	7440-38-2	N	2.3E+00	2.3E+00	ug/L	6.5E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.8E-08	1.3E-07	mg/kg-day	3.0E-04	mg/kg-day	4.4E-04	2.7E-07	mg/kg-day	3.0E-04	mg/kg-day	9.0E-04
				INORGANIC	Chromium (Total)	7440-47-3	Y	6.2E-01	6.2E-01	ug/L	1.0E-07	mg/kg-day	2.0E+01	(mg/kg-day)-1	2.0E-06	6.6E-08	mg/kg-day	7.5E-05	mg/kg-day	8.8E-04	1.4E-07	mg/kg-day	7.5E-05	mg/kg-day	1.8E-03
				INORGANIC	Cobalt	7440-48-4	N	1.6E+00	1.6E+00	ug/L	1.8E-08	mg/kg-day				3.6E-08	mg/kg-day	3.0E-04	mg/kg-day	1.2E-04	7.3E-08	mg/kg-day	3.0E-04	mg/kg-day	2.4E-04
				INORGANIC	Iron	7439-89-6	N	3.0E+04	3.0E+04	ug/L	7.9E-04	mg/kg-day				1.6E-03	mg/kg-day	7.0E-01	mg/kg-day	2.3E-03	3.3E-03	mg/kg-day	7.0E-01	mg/kg-day	4.7E-03
				INORGANIC	Manganese	7439-96-5	N	4.6E+03	4.6E+03	ug/L	1.2E-04	mg/kg-day				2.5E-04	mg/kg-day	9.6E-04	mg/kg-day	2.6E-01	5.1E-04	mg/kg-day	9.6E-04	mg/kg-day	5.4E-01
			Dermal Total												**6.7E-06**					**4.6E-01**					**9.5E-01**
Surface Water Total															**7.0E-06**					**4.7E-01**					**9.9E-01**
Receptor Total															**2.9E-05**					**1.5E+00**					**4.0E+00**

Notes:
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL), except when the UCL was greater than the maximum detected concentration or ProUCL did not calculate an UCL.
The constituent of potential concern (COPC) list is based on exceedances from screening of maximum detected concentrations against the May 2016 USEPA Regional Screening Levels at a target risk of 1E-06 and target hazard quotient of 0.1.
Cumulative risk estimates that are greater than or equal to the acceptable cancer limit of 1E-06 and noncancer limit of 0.1 are shaded.
The single-chemical cancer risks incorporate the one hit equations for cancer risks > 0.01, per RAGs Part A Chapter 8: Risk = 1 - exp(-Dose x SF).
RAGS Part E does not provide dermal sediment absorption fraction values (ABSd) for most VOCs and inorganics; therefore a dermally absorbed dose is not calculated.
The age-adjustments for a recreator's cancer risk are calculated in Table 4.Supp.1.
The exposure intakes for MMOA chemicals (e.g., chromium) are adjusted for age are calculated in Tables 4.Supp.2.
The DAvent values for dermal exposure to surface and seep water are calculated in Table 4.Supp.3C and D.
The risk estimates for chromium total are calculated using hexavalent chromium toxicity values and dermal parameters since no values have been identified for chromium total. A sensitivity analysis is performed in the Uncertainty Section by evaluating chromium total using trivalent chromium toxicity and dermal values.

Abbreviations:
COPC -- Constituent of potential concern
CSF -- Oral cancer slope factor
EPC -- Exposure point concentration
IUR - Inhalation unit risk
RfC -- Inhalation reference concentration
RfD -- Oral or dermal reference dose
UCL -- Upper confidence limit

TABLE 9.1
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A CONSTRUCTION WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary					
						Ingestion	Dermal	Inhalation	Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
Soil	Soil	Soil (0-10 ft)													
			VOC	Benzene	71-43-2	1.0E-09		3.1E-13	1.0E-09	Lymphatic	3.2E-04		Lymphatic	9.2E-08	3.2E-04
			VOC	Ethylbenzene	100-41-4	9.6E-10		4.7E-13	9.6E-10	Hepatic, Renal	6.1E-05		Developmental	1.3E-08	6.1E-05
			VOC	Tetrachloroethylene	127-18-4	4.0E-11		1.1E-14	4.0E-11	Nervous	2.2E-04		Nervous	7.2E-08	2.2E-04
			VOC	Trichloroethylene	79-01-6	6.9E-09		1.3E-12	6.9E-09	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	2.1E-02		Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	1.1E-05	2.1E-02
			SVOC	2-Methylnaphthalene	91-57-6					Respiratory	1.3E-01	9.0E-07	N/A		1.3E-01
			SVOC	Benzo(a)anthracene	56-55-3	6.5E-10	2.7E-10	8.2E-13	9.2E-10	Developmental	1.5E-02	5.7E-12	Developmental	4.8E-03	2.0E-02
			SVOC	Benzo(a)pyrene	50-32-8	5.7E-09	2.4E-09	7.2E-12	8.0E-09	Developmental	1.3E-03	4.9E-11	Developmental	4.2E-04	1.7E-03
			SVOC	Benzyl Butyl Phthalate	85-68-7	2.7E-08	8.7E-09		3.6E-08	Hepatic	5.0E-03	6.4E-05	N/A		5.1E-03
			SVOC	Biphenyl (diphenyl)	92-52-4	3.3E-09			3.3E-09	Renal	5.7E-05		Respiratory, Hepatic, Renal	1.5E-04	2.1E-04
			SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	1.2E-07	3.9E-08	4.4E-11	1.6E-07	Hepatic	3.0E-02	3.9E-06	N/A		3.0E-02
			SVOC	Di-n-octylphthalate	117-84-0					Hepatic	8.4E-03	2.7E-07	N/A		8.4E-03
			SVOC	Naphthalene	91-20-3			3.2E-10	3.2E-10	Developmental	1.5E-02	2.6E-06	Nervous, Respiratory	2.2E-04	1.6E-02
			PEST	Dibenzofuran	132-64-9					Low confidence in principal study for target organ identification	1.7E-02	1.6E-09	N/A		1.7E-02
			PCB	PCB-1248 (Aroclor 1248)	12672-29-6	8.6E-08	3.8E-08	5.2E-11	1.2E-07	Lymphatic, Integumentary, Nervous	1.5E-01	2.7E-11	N/A		1.5E-01
			PCB	PCB-1254 (Aroclor 1254)	11097-69-1	4.1E-09	1.8E-09	2.5E-12	5.9E-09	Lymphatic, Integumentary, Nervous	7.1E-03	1.3E-12	N/A		7.1E-03
			PCB	PCB-1260 (Aroclor 1260)	11096-82-5	6.0E-09	2.7E-09	3.7E-12	8.7E-09	Lymphatic, Integumentary, Nervous	1.1E-02	1.9E-12	N/A		1.1E-02
			INORGANIC	Arsenic	7440-38-2	9.8E-08	1.6E-08	1.0E-09	1.1E-07	Integumentary	1.5E-02	2.2E-10	Developmental, Reproductive, Cardiovascular	1.1E-03	1.6E-02
			INORGANIC	Chromium (Total)	7440-47-3	2.8E-07		9.9E-08	3.8E-07	Low confidence in principal study for target organ identification	1.3E-02		Respiratory	8.3E-04	1.4E-02
			INORGANIC	Cobalt	7440-48-4			2.6E-09	2.6E-09	Endocrine	3.2E-02		Respiratory	3.4E-03	3.5E-02
Soil (0-10ft) Total									**8.5E-07**						**4.9E-01**
Groundwater	Groundwater	Groundwater													
			VOC	1,1-Dichloroethane	75-34-3	1.5E-11	8.2E-11	2.2E-08	2.2E-08	Renal	9.0E-07	5.0E-06	N/A		5.9E-06
			VOC	1,2,3-Trichlorobenzene	87-61-6					Hepatic, Endocrine	1.5E-04	1.1E-02	N/A		1.1E-02
			VOC	1,2,4-Trichlorobenzene	120-82-1	1.5E-10	1.1E-08		1.1E-08	Endocrine	3.6E-05	2.6E-03	Endocrine	6.8E-01	6.9E-01
			VOC	1,2-Dichloroethane	107-06-2	2.1E-10	7.4E-10	3.1E-07	3.1E-07	Renal	2.7E-05	9.5E-05	Nervous	1.2E-01	1.2E-01
			VOC	1,4-Dichlorobenzene	106-46-7	1.2E-11	4.7E-10	1.0E-07	1.1E-07	Hepatic	2.2E-06	8.8E-05	Hepatic	8.3E-04	9.2E-04
			VOC	1,4-Dioxane	123-91-1	1.1E-10	2.9E-11	2.3E-09	2.5E-09	Hepatic, Renal	2.5E-06	6.8E-07	Integumentary	1.1E-03	1.1E-03
			VOC	Benzene	71-43-2	8.5E-10	9.8E-09	7.2E-07	7.3E-07	Lymphatic	2.7E-04	3.1E-03	Lymphatic	2.2E-01	2.2E-01
			VOC	Chlorobenzene	108-90-7					Hepatic	3.4E-05	7.7E-04	Hepatic, Renal	6.7E-02	6.8E-02
			VOC	cis-1,2-Dichloroethylene	156-59-2					Renal	5.7E-04	5.1E-03	N/A		5.7E-03
			VOC	Ethylbenzene	100-41-4	5.3E-09	2.0E-07	6.2E-06	6.4E-06	Hepatic, Renal	3.4E-04	1.3E-02	Developmental	1.7E-01	1.9E-01
			VOC	Methylcyclohexane	108-87-2					N/A			N/A		
			VOC	Methylene chloride	75-09-2	7.9E-11	2.3E-10	2.2E-09	2.5E-09	Hepatic	4.6E-04	1.3E-03	Hepatic	2.6E-02	2.8E-02
			VOC	o-Xylene	95-47-6					Developmental	2.4E-05	8.8E-04	Nervous	2.5E-01	2.5E-01
			VOC	Tetrachloroethylene	127-18-4	2.8E-09	9.1E-08	1.4E-06	1.5E-06	Nervous	1.6E-02	5.1E-01	Nervous	9.7E+00	1.0E+01
			VOC	Trichloroethylene	79-01-6	2.1E-09	2.1E-08	8.6E-07	8.9E-07	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	6.3E-03	6.5E-02	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	7.4E+00	7.4E+00
			VOC	Vinyl chloride	75-01-4	4.5E-09	2.9E-08	1.9E-07	2.2E-07	Hepatic	1.5E-04	9.5E-04	Hepatic	3.0E-02	3.1E-02
			SVOC	4-Chloroaniline	106-47-8	4.9E-07	2.2E-06		2.7E-06	Lymphatic	4.3E-02	1.9E-01	N/A		2.3E-01
			SVOC	Biphenyl (diphenyl)	92-52-4	3.1E-11	2.6E-09		2.6E-09	Renal	5.5E-07	4.5E-05	Respiratory, Hepatic, Renal	2.5E+00	2.5E+00
			SVOC	Naphthalene	91-20-3			2.9E-06	2.9E-06	Developmental	7.0E-05	2.7E-03	Nervous, Respiratory	2.0E+00	2.0E+00
			INORGANIC	Aluminum	7429-90-5					Nervous	3.2E-05	2.5E-05	N/A		5.7E-05
			INORGANIC	Arsenic	7440-38-2	1.1E-08	8.8E-09		2.0E-08	Integumentary	1.7E-03	1.4E-03	N/A		3.1E-03
			INORGANIC	Barium	7440-39-3					Renal	2.4E-04	3.2E-03	N/A		3.5E-03

TABLE 9.1
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A CONSTRUCTION WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary					
						Ingestion	Dermal	Inhalation	Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
			INORGANIC	Chromium (Total)	7440-47-3	1.3E-09	8.2E-08		8.4E-08	Low confidence in principal study for target organ identification	6.2E-05	3.8E-03	N/A		3.9E-03
			INORGANIC	Cobalt	7440-48-4					Endocrine	4.6E-03	1.4E-03	N/A		6.1E-03
			INORGANIC	Cyanide	57-12-5					Reproductive	3.0E-03	2.3E-03	N/A		5.3E-03
			INORGANIC	Iron	7439-89-6					Digestive	6.0E-03	4.6E-03	N/A		1.1E-02
			INORGANIC	Manganese	7439-96-5					Nervous	3.1E-02	6.0E-01	N/A		6.4E-01
			INORGANIC	Mercury	7439-97-6					N/A			Nervous	2.5E-01	2.5E-01
			INORGANIC	Thallium	7440-28-0					Integumentary	5.0E-03	6.1E-03	N/A		1.1E-02
Groundwater Total									**1.6E-05**						**2.5E+01**
Receptor Total								**Receptor Risk Total:**	**1.7E-05**					**Receptor Hazard Total:**	**2.5E+01**

Abbreviation:

COPC -- Constituent of potential concern

Total **Cardiovascular** HI across media =	**1.1E-03**
Total **Developmental** HI across media =	**7.7E+00**
Total **Digestive** HI across media =	**1.1E-02**
Total **Endocrine** HI across media =	**7.3E-01**
Total **Hepatic** HI across media =	**1.0E+01**
Total **Integumentary** HI across media =	**2.0E-01**
Total **Lymphatic** HI across media =	**8.1E+00**
Total **Muscoskeletal** HI across media =	**N/A**
Total **Nervous** HI across media =	**2.1E+01**
Total **Renal** HI across media =	**1.0E+01**
Total **Reproductive** HI across media =	**7.5E+00**
Total **Respiratory** HI across media =	**4.6E+00**
Total **No Specified Target Organ/System** HI across media =	**3.4E-02**

TABLE 9.2
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary					
						Ingestion	Dermal	Inhalation	Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
Soil	Soil	Surface Soil (0-2 ft)													
			SVOC	Benzo(a)anthracene	56-55-3	4.9E-09	2.7E-09	5.3E-13	7.6E-09	Developmental	4.6E-03	2.5E-03	Developmental	1.2E-04	7.2E-03
			SVOC	Benzo(a)pyrene	50-32-8	4.3E-08	2.4E-08	4.7E-12	6.6E-08	Developmental	4.0E-04	2.2E-04	Developmental	1.1E-05	6.3E-04
			SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	5.9E-08	2.5E-08	1.8E-12	8.4E-08	Hepatic	5.9E-04	2.5E-04	N/A		8.4E-04
			SVOC	Naphthalene	91-20-3			5.4E-12	5.4E-12	Developmental	1.2E-04	6.7E-05	Nervous, Respiratory	1.5E-07	1.9E-04
			PCB	PCB-1248 (Aroclor 1248)	12672-29-6	6.5E-07	3.8E-07	3.4E-11	1.0E-06	Lymphatic, Integumentary, Nervous	4.5E-02	2.7E-02	N/A		7.2E-02
			PCB	PCB-1254 (Aroclor 1254)	11097-69-1	3.1E-08	1.8E-08	1.6E-12	4.9E-08	Lymphatic, Integumentary, Nervous	2.2E-03	1.3E-03	N/A		3.4E-03
			PCB	PCB-1260 (Aroclor 1260)	11096-82-5	4.6E-08	2.7E-08	2.4E-12	7.3E-08	Lymphatic, Integumentary, Nervous	3.2E-03	1.9E-03	N/A		5.1E-03
			INORGANIC	Arsenic	7440-38-2	7.4E-07	1.6E-07	6.4E-10	9.0E-07	Integumentary	4.6E-03	9.7E-04	Developmental, Reproductive, Cardiovascular	2.8E-05	5.6E-03
			INORGANIC	Chromium (Total)	7440-47-3	2.1E-06		6.4E-08	2.2E-06	Low confidence in principal study for target organ identification	3.9E-03		Respiratory	2.1E-05	3.9E-03
			INORGANIC	Cobalt	7440-48-4			1.7E-09	1.7E-09	Endocrine	9.6E-03		Respiratory	8.7E-05	9.6E-03
Surface Soil Total									**4.4E-06**						**1.1E-01**

TABLE 9.2
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary					
						Ingestion	Dermal	Inhalation	Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tapwater													
			VOC	1,1-Dichloroethane	75-34-3		7.6E-10		7.6E-10	Renal		1.9E-06	N/A		1.9E-06
			VOC	1,2,3-Trichlorobenzene	87-61-6					Hepatic, Endocrine		5.6E-03	N/A		5.6E-03
			VOC	1,2,4-Trichlorobenzene	120-82-1		1.3E-07		1.3E-07	Endocrine		1.3E-03	N/A		1.3E-03
			VOC	1,2-Dichloroethane	107-06-2		6.9E-09		6.9E-09	Renal		3.5E-05	N/A		3.5E-05
			VOC	1,4-Dichlorobenzene	106-46-7		5.5E-09		5.5E-09	Hepatic		4.1E-05	N/A		4.1E-05
			VOC	1,4-Dioxane	123-91-1		2.6E-10		2.6E-10	Hepatic, Renal		2.4E-07	N/A		2.4E-07
			VOC	Benzene	71-43-2		8.7E-08		8.7E-08	Lymphatic		1.1E-03	N/A		1.1E-03
			VOC	Chlorobenzene	108-90-7					Hepatic		3.1E-04	N/A		3.1E-04
			VOC	cis-1,2-Dichloroethylene	156-59-2					Renal		1.9E-03	N/A		1.9E-03
			VOC	Ethylbenzene	100-41-4		2.1E-06		2.1E-06	Hepatic, Renal		5.3E-03	N/A		5.3E-03
			VOC	Methylcyclohexane	108-87-2					N/A			N/A		
			VOC	Methylene chloride	75-09-2		2.0E-09		2.0E-09	Hepatic		4.7E-04	N/A		4.7E-04
			VOC	o-Xylene	95-47-6					Developmental		3.7E-04	N/A		3.7E-04
			VOC	Tetrachloroethylene	127-18-4		1.1E-06		1.1E-06	Nervous		2.4E-01	N/A		2.4E-01
			VOC	Trichloroethylene	79-01-6		2.2E-07		2.2E-07	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive		2.7E-02	N/A		2.7E-02
			VOC	Vinyl chloride	75-01-4		2.4E-07		2.4E-07	Hepatic		3.2E-04	N/A		3.2E-04
			SVOC	4-Chloroaniline	106-47-8		2.2E-05		2.2E-05	Lymphatic		7.7E-02	N/A		7.7E-02
			SVOC	Biphenyl (diphenyl)	92-52-4		3.2E-08		3.2E-08	Renal		2.2E-05	N/A		2.2E-05
			SVOC	Naphthalene	91-20-3					Developmental		1.2E-03	N/A		1.2E-03
			INORGANIC	Aluminum	7429-90-5					Nervous		7.4E-06	N/A		7.4E-06
			INORGANIC	Arsenic	7440-38-2		7.6E-08		7.6E-08	Integumentary		4.7E-04	N/A		4.7E-04
			INORGANIC	Barium	7440-39-3					Renal		1.3E-03	N/A		1.3E-03
			INORGANIC	Chromium (Total)	7440-47-3		6.6E-07		6.6E-07	Low confidence in principal study for target organ identification		1.2E-03	N/A		1.2E-03
			INORGANIC	Cobalt	7440-48-4					Endocrine		4.7E-04	N/A		4.7E-04
			INORGANIC	Cyanide	57-12-5					Reproductive		6.9E-04	N/A		6.9E-04
			INORGANIC	Iron	7439-89-6					Digestive		1.5E-03	N/A		1.5E-03
			INORGANIC	Manganese	7439-96-5					Nervous		2.0E-01	N/A		2.0E-01
			INORGANIC	Mercury	7439-97-6					N/A			N/A		
			INORGANIC	Thallium	7440-28-0					Integumentary		3.0E-03	N/A		3.0E-03
Groundwater Total									**2.7E-05**						**5.7E-01**
Receptor Total								**Receptor Risk Total:**	**3.1E-05**					**Receptor Hazard Total:**	**6.7E-01**

Abbreviation:
COPC -- Constituent of potential concern

Total **Cardiovascular** HI across media =	**2.8E-05**
Total **Developmental** HI across media =	**3.7E-02**
Total **Digestive** HI across media =	**1.5E-03**
Total **Endocrine** HI across media =	**1.7E-02**
Total **Hepatic** HI across media =	**4.0E-02**
Total **Integumentary** HI across media =	**9.0E-02**
Total **Lymphatic** HI across media =	**1.9E-01**
Total **Muscoskeletal** HI across media =	**N/A**
Total **Nervous** HI across media =	**5.4E-01**
Total **Renal** HI across media =	**3.6E-02**
Total **Reproductive** HI across media =	**2.8E-02**
Total **Respiratory** HI across media =	**1.1E-04**
Total **No Specified Target Organ/System** HI across media =	**5.1E-03**

TABLE 9.3
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RESIDENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

HDR

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary											
										Adult						Child					
						Ingestion	Dermal		Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
Soil	Soil	Surface Soil (0-2 ft)																			
			SVOC	Benzo(a)anthracene	56-55-3	1.5E-07	5.0E-08	6.4E-12	2.0E-07	Developmental	6.4E-03	3.5E-03	Developmental	5.2E-04	1.0E-02	Developmental	6.8E-02	2.1E-02	Developmental	5.2E-04	9.0E-02
			SVOC	Benzo(a)pyrene	50-32-8	1.3E-06	4.4E-07	5.6E-11	1.7E-06	Developmental	5.6E-04	3.1E-04	Developmental	4.6E-05	9.1E-04	Developmental	6.0E-03	1.8E-03	Developmental	4.6E-05	7.9E-03
			SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	3.4E-07	9.9E-08	8.0E-12	4.4E-07	Hepatic	8.2E-04	3.5E-04	N/A		1.2E-03	Hepatic	8.8E-03	2.1E-03	N/A		1.1E-02
			SVOC	Naphthalene	91-20-3			2.3E-11	2.3E-11	Developmental	1.7E-04	9.4E-05	Nervous, Respiratory	6.2E-07	2.6E-04	Developmental	1.8E-03	5.6E-04	Nervous, Respiratory	6.2E-07	2.4E-03
			PCB	PCB-1248 (Aroclor 1248)	12672-29-6	3.7E-06	1.5E-06	1.5E-10	5.3E-06	Lymphatic, Integumentary, Nervous	6.4E-02	3.8E-02	N/A		1.0E-01	Lymphatic, Integumentary, Nervous	6.8E-01	2.3E-01	N/A		9.0E-01
			PCB	PCB-1254 (Aroclor 1254)	11097-69-1	1.8E-07	7.3E-08	7.0E-12	2.5E-07	Lymphatic, Integumentary, Nervous	3.0E-03	1.8E-03	N/A		4.8E-03	Lymphatic, Integumentary, Nervous	3.2E-02	1.1E-02	N/A		4.3E-02
			PCB	PCB-1260 (Aroclor 1260)	11096-82-5	2.6E-07	1.1E-07	1.0E-11	3.7E-07	Lymphatic, Integumentary, Nervous	4.5E-03	2.6E-03	N/A		7.1E-03	Lymphatic, Integumentary, Nervous	4.8E-02	1.6E-02	N/A		6.4E-02
			INORGANIC	Arsenic	7440-38-2	4.3E-06	6.2E-07	2.8E-09	4.9E-06	Integumentary	6.4E-03	1.4E-03	Developmental, Reproductive, Cardiovascular	1.2E-04	7.9E-03	Integumentary	6.9E-02	8.1E-03	Developmental, Reproductive, Cardiovascular	1.2E-04	7.7E-02
			INORGANIC	Chromium (Total)	7440-47-3	6.3E-05		7.7E-07	6.4E-05	Low confidence in principal study for target organ identification	5.5E-03		Respiratory	8.9E-05	5.6E-03	Low confidence in principal study for target organ identification	5.8E-02		Respiratory	8.9E-05	5.8E-02
			INORGANIC	Cobalt	7440-48-4			7.3E-09	7.3E-09	Endocrine	1.3E-02		Respiratory	3.6E-04	1.4E-02	Endocrine	1.4E-01		Respiratory	3.6E-04	1.4E-01
Surface Soil Total									**7.7E-05**						**1.5E-01**						**1.4E+00**
Groundwater	Groundwater	Tapwater																			
			VOC	1,1-Dichloroethane	75-34-3	9.3E-08	6.2E-09	5.3E-07	6.3E-07	Renal	1.6E-04	1.2E-05	N/A		1.7E-04	Renal	2.6E-04	1.8E-05	N/A		2.8E-04
			VOC	1,2,3-Trichlorobenzene	87-61-6					Hepatic, Endocrine	2.6E-02	3.7E-02	N/A		6.2E-02	Hepatic, Endocrine	4.3E-02	5.5E-02	N/A		9.8E-02
			VOC	1,2,4-Trichlorobenzene	120-82-1	9.5E-07	1.1E-06		2.1E-06	Endocrine	6.4E-03	8.6E-03	Endocrine	9.3E-01	9.4E-01	Endocrine	1.1E-02	1.3E-02	Endocrine	7.9E-01	8.1E-01
			VOC	1,2-Dichloroethane	107-06-2	1.3E-06	5.6E-08	7.8E-06	9.2E-06	Renal	4.8E-03	2.2E-04	Nervous	1.2E-01	1.2E-01	Renal	7.9E-03	3.4E-04	Nervous	1.0E-01	1.1E-01
			VOC	1,4-Dichlorobenzene	106-46-7	7.5E-08	4.6E-08	3.1E-06	3.2E-06	Hepatic	3.9E-04	2.7E-04	Hepatic	9.9E-04	1.6E-03	Hepatic	6.4E-04	4.0E-04	Hepatic	8.4E-04	1.9E-03
			VOC	1,4-Dioxane	123-91-1	6.7E-07	2.1E-09	6.8E-07	1.4E-06	Hepatic, Renal	4.3E-04	1.5E-06	Integumentary	1.3E-02	1.3E-02	Hepatic, Renal	7.2E-04	2.3E-06	Integumentary	1.1E-02	1.1E-02
			VOC	Benzene	71-43-2	5.4E-06	7.0E-07	1.5E-05	2.2E-05	Lymphatic	4.7E-02	7.1E-03	Lymphatic	1.8E-01	2.4E-01	Lymphatic	7.9E-02	1.0E-02	Lymphatic	1.6E-01	2.5E-01
			VOC	Chlorobenzene	108-90-7					Hepatic	5.9E-03	2.0E-03	Hepatic, Renal	6.9E-02	7.7E-02	Hepatic	9.8E-03	3.1E-03	Hepatic, Renal	5.8E-02	7.1E-02
			VOC	cis-1,2-Dichloroethylene	156-59-2					Renal	1.0E-01	1.2E-02	N/A		1.1E-01	Renal	1.7E-01	1.8E-02	N/A		1.8E-01
			VOC	Ethylbenzene	100-41-4	3.3E-05	1.7E-05	1.5E-04	2.0E-04	Hepatic, Renal	5.9E-02	3.4E-02	Developmental	1.7E-01	2.6E-01	Hepatic, Renal	9.8E-02	5.1E-02	Developmental	1.5E-01	2.9E-01
			VOC	Methylcyclohexane	108-87-2					N/A			N/A			N/A			N/A		
			VOC	Methylene chloride	75-09-2	1.8E-06	5.0E-08	2.7E-07	2.2E-06	Hepatic	8.1E-02	2.9E-03	Hepatic	2.4E-02	1.1E-01	Hepatic	1.3E-01	4.4E-03	Hepatic	2.0E-02	1.6E-01
			VOC	o-Xylene	95-47-6					Developmental	4.3E-03	2.4E-03	Nervous	2.5E-01	2.6E-01	Developmental	7.1E-03	3.6E-03	Nervous	2.1E-01	2.2E-01
			VOC	Tetrachloroethylene	127-18-4	1.8E-05	9.0E-06	4.5E-05	7.1E-05	Nervous	2.7E+00	1.6E+00	Nervous	1.2E+01	1.6E+01	Nervous	4.5E+00	2.4E+00	Nervous	1.0E+01	1.7E+01
			VOC	Trichloroethylene	79-01-6	2.0E-05	2.7E-06	6.5E-05	8.8E-05	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	1.1E+00	1.8E-01	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	8.1E+00	9.4E+00	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	1.8E+00	2.7E-01	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	6.9E+00	9.0E+00
			VOC	Vinyl chloride	75-01-4	1.2E-04	8.4E-06	3.9E-04	5.3E-04	Hepatic	2.6E-02	2.0E-03	Hepatic	2.2E-02	5.0E-02	Hepatic	4.3E-02	2.9E-03	Hepatic	1.9E-02	6.5E-02
			SVOC	4-Chloroaniline	106-47-8	3.1E-03	1.8E-04		3.3E-03	Lymphatic	7.5E+00	5.1E-01	N/A		8.0E+00	Lymphatic	1.3E+01	7.6E-01	N/A		1.3E+01
			SVOC	Biphenyl (diphenyl)	92-52-4	2.0E-07	2.6E-07		4.6E-07	Renal	9.6E-05	1.5E-04	N/A		2.4E-04	Renal	1.6E-04	2.2E-04	N/A		3.8E-04
			SVOC	Naphthalene	91-20-3					Developmental	1.2E-02	7.7E-03	N/A		2.0E-02	Developmental	2.0E-02	1.2E-02	N/A		3.2E-02
			INORGANIC	Aluminum	7429-90-5					Nervous	5.7E-03	4.5E-05	N/A		5.7E-03	Nervous	9.5E-03	6.5E-05	N/A		9.5E-03
			INORGANIC	Arsenic	7440-38-2	6.9E-05	6.1E-07		6.9E-05	Integumentary	3.0E-01	3.0E-03	N/A		3.0E-01	Integumentary	4.9E-01	4.4E-03	N/A		5.0E-01
			INORGANIC	Barium	7440-39-3					Renal	4.3E-02	8.9E-03	N/A		5.1E-02	Renal	7.1E-02	1.3E-02	N/A		8.4E-02
			INORGANIC	Chromium (Total)	7440-47-3	3.1E-05	1.6E-05		4.7E-05	Low confidence in principal study for target organ identification	1.1E-02	7.6E-03	N/A		1.8E-02	Low confidence in principal study for target organ identification	1.8E-02	1.1E-02	N/A		2.9E-02
			INORGANIC	Cobalt	7440-48-4					Endocrine	8.1E-01	2.9E-03	N/A		8.1E-01	Endocrine	1.3E+00	4.3E-03	N/A		1.3E+00
			INORGANIC	Cyanide	57-12-5					Reproductive	5.3E-01	4.2E-03	N/A		5.4E-01	Reproductive	8.9E-01	6.0E-03	N/A		8.9E-01
			INORGANIC	Iron	7439-89-6					Digestive	1.0E+00	9.4E-03	N/A		1.1E+00	Digestive	1.7E+00	1.4E-02	N/A		1.7E+00
			INORGANIC	Manganese	7439-96-5					Nervous	5.4E+00	1.2E+00	N/A		6.6E+00	Nervous	9.0E+00	1.8E+00	N/A		1.1E+01
			INORGANIC	Mercury	7439-97-6					N/A			N/A			N/A			N/A		
			INORGANIC	Thallium	7440-28-0					Integumentary	8.7E-01	1.9E-02	N/A		8.9E-01	Integumentary	1.4E+00	2.9E-02	N/A		1.5E+00
Groundwater Total									**4.3E-03**						**4.6E+01**						**5.9E+01**
Receptor Total								**Receptor Risk Total:**	**4.4E-03**					**Adult Receptor Hazard Total:**	**4.6E+01**					**Child Receptor Hazard Total:**	**6.0E+01**

Abbreviation:
COPC -- Constituent of potential concern

Adult		Child	
Total **Cardiovascular** HI across media =	**1.2E-04**	Total **Cardiovascular** HI across media =	**1.2E-04**
Total **Developmental** HI across media =	**9.6E+00**	Total **Developmental** HI across media =	**9.3E+00**
Total **Digestive** HI across media =	**1.1E+00**	Total **Digestive** HI across media =	**1.7E+00**
Total **Endocrine** HI across media =	**1.8E+00**	Total **Endocrine** HI across media =	**2.4E+00**
Total **Hepatic** HI across media =	**9.8E+00**	Total **Hepatic** HI across media =	**9.5E+00**
Total **Integumentary** HI across media =	**1.3E+00**	Total **Integumentary** HI across media =	**3.1E+00**
Total **Lymphatic** HI across media =	**1.8E+01**	Total **Lymphatic** HI across media =	**2.4E+01**
Total **Muscoskeletal** HI across media =	**N/A**	Total **Muscoskeletal** HI across media =	**N/A**
Total **Nervous** HI across media =	**3.3E+01**	Total **Nervous** HI across media =	**3.8E+01**
Total **Renal** HI across media =	**9.7E+00**	Total **Renal** HI across media =	**9.5E+00**
Total **Reproductive** HI across media =	**9.9E+00**	Total **Reproductive** HI across media =	**9.9E+00**
Total **Respiratory** HI across media =	**4.5E-04**	Total **Respiratory** HI across media =	**4.5E-04**
Total **No Specified Target Organ/System** HI across media =	**2.4E-02**	Total **No Specified Target Organ/System** HI across media =	**8.8E-02**

TABLE 9.4
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RECREATOR
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

HDR

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary											
										Adult						Child					
						Ingestion	Dermal	Inhalation	Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
Seep Water	Seep Water	Seep	VOC	1,1,1-Trichloroethane	71-55-6					Developmental	1.0E-06	5.0E-05	N/A		5.1E-05	Developmental	5.5E-06	1.0E-04	N/A		1.1E-04
			VOC	1,1-Dichloroethane	75-34-3	9.3E-10	1.1E-08		1.2E-08	Renal	8.6E-07	2.0E-05	N/A		2.1E-05	Renal	4.6E-06	4.1E-05	N/A		4.6E-05
			VOC	1,1-Dichloroethene	75-35-4					Hepatic	4.8E-06	1.9E-04	N/A		2.0E-04	Hepatic	2.6E-05	3.9E-04	N/A		4.2E-04
			VOC	cis-1,2-Dichloroethylene	156-59-2					Renal	1.9E-04	7.1E-03	N/A		7.3E-03	Renal	1.0E-03	1.5E-02	N/A		1.6E-02
			VOC	Tetrachloroethylene	127-18-4	2.0E-08	1.6E-06		1.6E-06	Nervous	1.7E-03	2.5E-01	N/A		2.6E-01	Nervous	9.0E-03	5.2E-01	N/A		5.3E-01
			VOC	Trichloroethylene	79-01-6	8.1E-08	1.6E-06		1.6E-06	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	2.1E-03	9.6E-02	N/A		9.8E-02	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	1.1E-02	2.0E-01	N/A		2.1E-01
			VOC	Vinyl chloride	75-01-4	1.5E-08	4.0E-07		4.1E-07	Hepatic	4.7E-07	1.2E-05	N/A		1.3E-05	Hepatic	2.5E-06	2.5E-05	N/A		2.8E-05
			OTHER	Carbon disulfide	75-15-0					Developmental	4.8E-08	1.8E-06	N/A		1.8E-06	Developmental	2.6E-07	3.6E-06	N/A		3.9E-06
			INORGANIC	Aluminum	7429-90-5					Nervous	5.6E-04	1.7E-03	N/A		2.2E-03	Nervous	3.0E-03	3.5E-03	N/A		6.4E-03
			INORGANIC	Arsenic	7440-38-2	8.8E-07	1.5E-06		2.4E-06	Integumentary	2.0E-03	6.8E-03	N/A		8.8E-03	Integumentary	1.1E-02	1.4E-02	N/A		2.5E-02
			INORGANIC	Beryllium	7440-41-7					Digestive	9.3E-05	3.9E-02	N/A		3.9E-02	Digestive	4.9E-04	8.1E-02	N/A		8.1E-02
			INORGANIC	Cadmium	7440-43-9					Renal	3.5E-04	2.6E-02	N/A		2.6E-02	Renal	1.9E-03	5.2E-02	N/A		5.4E-02
			INORGANIC	Cobalt	7440-48-4					Endocrine	4.3E-03	5.4E-03	N/A		9.7E-03	Endocrine	2.3E-02	1.1E-02	N/A		3.4E-02
			INORGANIC	Lead	7439-92-1					N/A			N/A			N/A			N/A		
			INORGANIC	Manganese	7439-96-5					Nervous	5.0E-03	4.0E-01	N/A		4.0E-01	Nervous	2.7E-02	8.1E-01	N/A		8.4E-01
			INORGANIC	Mercury	7439-97-6					N/A			N/A			N/A			N/A		
			INORGANIC	Thallium	7440-28-0					Integumentary	1.2E-03	6.9E-03	N/A		8.1E-03	Integumentary	6.5E-03	1.4E-02	N/A		2.1E-02
			INORGANIC	Vanadium	7440-62-2					Integumentary	3.6E-04	4.4E-02	N/A		4.4E-02	Integumentary	1.9E-03	9.0E-02	N/A		9.2E-02
Seep Water Total									**6.0E-06**						**9.0E-01**						**1.9E+00**
Sediment	Seep Sediment	Seep	VOC	Methylcyclohexane	108-87-2					N/A			N/A			N/A			N/A		
			VOC	Tetrachloroethylene	127-18-4	2.7E-09			2.7E-09	Nervous	1.4E-04		N/A		1.4E-04	Nervous	1.5E-03		N/A		1.5E-03
			VOC	Trichloroethylene	79-01-6	1.0E-08			1.0E-08	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	1.6E-04		N/A		1.6E-04	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	1.7E-03		N/A		1.7E-03
			SVOC	Benzo(a)anthracene	56-55-3	3.4E-08	1.2E-08		4.6E-08	Developmental	1.5E-03	8.1E-04	N/A		2.3E-03	Developmental	1.6E-02	4.9E-03	N/A		2.1E-02
			SVOC	Benzo(a)pyrene	50-32-8	3.0E-07	1.0E-07		4.1E-07	Developmental	1.3E-04	7.2E-05	N/A		2.0E-04	Developmental	1.4E-03	4.3E-04	N/A		1.8E-03
			SVOC	Benzo(b)fluoranthene	205-99-2	3.1E-08	1.1E-08		4.1E-08	Developmental	1.3E-03	7.4E-04	N/A		2.1E-03	Developmental	1.4E-02	4.4E-03	N/A		1.9E-02
			INORGANIC	Aluminum	7429-90-5					Nervous	1.8E-03		N/A		1.8E-03	Nervous	1.9E-02		N/A		1.9E-02
			INORGANIC	Arsenic	7440-38-2	2.2E-06	3.2E-07		2.5E-06	Integumentary	3.3E-03	7.0E-04	N/A		4.0E-03	Integumentary	3.6E-02	4.2E-03	N/A		4.0E-02
			INORGANIC	Chromium (Total)	7440-47-3	1.3E-05			1.3E-05	Low confidence in principal study for target organ identification	1.1E-03		N/A		1.1E-03	Low confidence in principal study for target organ identification	1.2E-02		N/A		1.2E-02
			INORGANIC	Cobalt	7440-48-4					Endocrine	2.5E-02		N/A		2.5E-02	Endocrine	2.7E-01		N/A		2.7E-01
			INORGANIC	Cyanide	57-12-5					Reproductive	1.0E-03		N/A		1.0E-03	Reproductive	1.1E-02		N/A		1.1E-02
			INORGANIC	Iron	7439-89-6					Digestive	6.8E-03		N/A		6.8E-03	Digestive	7.2E-02		N/A		7.2E-02
			INORGANIC	Manganese	7439-96-5					Nervous	5.6E-02		N/A		5.6E-02	Nervous	5.9E-01		N/A		5.9E-01
Seep Sediment Total									**1.6E-05**						**1.0E-01**						**1.1E+00**

TABLE 9.4
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RECREATOR
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary											
										Adult						Child					
						Ingestion		Inhalation	Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
Surface Water	Surface Water	Surface Water	VOC	1,4-Dichlorobenzene	106-46-7	1.3E-10	1.2E-08		1.3E-08	Hepatic	3.7E-07	6.7E-05	N/A		6.7E-05	Hepatic	2.0E-06	1.4E-04	N/A		1.4E-04
			VOC	Benzene	71-43-2	1.6E-09	4.0E-08		4.2E-08	Lymphatic	7.7E-06	3.7E-04	N/A		3.8E-04	Lymphatic	4.1E-05	7.6E-04	N/A		8.0E-04
			VOC	cis-1,2-Dichloroethylene	156-59-2					Renal	1.8E-04	6.8E-03	N/A		6.9E-03	Renal	9.6E-04	1.4E-02	N/A		1.5E-02
			VOC	Tetrachloroethylene	127-18-4	7.8E-09	6.1E-07		6.2E-07	Nervous	6.5E-04	9.8E-02	N/A		9.8E-02	Nervous	3.5E-03	2.0E-01	N/A		2.0E-01
			VOC	Trichloroethylene	79-01-6	7.6E-08	1.5E-06		1.5E-06	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	2.0E-03	9.0E-02	N/A		9.3E-02	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	1.1E-02	1.9E-01	N/A		2.0E-01
			VOC	Vinyl chloride	75-01-4	6.0E-08	1.5E-06		1.6E-06	Hepatic	1.8E-06	4.8E-05	N/A		5.0E-05	Hepatic	9.7E-06	9.8E-05	N/A		1.1E-04
			SVOC	4-Chloroaniline	106-47-8	8.8E-08	8.7E-07		9.5E-07	Lymphatic	1.2E-04	2.2E-03	N/A		2.3E-03	Lymphatic	6.2E-04	4.5E-03	N/A		5.1E-03
			INORGANIC	Arsenic	7440-38-2	5.7E-08	9.8E-08		1.5E-07	Integumentary	1.3E-04	4.4E-04	N/A		5.7E-04	Integumentary	7.1E-04	9.0E-04	N/A		1.6E-03
			INORGANIC	Chromium (Total)	7440-47-3	2.3E-08	2.0E-06		2.1E-06	Low confidence in principal study for target organ identification	3.5E-06	8.8E-04	N/A		8.9E-04	Low confidence in principal study for target organ identification	1.9E-05	1.8E-03	N/A		1.8E-03
			INORGANIC	Cobalt	7440-48-4					Endocrine	9.3E-05	1.2E-04	N/A		2.1E-04	Endocrine	5.0E-04	2.4E-04	N/A		7.4E-04
			INORGANIC	Iron	7439-89-6					Digestive	7.2E-04	2.3E-03	N/A		3.0E-03	Digestive	3.9E-03	4.7E-03	N/A		8.5E-03
			INORGANIC	Manganese	7439-96-5					Nervous	3.3E-03	2.6E-01	N/A		2.6E-01	Nervous	1.8E-02	5.4E-01	N/A		5.5E-01
Surface Water Total									**7.0E-06**						**4.7E-01**						**9.9E-01**
Receptor Total								**Receptor Risk Total:**	**4.1E-05**					**Adult Receptor Hazard Total:**	**1.5E+00**					**Child Receptor Hazard Total:**	**4.2E+00**

Adult		Child	
Total **Cardiovascular** HI across media =	1.4E-06	Total **Cardiovascular** HI across media =	1.4E-06
Total **Developmental** HI across media =	2.0E-01	Total **Developmental** HI across media =	4.6E-01
Total **Digestive** HI across media =	4.9E-02	Total **Digestive** HI across media =	1.6E-01
Total **Endocrine** HI across media =	3.7E-02	Total **Endocrine** HI across media =	3.2E-01
Total **Hepatic** HI across media =	1.9E-01	Total **Hepatic** HI across media =	4.1E-01
Total **Integumentary** HI across media =	8.4E-02	Total **Integumentary** HI across media =	3.4E-01
Total **Lymphatic** HI across media =	2.1E-01	Total **Lymphatic** HI across media =	5.6E-01
Total **Muscoskeletal** HI across media =	N/A	Total **Muscoskeletal** HI across media =	**N/A**
Total **Nervous** HI across media =	1.3E+00	Total **Nervous** HI across media =	3.3E+00
Total **Renal** HI across media =	2.3E-01	Total **Renal** HI across media =	4.9E-01
Total **Reproductive** HI across media =	1.9E-01	Total **Reproductive** HI across media =	4.2E-01
Total **Respiratory** HI across media =	5.6E-06	Total **Respiratory** HI across media =	5.6E-06
Total **No Specified Target Organ/System** HI across media =	2.8E-03	Total **No Specified Target Organ/System** HI across media =	2.3E-02

ATTACHMENT B

ProUCL Software Inputs and Outputs

(on CD)

ATTACHMENT B TABLE OF CONTENTS:

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Sediment - cis-1,2-Dichloroethylene	0.0046	0	A2	SD-021-0006-0001	N	4/13/2012	0	4.00	in	4/13/2012	VOCS	T	VOC	156-59-2	U	0.0046	mg/kg
Sediment - Tetrachloroethylene	0.076	1	E3	SD-010-0006-001	N	4/12/2012	0	4.0	in	4/12/2012	VOCS	T	VOC	127-18-4	J-	0.039	mg/kg
Sediment - Tetrachloroethylene	0.0046	0	A2	SD-021-0006-0001	N	4/13/2012	0	4.00	in	4/13/2012	VOCS	T	VOC	127-18-4	U	0.0046	mg/kg
Sediment - Trichloroethylene	0.0046	0	A2	SD-021-0006-0001	N	4/13/2012	0	4.00	in	4/13/2012	VOCS	T	VOC	79-01-6	U	0.0046	mg/kg
Seep Sediment - 1,1,1-Trichloroethane	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-55-6	U	0.012	mg/kg
Seep Sediment - 1,1,1-Trichloroethane	0.61	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-55-6		0.012	mg/kg
Seep Sediment - 1,1,1-Trichloroethane	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.50	ft	4/20/2016	E624	T	VOC	71-55-6	U	0.015	mg/kg
Seep Sediment - 1,1,1-Trichloroethane	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-55-6	UJ	0.03	mg/kg
Seep Sediment - 1,1,1-Trichloroethane	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-55-6	U	0.024	mg/kg
Seep Sediment - 1,1,1-Trichloroethane	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-55-6	U	0.017	mg/kg
Seep Sediment - 1,1,1-Trichloroethane	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-55-6	U	0.009	mg/kg
Seep Sediment - 1,1,1-Trichloroethane	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-55-6	UJ	0.029	mg/kg
Seep Sediment - 1,1-Dichloroethane	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-34-3	UJ	0.029	mg/kg
Seep Sediment - 1,1-Dichloroethane	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-34-3	U	0.017	mg/kg
Seep Sediment - 1,1-Dichloroethane	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-34-3	U	0.024	mg/kg
Seep Sediment - 1,1-Dichloroethane	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-34-3	UJ	0.03	mg/kg
Seep Sediment - 1,1-Dichloroethane	0.0095	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-34-3	J	0.012	mg/kg
Seep Sediment - 1,1-Dichloroethane	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-34-3	U	0.009	mg/kg
Seep Sediment - 1,1-Dichloroethane	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-34-3	U	0.015	mg/kg
Seep Sediment - 1,1-Dichloroethane	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-34-3	U	0.012	mg/kg
Seep Sediment - 1,1-Dichloroethene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-35-4	U	0.009	mg/kg
Seep Sediment - 1,1-Dichloroethene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-35-4	UJ	0.029	mg/kg
Seep Sediment - 1,1-Dichloroethene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-35-4	U	0.017	mg/kg
Seep Sediment - 1,1-Dichloroethene	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-35-4	U	0.015	mg/kg
Seep Sediment - 1,1-Dichloroethene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-35-4	U	0.024	mg/kg
Seep Sediment - 1,1-Dichloroethene	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-35-4	UJ	0.03	mg/kg
Seep Sediment - 1,1-Dichloroethene	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-35-4	U	0.012	mg/kg
Seep Sediment - 1,1-Dichloroethene	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-35-4	U	0.012	mg/kg
Seep Sediment - 1,2,3-Trichlorobenzene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	87-61-6	UJ	0.017	mg/kg
Seep Sediment - 1,2,3-Trichlorobenzene	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	87-61-6	UJ	0.012	mg/kg
Seep Sediment - 1,2,3-Trichlorobenzene	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	87-61-6	UJ	0.012	mg/kg
Seep Sediment - 1,2,3-Trichlorobenzene	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	87-61-6	UJ	0.03	mg/kg
Seep Sediment - 1,2,3-Trichlorobenzene	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	87-61-6	UJ	0.015	mg/kg
Seep Sediment - 1,2,3-Trichlorobenzene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	87-61-6	UJ	0.024	mg/kg
Seep Sediment - 1,2,3-Trichlorobenzene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	87-61-6	UJ	0.009	mg/kg
Seep Sediment - 1,2,3-Trichlorobenzene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	87-61-6	UJ	0.029	mg/kg
Seep Sediment - 1,2,4-Trichlorobenzene	0.012	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	120-82-1	J+	0.03	mg/kg
Seep Sediment - 1,2,4-Trichlorobenzene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	120-82-1	UJ	0.009	mg/kg
Seep Sediment - 1,2,4-Trichlorobenzene	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	120-82-1	UJ	0.012	mg/kg
Seep Sediment - 1,2,4-Trichlorobenzene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	120-82-1	UJ	0.024	mg/kg
Seep Sediment - 1,2,4-Trichlorobenzene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	120-82-1	UJ	0.029	mg/kg
Seep Sediment - 1,2,4-Trichlorobenzene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	120-82-1	UJ	0.017	mg/kg
Seep Sediment - 1,2,4-Trichlorobenzene	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	120-82-1	UJ	0.015	mg/kg
Seep Sediment - 1,2,4-Trichlorobenzene	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	120-82-1	UJ	0.012	mg/kg
Seep Sediment - 1,2-Dichloroethane	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	107-06-2	U	0.017	mg/kg
Seep Sediment - 1,2-Dichloroethane	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	107-06-2	U	0.012	mg/kg
Seep Sediment - 1,2-Dichloroethane	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	107-06-2	U	0.024	mg/kg
Seep Sediment - 1,2-Dichloroethane	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	107-06-2	UJ	0.029	mg/kg
Seep Sediment - 1,2-Dichloroethane	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	107-06-2	U	0.012	mg/kg
Seep Sediment - 1,2-Dichloroethane	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	107-06-2	U	0.015	mg/kg
Seep Sediment - 1,2-Dichloroethane	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	107-06-2	UJ	0.03	mg/kg
Seep Sediment - 1,2-Dichloroethane	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	107-06-2	U	0.009	mg/kg
Seep Sediment - 1,4-Dichlorobenzene	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	106-46-7	UJ	0.012	mg/kg
Seep Sediment - 1,4-Dichlorobenzene	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	106-46-7	UJ	0.015	mg/kg
Seep Sediment - 1,4-Dichlorobenzene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	106-46-7	UJ	0.024	mg/kg
Seep Sediment - 1,4-Dichlorobenzene	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	106-46-7	UJ	0.012	mg/kg
Seep Sediment - 1,4-Dichlorobenzene	0.16	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	106-46-7	J+	0.03	mg/kg
Seep Sediment - 1,4-Dichlorobenzene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	106-46-7	UJ	0.017	mg/kg
Seep Sediment - 1,4-Dichlorobenzene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	106-46-7	UJ	0.009	mg/kg
Seep Sediment - 1,4-Dichlorobenzene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	106-46-7	UJ	0.029	mg/kg
Seep Sediment - 1,4-Dioxane	0.15	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.15	mg/kg
Seep Sediment - 1,4-Dioxane	0.12	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.12	mg/kg
Seep Sediment - 1,4-Dioxane	0.24	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.24	mg/kg
Seep Sediment - 1,4-Dioxane	0.12	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.12	mg/kg
Seep Sediment - 1,4-Dioxane	0.11	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.11	mg/kg
Seep Sediment - 1,4-Dioxane	0.11	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.11	mg/kg
Seep Sediment - 1,4-Dioxane	0.26	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.26	mg/kg
Seep Sediment - 1,4-Dioxane	0.21	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.21	mg/kg
Seep Sediment - Benzene	0.03	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-43-2	J	0.03	mg/kg
Seep Sediment - Benzene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-43-2	U	0.017	mg/kg
Seep Sediment - Benzene	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-43-2	U	0.012	mg/kg
Seep Sediment - Benzene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-43-2	U	0.009	mg/kg
Seep Sediment - Benzene	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-43-2	U	0.012	mg/kg
Seep Sediment - Benzene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-43-2	UJ	0.029	mg/kg
Seep Sediment - Benzene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-43-2	U	0.024	mg/kg
Seep Sediment - Benzene	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	71-43-2	U	0.015	mg/kg
Seep Sediment - Chlorobenzene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-90-7	U	0.017	mg/kg
Seep Sediment - Chlorobenzene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-90-7	UJ	0.024	mg/kg
Seep Sediment - Chlorobenzene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-90-7	UJ	0.029	mg/kg
Seep Sediment - Chlorobenzene	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-90-7	UJ	0.015	mg/kg
Seep Sediment - Chlorobenzene	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-90-7	UJ	0.012	mg/kg
Seep Sediment - Chlorobenzene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-90-7	UJ	0.009	mg/kg
Seep Sediment - Chlorobenzene	0.47	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-90-7	J	0.03	mg/kg
Seep Sediment - Chlorobenzene	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-90-7	UJ	0.012	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.032	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	156-59-2		0.015	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.23	1	D1	SD-018-0006-001	N	4/12/2012	0	5	in	4/12/2012	VOCS	T	VOC	156-59-2	J-	0.031	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	156-59-2	U	0.009	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	156-59-2	U	0.017	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	156-59-2	UJ	0.029	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	156-59-2	UJ	0.03	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.066	1	F4	SD-005-0006-001	N	4/13/2012	0	6	in	4/13/2012	VOCS	T	VOC	156-59-2	J-	0.035	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	156-59-2	U	0.024	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.0024	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	156-59-2	J	0.012	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.08	1	E2	SD-013-0006-001	N	4/12/2012	0	5	in	4/12/2012	VOCS	T	VOC	156-59-2	J-	0.04	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	156-59-2	U	0.012	mg/kg
Seep Sediment - cis-1,2-Dichloroethylene	0.016	0	A1	SD-024-0006-0001	N	4/13/2012	3	6	in	4/13/2012	VOCS	T	VOC	156-59-2	U	0.016	mg/kg
Seep Sediment - Ethylbenzene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	100-41-4	UJ	0.029	mg/kg
Seep Sediment - Ethylbenzene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	100-41-4	U	0.009	mg/kg
Seep Sediment - Ethylbenzene	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	100-41-4	U	0.012	mg/kg
Seep Sediment - Ethylbenzene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	100-41-4	U	0.017	mg/kg
Seep Sediment - Ethylbenzene	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.50	ft	4/20/2016	E624	T	VOC	100-41-4	U	0.012	mg/kg
Seep Sediment - Ethylbenzene	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	100-41-4	UJ	0.03	mg/kg
Seep Sediment - Ethylbenzene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	100-41-4	U	0.024	mg/kg
Seep Sediment - Ethylbenzene	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.50	ft	4/20/2016	E624	T	VOC	100-41-4	U	0.015	mg/kg
Seep Sediment - Methylcyclohexane	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-87-2	U	0.012	mg/kg
Seep Sediment - Methylcyclohexane	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-87-2	U	0.012	mg/kg
Seep Sediment - Methylcyclohexane	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-87-2	U	0.015	mg/kg
Seep Sediment - Methylcyclohexane	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-87-2	U	0.024	mg/kg
Seep Sediment - Methylcyclohexane	0.0062	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-87-2	J	0.03	mg/kg
Seep Sediment - Methylcyclohexane	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-87-2	U	0.017	mg/kg
Seep Sediment - Methylcyclohexane	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-87-2	U	0.009	mg/kg
Seep Sediment - Methylcyclohexane	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	108-87-2	UJ	0.029	mg/kg
Seep Sediment - Methylene chloride	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-09-2	U	0.017	mg/kg
Seep Sediment - Methylene chloride	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-09-2	U	0.009	mg/kg
Seep Sediment - Methylene chloride	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-09-2	UJ	0.03	mg/kg
Seep Sediment - Methylene chloride	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-09-2	U	0.012	mg/kg
Seep Sediment - Methylene chloride	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-09-2	U	0.012	mg/kg
Seep Sediment - Methylene chloride	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-09-2	U	0.024	mg/kg
Seep Sediment - Methylene chloride	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-09-2	U	0.015	mg/kg
Seep Sediment - Methylene chloride	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-09-2	UJ	0.029	mg/kg
Seep Sediment - o-Xylene	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	95-47-6	UJ	0.03	mg/kg
Seep Sediment - o-Xylene	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	95-47-6	U	0.012	mg/kg
Seep Sediment - o-Xylene	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	95-47-6	U	0.012	mg/kg
Seep Sediment - o-Xylene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	95-47-6	UJ	0.029	mg/kg
Seep Sediment - o-Xylene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	95-47-6	U	0.009	mg/kg
Seep Sediment - o-Xylene	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	95-47-6	U	0.015	mg/kg
Seep Sediment - o-Xylene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	95-47-6	U	0.017	mg/kg
Seep Sediment - o-Xylene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	95-47-6	U	0.024	mg/kg
Seep Sediment - Tetrachloroethylene	0.021	1	C3	SD-011-0006-001	N	4/12/2012	0	6	in	4/12/2012	VOCS	T	VOC	127-18-4		0.0084	mg/kg
Seep Sediment - Tetrachloroethylene	0.0087	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	127-18-4	J	0.012	mg/kg
Seep Sediment - Tetrachloroethylene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	127-18-4	UJ	0.029	mg/kg
Seep Sediment - Tetrachloroethylene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	127-18-4	U	0.024	mg/kg
Seep Sediment - Tetrachloroethylene	0.011	1	C2	SD-012-0006-001	N	4/12/2012	3	6	in	4/12/2012	VOCS	T	VOC	127-18-4		0.0056	mg/kg
Seep Sediment - Tetrachloroethylene	0.016	0	A1	SD-024-0006-0001	N	4/13/2012	3	6	in	4/13/2012	VOCS	T	VOC	127-18-4	U	0.016	mg/kg
Seep Sediment - Tetrachloroethylene	1.2	1	E2	SD-013-0006-001	N	4/12/2012	0	5	in	4/12/2012	VOCS	T	VOC	127-18-4	J-	0.04	mg/kg
Seep Sediment - Tetrachloroethylene	0.096	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	127-18-4		0.015	mg/kg
Seep Sediment - Tetrachloroethylene	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	127-18-4	UJ	0.03	mg/kg
Seep Sediment - Tetrachloroethylene	0.41	1	C1	SD-015-0006-001	N	4/12/2012	0	6	in	4/12/2012	VOCS	T	VOC	127-18-4		0.0053	mg/kg
Seep Sediment - Tetrachloroethylene	11	1	D1	SD-018-0006-001	N	4/12/2012	0	5	in	4/12/2012	VOCS	T	VOC	127-18-4	J	0.031	mg/kg
Seep Sediment - Tetrachloroethylene	0.93	1	E1	SD-014-0006-001	N	4/12/2012	0	6	in	4/12/2012	VOCS	T	VOC	127-18-4		0.37	mg/kg
Seep Sediment - Tetrachloroethylene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	127-18-4	U	0.009	mg/kg
Seep Sediment - Tetrachloroethylene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	127-18-4	U	0.017	mg/kg
Seep Sediment - Tetrachloroethylene	5.8	1	SED-03	SED-03-20160411	N	4/4/2016	0	0.5	ft	4/22/2016	E624	T	VOC	127-18-4		0.83	mg/kg
Seep Sediment - Tetrachloroethylene	0.0072	1	B1	SD-023-0006-001	N	4/13/2012	0	6	in	4/13/2012	VOCS	T	VOC	127-18-4	J-	0.0064	mg/kg
Seep Sediment - Tetrachloroethylene	6	1	D2	SD-017-0006-001	N	4/12/2012	0	4	in	4/12/2012	VOCS	T	VOC	127-18-4		0.38	mg/kg
Seep Sediment - Trichloroethylene	0.047	1	F4	SD-005-0006-001	N	4/13/2012	0	6	in	4/13/2012	VOCS	T	VOC	79-01-6	J-	0.035	mg/kg
Seep Sediment - Trichloroethylene	0.091	1	D2	SD-017-0006-001	N	4/12/2012	0	4.00	in	4/12/2012	VOCS	T	VOC	79-01-6		0.0066	mg/kg
Seep Sediment - Trichloroethylene	0.016	0	A1	SD-024-0006-0001	N	4/13/2012	3	6	in	4/13/2012	VOCS	T	VOC	79-01-6	U	0.016	mg/kg
Seep Sediment - Trichloroethylene	0.013	1	C1	SD-015-0006-001	N	4/12/2012	0	6.00	in	4/12/2012	VOCS	T	VOC	79-01-6		0.0053	mg/kg
Seep Sediment - Trichloroethylene	0.14	1	E2	SD-013-0006-001	N	4/12/2012	0	5	in	4/12/2012	VOCS	T	VOC	79-01-6	J-	0.04	mg/kg
Seep Sediment - Trichloroethylene	0.054	1	E1	SD-014-0006-001	N	4/12/2012	0	6.0	in	4/12/2012	VOCS	T	VOC	79-01-6		0.0059	mg/kg
Seep Sediment - Trichloroethylene	0.06	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	79-01-6		0.015	mg/kg
Seep Sediment - Trichloroethylene	1	1	D1	SD-018-0006-001	N	4/12/2012	0	5	in	4/12/2012	VOCS	T	VOC	79-01-6	J-	0.031	mg/kg
Seep Sediment - Trichloroethylene	0.0066	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	79-01-6	J	0.012	mg/kg
Seep Sediment - Trichloroethylene	0.27	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	79-01-6		0.012	mg/kg
Seep Sediment - Trichloroethylene	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.50	ft	4/20/2016	E624	T	VOC	79-01-6	UJ	0.029	mg/kg
Seep Sediment - Trichloroethylene	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	79-01-6	U	0.009	mg/kg
Seep Sediment - Trichloroethylene	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	79-01-6	UJ	0.03	mg/kg
Seep Sediment - Trichloroethylene	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	79-01-6	U	0.017	mg/kg
Seep Sediment - Trichloroethylene	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	79-01-6	U	0.024	mg/kg
Seep Sediment - Vinyl chloride	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-01-4	U	0.012	mg/kg
Seep Sediment - Vinyl chloride	0.03	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-01-4	UJ	0.03	mg/kg
Seep Sediment - Vinyl chloride	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-01-4	U	0.017	mg/kg
Seep Sediment - Vinyl chloride	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-01-4	U	0.009	mg/kg
Seep Sediment - Vinyl chloride	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.50	ft	4/20/2016	E624	T	VOC	75-01-4	U	0.012	mg/kg
Seep Sediment - Vinyl chloride	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-01-4	UJ	0.029	mg/kg
Seep Sediment - Vinyl chloride	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.50	ft	4/20/2016	E624	T	VOC	75-01-4	U	0.024	mg/kg
Seep Sediment - Vinyl chloride	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	VOC	75-01-4	U	0.015	mg/kg
Seep Sediment - 2-Methylnaphthalene	0.5	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-57-6	U	0.5	mg/kg
Seep Sediment - 2-Methylnaphthalene	0.3	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-57-6	U	0.3	mg/kg
Seep Sediment - 2-Methylnaphthalene	0.37	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-57-6	U	0.37	mg/kg
Seep Sediment - 2-Methylnaphthalene	0.59	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-57-6	UJ	0.59	mg/kg
Seep Sediment - 2-Methylnaphthalene	0.26	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.50	ft	4/20/2016	E625	T	SVOC	91-57-6	U	0.26	mg/kg
Seep Sediment - 2-Methylnaphthalene	0.28	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-57-6	U	0.28	mg/kg
Seep Sediment - 2-Methylnaphthalene	0.28	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-57-6	U	0.28	mg/kg
Seep Sediment - 2-Methylnaphthalene	0.63	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-57-6	UJ	0.63	mg/kg
Seep Sediment - 4-Chloroaniline	0.55	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	U	0.55	mg/kg
Seep Sediment - 4-Chloroaniline	0.72	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	U	0.72	mg/kg
Seep Sediment - 4-Chloroaniline	1.2	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	UJ	1.2	mg/kg
Seep Sediment - 4-Chloroaniline	0.5	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	U	0.5	mg/kg
Seep Sediment - 4-Chloroaniline	0.98	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	U	0.98	mg/kg
Seep Sediment - 4-Chloroaniline	1.1	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	UJ	1.1	mg/kg
Seep Sediment - 4-Chloroaniline	0.58	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	U	0.58	mg/kg
Seep Sediment - 4-Chloroaniline	0.54	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	U	0.54	mg/kg
Seep Sediment - Benzo(a)anthracene	0.3	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	U	0.3	mg/kg
Seep Sediment - Benzo(a)anthracene	0.26	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	U	0.26	mg/kg
Seep Sediment - Benzo(a)anthracene	0.092	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	J	0.5	mg/kg
Seep Sediment - Benzo(a)anthracene	0.28	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	U	0.28	mg/kg
Seep Sediment - Benzo(a)anthracene	0.25	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	J	0.59	mg/kg
Seep Sediment - Benzo(a)anthracene	0.63	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	UJ	0.63	mg/kg
Seep Sediment - Benzo(a)anthracene	0.37	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	U	0.37	mg/kg
Seep Sediment - Benzo(a)anthracene	0.28	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	U	0.28	mg/kg
Seep Sediment - Benzo(a)pyrene	0.11	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	J	0.5	mg/kg
Seep Sediment - Benzo(a)pyrene	0.28	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	U	0.28	mg/kg
Seep Sediment - Benzo(a)pyrene	0.26	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	U	0.26	mg/kg
Seep Sediment - Benzo(a)pyrene	0.26	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	J	0.59	mg/kg
Seep Sediment - Benzo(a)pyrene	0.065	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	J	0.63	mg/kg
Seep Sediment - Benzo(a)pyrene	0.37	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	U	0.37	mg/kg
Seep Sediment - Benzo(a)pyrene	0.28	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	U	0.28	mg/kg
Seep Sediment - Benzo(a)pyrene	0.3	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	U	0.3	mg/kg
Seep Sediment - Benzo(b)fluoranthene	0.28	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	U	0.28	mg/kg
Seep Sediment - Benzo(b)fluoranthene	0.38	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	J	0.59	mg/kg
Seep Sediment - Benzo(b)fluoranthene	0.37	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	U	0.37	mg/kg
Seep Sediment - Benzo(b)fluoranthene	0.28	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	U	0.28	mg/kg
Seep Sediment - Benzo(b)fluoranthene	0.037	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	J	0.3	mg/kg
Seep Sediment - Benzo(b)fluoranthene	0.18	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	J	0.5	mg/kg
Seep Sediment - Benzo(b)fluoranthene	0.15	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	J	0.63	mg/kg
Seep Sediment - Benzo(b)fluoranthene	0.028	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	J	0.26	mg/kg
Seep Sediment - Benzyl Butyl Phthalate	0.63	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	UJ	0.63	mg/kg
Seep Sediment - Benzyl Butyl Phthalate	0.3	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	U	0.3	mg/kg
Seep Sediment - Benzyl Butyl Phthalate	0.37	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	U	0.37	mg/kg
Seep Sediment - Benzyl Butyl Phthalate	0.051	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	J	0.28	mg/kg
Seep Sediment - Benzyl Butyl Phthalate	0.5	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	U	0.5	mg/kg
Seep Sediment - Benzyl Butyl Phthalate	0.59	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	UJ	0.59	mg/kg
Seep Sediment - Benzyl Butyl Phthalate	0.26	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	U	0.26	mg/kg
Seep Sediment - Benzyl Butyl Phthalate	0.28	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	U	0.28	mg/kg
Seep Sediment - Biphenyl (diphenyl)	0.5	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	U	0.5	mg/kg
Seep Sediment - Biphenyl (diphenyl)	0.63	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	UJ	0.63	mg/kg
Seep Sediment - Biphenyl (diphenyl)	0.28	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	U	0.28	mg/kg
Seep Sediment - Biphenyl (diphenyl)	0.59	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	UJ	0.59	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Seep Sediment - Biphenyl (diphenyl)	0.3	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	U	0.3	mg/kg
Seep Sediment - Biphenyl (diphenyl)	0.26	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	U	0.26	mg/kg
Seep Sediment - Biphenyl (diphenyl)	0.37	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	U	0.37	mg/kg
Seep Sediment - Biphenyl (diphenyl)	0.28	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	U	0.28	mg/kg
Seep Sediment - Bis(2-ethylhexyl)phthalate	0.59	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	UJ	0.59	mg/kg
Seep Sediment - Bis(2-ethylhexyl)phthalate	0.3	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	U	0.3	mg/kg
Seep Sediment - Bis(2-ethylhexyl)phthalate	0.28	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	U	0.28	mg/kg
Seep Sediment - Bis(2-ethylhexyl)phthalate	0.5	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	U	0.5	mg/kg
Seep Sediment - Bis(2-ethylhexyl)phthalate	0.37	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	U	0.37	mg/kg
Seep Sediment - Bis(2-ethylhexyl)phthalate	0.63	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	UJ	0.63	mg/kg
Seep Sediment - Bis(2-ethylhexyl)phthalate	0.26	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	U	0.26	mg/kg
Seep Sediment - Bis(2-ethylhexyl)phthalate	0.28	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	U	0.28	mg/kg
Seep Sediment - Di-n-octylphthalate	0.54	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	U	0.54	mg/kg
Seep Sediment - Di-n-octylphthalate	1.1	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	UJ	1.1	mg/kg
Seep Sediment - Di-n-octylphthalate	1.2	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	UJ	1.2	mg/kg
Seep Sediment - Di-n-octylphthalate	0.5	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	U	0.5	mg/kg
Seep Sediment - Di-n-octylphthalate	0.98	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	U	0.98	mg/kg
Seep Sediment - Di-n-octylphthalate	0.55	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	U	0.55	mg/kg
Seep Sediment - Di-n-octylphthalate	0.58	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	U	0.58	mg/kg
Seep Sediment - Di-n-octylphthalate	0.72	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	U	0.72	mg/kg
Seep Sediment - Naphthalene	0.3	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	U	0.3	mg/kg
Seep Sediment - Naphthalene	0.26	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	U	0.26	mg/kg
Seep Sediment - Naphthalene	0.63	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	UJ	0.63	mg/kg
Seep Sediment - Naphthalene	0.59	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	UJ	0.59	mg/kg
Seep Sediment - Naphthalene	0.5	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	U	0.5	mg/kg
Seep Sediment - Naphthalene	0.28	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	U	0.28	mg/kg
Seep Sediment - Naphthalene	0.37	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	U	0.37	mg/kg
Seep Sediment - Naphthalene	0.28	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	U	0.28	mg/kg
Seep Sediment - Dibenzofuran	0.26	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	U	0.26	mg/kg
Seep Sediment - Dibenzofuran	0.63	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	UJ	0.63	mg/kg
Seep Sediment - Dibenzofuran	0.3	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	U	0.3	mg/kg
Seep Sediment - Dibenzofuran	0.59	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	UJ	0.59	mg/kg
Seep Sediment - Dibenzofuran	0.28	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	U	0.28	mg/kg
Seep Sediment - Dibenzofuran	0.5	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	U	0.5	mg/kg
Seep Sediment - Dibenzofuran	0.37	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	U	0.37	mg/kg
Seep Sediment - Dibenzofuran	0.28	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	U	0.28	mg/kg
Seep Sediment - PCB-1248 (Aroclor 1248)	0.11	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E608	T	PCB	12672-29-6	UJ	0.11	mg/kg
Seep Sediment - PCB-1248 (Aroclor 1248)	0.055	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E608	T	PCB	12672-29-6	U	0.055	mg/kg
Seep Sediment - PCB-1248 (Aroclor 1248)	0.006	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E608	T	PCB	12672-29-6	J	0.058	mg/kg
Seep Sediment - PCB-1248 (Aroclor 1248)	0.066	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E608	T	PCB	12672-29-6	U	0.05	mg/kg
Seep Sediment - PCB-1248 (Aroclor 1248)	0.099	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	12672-29-6	U	0.099	mg/kg
Seep Sediment - PCB-1248 (Aroclor 1248)	0.055	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	12672-29-6	U	0.055	mg/kg
Seep Sediment - PCB-1248 (Aroclor 1248)	0.073	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	12672-29-6	U	0.073	mg/kg
Seep Sediment - PCB-1248 (Aroclor 1248)	0.12	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	12672-29-6	UJ	0.12	mg/kg
Seep Sediment - PCB-1254 (Aroclor 1254)	0.055	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11097-69-1	U	0.055	mg/kg
Seep Sediment - PCB-1254 (Aroclor 1254)	0.066	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11097-69-1	U	0.05	mg/kg
Seep Sediment - PCB-1254 (Aroclor 1254)	0.099	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11097-69-1	U	0.099	mg/kg
Seep Sediment - PCB-1254 (Aroclor 1254)	0.073	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11097-69-1	U	0.073	mg/kg
Seep Sediment - PCB-1254 (Aroclor 1254)	0.11	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11097-69-1	UJ	0.11	mg/kg
Seep Sediment - PCB-1254 (Aroclor 1254)	0.12	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11097-69-1	UJ	0.12	mg/kg
Seep Sediment - PCB-1254 (Aroclor 1254)	0.055	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11097-69-1	U	0.055	mg/kg
Seep Sediment - PCB-1254 (Aroclor 1254)	0.058	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11097-69-1	U	0.058	mg/kg
Seep Sediment - PCB-1260 (Aroclor 1260)	0.0063	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11096-82-5	J	0.05	mg/kg
Seep Sediment - PCB-1260 (Aroclor 1260)	0.0086	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11096-82-5	J	0.073	mg/kg
Seep Sediment - PCB-1260 (Aroclor 1260)	0.041	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11096-82-5	J	0.11	mg/kg
Seep Sediment - PCB-1260 (Aroclor 1260)	0.003	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11096-82-5	J	0.055	mg/kg
Seep Sediment - PCB-1260 (Aroclor 1260)	0.0032	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11096-82-5	J	0.055	mg/kg
Seep Sediment - PCB-1260 (Aroclor 1260)	0.016	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11096-82-5	J	0.099	mg/kg
Seep Sediment - PCB-1260 (Aroclor 1260)	0.0063	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11096-82-5	J	0.058	mg/kg
Seep Sediment - PCB-1260 (Aroclor 1260)	0.016	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E608	T	PCB	11096-82-5	J	0.12	mg/kg
Seep Sediment - Carbon disulfide	0.009	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	OTHER	75-15-0	U	0.009	mg/kg
Seep Sediment - Carbon disulfide	0.029	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E624	T	OTHER	75-15-0	UJ	0.029	mg/kg
Seep Sediment - Carbon disulfide	0.018	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	OTHER	75-15-0	J	0.03	mg/kg
Seep Sediment - Carbon disulfide	0.83	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	OTHER	75-15-0	U	0.012	mg/kg
Seep Sediment - Carbon disulfide	0.012	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	OTHER	75-15-0	U	0.012	mg/kg
Seep Sediment - Carbon disulfide	0.024	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	OTHER	75-15-0	U	0.024	mg/kg
Seep Sediment - Carbon disulfide	0.017	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E624	T	OTHER	75-15-0	U	0.017	mg/kg
Seep Sediment - Carbon disulfide	0.015	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E624	T	OTHER	75-15-0	U	0.015	mg/kg
Seep Sediment - Aluminum	6380	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7429-90-5	J	20	mg/kg
Seep Sediment - Aluminum	10100	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7429-90-5	J	20	mg/kg
Seep Sediment - Aluminum	18100	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7429-90-5	J	20	mg/kg
Seep Sediment - Aluminum	5420	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7429-90-5	J	20	mg/kg
Seep Sediment - Aluminum	2970	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7429-90-5		20	mg/kg
Seep Sediment - Aluminum	4140	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7429-90-5	J	20	mg/kg
Seep Sediment - Aluminum	1180	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7429-90-5		20	mg/kg
Seep Sediment - Aluminum	2760	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7429-90-5		20	mg/kg
Seep Sediment - Arsenic	4	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-38-2	J	0.5	mg/kg
Seep Sediment - Arsenic	1.3	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Seep Sediment - Arsenic	1.7	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Seep Sediment - Arsenic	4.6	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-38-2	J	0.5	mg/kg
Seep Sediment - Arsenic	3.7	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-38-2	J	0.5	mg/kg
Seep Sediment - Arsenic	14.2	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-38-2	J	0.5	mg/kg
Seep Sediment - Arsenic	2.7	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Seep Sediment - Arsenic	4.2	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-38-2	J	0.5	mg/kg
Seep Sediment - Barium	36.3	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3	J	5	mg/kg
Seep Sediment - Barium	57.5	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3	J	5	mg/kg
Seep Sediment - Barium	14.1	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Seep Sediment - Barium	46.8	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3	J	5	mg/kg
Seep Sediment - Barium	12	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Seep Sediment - Barium	19.2	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Seep Sediment - Barium	177	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3	J	5	mg/kg
Seep Sediment - Barium	81	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3	J	5	mg/kg
Seep Sediment - Beryllium	0.28	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Seep Sediment - Beryllium	0.52	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Seep Sediment - Beryllium	0.27	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Seep Sediment - Beryllium	0.54	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Seep Sediment - Beryllium	0.61	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Seep Sediment - Beryllium	0.2	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Seep Sediment - Beryllium	0.69	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Seep Sediment - Beryllium	0.42	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Seep Sediment - Cadmium	0.064	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Seep Sediment - Cadmium	0.87	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Seep Sediment - Cadmium	0.18	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Seep Sediment - Cadmium	0.43	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Seep Sediment - Cadmium	0.15	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Seep Sediment - Cadmium	0.22	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Seep Sediment - Cadmium	0.69	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Seep Sediment - Cadmium	0.66	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Seep Sediment - Chromium (Total)	2.5	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	1	mg/kg
Seep Sediment - Chromium (Total)	2.1	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Seep Sediment - Chromium (Total)	4.1	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	1	mg/kg
Seep Sediment - Chromium (Total)	8.6	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	1	mg/kg
Seep Sediment - Chromium (Total)	28.7	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	1	mg/kg
Seep Sediment - Chromium (Total)	1.3	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	1	mg/kg
Seep Sediment - Chromium (Total)	5.3	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	1	mg/kg
Seep Sediment - Chromium (Total)	2.1	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Seep Sediment - Cobalt	22.8	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	0.5	mg/kg
Seep Sediment - Cobalt	2.4	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	0.5	mg/kg
Seep Sediment - Cobalt	1.6	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	0.5	mg/kg
Seep Sediment - Cobalt	8.1	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Seep Sediment - Cobalt	1.8	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	0.5	mg/kg
Seep Sediment - Cobalt	0.89	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Seep Sediment - Cobalt	1.5	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Seep Sediment - Cobalt	57.2	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	0.5	mg/kg
Seep Sediment - Cyanide	0.5	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	0.5	mg/kg
Seep Sediment - Cyanide	0.5	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	UJ	0.5	mg/kg
Seep Sediment - Cyanide	0.5	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	UJ	0.5	mg/kg
Seep Sediment - Cyanide	0.5	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	0.5	mg/kg
Seep Sediment - Cyanide	3.5	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	J	0.5	mg/kg
Seep Sediment - Cyanide	0.5	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	UJ	0.5	mg/kg
Seep Sediment - Cyanide	0.5	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	UJ	0.5	mg/kg
Seep Sediment - Cyanide	0.5	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	UJ	0.5	mg/kg
Seep Sediment - Iron	3190	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7439-89-6	J	10	mg/kg
Seep Sediment - Iron	2780	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7439-89-6		10	mg/kg
Seep Sediment - Iron	1130	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7439-89-6		10	mg/kg
Seep Sediment - Iron	4410	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7439-89-6	J	10	mg/kg
Seep Sediment - Iron	38200	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7439-89-6	J	10	mg/kg
Seep Sediment - Iron	5120	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7439-89-6	J	10	mg/kg
Seep Sediment - Iron	1940	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7439-89-6	J	10	mg/kg
Seep Sediment - Iron	1060	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.7	T	INORGANIC	7439-89-6		10	mg/kg
Seep Sediment - Lead	65.8	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	0.5	mg/kg
Seep Sediment - Lead	69.7	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	0.5	mg/kg
Seep Sediment - Lead	30.8	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	0.5	mg/kg
Seep Sediment - Lead	46	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	0.5	mg/kg
Seep Sediment - Lead	38.3	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	0.5	mg/kg
Seep Sediment - Lead	13.5	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Seep Sediment - Lead	16.7	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Seep Sediment - Lead	71.3	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	0.5	mg/kg
Seep Sediment - Manganese	44.6	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5	J	0.5	mg/kg
Seep Sediment - Manganese	24	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5	J	0.5	mg/kg
Seep Sediment - Manganese	31.4	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5	J	0.5	mg/kg
Seep Sediment - Manganese	19.9	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Seep Sediment - Manganese	236	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5	J	0.5	mg/kg
Seep Sediment - Manganese	878	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5	J	0.5	mg/kg
Seep Sediment - Manganese	84.7	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Seep Sediment - Manganese	7480	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5	J	0.5	mg/kg
Seep Sediment - Mercury	0.14	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E245.5	T	INORGANIC	7439-97-6	J	0.1	mg/kg
Seep Sediment - Mercury	0.14	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E245.5	T	INORGANIC	7439-97-6	J	0.1	mg/kg
Seep Sediment - Mercury	0.64	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E245.5	T	INORGANIC	7439-97-6	J	0.1	mg/kg
Seep Sediment - Mercury	0.043	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E245.5	T	INORGANIC	7439-97-6	J	0.1	mg/kg
Seep Sediment - Mercury	0.13	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E245.5	T	INORGANIC	7439-97-6	J	0.1	mg/kg
Seep Sediment - Mercury	0.038	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E245.5	T	INORGANIC	7439-97-6	J	0.1	mg/kg
Seep Sediment - Mercury	0.059	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E245.5	T	INORGANIC	7439-97-6	J	0.1	mg/kg
Seep Sediment - Mercury	0.17	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E245.5	T	INORGANIC	7439-97-6	J	0.1	mg/kg
Seep Sediment - Thallium	0.5	0	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	UJ	0.5	mg/kg
Seep Sediment - Thallium	0.5	0	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	UJ	0.5	mg/kg
Seep Sediment - Thallium	0.5	0	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	UJ	0.5	mg/kg
Seep Sediment - Thallium	0.5	0	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Seep Sediment - Thallium	0.5	0	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Seep Sediment - Thallium	0.5	0	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	UJ	0.5	mg/kg
Seep Sediment - Thallium	0.5	0	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	UJ	0.5	mg/kg
Seep Sediment - Thallium	0.5	0	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Seep Sediment - Vanadium	15.5	1	SED-08	SED-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	2.5	mg/kg
Seep Sediment - Vanadium	14.5	1	SED-07	SED-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	2.5	mg/kg
Seep Sediment - Vanadium	5.1	1	SED-05	SED-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Seep Sediment - Vanadium	9.6	1	SED-02	SED-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	2.5	mg/kg
Seep Sediment - Vanadium	9.3	1	SED-04	SED-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	2.5	mg/kg
Seep Sediment - Vanadium	9.3	1	SED-06	SED-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	2.5	mg/kg
Seep Sediment - Vanadium	8.4	1	SED-03	SED-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	2.5	mg/kg
Seep Sediment - Vanadium	4.2	1	SED-01	SED-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Seep Water - 1,1,1-Trichloroethane	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Seep Water - 1,1,1-Trichloroethane	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Seep Water - 1,1,1-Trichloroethane	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Seep Water - 1,1,1-Trichloroethane	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Seep Water - 1,1,1-Trichloroethane	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Seep Water - 1,1,1-Trichloroethane	120	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	71-55-6		25	ug/l
Seep Water - 1,1,1-Trichloroethane	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Seep Water - 1,1,1-Trichloroethane	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Seep Water - 1,1-Dichloroethane	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Seep Water - 1,1-Dichloroethane	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Seep Water - 1,1-Dichloroethane	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Seep Water - 1,1-Dichloroethane	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Seep Water - 1,1-Dichloroethane	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Seep Water - 1,1-Dichloroethane	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Seep Water - 1,1-Dichloroethane	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Seep Water - 1,1-Dichloroethane	10	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-34-3		2.5	ug/l
Seep Water - 1,1-Dichloroethene	14	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-35-4		2.5	ug/l
Seep Water - 1,1-Dichloroethene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Seep Water - 1,1-Dichloroethene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Seep Water - 1,1-Dichloroethene	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Seep Water - 1,1-Dichloroethene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Seep Water - 1,1-Dichloroethene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Seep Water - 1,1-Dichloroethene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Seep Water - 1,1-Dichloroethene	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Seep Water - 1,2,3-Trichlorobenzene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Seep Water - 1,2,3-Trichlorobenzene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Seep Water - 1,2,3-Trichlorobenzene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Seep Water - 1,2,3-Trichlorobenzene	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Seep Water - 1,2,3-Trichlorobenzene	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Seep Water - 1,2,3-Trichlorobenzene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Seep Water - 1,2,3-Trichlorobenzene	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	87-61-6	U	2.5	ug/l
Seep Water - 1,2,3-Trichlorobenzene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Seep Water - 1,2,4-Trichlorobenzene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Seep Water - 1,2,4-Trichlorobenzene	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Seep Water - 1,2,4-Trichlorobenzene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Seep Water - 1,2,4-Trichlorobenzene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Seep Water - 1,2,4-Trichlorobenzene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Seep Water - 1,2,4-Trichlorobenzene	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Seep Water - 1,2,4-Trichlorobenzene	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	120-82-1	U	2.5	ug/l
Seep Water - 1,2,4-Trichlorobenzene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Seep Water - 1,2-Dichloroethane	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Seep Water - 1,2-Dichloroethane	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Seep Water - 1,2-Dichloroethane	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Seep Water - 1,2-Dichloroethane	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Seep Water - 1,2-Dichloroethane	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Seep Water - 1,2-Dichloroethane	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Seep Water - 1,2-Dichloroethane	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Seep Water - 1,2-Dichloroethane	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	107-06-2	U	2.5	ug/l
Seep Water - 1,4-Dichlorobenzene	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	106-46-7	U	2.5	ug/l
Seep Water - 1,4-Dichlorobenzene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Seep Water - 1,4-Dichlorobenzene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Seep Water - 1,4-Dichlorobenzene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Seep Water - 1,4-Dichlorobenzene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Seep Water - 1,4-Dichlorobenzene	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Seep Water - 1,4-Dichlorobenzene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Seep Water - 1,4-Dichlorobenzene	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Seep Water - 1,4-Dioxane	0.42	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	UJ	0.42	ug/l
Seep Water - 1,4-Dioxane	0.4	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	UJ	0.4	ug/l
Seep Water - 1,4-Dioxane	0.45	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	U	0.45	ug/l
Seep Water - 1,4-Dioxane	0.45	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.45	ug/l
Seep Water - 1,4-Dioxane	0.41	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	UJ	0.41	ug/l
Seep Water - 1,4-Dioxane	0.45	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	U	0.45	ug/l
Seep Water - 1,4-Dioxane	0.42	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	U	0.42	ug/l
Seep Water - 1,4-Dioxane	0.43	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	UJ	0.43	ug/l
Seep Water - Benzene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Seep Water - Benzene	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	71-43-2	U	2.5	ug/l
Seep Water - Benzene	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Seep Water - Benzene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Seep Water - Benzene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Seep Water - Benzene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Seep Water - Benzene	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Seep Water - Benzene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Seep Water - Chlorobenzene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Seep Water - Chlorobenzene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Seep Water - Chlorobenzene	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Seep Water - Chlorobenzene	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Seep Water - Chlorobenzene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Seep Water - Chlorobenzene	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	108-90-7	U	2.5	ug/l
Seep Water - Chlorobenzene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Seep Water - Chlorobenzene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	29	1	E1	SW-014-001-20120412	N	4/12/2012	0	0.5	ft	4/12/2012	VOCS	T	VOC	156-59-2		18	ug/l
Seep Water - cis-1,2-Dichloroethylene	80	1	D1	SW-018-001-20120412	N	4/12/2012	0	0.42	ft	4/12/2012	VOCS	T	VOC	156-59-2		21	ug/l
Seep Water - cis-1,2-Dichloroethylene	4.5	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	1.8	1	C2	SW-012-001-20120412	N	4/12/2012	0.25	0.5	ft	4/12/2012	VOCS	T	VOC	156-59-2		0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	0.5	0	A1	SW-024-001-20120413	N	4/13/2012	0.25	0.5	ft	4/13/2012	VOCS	T	VOC	156-59-2	U	0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	1	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	156-59-2	J	2.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	15	1	E2	SW-013-001-20120412	N	4/12/2012	0	0.42	ft	4/12/2012	VOCS	T	VOC	156-59-2		0.5	ug/l
Seep Water - cis-1,2-Dichloroethylene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Seep Water - Ethylbenzene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Seep Water - Ethylbenzene	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Seep Water - Ethylbenzene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Seep Water - Ethylbenzene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Seep Water - Ethylbenzene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Seep Water - Ethylbenzene	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Seep Water - Ethylbenzene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Seep Water - Ethylbenzene	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	100-41-4	U	2.5	ug/l
Seep Water - Methylcyclohexane	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Seep Water - Methylcyclohexane	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Seep Water - Methylcyclohexane	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Seep Water - Methylcyclohexane	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	108-87-2	U	2.5	ug/l
Seep Water - Methylcyclohexane	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Seep Water - Methylcyclohexane	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Seep Water - Methylcyclohexane	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Seep Water - Methylcyclohexane	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Seep Water - Methylene chloride	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Seep Water - Methylene chloride	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Seep Water - Methylene chloride	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Seep Water - Methylene chloride	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Seep Water - Methylene chloride	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-09-2	U	2.5	ug/l
Seep Water - Methylene chloride	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Seep Water - Methylene chloride	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Seep Water - Methylene chloride	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Seep Water - o-Xylene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Seep Water - o-Xylene	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	95-47-6	U	2.5	ug/l
Seep Water - o-Xylene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Seep Water - o-Xylene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Seep Water - o-Xylene	0.5	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Seep Water - o-Xylene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Seep Water - o-Xylene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Seep Water - o-Xylene	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Seep Water - Tetrachloroethylene	360	1	D1	SW-018-002-20120412	N	4/12/2012	0	0.42	ft	4/12/2012	VOCS	T	VOC	127-18-4		21	ug/l
Seep Water - Tetrachloroethylene	160	1	C1	SW-015-001-20120412	N	4/12/2012	0	0.5	ft	4/12/2012	VOCS	T	VOC	127-18-4		6.3	ug/l
Seep Water - Tetrachloroethylene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Seep Water - Tetrachloroethylene	240	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	127-18-4		25	ug/l
Seep Water - Tetrachloroethylene	0.5	0	A1	SW-024-001-20120413	N	4/13/2012	0.25	0.5	ft	4/13/2012	VOCS	T	VOC	127-18-4	U	0.5	ug/l
Seep Water - Tetrachloroethylene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Seep Water - Tetrachloroethylene	1.6	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Seep Water - Tetrachloroethylene	5.1	1	B1	SW-023-001-20120413	N	4/13/2012	0	0.5	ft	4/13/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Seep Water - Tetrachloroethylene	4.9	1	C3	SW-011-001-20120412	N	4/12/2012	0	0.5	ft	4/12/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Seep Water - Tetrachloroethylene	9.3	1	C2	SW-012-001-20120412	N	4/12/2012	0.25	0.5	ft	4/12/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Seep Water - Tetrachloroethylene	1700	1	D2	SW-017-001-20120412	N	4/12/2012	0	0.33	ft	4/12/2012	VOCS	T	VOC	127-18-4		83	ug/l
Seep Water - Tetrachloroethylene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Seep Water - Tetrachloroethylene	0.97	1	F3	SW-006-001-20120411	N	4/11/2012	0	0	ft	4/11/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Seep Water - Tetrachloroethylene	56	1	E2	SW-013-001-20120412	N	4/12/2012	0	0.42	ft	4/12/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Seep Water - Tetrachloroethylene	0.3	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	127-18-4	J	0.5	ug/l
Seep Water - Tetrachloroethylene	340	1	E1	SW-014-001-20120412	N	4/12/2012	0	0.5	ft	4/12/2012	VOCS	T	VOC	127-18-4		18	ug/l
Seep Water - Tetrachloroethylene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Seep Water - Tetrachloroethylene	5.1	1	F4	SW-005-001-20120411	N	4/11/2012	0	0.5	ft	4/11/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Seep Water - Tetrachloroethylene	25	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	127-18-4		2.5	ug/l
Seep Water - Trichloroethylene	83	1	D1	SW-018-001-20120412	N	4/12/2012	0	0.42	ft	4/12/2012	VOCS	T	VOC	79-01-6		21	ug/l
Seep Water - Trichloroethylene	7.3	1	C1	SW-015-001-20120412	N	4/12/2012	0	0.5	ft	4/12/2012	VOCS	T	VOC	79-01-6		6.3	ug/l
Seep Water - Trichloroethylene	1.2	1	C2	SW-012-001-20120412	N	4/12/2012	0.25	0.5	ft	4/12/2012	VOCS	T	VOC	79-01-6		0.5	ug/l
Seep Water - Trichloroethylene	10	1	E2	SW-013-001-20120412	N	4/12/2012	0	0.42	ft	4/12/2012	VOCS	T	VOC	79-01-6		0.5	ug/l
Seep Water - Trichloroethylene	0.34	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Seep Water - Trichloroethylene	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Seep Water - Trichloroethylene	0.5	0	A1	SW-024-001-20120413	N	4/13/2012	0.25	0.5	ft	4/13/2012	VOCS	T	VOC	79-01-6	U	0.5	ug/l
Seep Water - Trichloroethylene	49	1	E1	SW-014-001-20120412	N	4/12/2012	0	0.5	ft	4/12/2012	VOCS	T	VOC	79-01-6		18	ug/l
Seep Water - Trichloroethylene	29	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	79-01-6		2.5	ug/l
Seep Water - Trichloroethylene	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Seep Water - Trichloroethylene	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Seep Water - Trichloroethylene	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Seep Water - Trichloroethylene	2.9	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Seep Water - Trichloroethylene	0.85	1	F4	SW-005-001-20120411	N	4/11/2012	0	0.5	ft	4/11/2012	VOCS	T	VOC	79-01-6		0.5	ug/l
Seep Water - Trichloroethylene	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Seep Water - Trichloroethylene	150	1	D2	SW-017-001-20120412	N	4/12/2012	0	0.33	ft	4/12/2012	VOCS	T	VOC	79-01-6		83	ug/l
Seep Water - Trichloroethylene	1.7	1	B1	SW-023-001-20120413	N	4/13/2012	0	0.5	ft	4/13/2012	VOCS	T	VOC	79-01-6		0.5	ug/l
Seep Water - Vinyl chloride	0.05	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Seep Water - Vinyl chloride	0.05	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Seep Water - Vinyl chloride	0.05	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Seep Water - Vinyl chloride	0.094	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Seep Water - Vinyl chloride	0.05	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Seep Water - Vinyl chloride	0.05	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/13/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Seep Water - Vinyl chloride	0.05	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/13/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Seep Water - Vinyl chloride	0.013	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/13/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Seep Water - 2-Methylnaphthalene	5.6	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-57-6	U	5.6	ug/l
Seep Water - 2-Methylnaphthalene	5.6	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.6	ug/l
Seep Water - 2-Methylnaphthalene	5.7	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.7	ug/l
Seep Water - 2-Methylnaphthalene	5.1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.1	ug/l
Seep Water - 2-Methylnaphthalene	5.4	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.4	ug/l
Seep Water - 2-Methylnaphthalene	5.4	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	91-57-6	U	5.4	ug/l
Seep Water - 2-Methylnaphthalene	7	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	7	ug/l
Seep Water - 2-Methylnaphthalene	5.3	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	91-57-6	U	5.3	ug/l
Seep Water - 4-Chloroaniline	11	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Seep Water - 4-Chloroaniline	10	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Seep Water - 4-Chloroaniline	14	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8	U	14	ug/l
Seep Water - 4-Chloroaniline	11	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Seep Water - 4-Chloroaniline	11	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Seep Water - 4-Chloroaniline	11	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Seep Water - 4-Chloroaniline	11	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Seep Water - 4-Chloroaniline	11	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Seep Water - Benzo(a)anthracene	7	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	7	ug/l
Seep Water - Benzo(a)anthracene	5.6	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	U	5.6	ug/l
Seep Water - Benzo(a)anthracene	5.7	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.7	ug/l
Seep Water - Benzo(a)anthracene	5.3	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	56-55-3	U	5.3	ug/l
Seep Water - Benzo(a)anthracene	5.4	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	56-55-3	U	5.4	ug/l
Seep Water - Benzo(a)anthracene	5.1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.1	ug/l
Seep Water - Benzo(a)anthracene	5.4	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.4	ug/l
Seep Water - Benzo(a)anthracene	5.6	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.6	ug/l
Seep Water - Benzo(a)pyrene	5.6	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	U	5.6	ug/l
Seep Water - Benzo(a)pyrene	5.7	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	U	5.7	ug/l
Seep Water - Benzo(a)pyrene	5.4	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	UJ	5.4	ug/l
Seep Water - Benzo(a)pyrene	5.1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	U	5.1	ug/l
Seep Water - Benzo(a)pyrene	7	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	UJ	7	ug/l
Seep Water - Benzo(a)pyrene	5.6	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	U	5.6	ug/l
Seep Water - Benzo(a)pyrene	5.4	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	50-32-8	U	5.4	ug/l
Seep Water - Benzo(a)pyrene	5.3	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	50-32-8	U	5.3	ug/l
Seep Water - Benzo(b)fluoranthene	7	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	UJ	7	ug/l
Seep Water - Benzo(b)fluoranthene	5.6	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	U	5.6	ug/l
Seep Water - Benzo(b)fluoranthene	5.1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	U	5.1	ug/l
Seep Water - Benzo(b)fluoranthene	5.4	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	205-99-2	U	5.4	ug/l
Seep Water - Benzo(b)fluoranthene	5.7	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	U	5.7	ug/l
Seep Water - Benzo(b)fluoranthene	5.6	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	U	5.6	ug/l
Seep Water - Benzo(b)fluoranthene	5.3	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	205-99-2	U	5.3	ug/l
Seep Water - Benzo(b)fluoranthene	5.4	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	UJ	5.4	ug/l
Seep Water - Benzyl Butyl Phthalate	5.4	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	85-68-7	U	5.4	ug/l
Seep Water - Benzyl Butyl Phthalate	5.3	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	85-68-7	U	5.3	ug/l
Seep Water - Benzyl Butyl Phthalate	5.6	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.6	ug/l
Seep Water - Benzyl Butyl Phthalate	5.6	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	U	5.6	ug/l
Seep Water - Benzyl Butyl Phthalate	5.4	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.4	ug/l
Seep Water - Benzyl Butyl Phthalate	5.1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.1	ug/l
Seep Water - Benzyl Butyl Phthalate	5.7	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.7	ug/l
Seep Water - Benzyl Butyl Phthalate	7	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	7	ug/l
Seep Water - Biphenyl (diphenyl)	5.6	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	5.6	ug/l
Seep Water - Biphenyl (diphenyl)	5.4	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	5.4	ug/l
Seep Water - Biphenyl (diphenyl)	5.1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	5.1	ug/l
Seep Water - Biphenyl (diphenyl)	5.3	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	92-52-4	U	5.3	ug/l
Seep Water - Biphenyl (diphenyl)	7	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	7	ug/l
Seep Water - Biphenyl (diphenyl)	5.7	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	5.7	ug/l
Seep Water - Biphenyl (diphenyl)	5.4	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	92-52-4	U	5.4	ug/l
Seep Water - Biphenyl (diphenyl)	5.6	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	U	5.6	ug/l
Seep Water - Bis(2-ethylhexyl)phthalate	5.1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.1	ug/l
Seep Water - Bis(2-ethylhexyl)phthalate	5.6	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	U	5.6	ug/l
Seep Water - Bis(2-ethylhexyl)phthalate	5.4	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.4	ug/l
Seep Water - Bis(2-ethylhexyl)phthalate	5.7	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.7	ug/l
Seep Water - Bis(2-ethylhexyl)phthalate	7	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	7	ug/l
Seep Water - Bis(2-ethylhexyl)phthalate	5.3	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	117-81-7	U	5.3	ug/l
Seep Water - Bis(2-ethylhexyl)phthalate	5.6	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.6	ug/l
Seep Water - Bis(2-ethylhexyl)phthalate	5.4	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	117-81-7	U	5.4	ug/l
Seep Water - Di-n-octylphthalate	11	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Seep Water - Di-n-octylphthalate	11	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Seep Water - Di-n-octylphthalate	11	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Seep Water - Di-n-octylphthalate	11	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Seep Water - Di-n-octylphthalate	14	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	14	ug/l
Seep Water - Di-n-octylphthalate	11	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Seep Water - Di-n-octylphthalate	11	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Seep Water - Di-n-octylphthalate	10	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Seep Water - Naphthalene	5.3	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	91-20-3	U	5.3	ug/l
Seep Water - Naphthalene	5.4	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	91-20-3	U	5.4	ug/l
Seep Water - Naphthalene	5.6	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	5.6	ug/l
Seep Water - Naphthalene	5.7	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	5.7	ug/l
Seep Water - Naphthalene	5.1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	5.1	ug/l
Seep Water - Naphthalene	5.4	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	5.4	ug/l
Seep Water - Naphthalene	5.6	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	U	5.6	ug/l
Seep Water - Naphthalene	7	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	7	ug/l
Seep Water - Dibenzofuran	5.4	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	PEST	132-64-9	U	5.4	ug/l
Seep Water - Dibenzofuran	5.6	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.6	ug/l
Seep Water - Dibenzofuran	5.7	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.7	ug/l
Seep Water - Dibenzofuran	5.3	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	PEST	132-64-9	U	5.3	ug/l
Seep Water - Dibenzofuran	5.4	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.4	ug/l
Seep Water - Dibenzofuran	5.6	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	U	5.6	ug/l
Seep Water - Dibenzofuran	7	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	7	ug/l
Seep Water - Dibenzofuran	5.1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.1	ug/l
Seep Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Seep Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Seep Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Seep Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Seep Water - PCB-1248 (Aroclor 1248)	1	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Seep Water - PCB-1248 (Aroclor 1248)	1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Seep Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Seep Water - PCB-1248 (Aroclor 1248)	1	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Seep Water - PCB-1254 (Aroclor 1254)	1	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Seep Water - PCB-1254 (Aroclor 1254)	1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Seep Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Seep Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Seep Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Seep Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Seep Water - PCB-1254 (Aroclor 1254)	1	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Seep Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Seep Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Seep Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Seep Water - PCB-1260 (Aroclor 1260)	1	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Seep Water - PCB-1260 (Aroclor 1260)	1	0	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Seep Water - PCB-1260 (Aroclor 1260)	1	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Seep Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Seep Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Seep Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Seep Water - Carbon disulfide	0.5	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Seep Water - Carbon disulfide	0.5	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Seep Water - Carbon disulfide	0.28	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	OTHER	75-15-0	J	0.5	ug/l
Seep Water - Carbon disulfide	0.5	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Seep Water - Carbon disulfide	0.5	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Seep Water - Carbon disulfide	2.5	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	OTHER	75-15-0	U	2.5	ug/l
Seep Water - Carbon disulfide	0.5	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/23/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Seep Water - Carbon disulfide	0.5	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Seep Water - Aluminum	1180	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Seep Water - Aluminum	645	1	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7429-90-5	J	20	ug/l
Seep Water - Aluminum	21500	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Seep Water - Aluminum	527	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Seep Water - Aluminum	32600	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Seep Water - Aluminum	1020	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Seep Water - Aluminum	437	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Seep Water - Aluminum	1100	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Seep Water - Arsenic	35.8	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Seep Water - Arsenic	3.4	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Seep Water - Arsenic	0.93	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Seep Water - Arsenic	0.79	1	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	J	0.2	ug/l
Seep Water - Arsenic	0.93	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Seep Water - Arsenic	1.2	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Seep Water - Arsenic	0.87	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Seep Water - Arsenic	8.3	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Seep Water - Barium	39.6	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Seep Water - Barium	82.5	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Seep Water - Barium	70.6	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Seep Water - Barium	533	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3	J	10	ug/l
Seep Water - Barium	120	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Seep Water - Barium	28.2	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Seep Water - Barium	90.1	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Seep Water - Barium	225	1	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-39-3	J	10	ug/l
Seep Water - Beryllium	0.28	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Seep Water - Beryllium	1	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Seep Water - Beryllium	0.11	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Seep Water - Beryllium	0.16	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Seep Water - Beryllium	0.48	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Seep Water - Beryllium	2.4	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7		1	ug/l
Seep Water - Beryllium	0.34	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Seep Water - Beryllium	11.6	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7		1	ug/l
Seep Water - Cadmium	0.21	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Seep Water - Cadmium	0.28	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Seep Water - Cadmium	2.4	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9		1	ug/l
Seep Water - Cadmium	0.19	1	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Seep Water - Cadmium	0.2	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Seep Water - Cadmium	0.14	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Seep Water - Cadmium	10.2	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9		1	ug/l
Seep Water - Cadmium	0.065	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Seep Water - Chromium (Total)	5.2	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3		2	ug/l
Seep Water - Chromium (Total)	1.5	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Seep Water - Chromium (Total)	0.85	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Seep Water - Chromium (Total)	14.7	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3		2	ug/l
Seep Water - Chromium (Total)	40.3	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3		2	ug/l
Seep Water - Chromium (Total)	2	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Seep Water - Chromium (Total)	1	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Seep Water - Chromium (Total)	1.2	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Seep Water - Cobalt	0.94	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Seep Water - Cobalt	4.7	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Seep Water - Cobalt	2.5	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Seep Water - Cobalt	15.2	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Seep Water - Cobalt	0.75	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Seep Water - Cobalt	91.2	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Seep Water - Cobalt	6.3	1	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Seep Water - Cobalt	3.7	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Seep Water - Cyanide	10	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Seep Water - Cyanide	10	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Seep Water - Cyanide	10	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Seep Water - Cyanide	10.8	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5		10	ug/l
Seep Water - Cyanide	10	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Seep Water - Cyanide	10.8	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5		10	ug/l
Seep Water - Cyanide	10	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Seep Water - Cyanide	10	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Seep Water - Iron	2790	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Seep Water - Iron	6320	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Seep Water - Iron	496	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Seep Water - Iron	19500	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Seep Water - Iron	412	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Seep Water - Iron	610	1	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Seep Water - Iron	559	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Seep Water - Iron	362	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Seep Water - Lead	4.3	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1		1	ug/l
Seep Water - Lead	1.7	1	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7439-92-1		1	ug/l
Seep Water - Lead	66.8	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.8	T	INORGANIC	7439-92-1		1	ug/l
Seep Water - Lead	12.3	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1		1	ug/l
Seep Water - Lead	3	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1		1	ug/l
Seep Water - Lead	471	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Seep Water - Lead	8.2	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1		1	ug/l
Seep Water - Lead	3.4	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1		1	ug/l
Seep Water - Manganese	7470	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Seep Water - Manganese	387	1	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Seep Water - Manganese	964	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Seep Water - Manganese	84.8	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Seep Water - Manganese	916	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Seep Water - Manganese	1760	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Seep Water - Manganese	34.7	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Seep Water - Manganese	104	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Seep Water - Mercury	0.2	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Seep Water - Mercury	0.07	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	J	0.2	ug/l
Seep Water - Mercury	0.2	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Seep Water - Mercury	0.22	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6		0.2	ug/l
Seep Water - Mercury	1.2	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6		0.2	ug/l
Seep Water - Mercury	0.2	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Seep Water - Mercury	0.2	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Seep Water - Mercury	0.2	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Seep Water - Thallium	0.24	0	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Seep Water - Thallium	0.24	0	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/19/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Seep Water - Thallium	0.24	0	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Seep Water - Thallium	0.24	0	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Seep Water - Thallium	0.24	0	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Seep Water - Thallium	0.71	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	J	0.24	ug/l
Seep Water - Thallium	0.24	0	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Seep Water - Thallium	0.24	0	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Seep Water - Vanadium	1.1	1	SW-03	SW-03-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Seep Water - Vanadium	3.4	1	SW-06	SW-06-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Seep Water - Vanadium	1.7	1	SW-07	SW-07-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Seep Water - Vanadium	2.1	1	SW-01	SW-01-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Seep Water - Vanadium	31.9	1	SW-05	SW-05-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2		5	ug/l
Seep Water - Vanadium	106	1	SW-04	SW-04-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2		5	ug/l
Seep Water - Vanadium	0.84	1	SW-08	SW-08-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Seep Water - Vanadium	2.7	1	SW-02	SW-02-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Surface Water - 1,1,1-Trichloroethane	4.1	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	71-55-6		0.5	ug/l
Surface Water - 1,1,1-Trichloroethane	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Surface Water - 1,1,1-Trichloroethane	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Surface Water - 1,1,1-Trichloroethane	0.5	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	71-55-6		0.5	ug/l
Surface Water - 1,1,1-Trichloroethane	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Surface Water - 1,1,1-Trichloroethane	3.8	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	71-55-6		0.5	ug/l
Surface Water - 1,1,1-Trichloroethane	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Surface Water - 1,1,1-Trichloroethane	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Surface Water - 1,1-Dichloroethane	0.19	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-34-3	J	0.5	ug/l
Surface Water - 1,1-Dichloroethane	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Surface Water - 1,1-Dichloroethane	0.4	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-34-3	J	0.5	ug/l
Surface Water - 1,1-Dichloroethane	0.69	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-34-3		0.5	ug/l
Surface Water - 1,1-Dichloroethane	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Surface Water - 1,1-Dichloroethane	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Surface Water - 1,1-Dichloroethane	0.66	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-34-3		0.5	ug/l
Surface Water - 1,1-Dichloroethane	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Surface Water - 1,1-Dichloroethene	0.49	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-35-4	J	0.5	ug/l
Surface Water - 1,1-Dichloroethene	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Surface Water - 1,1-Dichloroethene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Surface Water - 1,1-Dichloroethene	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Surface Water - 1,1-Dichloroethene	0.46	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-35-4	J	0.5	ug/l
Surface Water - 1,1-Dichloroethene	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Surface Water - 1,1-Dichloroethene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Surface Water - 1,1-Dichloroethene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Surface Water - 1,2,3-Trichlorobenzene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Surface Water - 1,2,3-Trichlorobenzene	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Surface Water - 1,2,3-Trichlorobenzene	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Surface Water - 1,2,3-Trichlorobenzene	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Surface Water - 1,2,3-Trichlorobenzene	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Surface Water - 1,2,3-Trichlorobenzene	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Surface Water - 1,2,3-Trichlorobenzene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Surface Water - 1,2,3-Trichlorobenzene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Surface Water - 1,2,4-Trichlorobenzene	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Surface Water - 1,2,4-Trichlorobenzene	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Surface Water - 1,2,4-Trichlorobenzene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Surface Water - 1,2,4-Trichlorobenzene	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Surface Water - 1,2,4-Trichlorobenzene	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Surface Water - 1,2,4-Trichlorobenzene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Surface Water - 1,2,4-Trichlorobenzene	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Surface Water - 1,2,4-Trichlorobenzene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Surface Water - 1,2-Dichloroethane	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Surface Water - 1,2-Dichloroethane	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Surface Water - 1,2-Dichloroethane	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Surface Water - 1,2-Dichloroethane	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Surface Water - 1,2-Dichloroethane	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Surface Water - 1,2-Dichloroethane	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Surface Water - 1,2-Dichloroethane	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Surface Water - 1,2-Dichloroethane	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Surface Water - 1,4-Dichlorobenzene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Surface Water - 1,4-Dichlorobenzene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Surface Water - 1,4-Dichlorobenzene	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Surface Water - 1,4-Dichlorobenzene	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Surface Water - 1,4-Dichlorobenzene	1.5	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	106-46-7		0.5	ug/l
Surface Water - 1,4-Dichlorobenzene	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Surface Water - 1,4-Dichlorobenzene	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Surface Water - 1,4-Dichlorobenzene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Surface Water - 1,4-Dioxane	0.43	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	UJ	0.43	ug/l
Surface Water - 1,4-Dioxane	0.18	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	J	0.43	ug/l
Surface Water - 1,4-Dioxane	0.45	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	UJ	0.45	ug/l
Surface Water - 1,4-Dioxane	0.42	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	UJ	0.42	ug/l
Surface Water - 1,4-Dioxane	0.43	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	U	0.43	ug/l
Surface Water - 1,4-Dioxane	0.42	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E625	T	VOC	123-91-1	U	0.42	ug/l
Surface Water - 1,4-Dioxane	0.43	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	UJ	0.43	ug/l
Surface Water - 1,4-Dioxane	0.43	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E625	T	VOC	123-91-1	UJ	0.43	ug/l
Surface Water - Benzene	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Surface Water - Benzene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Surface Water - Benzene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Surface Water - Benzene	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Surface Water - Benzene	1.8	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Surface Water - Benzene	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Surface Water - Benzene	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Surface Water - Benzene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Surface Water - Chlorobenzene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Surface Water - Chlorobenzene	0.26	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-90-7	J	0.5	ug/l
Surface Water - Chlorobenzene	4.7	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-90-7		0.5	ug/l
Surface Water - Chlorobenzene	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Surface Water - Chlorobenzene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Surface Water - Chlorobenzene	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Surface Water - Chlorobenzene	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Surface Water - Chlorobenzene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.7	1	F5	SW-004-001	N	4/11/2012	0	0	ft	4/11/2012	VOCS	T	VOC	156-59-2		0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	61	1	D3	SW-016-001	N	4/12/2012	0	0	ft	4/12/2012	VOCS	T	VOC	156-59-2		25	ug/l

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Surface Water - cis-1,2-Dichloroethylene	0.11	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	156-59-2	J	0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.76	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.79	1	GSR-MID-2	SW-025-001	N	4/16/2012	0	0	ft	4/16/2012	VOCS	T	VOC	156-59-2		0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.5	0	A2	SW-021-001	N	4/13/2012	0	0.33	ft	4/13/2012	VOCS	T	VOC	156-59-2	U	0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.39	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	156-59-2	J	0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.51	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	1.9	1	E3	SW-010-001	N	4/12/2012	0	0.33	ft	4/12/2012	VOCS	T	VOC	156-59-2		0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.58	1	GSR-DST-2	SW-002-001	N	4/10/2012	0	0	ft	4/10/2012	VOCS	T	VOC	156-59-2		0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.67	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.97	1	C4	SW-009-001	N	4/12/2012	0	0	ft	4/12/2012	VOCS	T	VOC	156-59-2		0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.62	1	GSR-DST-3	SW-003-001	N	4/11/2012	0	0	ft	4/11/2012	VOCS	T	VOC	156-59-2		0.5	ug/l
Surface Water - cis-1,2-Dichloroethylene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Surface Water - Ethylbenzene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Surface Water - Ethylbenzene	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Surface Water - Ethylbenzene	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Surface Water - Ethylbenzene	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Surface Water - Ethylbenzene	0.91	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Surface Water - Ethylbenzene	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Surface Water - Ethylbenzene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Surface Water - Ethylbenzene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Surface Water - Methylcyclohexane	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Surface Water - Methylcyclohexane	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Surface Water - Methylcyclohexane	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Surface Water - Methylcyclohexane	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Surface Water - Methylcyclohexane	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Surface Water - Methylcyclohexane	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Surface Water - Methylcyclohexane	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Surface Water - Methylcyclohexane	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Surface Water - Methylene chloride	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Surface Water - Methylene chloride	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Surface Water - Methylene chloride	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Surface Water - Methylene chloride	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Surface Water - Methylene chloride	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Surface Water - Methylene chloride	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Surface Water - Methylene chloride	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Surface Water - Methylene chloride	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Surface Water - o-Xylene	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Surface Water - o-Xylene	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Surface Water - o-Xylene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Surface Water - o-Xylene	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Surface Water - o-Xylene	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Surface Water - o-Xylene	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Surface Water - o-Xylene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Surface Water - o-Xylene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Surface Water - Tetrachloroethylene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Surface Water - Tetrachloroethylene	2.4	1	GSR-DST-1	SW-001-001	N	4/9/2012	0	0	ft	4/9/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Surface Water - Tetrachloroethylene	0.5	0	A2	SW-021-001	N	4/13/2012	0	0.33	ft	4/13/2012	VOCS	T	VOC	127-18-4	U	0.5	ug/l
Surface Water - Tetrachloroethylene	18	1	E3	SW-010-001	N	4/12/2012	0	0.33	ft	4/12/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Surface Water - Tetrachloroethylene	3.1	1	GSR-DST-3	SW-003-001	N	4/11/2012	0	0	ft	4/11/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Surface Water - Tetrachloroethylene	6.2	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Surface Water - Tetrachloroethylene	3.1	1	GSR-DST-2	SW-002-001	N	4/10/2012	0	0	ft	4/10/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Surface Water - Tetrachloroethylene	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Surface Water - Tetrachloroethylene	490	1	D3	SW-016-001	N	4/12/2012	0	0	ft	4/12/2012	VOCS	T	VOC	127-18-4		25	ug/l
Surface Water - Tetrachloroethylene	2.8	1	C4	SW-009-001	N	4/12/2012	0	0	ft	4/12/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Surface Water - Tetrachloroethylene	0.69	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Surface Water - Tetrachloroethylene	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Surface Water - Tetrachloroethylene	3.4	1	F5	SW-004-001	N	4/11/2012	0	0	ft	4/11/2012	VOCS	T	VOC	127-18-4		0.5	ug/l
Surface Water - Tetrachloroethylene	5.5	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Surface Water - Tetrachloroethylene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Surface Water - Tetrachloroethylene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Surface Water - Trichloroethylene	0.15	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Surface Water - Trichloroethylene	0.5	0	A2	SW-021-001	N	4/13/2012	0	0.33	ft	4/13/2012	VOCS	T	VOC	79-01-6	U	0.5	ug/l
Surface Water - Trichloroethylene	0.77	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Surface Water - Trichloroethylene	0.82	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Surface Water - Trichloroethylene	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Surface Water - Trichloroethylene	2.7	1	E3	SW-010-001	N	4/12/2012	0	0.33	ft	4/12/2012	VOCS	T	VOC	79-01-6		0.5	ug/l
Surface Water - Trichloroethylene	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Surface Water - Trichloroethylene	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Surface Water - Trichloroethylene	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Surface Water - Trichloroethylene	62	1	D3	SW-016-001	N	4/12/2012	0	0	ft	4/12/2012	VOCS	T	VOC	79-01-6		25	ug/l
Surface Water - Trichloroethylene	0.59	1	C4	SW-009-001	N	4/12/2012	0	0	ft	4/12/2012	VOCS	T	VOC	79-01-6		0.5	ug/l
Surface Water - Trichloroethylene	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Surface Water - Vinyl chloride	0.052	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/13/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Surface Water - Vinyl chloride	0.018	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Surface Water - Vinyl chloride	0.061	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/13/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Surface Water - Vinyl chloride	0.014	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Surface Water - Vinyl chloride	0.05	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Surface Water - Vinyl chloride	0.33	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Surface Water - Vinyl chloride	0.062	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/13/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Surface Water - Vinyl chloride	0.014	1	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Surface Water - 2-Methylnaphthalene	5.4	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	91-57-6	U	5.4	ug/l
Surface Water - 2-Methylnaphthalene	5.6	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.6	ug/l
Surface Water - 2-Methylnaphthalene	5.3	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.3	ug/l
Surface Water - 2-Methylnaphthalene	5.7	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.7	ug/l
Surface Water - 2-Methylnaphthalene	5.7	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.7	ug/l
Surface Water - 2-Methylnaphthalene	5.1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	91-57-6	U	5.1	ug/l
Surface Water - 2-Methylnaphthalene	5.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-57-6	U	5.5	ug/l
Surface Water - 2-Methylnaphthalene	5.4	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.4	ug/l
Surface Water - 4-Chloroaniline	11	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Surface Water - 4-Chloroaniline	11	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Surface Water - 4-Chloroaniline	27	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8		11	ug/l
Surface Water - 4-Chloroaniline	11	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Surface Water - 4-Chloroaniline	11	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Surface Water - 4-Chloroaniline	11	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Surface Water - 4-Chloroaniline	10	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Surface Water - 4-Chloroaniline	11	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Surface Water - Benzo(a)anthracene	5.6	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.6	ug/l
Surface Water - Benzo(a)anthracene	5.1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	56-55-3	U	5.1	ug/l
Surface Water - Benzo(a)anthracene	5.4	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.4	ug/l
Surface Water - Benzo(a)anthracene	5.4	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	56-55-3	U	5.4	ug/l
Surface Water - Benzo(a)anthracene	5.3	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.3	ug/l
Surface Water - Benzo(a)anthracene	5.7	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.7	ug/l
Surface Water - Benzo(a)anthracene	5.7	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.7	ug/l
Surface Water - Benzo(a)anthracene	5.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	56-55-3	U	5.5	ug/l
Surface Water - Benzo(a)pyrene	5.4	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	U	5.4	ug/l
Surface Water - Benzo(a)pyrene	5.4	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	50-32-8	U	5.4	ug/l
Surface Water - Benzo(a)pyrene	5.6	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	U	5.6	ug/l
Surface Water - Benzo(a)pyrene	5.1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	50-32-8	U	5.1	ug/l
Surface Water - Benzo(a)pyrene	5.3	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	U	5.3	ug/l
Surface Water - Benzo(a)pyrene	5.7	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	U	5.7	ug/l
Surface Water - Benzo(a)pyrene	5.7	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	50-32-8	U	5.7	ug/l
Surface Water - Benzo(a)pyrene	5.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	50-32-8	U	5.5	ug/l
Surface Water - Benzo(b)fluoranthene	5.4	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	205-99-2	U	5.4	ug/l
Surface Water - Benzo(b)fluoranthene	5.6	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	U	5.6	ug/l
Surface Water - Benzo(b)fluoranthene	5.1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	205-99-2	U	5.1	ug/l
Surface Water - Benzo(b)fluoranthene	5.3	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	U	5.3	ug/l
Surface Water - Benzo(b)fluoranthene	5.7	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	U	5.7	ug/l
Surface Water - Benzo(b)fluoranthene	5.7	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	U	5.7	ug/l
Surface Water - Benzo(b)fluoranthene	5.4	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	205-99-2	U	5.4	ug/l
Surface Water - Benzo(b)fluoranthene	5.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	205-99-2	U	5.5	ug/l
Surface Water - Benzyl Butyl Phthalate	5.6	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.6	ug/l
Surface Water - Benzyl Butyl Phthalate	5.4	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	85-68-7	U	5.4	ug/l
Surface Water - Benzyl Butyl Phthalate	5.7	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.7	ug/l
Surface Water - Benzyl Butyl Phthalate	5.7	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.7	ug/l
Surface Water - Benzyl Butyl Phthalate	5.3	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.3	ug/l
Surface Water - Benzyl Butyl Phthalate	5.1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	85-68-7	U	5.1	ug/l
Surface Water - Benzyl Butyl Phthalate	5.4	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.4	ug/l
Surface Water - Benzyl Butyl Phthalate	5.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	85-68-7	U	5.5	ug/l
Surface Water - Biphenyl (diphenyl)	5.3	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	5.3	ug/l
Surface Water - Biphenyl (diphenyl)	5.7	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	5.7	ug/l
Surface Water - Biphenyl (diphenyl)	5.7	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	5.7	ug/l
Surface Water - Biphenyl (diphenyl)	5.1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	92-52-4	U	5.1	ug/l
Surface Water - Biphenyl (diphenyl)	5.6	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	5.6	ug/l
Surface Water - Biphenyl (diphenyl)	5.4	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	92-52-4	U	5.4	ug/l
Surface Water - Biphenyl (diphenyl)	5.4	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	92-52-4	U	5.4	ug/l
Surface Water - Biphenyl (diphenyl)	5.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	92-52-4	U	5.5	ug/l
Surface Water - Bis(2-ethylhexyl)phthalate	5.7	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.7	ug/l
Surface Water - Bis(2-ethylhexyl)phthalate	5.4	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	117-81-7	U	5.4	ug/l
Surface Water - Bis(2-ethylhexyl)phthalate	5.4	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.4	ug/l
Surface Water - Bis(2-ethylhexyl)phthalate	5.3	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.3	ug/l
Surface Water - Bis(2-ethylhexyl)phthalate	5.6	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.6	ug/l
Surface Water - Bis(2-ethylhexyl)phthalate	5.1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	117-81-7	U	5.1	ug/l
Surface Water - Bis(2-ethylhexyl)phthalate	5.7	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.7	ug/l
Surface Water - Bis(2-ethylhexyl)phthalate	5.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-81-7	U	5.5	ug/l
Surface Water - Di-n-octylphthalate	11	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Surface Water - Di-n-octylphthalate	10	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Surface Water - Di-n-octylphthalate	11	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Surface Water - Di-n-octylphthalate	11	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Surface Water - Di-n-octylphthalate	11	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Surface Water - Di-n-octylphthalate	11	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Surface Water - Di-n-octylphthalate	11	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Surface Water - Di-n-octylphthalate	11	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Surface Water - Naphthalene	5.7	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	5.7	ug/l
Surface Water - Naphthalene	5.6	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	5.6	ug/l
Surface Water - Naphthalene	5.7	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	5.7	ug/l
Surface Water - Naphthalene	5.3	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	5.3	ug/l
Surface Water - Naphthalene	5.4	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	91-20-3	U	5.4	ug/l
Surface Water - Naphthalene	5.1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	SVOC	91-20-3	U	5.1	ug/l
Surface Water - Naphthalene	5.4	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	SVOC	91-20-3	U	5.4	ug/l
Surface Water - Naphthalene	5.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	SVOC	91-20-3	U	5.5	ug/l
Surface Water - Dibenzofuran	5.6	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.6	ug/l
Surface Water - Dibenzofuran	5.4	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.4	ug/l
Surface Water - Dibenzofuran	5.3	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.3	ug/l
Surface Water - Dibenzofuran	5.7	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.7	ug/l
Surface Water - Dibenzofuran	5.4	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	PEST	132-64-9	U	5.4	ug/l
Surface Water - Dibenzofuran	5.1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/14/2016	E625	T	PEST	132-64-9	U	5.1	ug/l
Surface Water - Dibenzofuran	5.7	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.7	ug/l
Surface Water - Dibenzofuran	5.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E625	T	PEST	132-64-9	U	5.5	ug/l
Surface Water - PCB-1248 (Aroclor 1248)	1	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Surface Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Surface Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Surface Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Surface Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Surface Water - PCB-1248 (Aroclor 1248)	1.1	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Surface Water - PCB-1248 (Aroclor 1248)	1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Surface Water - PCB-1248 (Aroclor 1248)	1	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Surface Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Surface Water - PCB-1254 (Aroclor 1254)	1	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Surface Water - PCB-1254 (Aroclor 1254)	1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Surface Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Surface Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Surface Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Surface Water - PCB-1254 (Aroclor 1254)	1.1	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Surface Water - PCB-1254 (Aroclor 1254)	1	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Surface Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Surface Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Surface Water - PCB-1260 (Aroclor 1260)	1	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Surface Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Surface Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Surface Water - PCB-1260 (Aroclor 1260)	1	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Surface Water - PCB-1260 (Aroclor 1260)	1.1	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/15/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Surface Water - PCB-1260 (Aroclor 1260)	1	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/18/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Surface Water - Carbon disulfide	0.5	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Surface Water - Carbon disulfide	0.5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Surface Water - Carbon disulfide	0.5	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Surface Water - Carbon disulfide	0.5	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Surface Water - Carbon disulfide	0.5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Surface Water - Carbon disulfide	0.5	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/22/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Surface Water - Carbon disulfide	0.5	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Surface Water - Carbon disulfide	0.5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/24/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Surface Water - Aluminum	80.4	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Surface Water - Aluminum	233	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Surface Water - Aluminum	178	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Surface Water - Aluminum	41	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Surface Water - Aluminum	177	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Surface Water - Aluminum	59.1	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Surface Water - Aluminum	130	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Surface Water - Aluminum	22.5	1	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Surface Water - Arsenic	0.68	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Surface Water - Arsenic	0.55	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Surface Water - Arsenic	3.2	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Surface Water - Arsenic	0.44	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Surface Water - Arsenic	0.34	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Surface Water - Arsenic	0.62	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Surface Water - Arsenic	0.41	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Surface Water - Arsenic	0.2	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	U	0.2	ug/l
Surface Water - Barium	121	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Surface Water - Barium	111	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Surface Water - Barium	177	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Surface Water - Barium	124	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Surface Water - Barium	82.4	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Surface Water - Barium	118	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Surface Water - Barium	79.2	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Surface Water - Barium	92.8	1	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-39-3	J	10	ug/l
Surface Water - Beryllium	0.083	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Surface Water - Beryllium	0.14	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Surface Water - Beryllium	0.15	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Surface Water - Beryllium	0.14	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Surface Water - Beryllium	0.13	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Surface Water - Beryllium	0.15	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Surface Water - Beryllium	0.062	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Surface Water - Beryllium	1	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Surface Water - Cadmium	0.098	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Surface Water - Cadmium	0.098	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Surface Water - Cadmium	0.049	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Surface Water - Cadmium	0.19	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Surface Water - Cadmium	0.2	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Surface Water - Cadmium	0.13	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Surface Water - Cadmium	0.17	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Surface Water - Cadmium	0.1	1	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Surface Water - Chromium (Total)	0.27	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Surface Water - Chromium (Total)	0.85	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Surface Water - Chromium (Total)	0.48	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Surface Water - Chromium (Total)	0.22	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Surface Water - Chromium (Total)	0.41	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Surface Water - Chromium (Total)	0.39	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Surface Water - Chromium (Total)	0.61	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Surface Water - Chromium (Total)	2	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Surface Water - Cobalt	0.89	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Surface Water - Cobalt	0.81	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Surface Water - Cobalt	0.53	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Surface Water - Cobalt	0.71	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Surface Water - Cobalt	0.6	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Surface Water - Cobalt	1	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Surface Water - Cobalt	3.2	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Surface Water - Cobalt	1	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-48-4	U	1	ug/l
Surface Water - Cyanide	10	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Surface Water - Cyanide	10	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Surface Water - Cyanide	10	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Surface Water - Cyanide	10	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Surface Water - Cyanide	10	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Surface Water - Cyanide	10	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Surface Water - Cyanide	10	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Surface Water - Cyanide	10	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Surface Water - Iron	366	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Surface Water - Iron	550	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Surface Water - Iron	410	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Surface Water - Iron	1150	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Surface Water - Iron	870	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Surface Water - Iron	29500	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Surface Water - Iron	717	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Surface Water - Iron	305	1	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Surface Water - Lead	0.19	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Surface Water - Lead	0.23	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Surface Water - Lead	0.88	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Surface Water - Lead	0.68	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Surface Water - Lead	0.39	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Surface Water - Lead	1.2	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1		1	ug/l
Surface Water - Lead	0.97	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Surface Water - Lead	1	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Surface Water - Manganese	198	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Surface Water - Manganese	487	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Surface Water - Manganese	4630	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Surface Water - Manganese	396	1	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Surface Water - Manganese	425	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Surface Water - Manganese	218	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Surface Water - Manganese	366	1	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Surface Water - Manganese	206	1	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Surface Water - Mercury	0.2	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Surface Water - Mercury	0.2	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Surface Water - Mercury	0.2	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Surface Water - Mercury	0.2	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Surface Water - Mercury	0.2	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Surface Water - Mercury	0.2	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Surface Water - Mercury	0.2	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Surface Water - Mercury	0.2	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Surface Water - Thallium	0.24	0	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Surface Water - Thallium	0.24	0	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Surface Water - Thallium	0.24	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Surface Water - Thallium	0.24	0	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Surface Water - Thallium	0.24	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Surface Water - Thallium	0.24	0	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Surface Water - Thallium	0.24	0	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Surface Water - Thallium	0.24	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Surface Water - Vanadium	0.95	1	SW-12	SW-12-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Surface Water - Vanadium	5	0	SW-10	SW-10-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Surface Water - Vanadium	0.55	1	SW-09	SW-09-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Surface Water - Vanadium	0.33	1	SW-15	SW-15-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Surface Water - Vanadium	5	0	SW-11	SW-11-20160411	N	4/11/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Surface Water - Vanadium	0.61	1	SW-13	SW-13-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Surface Water - Vanadium	0.54	1	SW-14	SW-14-20160412	N	4/12/2016	0	0.5	ft	4/18/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Surface Water - Vanadium	5	0	SW-16	SW-16-20160413	N	4/13/2016	0	0.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1,1-Trichloroethane	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethane	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,1-Dichloroethene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.0067	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	87-61-6		0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,3-Trichlorobenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.14	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	120-82-1		0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.042	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	120-82-1		0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2,4-Trichlorobenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Surface Soil 0-2ft - 1,2-Dichloroethane	0.0065	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	107-06-2		0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.029	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	106-46-7		0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Surface Soil 0-2ft - 1,4-Dichlorobenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Surface Soil 0-2ft - 1,4-Dioxane	0.066	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.016	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-43-2	J+	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.052	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-43-2		0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Benzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.033	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-90-7		0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - Chlorobenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.17	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	156-59-2		0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.26	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	156-59-2		0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - cis-1,2-Dichloroethylene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.44	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	100-41-4		0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.61	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	100-41-4		0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Ethylbenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylcyclohexane	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.002	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-09-2	J	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - Methylene chloride	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.76	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	95-47-6		0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.79	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	95-47-6		0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - o-Xylene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.23	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	127-18-4		0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.03	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	127-18-4		0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Tetrachloroethylene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.096	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	79-01-6		0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.1	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	79-01-6		0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Trichloroethylene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-01-4	UJ	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-01-4	UJ	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-01-4	UJ	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-01-4	UJ	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - Vinyl chloride	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Surface Soil 0-2ft - 2-Methylnaphthalene	13	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	1.5	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.98	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	J+	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.15	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Surface Soil 0-2ft - 2-Methylnaphthalene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.96	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	106-47-8	J+	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - 4-Chloroaniline	0.33	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.091	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	J	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.16	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	J	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)anthracene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.098	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	J	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.14	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	J	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(a)pyrene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.096	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	J	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.14	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	J	0.17	mg/kg
Surface Soil 0-2ft - Benzo(b)fluoranthene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.49	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.24	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	31	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.75	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	60	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.11	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.4	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.06	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.34	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.54	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.075	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.65	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	16	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Surface Soil 0-2ft - Benzyl Butyl Phthalate	0.19	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.33	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4		0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	1.6	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4		0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.1	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	92-52-4	J	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.15	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	92-52-4	J	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Biphenyl (diphenyl)	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.66	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	1.4	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.29	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	1.5	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.26	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.59	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.45	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.13	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.55	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	37	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.79	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	9.9	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.77	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-81-7	U	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.37	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.82	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.2	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	16	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-81-7	U	0.17	mg/kg
Surface Soil 0-2ft - Bis(2-ethylhexyl)phthalate	19	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.15	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	J	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	1.3	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	117-84-0		0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	2.4	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-84-0		0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	0.33	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	3.8	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0	J	0.33	mg/kg
Surface Soil 0-2ft - Di-n-octylphthalate	1.6	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0		0.33	mg/kg
Surface Soil 0-2ft - Naphthalene	16	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3		0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	1	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-20-3		0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	3.9	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3	J+	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Naphthalene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.09	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	PEST	132-64-9	J	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.37	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9		0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Surface Soil 0-2ft - Dibenzofuran	1.4	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9		0.17	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.033	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.18	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6		0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	1.5	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/22/2016	E608	T	PCB	12672-29-6	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.033	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.033	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.15	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.14	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/22/2016	E608	T	PCB	12672-29-6	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.033	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	2.3	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	1.1	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.24	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.033	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	1	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.033	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.63	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.19	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	NJ	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.29	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6		0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.26	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	2.5	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	NJ	0.033	mg/kg
Surface Soil 0-2ft - PCB-1248 (Aroclor 1248)	0.56	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6		0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/22/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.15	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	J+	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.042	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	NJ	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.032	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	NJ	0.033	mg/kg
Surface Soil 0-2ft - PCB-1254 (Aroclor 1254)	0.033	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.033	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.033	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.13	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.033	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.033	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.033	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.057	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.033	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.15	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.033	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.033	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.021	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/22/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.086	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.078	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.0094	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.11	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.16	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5		0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.022	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.097	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Surface Soil 0-2ft - PCB-1260 (Aroclor 1260)	0.033	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Carbon disulfide	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Surface Soil 0-2ft - Arsenic	2.7	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	3.5	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	4.3	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	1.8	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.3	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.7	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.3	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	1.2	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.4	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	1.8	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.7	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.3	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.3	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.1	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.6	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.1	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	3	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.4	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	1.7	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Arsenic	2.4	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Surface Soil 0-2ft - Barium	31.8	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	49.6	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	37.4	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	70.1	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	49.2	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	70	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	44.1	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	92.3	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	48.9	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	198	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	45.9	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	44.4	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	52.8	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	49.8	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	56	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	94.2	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	55.3	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	44.5	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	82.5	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Barium	46.3	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.3	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.29	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.29	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.23	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.36	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.5	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Surface Soil 0-2ft - Beryllium	0.21	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.14	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.13	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.56	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Surface Soil 0-2ft - Cadmium	1.5	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.41	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.5	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.34	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.3	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.5	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.5	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.44	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.5	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.34	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.47	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.2	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	1.2	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.59	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.5	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.12	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Surface Soil 0-2ft - Cadmium	0.048	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Surface Soil 0-2ft - Chromium (Total)	10.3	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	5.8	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	8.6	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	15.3	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	11.8	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	9.6	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	14.7	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	9.6	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	13.8	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	18.2	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	17.9	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	9.9	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	10.7	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	10.6	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	8.5	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	21.3	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	9	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	15.5	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	10.7	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Chromium (Total)	12.1	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Surface Soil 0-2ft - Cobalt	2	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.3	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.8	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.6	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.9	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.5	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.8	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	3	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.7	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.9	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	3.1	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.8	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	4.3	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.2	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.7	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	5.6	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	3.3	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	4.7	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.7	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cobalt	2.2	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	0.97	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E335.2	T	INORGANIC	57-12-5		10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/18/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/18/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Cyanide	10	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Surface Soil 0-2ft - Lead	9.1	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	12.2	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	8.2	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	6.2	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	7.5	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	9	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	15.3	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	12.2	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	31	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	8.7	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	8.8	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Surface Soil 0-2ft - Lead	8.9	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	4.5	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	7	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	10.6	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	24	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	7.6	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	9.6	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	6.7	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Lead	8.1	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Surface Soil 0-2ft - Manganese	35.2	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	53.4	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	43.9	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	72.1	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	48.8	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	26.3	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	30.6	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	52.7	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	56	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	72.4	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	33	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	44.8	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	67.5	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	90.8	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	113	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	67.9	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	83.5	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	63.9	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	68.8	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Manganese	47.7	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Surface Soil 0-2ft - Mercury	0.046	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.055	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.071	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.075	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.063	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.071	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.091	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.083	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.14	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/18/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.12	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.025	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	U	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.047	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.056	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.25	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.14	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.029	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.42	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.062	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/18/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.12	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Surface Soil 0-2ft - Mercury	0.056	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.031	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	J	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.031	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	J	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.04	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	J	0.5	mg/kg
Surface Soil 0-2ft - Thallium	0.5	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Surface Soil 0-2ft - Vanadium	12.1	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	14.4	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	14.5	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	12.3	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	12.5	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	16.8	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	11.2	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	12.9	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	10.8	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	15.7	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	16.2	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	14.1	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	16	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	23.5	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	14.3	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	10.2	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	16.6	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	15.9	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Surface Soil 0-2ft - Vanadium	14.9	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	19.8	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.0067	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	87-61-6		0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.14	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	120-82-1		0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.042	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	120-82-1		0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.0065	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	107-06-2		0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.029	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	106-46-7		0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.
The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	VOC	123-91-1	U	0.066	mg/kg
Soil 0-10ft - 1,4-Dioxane	0.066	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	VOC	123-91-1	UJ	0.066	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.016	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-43-2	J+	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.052	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-43-2		0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.033	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-90-7		0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.17	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	156-59-2		0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.26	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	156-59-2		0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.44	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	100-41-4		0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.61	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	100-41-4		0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.002	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-09-2	J	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.76	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	95-47-6		0.005	mg/kg
Soil 0-10ft - o-Xylene	0.79	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	95-47-6		0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.23	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E624	T	VOC	127-18-4		0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.03	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	127-18-4		0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.096	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	79-01-6		0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.1	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	79-01-6		0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-01-4	UJ	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-01-4	UJ	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-01-4	UJ	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	VOC	75-01-4	UJ	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	13	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	1.5	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.98	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	J+	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.15	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-57-6	U	0.17	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.96	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	106-47-8	J+	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.33	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	106-47-8	U	0.33	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.091	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	J	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.16	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	J	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	56-55-3	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.098	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	J	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.14	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	J	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	50-32-8	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.096	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	J	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.14	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	205-99-2	J	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	205-99-2	U	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.49	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.24	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	31	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.75	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	60	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.11	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.4	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.06	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.34	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.54	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.075	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.65	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	85-68-7	U	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	16	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.19	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	85-68-7		0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.33	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4		0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	1.6	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4		0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.1	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	92-52-4	J	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.15	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	92-52-4	J	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	92-52-4	U	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.66	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	1.4	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.29	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	1.5	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.26	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.59	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.45	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.13	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.55	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	37	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.79	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	9.9	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.77	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-81-7	U	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.37	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.82	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.2	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	16	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-81-7	U	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	19	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-81-7		0.17	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.15	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	J	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	1.3	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	117-84-0		0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	2.4	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	117-84-0		0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.33	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	117-84-0	U	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	3.8	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0	J	0.33	mg/kg
Soil 0-10ft - Di-n-octylphthalate	1.6	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	117-84-0		0.33	mg/kg
Soil 0-10ft - Naphthalene	16	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3		0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	1	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-20-3		0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	3.9	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	SVOC	91-20-3	J+	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	SVOC	91-20-3	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.09	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	PEST	132-64-9	J	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/31/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/31/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.37	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9		0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/18/2016	E625	T	PEST	132-64-9	U	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	1.4	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/17/2016	E625	T	PEST	132-64-9		0.17	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.033	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.18	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6		0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	1.5	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/22/2016	E608	T	PCB	12672-29-6	J	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.033	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.033	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.15	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.14	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/22/2016	E608	T	PCB	12672-29-6	J	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.033	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	2.3	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	J	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	1.1	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.24	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.033	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	1	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	J	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.033	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	U	0.033	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.
The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.63	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.19	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	NJ	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.29	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6		0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.26	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6	J+	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	2.5	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/20/2016	E608	T	PCB	12672-29-6	NJ	0.033	mg/kg
Soil 0-10ft - PCB-1248 (Aroclor 1248)	0.56	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	12672-29-6		0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/22/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.15	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	J+	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.042	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11097-69-1	NJ	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.032	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	NJ	0.033	mg/kg
Soil 0-10ft - PCB-1254 (Aroclor 1254)	0.033	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11097-69-1	U	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.033	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.033	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.13	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.033	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.033	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.033	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.057	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.033	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.15	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.033	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.033	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.021	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/22/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.086	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.078	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.0094	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.11	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	NJ	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.16	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5		0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.022	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/19/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.097	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	J	0.033	mg/kg
Soil 0-10ft - PCB-1260 (Aroclor 1260)	0.033	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/21/2016	E608	T	PCB	11096-82-5	U	0.033	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/19/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/17/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/16/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/18/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/10/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/17/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/9/2016	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Arsenic	2.7	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	3.5	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	4.3	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	1.8	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.3	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.7	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.3	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	1.2	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.4	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	1.8	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.7	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.3	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.3	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.1	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.6	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.1	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	3	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.4	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	1.7	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Arsenic	2.4	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-38-2		0.5	mg/kg
Soil 0-10ft - Barium	31.8	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	49.6	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	37.4	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	70.1	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	49.2	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	70	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	44.1	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	92.3	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	48.9	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	198	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	45.9	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	44.4	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	52.8	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	49.8	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	56	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	94.2	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	55.3	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	44.5	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	82.5	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Barium	46.3	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-39-3		5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.3	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Soil 0-10ft - Beryllium	0.29	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.29	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.23	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.36	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.5	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-41-7	U	0.5	mg/kg
Soil 0-10ft - Beryllium	0.21	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-41-7	J	0.5	mg/kg
Soil 0-10ft - Cadmium	0.14	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Soil 0-10ft - Cadmium	0.13	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Soil 0-10ft - Cadmium	0.56	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Soil 0-10ft - Cadmium	1.5	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Soil 0-10ft - Cadmium	0.41	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Soil 0-10ft - Cadmium	0.5	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Soil 0-10ft - Cadmium	0.34	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Soil 0-10ft - Cadmium	0.3	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Soil 0-10ft - Cadmium	0.5	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Soil 0-10ft - Cadmium	0.5	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Soil 0-10ft - Cadmium	0.44	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Soil 0-10ft - Cadmium	0.5	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Soil 0-10ft - Cadmium	0.34	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Soil 0-10ft - Cadmium	0.47	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Soil 0-10ft - Cadmium	0.2	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Soil 0-10ft - Cadmium	1.2	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Soil 0-10ft - Cadmium	0.59	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-43-9		0.5	mg/kg
Soil 0-10ft - Cadmium	0.5	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-43-9	U	0.5	mg/kg
Soil 0-10ft - Cadmium	0.12	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Soil 0-10ft - Cadmium	0.048	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-43-9	J	0.5	mg/kg
Soil 0-10ft - Chromium (Total)	10.3	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	5.8	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	8.6	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	15.3	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	11.8	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	9.6	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	14.7	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	9.6	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	13.8	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	18.2	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	17.9	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	9.9	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	10.7	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	10.6	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	8.5	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	21.3	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	9	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	15.5	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	10.7	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Chromium (Total)	12.1	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-47-3		1	mg/kg
Soil 0-10ft - Cobalt	2	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.3	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.8	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.6	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.9	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.5	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.8	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	3	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.7	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.9	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	3.1	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.8	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	4.3	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.2	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.7	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	5.6	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	3.3	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	4.7	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.7	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cobalt	2.2	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-48-4		0.5	mg/kg
Soil 0-10ft - Cyanide	10	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	0.97	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E335.2	T	INORGANIC	57-12-5		10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/18/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/18/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Cyanide	10	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/16/2016	E335.2	T	INORGANIC	57-12-5	U	10	mg/kg
Soil 0-10ft - Lead	9.1	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	12.2	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	8.2	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	6.2	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	7.5	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	9	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	15.3	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	12.2	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	31	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	8.7	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	8.8	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	8.9	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	4.5	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	7	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	10.6	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.
The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Soil 0-10ft - Lead	24	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	7.6	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	9.6	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	6.7	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Lead	8.1	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-92-1		0.5	mg/kg
Soil 0-10ft - Manganese	35.2	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	53.4	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	43.9	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	72.1	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	48.8	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	26.3	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	30.6	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	52.7	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	56	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	72.4	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	33	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	44.8	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	67.5	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	90.8	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	113	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	67.9	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	83.5	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	63.9	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	68.8	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Manganese	47.7	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7439-96-5		0.5	mg/kg
Soil 0-10ft - Mercury	0.046	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.055	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.071	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.075	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.063	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.071	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.091	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/18/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.083	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.14	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/18/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Soil 0-10ft - Mercury	0.12	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Soil 0-10ft - Mercury	0.025	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	U	0.025	mg/kg
Soil 0-10ft - Mercury	0.047	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.056	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.25	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Soil 0-10ft - Mercury	0.14	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Soil 0-10ft - Mercury	0.029	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.42	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Soil 0-10ft - Mercury	0.062	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/18/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Mercury	0.12	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6		0.025	mg/kg
Soil 0-10ft - Mercury	0.056	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E245.5	T	INORGANIC	7439-97-6	J	0.025	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.031	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	J	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Thallium	0.031	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	J	0.5	mg/kg
Soil 0-10ft - Thallium	0.04	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	J	0.5	mg/kg
Soil 0-10ft - Thallium	0.5	0	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.5	mg/kg
Soil 0-10ft - Vanadium	12.1	1	B-11	B-11_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	14.4	1	B-14	B-14_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	14.5	1	B-10	B-10_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	12.3	1	B-07	B-07_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	12.5	1	B-12	B-12_00_02	N	3/9/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	16.8	1	B-04	B-04_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	11.2	1	B-03	B-03_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	12.9	1	B-01	B-01_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	10.8	1	B-08	B-08_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	15.7	1	B-18	B-18_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	16.2	1	B-16	B-16_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	14.1	1	B-06	B-06_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	16	1	B-13	B-13_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	23.5	1	B-02	B-02_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	14.3	1	B-05	B-05_00_02	N	3/7/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	10.2	1	B-09	B-09_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	16.6	1	B-15	B-15_00_02	N	3/9/2016	0	2	ft	3/29/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	15.9	1	B-19	B-19_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	14.9	1	B-17	B-17_00_02	N	3/8/2016	0	2	ft	3/10/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - Vanadium	19.8	1	B-20	B-20_00_02	N	3/8/2016	0	2	ft	3/11/2016	E200.8	T	INORGANIC	7440-62-2		2.5	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	71-55-6	U	0.25	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	71-55-6	U	0.005	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	71-55-6	U	0.25	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	71-55-6	U	0.25	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	71-55-6	U	0.25	mg/kg
Soil 0-10ft - 1,1,1-Trichloroethane	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	71-55-6	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	75-34-3	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	75-34-3	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	75-34-3	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	75-34-3	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	75-34-3	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethane	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	75-34-3	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	75-35-4	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	75-35-4	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	75-35-4	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	75-35-4	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	75-35-4	U	0.25	mg/kg
Soil 0-10ft - 1,1-Dichloroethene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	75-35-4	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	87-61-6	U	0.25	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	87-61-6	U	0.25	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	87-61-6	U	0.25	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	2.6	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	87-61-6	J	0.25	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	87-61-6	U	0.005	mg/kg
Soil 0-10ft - 1,2,3-Trichlorobenzene	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	87-61-6	U	0.25	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.8	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	120-82-1	J	0.25	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	120-82-1	U	0.25	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	120-82-1	U	0.25	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	120-82-1	U	0.25	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	120-82-1	U	0.005	mg/kg
Soil 0-10ft - 1,2,4-Trichlorobenzene	3.1	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	120-82-1		0.25	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	107-06-2	U	0.25	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	107-06-2	U	0.25	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	107-06-2	U	0.25	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	107-06-2	U	0.25	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	107-06-2	U	0.005	mg/kg
Soil 0-10ft - 1,2-Dichloroethane	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	107-06-2	U	0.25	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	106-46-7	U	0.25	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	106-46-7	U	0.25	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	106-46-7	U	0.005	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	106-46-7	U	0.25	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	106-46-7	U	0.25	mg/kg
Soil 0-10ft - 1,4-Dichlorobenzene	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	106-46-7	U	0.25	mg/kg
Soil 0-10ft - Benzene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	71-43-2	U	0.005	mg/kg
Soil 0-10ft - Benzene	0.52	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	71-43-2	J	0.25	mg/kg
Soil 0-10ft - Benzene	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	71-43-2	U	0.25	mg/kg
Soil 0-10ft - Benzene	1.2	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	71-43-2		0.25	mg/kg
Soil 0-10ft - Benzene	0.22	1	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	71-43-2	J	0.25	mg/kg
Soil 0-10ft - Benzene	3.5	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	71-43-2		0.25	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - Chlorobenzene	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	108-90-7	U	0.25	mg/kg
Soil 0-10ft - Chlorobenzene	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	108-90-7	U	0.25	mg/kg
Soil 0-10ft - Chlorobenzene	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	108-90-7	U	0.25	mg/kg
Soil 0-10ft - Chlorobenzene	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	108-90-7	U	0.25	mg/kg
Soil 0-10ft - Chlorobenzene	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	108-90-7	U	0.25	mg/kg
Soil 0-10ft - Chlorobenzene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	108-90-7	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	156-59-2	U	0.25	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	156-59-2	U	0.25	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	156-59-2	U	0.25	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	156-59-2	U	0.005	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	156-59-2	U	0.25	mg/kg
Soil 0-10ft - cis-1,2-Dichloroethylene	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	156-59-2	U	0.25	mg/kg
Soil 0-10ft - Ethylbenzene	0.16	1	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	100-41-4	J	0.25	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Ethylbenzene	4.7	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	100-41-4		0.25	mg/kg
Soil 0-10ft - Ethylbenzene	16	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	100-41-4		0.25	mg/kg
Soil 0-10ft - Ethylbenzene	0.37	1	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	100-41-4		0.25	mg/kg
Soil 0-10ft - Ethylbenzene	5.4	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	100-41-4		0.25	mg/kg
Soil 0-10ft - Ethylbenzene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	100-41-4	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	108-87-2	U	0.25	mg/kg
Soil 0-10ft - Methylcyclohexane	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	108-87-2	U	0.005	mg/kg
Soil 0-10ft - Methylcyclohexane	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	108-87-2	U	0.25	mg/kg
Soil 0-10ft - Methylcyclohexane	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	108-87-2	U	0.25	mg/kg
Soil 0-10ft - Methylcyclohexane	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	108-87-2	U	0.25	mg/kg
Soil 0-10ft - Methylcyclohexane	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	108-87-2	U	0.25	mg/kg
Soil 0-10ft - Methylene chloride	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	75-09-2	U	0.25	mg/kg
Soil 0-10ft - Methylene chloride	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	75-09-2	U	0.25	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	3.7	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	75-09-2		0.25	mg/kg
Soil 0-10ft - Methylene chloride	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	75-09-2	U	0.005	mg/kg
Soil 0-10ft - Methylene chloride	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	75-09-2	U	0.25	mg/kg
Soil 0-10ft - Methylene chloride	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	75-09-2	U	0.25	mg/kg
Soil 0-10ft - o-Xylene	4.9	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	95-47-6		0.25	mg/kg
Soil 0-10ft - o-Xylene	5.7	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	95-47-6		0.25	mg/kg
Soil 0-10ft - o-Xylene	0.19	1	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	95-47-6	J	0.25	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	0.4	1	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	95-47-6		0.25	mg/kg
Soil 0-10ft - o-Xylene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	95-47-6	U	0.005	mg/kg
Soil 0-10ft - o-Xylene	18	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	95-47-6		0.25	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	127-18-4	U	0.25	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	127-18-4	U	0.005	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.95	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	127-18-4	J	0.25	mg/kg
Soil 0-10ft - Tetrachloroethylene	1.9	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	127-18-4	J	0.25	mg/kg
Soil 0-10ft - Tetrachloroethylene	3	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	127-18-4		0.25	mg/kg
Soil 0-10ft - Tetrachloroethylene	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	127-18-4	U	0.25	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	79-01-6	U	0.25	mg/kg
Soil 0-10ft - Trichloroethylene	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	79-01-6	U	0.25	mg/kg
Soil 0-10ft - Trichloroethylene	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	79-01-6	U	0.25	mg/kg
Soil 0-10ft - Trichloroethylene	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	79-01-6	U	0.25	mg/kg
Soil 0-10ft - Trichloroethylene	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	79-01-6	U	0.005	mg/kg
Soil 0-10ft - Trichloroethylene	33	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	79-01-6		0.25	mg/kg
Soil 0-10ft - Vinyl chloride	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	75-01-4	U	0.25	mg/kg
Soil 0-10ft - Vinyl chloride	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	VOC	75-01-4	U	0.25	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	VOC	75-01-4	U	0.25	mg/kg
Soil 0-10ft - Vinyl chloride	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	VOC	75-01-4	U	0.25	mg/kg
Soil 0-10ft - Vinyl chloride	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	VOC	75-01-4	U	0.005	mg/kg
Soil 0-10ft - Vinyl chloride	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	VOC	75-01-4	U	0.25	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	91-57-6	UJ	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	70	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	160	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	410	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	1.1	1	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/13/2014	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.65	1	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Soil 0-10ft - 2-Methylnaphthalene	0.9	1	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	91-57-6	J	0.17	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.17	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/13/2014	E625	T	SVOC	106-47-8	UJ	0.17	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.17	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	106-47-8	UJ	0.17	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.17	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	106-47-8	UJ	0.17	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	106-47-8	UJ	0.17	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.17	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	106-47-8	UJ	0.17	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.17	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/13/2014	E625	T	SVOC	106-47-8	UJ	0.17	mg/kg
Soil 0-10ft - 4-Chloroaniline	0.17	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	106-47-8	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	56-55-3	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	56-55-3	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/13/2014	E625	T	SVOC	56-55-3	UJ	0.17	mg/kg

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Soil 0-10ft - Benzo(a)anthracene	0.17	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	56-55-3	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/13/2014	E625	T	SVOC	56-55-3	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	56-55-3	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)anthracene	0.17	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	56-55-3	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/13/2014	E625	T	SVOC	50-32-8	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	50-32-8	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	50-32-8	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	50-32-8	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	50-32-8	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	50-32-8	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(a)pyrene	0.17	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/13/2014	E625	T	SVOC	50-32-8	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	205-99-2	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	205-99-2	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	205-99-2	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/13/2014	E625	T	SVOC	205-99-2	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	205-99-2	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/13/2014	E625	T	SVOC	205-99-2	UJ	0.17	mg/kg
Soil 0-10ft - Benzo(b)fluoranthene	0.17	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	205-99-2	UJ	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	490	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.13	1	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	2.5	1	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	3	1	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	0.55	1	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	670	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Benzyl Butyl Phthalate	150	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E625	T	SVOC	85-68-7	J	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/13/2014	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	37	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	92-52-4	J	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	92-52-4	UJ	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	0.13	1	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	92-52-4	J	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	8.3	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	92-52-4	J	0.17	mg/kg
Soil 0-10ft - Biphenyl (diphenyl)	26	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E625	T	SVOC	92-52-4	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	15	1	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	1.7	1	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	420	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.39	1	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	590	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	170	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E625	T	SVOC	117-81-7	J	0.17	mg/kg
Soil 0-10ft - Bis(2-ethylhexyl)phthalate	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	117-81-7	UJ	0.17	mg/kg
Soil 0-10ft - Di-n-octylphthalate	33	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	117-84-0	J	0.17	mg/kg
Soil 0-10ft - Di-n-octylphthalate	19	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E625	T	SVOC	117-84-0	J	0.17	mg/kg
Soil 0-10ft - Di-n-octylphthalate	1.1	1	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/13/2014	E625	T	SVOC	117-84-0	J	0.17	mg/kg
Soil 0-10ft - Di-n-octylphthalate	120	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	117-84-0	J	0.17	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.13	1	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	117-84-0	J	0.17	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	117-84-0	UJ	0.17	mg/kg
Soil 0-10ft - Di-n-octylphthalate	0.059	1	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	117-84-0	J	0.17	mg/kg
Soil 0-10ft - Naphthalene	420	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	SVOC	91-20-3	J	0.17	mg/kg
Soil 0-10ft - Naphthalene	1.9	1	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/13/2014	E625	T	SVOC	91-20-3	J	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.61	1	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	SVOC	91-20-3	J	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	SVOC	91-20-3	UJ	0.17	mg/kg
Soil 0-10ft - Naphthalene	83	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	SVOC	91-20-3	J	0.17	mg/kg
Soil 0-10ft - Naphthalene	51	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E625	T	SVOC	91-20-3	J	0.17	mg/kg
Soil 0-10ft - Naphthalene	0.42	1	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	SVOC	91-20-3	J	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	13	1	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E625	T	PEST	132-64-9	J	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.088	1	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/14/2014	E625	T	PEST	132-64-9	J	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E625	T	PEST	132-64-9	UJ	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	5.9	1	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E625	T	PEST	132-64-9	J	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	23	1	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E625	T	PEST	132-64-9	J	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.17	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/14/2014	E625	T	PEST	132-64-9	UJ	0.17	mg/kg
Soil 0-10ft - Dibenzofuran	0.093	1	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/13/2014	E625	T	PEST	132-64-9	J	0.17	mg/kg
Soil 0-10ft - Carbon disulfide	0.25	0	ERT-SB-04	ERT-SB-04-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	OTHER	75-15-0	UJ	0.25	mg/kg
Soil 0-10ft - Carbon disulfide	0.25	0	ERT-SB-05	ERT-SB-05-5	N	8/8/2014	5	5	ft	8/14/2014	E624	T	OTHER	75-15-0	U	0.25	mg/kg
Soil 0-10ft - Carbon disulfide	0.25	0	ERT-SB-04	ERT-SB-04-6	N	8/7/2014	6	6	ft	8/14/2014	E624	T	OTHER	75-15-0	U	0.25	mg/kg
Soil 0-10ft - Carbon disulfide	0.25	0	ERT-SB-03	ERT-SB-03-10	N	8/7/2014	10	10	ft	8/14/2014	E624	T	OTHER	75-15-0	U	0.25	mg/kg
Soil 0-10ft - Carbon disulfide	0.25	0	ERT-SB-05	ERT-SB-05-10	N	8/8/2014	10	10	ft	8/14/2014	E624	T	OTHER	75-15-0	U	0.25	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	ERT-SB-01	ERT-SB-01-8	N	8/7/2014	8	8	ft	8/12/2014	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Soil 0-10ft - Carbon disulfide	0.005	0	ERT-SB-01	ERT-SB-01-4	N	8/7/2014	4	4	ft	8/12/2014	E624	T	OTHER	75-15-0	U	0.005	mg/kg
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.3	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	71-55-6	J	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	6.2	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	71-55-6		0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	2.5	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	71-55-6	U	2.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	71-55-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	71-55-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	71-55-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	71-55-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	71-55-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	71-55-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	71-55-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	71-55-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	15	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	71-55-6		10	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	71-55-6	U	50	ug/l
Site-wide Groundwater - 1,1,1-Trichloroethane	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	71-55-6	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	3.4	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	75-34-3		2.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	2.5	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	75-34-3		0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	2.1	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	75-34-3	J	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	75-34-3	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	75-34-3	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	75-34-3	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	3.6	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	75-34-3		0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	75-34-3	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	75-34-3	U	10	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	75-34-3	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	2.6	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	75-34-3		0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	1.7	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	75-34-3		0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	75-34-3	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	75-34-3	U	50	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	1.8	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	75-34-3		0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	1.5	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	75-34-3	J	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	75-34-3	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	75-34-3	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethane	0.79	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	75-34-3		0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.23	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	75-35-4	J	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	2.5	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	75-35-4	U	2.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.29	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	75-35-4	J	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	75-35-4	U	50	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	75-35-4	UJ	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	75-35-4	U	10	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,1-Dichloroethene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	75-35-4	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.37	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	87-61-6	J	2.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	87-61-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	87-61-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	87-61-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	3.2	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	87-61-6		0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	87-61-6	UJ	0.5	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	87-61-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	87-61-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	87-61-6	U	50	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	3.5	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	87-61-6		0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	87-61-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	87-61-6	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	87-61-6	U	10	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,3-Trichlorobenzene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	87-61-6	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.6	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	120-82-1		0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.64	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	120-82-1		2.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	120-82-1	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	120-82-1	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	120-82-1	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.38	1	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	120-82-1	J	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	8.9	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	120-82-1		0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	120-82-1	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	9.9	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	120-82-1		0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	120-82-1	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.39	1	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	120-82-1	J	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.29	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	120-82-1	J	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	120-82-1	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	120-82-1	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	120-82-1	U	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	120-82-1	U	10	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	120-82-1	UJ	0.5	ug/l
Site-wide Groundwater - 1,2,4-Trichlorobenzene	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	120-82-1	U	50	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	2.5	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	107-06-2	U	2.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	107-06-2	UJ	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	107-06-2	UJ	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	107-06-2	UJ	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	7.6	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	107-06-2		0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.34	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	107-06-2	J	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	107-06-2	UJ	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	107-06-2	U	50	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	107-06-2	U	10	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.87	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	107-06-2		0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	107-06-2	UJ	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	107-06-2	UJ	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	107-06-2	UJ	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	1.1	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	107-06-2		0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,2-Dichloroethane	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	107-06-2	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	6.2	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	106-46-7		2.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	3.7	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	106-46-7		0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.2	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	106-46-7	J	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	106-46-7	UJ	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	106-46-7	UJ	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.31	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	106-46-7	J	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	1.4	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	106-46-7	J+	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	3.4	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	106-46-7		0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	106-46-7	U	10	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	106-46-7	U	50	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	106-46-7	UJ	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.15	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	106-46-7	J	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	2.6	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	106-46-7		0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	106-46-7	UJ	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.52	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	106-46-7		0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	106-46-7	UJ	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	106-46-7	UJ	0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.54	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	106-46-7		0.5	ug/l
Site-wide Groundwater - 1,4-Dichlorobenzene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	106-46-7	U	0.5	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E625	T	VOC	123-91-1	UJ	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	1.2	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E625	T	VOC	123-91-1		0.43	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.44	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/21/2016	E625	T	VOC	123-91-1	UJ	0.44	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/16/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/17/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/17/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.45	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	VOC	123-91-1	UJ	0.45	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/16/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.42	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E625	T	VOC	123-91-1	UJ	0.42	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.42	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	VOC	123-91-1	UJ	0.42	ug/l
Site-wide Groundwater - 1,4-Dioxane	1.1	1	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/16/2016	E625	T	VOC	123-91-1		0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	1.3	1	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/16/2016	E625	T	VOC	123-91-1		0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/15/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.47	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E625	T	VOC	123-91-1	UJ	0.47	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.44	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E625	T	VOC	123-91-1	U	0.44	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.45	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E625	T	VOC	123-91-1	UJ	0.45	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.45	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E625	T	VOC	123-91-1	U	0.45	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.54	1	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E625	T	VOC	123-91-1	J	0.43	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.44	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/14/2016	E625	T	VOC	123-91-1	UJ	0.44	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/16/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.47	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	VOC	123-91-1	UJ	0.47	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/17/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.43	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E625	T	VOC	123-91-1	UJ	0.43	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/17/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E625	T	VOC	123-91-1	UJ	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.13	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E625	T	VOC	123-91-1	J	0.45	ug/l
Site-wide Groundwater - 1,4-Dioxane	1.1	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	VOC	123-91-1	J	2.2	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.47	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E625	T	VOC	123-91-1	UJ	0.47	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/16/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/16/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.13	1	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E625	T	VOC	123-91-1	J	0.45	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.33	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/14/2016	E625	T	VOC	123-91-1	J	0.42	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/16/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.43	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E625	T	VOC	123-91-1	UJ	0.43	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.42	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E625	T	VOC	123-91-1	UJ	0.42	ug/l
Site-wide Groundwater - 1,4-Dioxane	0.4	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/17/2016	E625	T	VOC	123-91-1	U	0.4	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - 1,4-Dioxane	2	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	VOC	123-91-1	U	2	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	32	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	71-43-2		0.5	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - Benzene	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	49	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	71-43-2		2.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	71-43-2	UJ	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	71-43-2	UJ	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	71-43-2	UJ	0.5	ug/l
Site-wide Groundwater - Benzene	18	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	71-43-2	J	50	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	19	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	71-43-2	UJ	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	71-43-2	UJ	0.5	ug/l
Site-wide Groundwater - Benzene	11	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Site-wide Groundwater - Benzene	0.83	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	71-43-2	UJ	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.58	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	71-43-2	J	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	71-43-2	UJ	0.5	ug/l
Site-wide Groundwater - Benzene	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	71-43-2	U	10	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	20	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	14	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.49	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	71-43-2	J	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Benzene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	16	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	108-90-7		2.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	9.6	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	108-90-7		0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	108-90-7	UJ	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	108-90-7	UJ	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	108-90-7	UJ	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.92	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	108-90-7		0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	4.3	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	108-90-7		0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	108-90-7	UJ	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	108-90-7	UJ	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.89	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	108-90-7		0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	108-90-7	UJ	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	108-90-7	U	50	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	5.5	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	108-90-7	J+	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	21	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	108-90-7	J	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	108-90-7	UJ	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	19	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	108-90-7		0.5	ug/l
Site-wide Groundwater - Chlorobenzene	20	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	108-90-7		0.5	ug/l
Site-wide Groundwater - Chlorobenzene	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	108-90-7	U	10	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - Chlorobenzene	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	108-90-7	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	4.9	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	156-59-2		2.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.44	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	156-59-2	J	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.88	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	156-59-2	J-	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	30	1	MW-06	1645-GW06-20120418	N	4/18/2012	9	29	ft	4/18/2012	VOCS	T	VOC	156-59-2		5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	5	0	MW-10	1645-GW10-20120416	N	4/16/2012	10	30	ft	4/16/2012	VOCS	T	VOC	156-59-2	U	5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	5	0	MW-22	1645-GW22-20120417	N	4/17/2012	18.5	28.5	ft	4/17/2012	VOCS	T	VOC	156-59-2	U	5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	5.3	1	MW-24	1645-GW24-20120417	N	4/17/2012	22	32	ft	4/17/2012	VOCS	T	VOC	156-59-2		5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	5	0	MW-05	1645-GW05-20120417	N	4/17/2012	5	15	ft	4/17/2012	VOCS	T	VOC	156-59-2	U	5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	14	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	6.1	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	44	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/9/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	21	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	156-59-2	J	50	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	4.2	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.41	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	156-59-2	J	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	3.5	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	156-59-2	J	10	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	1.1	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.26	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	156-59-2	J	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - cis-1,2-Dichloroethylene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	920	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E524.2	T	VOC	100-41-4		100	ug/l
Site-wide Groundwater - Ethylbenzene	590	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	100-41-4	UJ	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	100-41-4	UJ	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	100-41-4	UJ	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	4	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Site-wide Groundwater - Ethylbenzene	110	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.8	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Site-wide Groundwater - Ethylbenzene	3.3	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.47	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	100-41-4	J	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.39	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	100-41-4	J	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	100-41-4	UJ	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	100-41-4	UJ	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	6.1	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	100-41-4	UJ	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	310	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	100-41-4		5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	100-41-4	U	10	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	2.9	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	100-41-4	J	0.5	ug/l
Site-wide Groundwater - Ethylbenzene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.64	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	108-87-2		0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	1.4	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	108-87-2		2.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	108-87-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	108-87-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	108-87-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	1.1	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	108-87-2		0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	108-87-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	1.5	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	108-87-2		0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.57	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	108-87-2		0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	108-87-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	108-87-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	108-87-2	U	10	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	108-87-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	108-87-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	108-87-2	U	0.5	ug/l
Site-wide Groundwater - Methylcyclohexane	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	108-87-2	U	50	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	5.9	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	75-09-2		2.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	75-09-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	75-09-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	75-09-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	75-09-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.19	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	75-09-2	J	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	75-09-2	U	10	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	75-09-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylene chloride	240	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	75-09-2		50	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	75-09-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	75-09-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	75-09-2	UJ	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - Methylene chloride	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	75-09-2	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	170	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E524.2	T	VOC	95-47-6		100	ug/l
Site-wide Groundwater - o-Xylene	150	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	95-47-6	UJ	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	95-47-6	UJ	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	95-47-6	UJ	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	110	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	95-47-6		5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	95-47-6	UJ	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	200	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	95-47-6		50	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	79	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	34	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	4.1	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	95-47-6	UJ	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	95-47-6	UJ	0.5	ug/l
Site-wide Groundwater - o-Xylene	7.9	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	95-47-6	UJ	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Site-wide Groundwater - o-Xylene	2.3	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Site-wide Groundwater - o-Xylene	4.1	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	95-47-6	J	0.5	ug/l
Site-wide Groundwater - o-Xylene	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	95-47-6	U	10	ug/l
Site-wide Groundwater - Tetrachloroethylene	190	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/20/2016	E524.2	T	VOC	127-18-4		25	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	1.5	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	2.5	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	127-18-4	U	2.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	150	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.6	1	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	530	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	5	0	MW-05	1645-GW05-20120417	N	4/17/2012	5	15	ft	4/17/2012	VOCS	T	VOC	127-18-4	U	5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	5	1	MW-10	1645-GW10-20120416	N	4/16/2012	10	30	ft	4/16/2012	VOCS	T	VOC	127-18-4		5	ug/l
Site-wide Groundwater - Tetrachloroethylene	5	1	MW-22	1645-GW22-20120417	N	4/17/2012	18.5	28.5	ft	4/17/2012	VOCS	T	VOC	127-18-4		5	ug/l
Site-wide Groundwater - Tetrachloroethylene	3000	1	MW-24	1645-GW24-20120417	N	4/17/2012	22	32	ft	4/17/2012	VOCS	T	VOC	127-18-4		120	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	127-18-4	UJ	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.33	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	127-18-4	J	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	127-18-4	UJ	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.39	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	127-18-4	J	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	1800	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/24/2016	E524.2	T	VOC	127-18-4		500	ug/l
Site-wide Groundwater - Tetrachloroethylene	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	127-18-4	U	50	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	127-18-4	UJ	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.89	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.44	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	127-18-4	J	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.94	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	1.8	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	127-18-4	UJ	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	127-18-4	UJ	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.25	1	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	127-18-4	J	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.64	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	127-18-4	J	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.52	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	127-18-4	J	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.36	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	127-18-4	J	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.3	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	127-18-4	J	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Tetrachloroethylene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	10	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Site-wide Groundwater - Trichloroethylene	2.5	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	79-01-6	U	2.5	ug/l
Site-wide Groundwater - Trichloroethylene	2.2	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.25	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	2.5	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	160	1	MW-24	1645-GW24-20120417	N	4/17/2012	22	32	ft	4/17/2012	VOCS	T	VOC	79-01-6		120	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	VOC	79-01-6	UJ	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	5	0	MW-22	1645-GW22-20120417	N	4/17/2012	18.5	28.5	ft	4/17/2012	VOCS	T	VOC	79-01-6	U	5	ug/l
Site-wide Groundwater - Trichloroethylene	5	0	MW-05	1645-GW05-20120417	N	4/17/2012	5	15	ft	4/17/2012	VOCS	T	VOC	79-01-6	U	5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	VOC	79-01-6	UJ	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	5	0	MW-10	1645-GW10-20120416	N	4/16/2012	10	30	ft	4/16/2012	VOCS	T	VOC	79-01-6	U	5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	79-01-6	UJ	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	VOC	79-01-6	UJ	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/3/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	79-01-6	UJ	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.47	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	VOC	79-01-6	UJ	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.081	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.74	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	25	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	79-01-6		10	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	79-01-6	UJ	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	1	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	1.2	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.38	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/6/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Trichloroethylene	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	79-01-6	U	50	ug/l
Site-wide Groundwater - Trichloroethylene	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Site-wide Groundwater - Vinyl chloride	0.015	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/12/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	4.1	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	75-01-4		2.5	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/13/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/13/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/13/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/13/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	5	0	MW-10	1645-GW10-20120416	N	4/16/2012	10	30	ft	4/16/2012	VOCS	T	VOC	75-01-4	U	5	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E524.2	T	VOC	75-01-4	UJ	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	5	0	MW-22	1645-GW22-20120417	N	4/17/2012	18.5	28.5	ft	4/17/2012	VOCS	T	VOC	75-01-4	U	5	ug/l
Site-wide Groundwater - Vinyl chloride	14	1	MW-06	1645-GW06-20120418	N	4/18/2012	9	29	ft	4/18/2012	VOCS	T	VOC	75-01-4		5	ug/l
Site-wide Groundwater - Vinyl chloride	5	0	MW-05	1645-GW05-20120417	N	4/17/2012	5	15	ft	4/17/2012	VOCS	T	VOC	75-01-4	U	5	ug/l
Site-wide Groundwater - Vinyl chloride	0.015	1	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	VOC	75-01-4	UJ	0.5	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E524.2	T	VOC	75-01-4	UJ	0.05	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - Vinyl chloride	0.42	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/12/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	5	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/13/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	6	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	75-01-4		0.5	ug/l
Site-wide Groundwater - Vinyl chloride	5	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/21/2016	E524.2	T	VOC	75-01-4	U	5	ug/l
Site-wide Groundwater - Vinyl chloride	0.65	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/9/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	75-01-4	UJ	0.5	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E524.2	T	VOC	75-01-4	UJ	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.14	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E524.2	T	VOC	75-01-4	J+	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/13/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.076	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/16/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Site-wide Groundwater - Vinyl chloride	1.2	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	75-01-4		0.5	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/9/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	VOC	75-01-4	UJ	0.5	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/9/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.01	1	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/9/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - Vinyl chloride	6	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/21/2016	E524.2	T	VOC	75-01-4	J+	0.5	ug/l
Site-wide Groundwater - Vinyl chloride	0.05	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/13/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.7	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	91-57-6	U	5.4	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.6	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	91-57-6	U	5.6	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.4	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	91-57-6	U	5.4	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.3	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	91-57-6	UJ	5.3	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.3	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	91-57-6	UJ	5.3	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.8	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	91-57-6	UJ	5.8	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.7	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	91-57-6	U	5.7	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.3	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	91-57-6	UJ	5.3	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.3	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	91-57-6	U	5.3	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.4	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	91-57-6	U	5.4	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.4	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	91-57-6	UJ	5.4	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	91-57-6	UJ	5.1	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.6	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	91-57-6	U	5.6	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.6	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	91-57-6	U	5.6	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.4	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	91-57-6	UJ	5.4	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.6	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	91-57-6	U	5.6	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.6	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	91-57-6	U	5.6	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	91-57-6	UJ	5.2	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.4	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	91-57-6	U	5.4	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.7	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	91-57-6	U	5.7	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.6	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	91-57-6	U	5.6	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5.4	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	91-57-6	U	5.4	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 2-Methylnaphthalene	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	91-57-6	U	5	ug/l
Site-wide Groundwater - 4-Chloroaniline	600	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	106-47-8		110	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	12	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	106-47-8	UJ	12	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	106-47-8	UJ	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	106-47-8	UJ	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	106-47-8	UJ	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	740	1	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	106-47-8		110	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	39	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	106-47-8		11	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	106-47-8	UJ	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	106-47-8	UJ	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	6900	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/22/2016	E625	T	SVOC	106-47-8		2000	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Site-wide Groundwater - 4-Chloroaniline	11	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	9.9	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	106-47-8	J	11	ug/l
Site-wide Groundwater - 4-Chloroaniline	10	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	106-47-8	UJ	10	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.6	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	56-55-3	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.4	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	56-55-3	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.7	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	56-55-3	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.8	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	56-55-3	UJ	5.8	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.3	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	56-55-3	UJ	5.3	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.3	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	56-55-3	UJ	5.3	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.4	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	56-55-3	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.3	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	56-55-3	U	5.3	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.6	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	56-55-3	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	56-55-3	UJ	5.2	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.6	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	56-55-3	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.4	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	56-55-3	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.4	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	56-55-3	UJ	5.4	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.3	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	56-55-3	UJ	5.3	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.6	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	56-55-3	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.6	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	56-55-3	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.7	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	56-55-3	U	5.7	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.4	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	56-55-3	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	56-55-3	UJ	5.1	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.4	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	56-55-3	UJ	5.4	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.6	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	56-55-3	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	56-55-3	U	5	ug/l
Site-wide Groundwater - Benzo(a)anthracene	5.7	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	56-55-3	U	5.7	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.6	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	50-32-8	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.4	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	50-32-8	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.7	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	50-32-8	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.3	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	50-32-8	UJ	5.3	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.3	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	50-32-8	UJ	5.3	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.8	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	50-32-8	UJ	5.8	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.6	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	50-32-8	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.7	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	50-32-8	U	5.7	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.4	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	50-32-8	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.3	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	50-32-8	UJ	5.3	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.7	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	50-32-8	U	5.7	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.4	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	50-32-8	UJ	5.4	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	50-32-8	UJ	5.2	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	50-32-8	UJ	5.1	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.6	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	50-32-8	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.4	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	50-32-8	UJ	5.4	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.3	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	50-32-8	U	5.3	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.6	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	50-32-8	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.4	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	50-32-8	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.4	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	50-32-8	U	5.4	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	50-32-8	U	5	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.6	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	50-32-8	U	5.6	ug/l
Site-wide Groundwater - Benzo(a)pyrene	5.6	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	50-32-8	U	5.6	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	205-99-2	UJ	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.4	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	205-99-2	U	5.4	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.6	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	205-99-2	U	5.6	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	205-99-2	UJ	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	205-99-2	UJ	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.7	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	205-99-2	U	5.4	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	205-99-2	UJ	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.3	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	205-99-2	UJ	5.3	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.8	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	205-99-2	UJ	5.8	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.3	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	205-99-2	UJ	5.3	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	205-99-2	U	5	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.6	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	205-99-2	U	5.6	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	205-99-2	UJ	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	205-99-2	UJ	5.2	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.6	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	205-99-2	U	5.6	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.6	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	205-99-2	U	5.6	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.4	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	205-99-2	UJ	5.4	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.4	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	205-99-2	U	5.4	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	205-99-2	UJ	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.7	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	205-99-2	U	5.7	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.6	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	205-99-2	U	5.6	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.3	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	205-99-2	U	5.3	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.4	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	205-99-2	U	5.4	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.4	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	205-99-2	U	5.4	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.3	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	205-99-2	UJ	5.3	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.6	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	205-99-2	U	5.6	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	205-99-2	UJ	5.1	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.4	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	205-99-2	UJ	5.4	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5.7	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	205-99-2	U	5.7	ug/l
Site-wide Groundwater - Benzo(b)fluoranthene	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	205-99-2	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.6	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	85-68-7	U	5.6	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.4	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	85-68-7	U	5.4	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.7	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	85-68-7	U	5.4	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	85-68-7	UJ	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.8	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	85-68-7	UJ	5.8	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.3	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	85-68-7	UJ	5.3	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.3	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	85-68-7	UJ	5.3	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.4	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	85-68-7	UJ	5.4	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.6	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	85-68-7	U	5.6	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	85-68-7	UJ	5.1	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.4	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	85-68-7	U	5.4	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	1.4	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	85-68-7	J	5.6	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.6	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	85-68-7	U	5.6	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.3	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	85-68-7	UJ	5.3	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.7	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	85-68-7	U	5.7	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.7	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	85-68-7	U	5.7	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.3	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	85-68-7	U	5.3	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.4	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	85-68-7	U	5.4	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.6	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	85-68-7	U	5.6	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.4	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	85-68-7	U	5.4	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	85-68-7	UJ	5.2	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	85-68-7	UJ	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.6	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	85-68-7	U	5.6	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	85-68-7	U	5	ug/l
Site-wide Groundwater - Benzyl Butyl Phthalate	5.4	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	85-68-7	UJ	5.4	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.6	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	92-52-4	U	5.6	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.4	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	92-52-4	U	5.4	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	1.4	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	92-52-4	J	5.4	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.3	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	92-52-4	UJ	5.3	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.8	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	92-52-4	UJ	5.8	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.3	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	92-52-4	UJ	5.3	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.4	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	92-52-4	U	5.4	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	92-52-4	UJ	5.2	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.7	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	92-52-4	U	5.7	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.6	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	92-52-4	U	5.6	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.4	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	92-52-4	U	5.4	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.6	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	92-52-4	U	5.6	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.6	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	92-52-4	U	5.6	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	1.6	1	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	92-52-4	J	5.3	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.6	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	92-52-4	U	5.6	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	92-52-4	UJ	5.1	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.4	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	92-52-4	UJ	5.4	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.4	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	92-52-4	UJ	5.4	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.3	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	92-52-4	UJ	5.3	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	1	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	92-52-4	J	5.6	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.4	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	92-52-4	U	5.4	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	92-52-4	U	5	ug/l
Site-wide Groundwater - Biphenyl (diphenyl)	5.7	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	92-52-4	U	5.7	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.4	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	117-81-7	U	5.4	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.7	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	117-81-7	U	5.4	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	3.1	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	117-81-7	J	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.3	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	117-81-7	UJ	5.3	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.8	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	117-81-7	UJ	5.8	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.3	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	117-81-7	UJ	5.3	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.6	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	117-81-7	U	5.6	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.6	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	117-81-7	U	5.6	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.4	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	117-81-7	U	5.4	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.6	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	117-81-7	U	5.6	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.4	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	117-81-7	UJ	5.4	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.4	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	117-81-7	UJ	5.4	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	117-81-7	UJ	5.2	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.4	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	117-81-7	U	5.4	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.6	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	117-81-7	U	5.6	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.6	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	117-81-7	U	5.6	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.3	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	117-81-7	UJ	5.3	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.4	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	117-81-7	U	5.4	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.6	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	117-81-7	U	5.6	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	117-81-7	UJ	5.1	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.7	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	117-81-7	U	5.7	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	117-81-7	U	5	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.7	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	117-81-7	U	5.7	ug/l
Site-wide Groundwater - Bis(2-ethylhexyl)phthalate	5.3	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	117-81-7	U	5.3	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	117-84-0	UJ	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	117-84-0	UJ	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	12	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	117-84-0	UJ	12	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	117-84-0	UJ	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	117-84-0	UJ	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	117-84-0	UJ	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	117-84-0	UJ	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	117-84-0	UJ	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	10	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	117-84-0	U	10	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Di-n-octylphthalate	11	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	117-84-0	U	11	ug/l
Site-wide Groundwater - Naphthalene	19	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	91-20-3		5.4	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.4	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	SVOC	91-20-3	U	5.4	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.6	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	SVOC	91-20-3	U	5.6	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - Naphthalene	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.8	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	SVOC	91-20-3	UJ	5.8	ug/l
Site-wide Groundwater - Naphthalene	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.3	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	SVOC	91-20-3	UJ	5.3	ug/l
Site-wide Groundwater - Naphthalene	5.3	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	SVOC	91-20-3	UJ	5.3	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.6	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	SVOC	91-20-3	U	5.6	ug/l
Site-wide Groundwater - Naphthalene	5.6	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	91-20-3	U	5.6	ug/l
Site-wide Groundwater - Naphthalene	5.4	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	SVOC	91-20-3	UJ	5.4	ug/l
Site-wide Groundwater - Naphthalene	3.2	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	SVOC	91-20-3	J	5.4	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.3	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	91-20-3	UJ	5.3	ug/l
Site-wide Groundwater - Naphthalene	5.4	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	SVOC	91-20-3	U	5.4	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.6	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	SVOC	91-20-3	U	5.6	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	SVOC	91-20-3	UJ	5.1	ug/l
Site-wide Groundwater - Naphthalene	68	1	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	91-20-3		5.3	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	SVOC	91-20-3	UJ	5.2	ug/l
Site-wide Groundwater - Naphthalene	5.7	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	SVOC	91-20-3	U	5.7	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	SVOC	91-20-3	U	5	ug/l
Site-wide Groundwater - Naphthalene	5.6	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	SVOC	91-20-3	U	5.6	ug/l
Site-wide Groundwater - Naphthalene	5.4	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	SVOC	91-20-3	U	5.4	ug/l
Site-wide Groundwater - Naphthalene	5.7	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	SVOC	91-20-3	U	5.7	ug/l
Site-wide Groundwater - Naphthalene	20	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	91-20-3		5.4	ug/l
Site-wide Groundwater - Naphthalene	5.6	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	SVOC	91-20-3	U	5.6	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.4	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E625	T	PEST	132-64-9	U	5.4	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/12/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.7	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	PEST	132-64-9	U	5.4	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.6	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E625	T	PEST	132-64-9	U	5.6	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/14/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.3	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E625	T	PEST	132-64-9	UJ	5.3	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/18/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/18/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.3	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E625	T	PEST	132-64-9	UJ	5.3	ug/l
Site-wide Groundwater - Dibenzofuran	5.8	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E625	T	PEST	132-64-9	UJ	5.8	ug/l
Site-wide Groundwater - Dibenzofuran	5.4	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	PEST	132-64-9	U	5.4	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/18/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.4	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E625	T	PEST	132-64-9	UJ	5.4	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/14/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/14/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E625	T	PEST	132-64-9	UJ	5.1	ug/l
Site-wide Groundwater - Dibenzofuran	5.6	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	PEST	132-64-9	U	5.6	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.4	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/12/2016	E625	T	PEST	132-64-9	U	5.4	ug/l
Site-wide Groundwater - Dibenzofuran	5.7	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/12/2016	E625	T	PEST	132-64-9	U	5.7	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/20/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.6	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E625	T	PEST	132-64-9	U	5.6	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/14/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.6	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/12/2016	E625	T	PEST	132-64-9	U	5.6	ug/l
Site-wide Groundwater - Dibenzofuran	5.7	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/12/2016	E625	T	PEST	132-64-9	U	5.7	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/18/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.4	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E625	T	PEST	132-64-9	UJ	5.4	ug/l
Site-wide Groundwater - Dibenzofuran	5.6	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/12/2016	E625	T	PEST	132-64-9	U	5.6	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/19/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.6	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/12/2016	E625	T	PEST	132-64-9	U	5.6	ug/l
Site-wide Groundwater - Dibenzofuran	5.3	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	PEST	132-64-9	U	5.3	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/14/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.3	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	PEST	132-64-9	UJ	5.3	ug/l
Site-wide Groundwater - Dibenzofuran	5.4	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/12/2016	E625	T	PEST	132-64-9	U	5.4	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/14/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/14/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/18/2016	E625	T	PEST	132-64-9	U	5	ug/l
Site-wide Groundwater - Dibenzofuran	5.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E625	T	PEST	132-64-9	UJ	5.2	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/22/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/22/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/22/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/18/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/12/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E608	T	PCB	12672-29-6	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E608	T	PCB	12672-29-6	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/12/2016	E608	T	PCB	12672-29-6	UJ	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/17/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/13/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/22/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E608	T	PCB	12672-29-6	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/13/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E608	T	PCB	12672-29-6	UJ	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.2	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.2	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/12/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/18/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/12/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/13/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E608	T	PCB	12672-29-6	UJ	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/18/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/13/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/17/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/12/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/13/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E608	T	PCB	12672-29-6	UJ	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/12/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E608	T	PCB	12672-29-6	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/12/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/13/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/13/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1.1	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/18/2016	E608	T	PCB	12672-29-6	U	1.1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/13/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1248 (Aroclor 1248)	1	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/17/2016	E608	T	PCB	12672-29-6	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/22/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/22/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/18/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/22/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/17/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E608	T	PCB	11097-69-1	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E608	T	PCB	11097-69-1	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/12/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/13/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/12/2016	E608	T	PCB	11097-69-1	UJ	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/18/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E608	T	PCB	11097-69-1	UJ	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/13/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/18/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/12/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E608	T	PCB	11097-69-1	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/13/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/13/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E608	T	PCB	11097-69-1	UJ	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/12/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/12/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/12/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.2	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.2	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/13/2016	E608	T	PCB	11097-69-1	U	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/13/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/17/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/13/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/22/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/13/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/12/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/18/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E608	T	PCB	11097-69-1	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/17/2016	E608	T	PCB	11097-69-1	U	1	ug/l
Site-wide Groundwater - PCB-1254 (Aroclor 1254)	1	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E608	T	PCB	11097-69-1	UJ	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/22/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/22/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/18/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/22/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/12/2016	E608	T	PCB	11096-82-5	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/12/2016	E608	T	PCB	11096-82-5	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/12/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/13/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/12/2016	E608	T	PCB	11096-82-5	UJ	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/17/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/12/2016	E608	T	PCB	11096-82-5	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/18/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/17/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E608	T	PCB	11096-82-5	UJ	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/22/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/12/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.2	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.2	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/12/2016	E608	T	PCB	11096-82-5	UJ	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/12/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/12/2016	E608	T	PCB	11096-82-5	UJ	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/13/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/12/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/13/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/12/2016	E608	T	PCB	11096-82-5	UJ	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/18/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/17/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/12/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/13/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/13/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/13/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/18/2016	E608	T	PCB	11096-82-5	U	1	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1.1	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/13/2016	E608	T	PCB	11096-82-5	U	1.1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/12/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - PCB-1260 (Aroclor 1260)	1	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/13/2016	E608	T	PCB	11096-82-5	U	1	ug/l
Site-wide Groundwater - Carbon disulfide	2.5	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	OTHER	75-15-0	U	2.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/7/2016	E524.2	T	OTHER	75-15-0	UJ	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/7/2016	E524.2	T	OTHER	75-15-0	UJ	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/9/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/7/2016	E524.2	T	OTHER	75-15-0	UJ	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	OTHER	75-15-0	UJ	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/6/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	OTHER	75-15-0	U	10	ug/l
Site-wide Groundwater - Carbon disulfide	50	0	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	OTHER	75-15-0	U	50	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	OTHER	75-15-0	UJ	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/6/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/6/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/7/2016	E524.2	T	OTHER	75-15-0	UJ	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/8/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/8/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/8/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/7/2016	E524.2	T	OTHER	75-15-0	UJ	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/7/2016	E524.2	T	OTHER	75-15-0	UJ	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Carbon disulfide	0.5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	OTHER	75-15-0	U	0.5	ug/l
Site-wide Groundwater - Aluminum	20	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7429-90-5	U	20	ug/l
Site-wide Groundwater - Aluminum	36.8	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	234	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	71.4	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	96	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	226	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	144	1	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	20	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5	U	20	ug/l
Site-wide Groundwater - Aluminum	15.6	1	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5	J	20	ug/l
Site-wide Groundwater - Aluminum	64.7	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	5.4	1	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5	J	20	ug/l
Site-wide Groundwater - Aluminum	23.8	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	42.2	1	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	20	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5	U	20	ug/l
Site-wide Groundwater - Aluminum	445	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	12.5	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7429-90-5	J	20	ug/l
Site-wide Groundwater - Aluminum	6.3	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5	J	20	ug/l
Site-wide Groundwater - Aluminum	24.6	1	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	119	1	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	20	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7429-90-5	U	20	ug/l
Site-wide Groundwater - Aluminum	34.5	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	163	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	20	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7429-90-5	U	20	ug/l
Site-wide Groundwater - Aluminum	20	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5	U	20	ug/l
Site-wide Groundwater - Aluminum	439	1	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	63.3	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	58.9	1	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	20	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5	U	20	ug/l
Site-wide Groundwater - Aluminum	34.5	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	34.5	1	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	289	1	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	65.8	1	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	29.8	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	2270	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	29.1	1	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	440	1	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	43.9	1	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	29	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5	J	20	ug/l
Site-wide Groundwater - Aluminum	5.5	1	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5	J	20	ug/l
Site-wide Groundwater - Aluminum	33	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	184	1	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	29.3	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	20	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7429-90-5	U	20	ug/l
Site-wide Groundwater - Aluminum	26.9	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7429-90-5		20	ug/l
Site-wide Groundwater - Aluminum	20	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7429-90-5	U	20	ug/l
Site-wide Groundwater - Aluminum	17	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7429-90-5	J	20	ug/l
Site-wide Groundwater - Arsenic	5.9	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	0.12	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	J	0.2	ug/l
Site-wide Groundwater - Arsenic	4.9	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	2.3	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	4.3	1	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7440-38-2		1	ug/l
Site-wide Groundwater - Arsenic	0.16	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	J	0.2	ug/l
Site-wide Groundwater - Arsenic	6.3	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	0.15	1	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	J	0.2	ug/l
Site-wide Groundwater - Arsenic	7.4	1	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	0.14	1	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	J	0.2	ug/l
Site-wide Groundwater - Arsenic	2.8	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	0.15	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	J	0.2	ug/l
Site-wide Groundwater - Arsenic	1	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	U	1	ug/l
Site-wide Groundwater - Arsenic	3.1	1	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	6.2	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	5.2	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	0.1	1	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	J	0.2	ug/l
Site-wide Groundwater - Arsenic	0.17	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	J	0.2	ug/l
Site-wide Groundwater - Arsenic	3	1	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	1	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7440-38-2	U	1	ug/l
Site-wide Groundwater - Arsenic	0.3	1	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	2.4	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	7.7	1	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	7.5	1	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	1	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7440-38-2	U	1	ug/l
Site-wide Groundwater - Arsenic	3.5	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	5.9	1	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	0.2	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	U	0.2	ug/l
Site-wide Groundwater - Arsenic	1	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	U	1	ug/l
Site-wide Groundwater - Arsenic	0.2	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	U	0.2	ug/l
Site-wide Groundwater - Arsenic	5.4	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	1.3	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	0.2	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	U	0.2	ug/l
Site-wide Groundwater - Arsenic	2.4	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	J	0.2	ug/l
Site-wide Groundwater - Arsenic	1	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	U	1	ug/l
Site-wide Groundwater - Arsenic	5.2	1	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	0.54	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	2.7	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	0.2	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	U	0.2	ug/l
Site-wide Groundwater - Arsenic	0.44	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	3.8	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	0.2	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2	U	0.2	ug/l
Site-wide Groundwater - Arsenic	2.2	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/20/2016	E200.8	T	INORGANIC	7440-38-2		0.2	ug/l
Site-wide Groundwater - Arsenic	2.6	1	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7440-38-2	J	1	ug/l
Site-wide Groundwater - Arsenic	1	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	U	1	ug/l
Site-wide Groundwater - Arsenic	1	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7440-38-2	U	1	ug/l
Site-wide Groundwater - Barium	60.5	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	81.5	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	183	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	68.8	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	1080	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	1180	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	142	1	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	55.1	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	23.6	1	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	56.6	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	29.9	1	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	98.9	1	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	113	1	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	58.8	1	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	119	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	208	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	279	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	66.5	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7440-39-3	J	10	ug/l
Site-wide Groundwater - Barium	83.8	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	71	1	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	26.4	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	58	1	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	67.9	1	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	10	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3	U	10	ug/l
Site-wide Groundwater - Barium	42.5	1	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	92.7	1	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	211	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	135	1	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	104	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	113	1	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	71	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	83	1	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	66.4	1	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	32.1	1	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	99.5	1	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	215	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	26.1	1	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	33.7	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	98.5	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	90.1	1	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	77.1	1	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	110	1	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	279	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3	J	10	ug/l
Site-wide Groundwater - Barium	62.3	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	66.5	1	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Barium	143	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-39-3		10	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.24	1	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.26	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.32	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.36	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.081	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	0.53	1	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.11	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.72	1	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	0.35	1	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.23	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.53	1	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.092	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.25	1	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	0.17	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7440-41-7	J	1	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - Beryllium	1	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Beryllium	1	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7440-41-7	U	1	ug/l
Site-wide Groundwater - Cadmium	0.062	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	0.16	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	0.42	1	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.25	1	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.7	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.65	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	0.042	1	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.46	1	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	0.58	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.18	1	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	0.13	1	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.05	1	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	0.089	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	0.33	1	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.2	1	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.12	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.085	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.075	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	0.36	1	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.075	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.25	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	1	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7440-43-9	U	1	ug/l
Site-wide Groundwater - Cadmium	0.057	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.078	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Cadmium	0.053	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7440-43-9	J	1	ug/l
Site-wide Groundwater - Chromium (Total)	0.84	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.8	1	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.42	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.7	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.4	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.93	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.15	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	2	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.3	1	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.82	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.22	1	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.3	1	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.5	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.39	1	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.77	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	2	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.2	1	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.64	1	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.13	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.4	1	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.48	1	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.88	1	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.4	1	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.1	1	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	2	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Site-wide Groundwater - Chromium (Total)	2.3	1	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3		2	ug/l
Site-wide Groundwater - Chromium (Total)	2	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Site-wide Groundwater - Chromium (Total)	2	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.14	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	2	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.1	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	2.7	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3		2	ug/l
Site-wide Groundwater - Chromium (Total)	0.33	1	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.34	1	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.5	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	2	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Site-wide Groundwater - Chromium (Total)	2	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.9	1	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.91	1	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	2	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	U	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.39	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.68	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.48	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	1	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	0.25	1	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Chromium (Total)	1.8	1	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7440-47-3	J	2	ug/l
Site-wide Groundwater - Cobalt	2.2	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1.7	1	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	13.4	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	2.6	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	4.4	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1.2	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	8.6	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	0.38	1	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Site-wide Groundwater - Cobalt	0.27	1	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Site-wide Groundwater - Cobalt	1	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4	UJ	1	ug/l
Site-wide Groundwater - Cobalt	1.8	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	4.5	1	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	2.8	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4	UJ	1	ug/l
Site-wide Groundwater - Cobalt	11.4	1	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	0.59	1	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Site-wide Groundwater - Cobalt	1.7	1	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	3.6	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4	U	1	ug/l
Site-wide Groundwater - Cobalt	8.1	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	7.8	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4	U	1	ug/l
Site-wide Groundwater - Cobalt	9.3	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1.5	1	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	30.6	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	21.6	1	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	4.2	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	4.4	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1.5	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4	U	1	ug/l
Site-wide Groundwater - Cobalt	1	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4	U	1	ug/l
Site-wide Groundwater - Cobalt	1.3	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1.4	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	13.2	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	24	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	12.4	1	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4	UJ	1	ug/l
Site-wide Groundwater - Cobalt	28.2	1	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	2.2	1	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	1	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7440-48-4	U	1	ug/l
Site-wide Groundwater - Cobalt	1	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-48-4	U	1	ug/l
Site-wide Groundwater - Cobalt	8	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	6.9	1	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	2.6	1	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4		1	ug/l
Site-wide Groundwater - Cobalt	0.35	1	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Site-wide Groundwater - Cobalt	0.26	1	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7440-48-4	J	1	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/13/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/13/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/13/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/21/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/10/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	3.9	1	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	J	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	102	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5		10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5	UJ	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	4.2	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/10/2016	E335.2	T	INORGANIC	57-12-5	J	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/13/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/5/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Cyanide	10	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E335.2	T	INORGANIC	57-12-5	U	10	ug/l
Site-wide Groundwater - Iron	83.6	1	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7439-89-6	J	200	ug/l
Site-wide Groundwater - Iron	271	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	200	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Iron	164	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6	J	200	ug/l
Site-wide Groundwater - Iron	47800	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	39900	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	9100	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	43.6	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7439-89-6	J	200	ug/l
Site-wide Groundwater - Iron	348	1	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	200	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Iron	6550	1	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	200	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Iron	200	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Iron	149	1	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6	J	200	ug/l
Site-wide Groundwater - Iron	200	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Iron	2400	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	200	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Iron	6460	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	1440	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	202	1	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	679	1	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	103	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6	J	200	ug/l
Site-wide Groundwater - Iron	43500	1	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	29600	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	18500	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	22400	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	9510	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	5000	1	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	45.2	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6	J	200	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.
The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - Iron	23100	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	32400	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	200	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Iron	200	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Iron	28600	1	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	375	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	84.5	1	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6	J	200	ug/l
Site-wide Groundwater - Iron	1550	1	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	53800	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	200	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Iron	46500	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	967	1	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	119	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6	J	200	ug/l
Site-wide Groundwater - Iron	18700	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	205	1	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	244	1	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7439-89-6		200	ug/l
Site-wide Groundwater - Iron	200	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7439-89-6	U	200	ug/l
Site-wide Groundwater - Lead	0.5	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	0.047	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	0.1	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	0.21	1	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	0.066	1	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	0.22	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	0.2	1	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	0.16	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	0.2	1	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	0.22	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7439-92-1	J	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Lead	1	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7439-92-1	U	1	ug/l
Site-wide Groundwater - Manganese	2510	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	3000	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	126	1	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	1230	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	3850	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	159	1	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	11700	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	71	1	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	192	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	258	1	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	519	1	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	84.3	1	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	96	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	65.2	1	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	508	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	59	1	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	10700	1	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	1780	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	22.5	1	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	90.1	1	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	59.9	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	1840	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	209	1	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	12400	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/21/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	40.8	1	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	3690	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	3360	1	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	14300	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	56.2	1	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	383	1	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	211	1	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	64.6	1	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	5510	1	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	329	1	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	437	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	92.1	1	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	92.9	1	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	41.5	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	2080	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	2760	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	75.5	1	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	3880	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	81.3	1	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	434	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	1540	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Manganese	5020	1	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7439-96-5		1	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.24	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/21/2016	E245.2	T	INORGANIC	7439-97-6		0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.39	1	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6	J	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.055	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	J	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.077	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	J	0.2	ug/l
Site-wide Groundwater - Mercury	0.27	1	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6		0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.07	1	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	J	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.33	1	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6	J	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/21/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.2	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/15/2016	E245.2	T	INORGANIC	7439-97-6	U	0.2	ug/l
Site-wide Groundwater - Mercury	0.31	1	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/5/2016	E245.2	T	INORGANIC	7439-97-6		0.2	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1.2	1	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-28-0		1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	0.97	1	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0		0.24	ug/l
Site-wide Groundwater - Thallium	0.52	1	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0		0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	0.074	1	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0	J	0.24	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	1	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	0.69	1	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0		0.24	ug/l
Site-wide Groundwater - Thallium	0.36	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0		0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Thallium	1	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7440-28-0	U	1	ug/l
Site-wide Groundwater - Thallium	0.24	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7440-28-0	U	0.24	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/19/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	0.5	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-27	HDR-MW-27-R1	N	4/8/2016	8	23	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-27	HDR-MW-27-R2	N	8/3/2016	8	23	ft	8/20/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/20/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-01	HDR-MW-01-R2	N	7/27/2016	5	25	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-01B	HDR-MW-01B-R1	N	4/5/2016	95	105	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-02B	HDR-MW-02B-R1	N	4/7/2016	93	103	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	L-01	HDR-L-01-R1	N	4/4/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	L-01	HDR-L-01-R2	N	8/1/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-01	HDR-MW-01-R1	N	4/5/2016	5	25	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	UJ	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-01B	HDR-MW-01B-R2	N	7/27/2016	95	105	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-05	HDR-MW-05-R1	N	4/7/2016	5	15	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	0.34	1	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-15	HDR-MW-15-R1	N	4/4/2016	25	35	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	0.35	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l

TABLE B.1
PROUCL 5.0.002 RAW INPUT FOR ALL MEDIA
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Site-wide Groundwater - Vanadium	5	0	MW-04	HDR-MW-04-R2	N	7/25/2016	7	27	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	0.53	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/20/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-21	HDR-MW-21-R2	N	7/29/2016	16.5	26.5	ft	8/19/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-07B	HDR-MW-07B-R1	N	4/5/2016	84	99	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-15	HDR-MW-15-R2	N	7/26/2016	25	35	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-04	HDR-MW-04-R1	N	4/4/2016	7	27	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	UJ	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-02	HDR-MW-02-R2	N	7/28/2016	6	18	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-02	HDR-MW-02-R1	N	4/7/2016	6	18	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-03	HDR-MW-03-R2	N	7/28/2016	8	20	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-07B	HDR-MW-07B-R2	N	7/27/2016	84	99	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-20	HDR-MW-20-R1	N	4/6/2016	4	14	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-02B	HDR-MW-02B-R2	N	7/29/2016	93	103	ft	8/19/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-20	HDR-MW-20-R2	N	8/3/2016	4	14	ft	8/20/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/11/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/19/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-03	HDR-MW-03-R1	N	4/7/2016	8	20	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/19/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/19/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	0.45	1	MW-21	HDR-MW-21-R1	N	4/6/2016	16.5	26.5	ft	4/14/2016	E200.8	T	INORGANIC	7440-62-2	J	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-05	HDR-MW-05-R2	N	7/28/2016	5	15	ft	8/15/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Site-wide Groundwater - Vanadium	5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/19/2016	E200.8	T	INORGANIC	7440-62-2	U	5	ug/l
Groundwater Core of Plume - 4-Chloroaniline	39	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	106-47-8		11	ug/l
Groundwater Core of Plume - 4-Chloroaniline	6900	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/22/2016	E625	T	SVOC	106-47-8		2000	ug/l
Groundwater Core of Plume - 4-Chloroaniline	740	1	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	106-47-8		110	ug/l
Groundwater Core of Plume - 4-Chloroaniline	10	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Groundwater Core of Plume - 4-Chloroaniline	11	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Groundwater Core of Plume - 4-Chloroaniline	10	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Groundwater Core of Plume - 4-Chloroaniline	9.9	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	106-47-8	J	11	ug/l
Groundwater Core of Plume - 4-Chloroaniline	10	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Groundwater Core of Plume - 4-Chloroaniline	600	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	106-47-8		110	ug/l
Groundwater Core of Plume - 4-Chloroaniline	10	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Groundwater Core of Plume - Benzene	0.83	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	11	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Groundwater Core of Plume - Benzene	18	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	71-43-2	J	50	ug/l
Groundwater Core of Plume - Benzene	19	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	20	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	14	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	0.58	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	71-43-2	J	0.5	ug/l
Groundwater Core of Plume - Benzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Groundwater Core of Plume - Benzene	49	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	71-43-2		2.5	ug/l
Groundwater Core of Plume - Benzene	32	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	30	1	MW-06	1645-GW06-20120418	N	4/18/2012	9	29	ft	4/18/2012	VOCS	T	VOC	156-59-2		5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	5.3	1	MW-24	1645-GW24-20120417	N	4/17/2012	22	32	ft	4/17/2012	VOCS	T	VOC	156-59-2		5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	1.1	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	44	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/9/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	21	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	156-59-2	J	50	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	14	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	6.1	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	3.5	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	156-59-2	J	10	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	4.9	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	156-59-2		2.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	0.88	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	156-59-2	J-	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	4	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	6.1	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	310	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	100-41-4		5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	110	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.39	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	100-41-4	J	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.8	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.47	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	100-41-4	J	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	920	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E524.2	T	VOC	100-41-4		100	ug/l
Groundwater Core of Plume - Ethylbenzene	590	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - o-Xylene	2.3	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - o-Xylene	4.1	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - o-Xylene	200	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	95-47-6		50	ug/l
Groundwater Core of Plume - o-Xylene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Groundwater Core of Plume - o-Xylene	79	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - o-Xylene	110	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	95-47-6		5	ug/l
Groundwater Core of Plume - o-Xylene	34	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - o-Xylene	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	95-47-6	UJ	0.5	ug/l
Groundwater Core of Plume - o-Xylene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Groundwater Core of Plume - o-Xylene	170	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E524.2	T	VOC	95-47-6		100	ug/l
Groundwater Core of Plume - o-Xylene	150	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	5	1	MW-10	1645-GW10-20120416	N	4/16/2012	10	30	ft	4/16/2012	VOCS	T	VOC	127-18-4		5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	5	1	MW-22	1645-GW22-20120417	N	4/17/2012	18.5	28.5	ft	4/17/2012	VOCS	T	VOC	127-18-4		5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	3000	1	MW-24	1645-GW24-20120417	N	4/17/2012	22	32	ft	4/17/2012	VOCS	T	VOC	127-18-4		120	ug/l
Groundwater Core of Plume - Tetrachloroethylene	1.8	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.89	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	127-18-4	UJ	0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	1800	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/24/2016	E524.2	T	VOC	127-18-4		500	ug/l
Groundwater Core of Plume - Tetrachloroethylene	530	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	190	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/20/2016	E524.2	T	VOC	127-18-4		25	ug/l
Groundwater Core of Plume - Tetrachloroethylene	150	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	160	1	MW-24	1645-GW24-20120417	N	4/17/2012	22	32	ft	4/17/2012	VOCS	T	VOC	79-01-6		120	ug/l
Groundwater Core of Plume - Trichloroethylene	1	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	0.47	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	0.74	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	1.2	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	25	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	79-01-6		10	ug/l
Groundwater Core of Plume - Trichloroethylene	10	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	2.2	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	2.5	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Vinyl chloride	14	1	MW-06	1645-GW06-20120418	N	4/18/2012	9	29	ft	4/18/2012	VOCS	T	VOC	75-01-4		5	ug/l
Groundwater Core of Plume - Vinyl chloride	0.076	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/16/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	0.65	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/9/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	0.05	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/12/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	6	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/21/2016	E524.2	T	VOC	75-01-4	J+	0.5	ug/l
Groundwater Core of Plume - Vinyl chloride	6	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	75-01-4		0.5	ug/l
Groundwater Core of Plume - Vinyl chloride	5	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	1.2	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	75-01-4		0.5	ug/l
Groundwater Core of Plume - Vinyl chloride	0.05	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/9/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	4.1	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	75-01-4		2.5	ug/l

TABLE B.2
PROUCL 5.1.002 RAW OUTPUT FOR SURFACE SOIL 0-2FT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.15/25/2017 10:19:17 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

result (aroclor 1248_12672-29-6)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	15
Number of Detects	14	Number of Non-Detects	6
Number of Distinct Detects	14	Number of Distinct Non-Detects	1
Minimum Detect	0.14	Minimum Non-Detect	0.033
Maximum Detect	2.5	Maximum Non-Detect	0.033
Variance Detects	0.64	Percent Non-Detects	30%
Mean Detects	0.789	SD Detects	0.8
Median Detects	0.425	CV Detects	1.015
Skewness Detects	1.303	Kurtosis Detects	0.608
Mean of Logged Detects	-0.717	SD of Logged Detects	1.023

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.793	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.874	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.233	Lilliefors GOF Test
5% Lilliefors Critical Value	0.226	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.562	KM Standard Error of Mean	0.17
KM SD	0.732	95% KM (BCA) UCL	0.841
95% KM (t) UCL	0.856	95% KM (Percentile Bootstrap) UCL	0.846
95% KM (z) UCL	0.841	95% KM Bootstrap t UCL	1.008
90% KM Chebyshev UCL	1.072	95% KM Chebyshev UCL	1.302
97.5% KM Chebyshev UCL	1.623	99% KM Chebyshev UCL	2.252

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.642	Anderson-Darling GOF Test
5% A-D Critical Value	0.757	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.227	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.234	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.181	k star (bias corrected MLE)	0.975
Theta hat (MLE)	0.668	Theta star (bias corrected MLE)	0.808
nu hat (MLE)	33.06	nu star (bias corrected)	27.31
Mean (detects)	0.789		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.555
Maximum	2.5	Median	0.215
SD	0.756	CV	1.363
k hat (MLE)	0.492	k star (bias corrected MLE)	0.451
Theta hat (MLE)	1.129	Theta star (bias corrected MLE)	1.23
nu hat (MLE)	19.67	nu star (bias corrected)	18.05
Adjusted Level of Significance (β)	0.038		
Approximate Chi Square Value (18.05, α)	9.43	Adjusted Chi Square Value (18.05, β)	8.939
95% Gamma Approximate UCL (use when n>=50)	1.063	95% Gamma Adjusted UCL (use when n<50)	1.121

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.562	SD (KM)	0.732
Variance (KM)	0.536	SE of Mean (KM)	0.17
k hat (KM)	0.589	k star (KM)	0.534

nu hat (KM)	23.56	nu star (KM)	21.36
theta hat (KM)	0.954	theta star (KM)	1.052
80% gamma percentile (KM)	0.925	90% gamma percentile (KM)	1.499
95% gamma percentile (KM)	2.108	99% gamma percentile (KM)	3.597

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (21.36, α)	11.86	Adjusted Chi Square Value (21.36, β)	11.3
95% Gamma Approximate KM-UCL (use when n>=50)	1.012	95% Gamma Adjusted KM-UCL (use when n<50)	1.062

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.908	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.874	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.195	Lilliefors GOF Test
5% Lilliefors Critical Value	0.226	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.565	Mean in Log Scale	-1.48
SD in Original Scale	0.749	SD in Log Scale	1.5
95% t UCL (assumes normality of ROS data)	0.855	95% Percentile Bootstrap UCL	0.841
95% BCA Bootstrap UCL	0.909	95% Bootstrap t UCL	0.99
95% H-UCL (Log ROS)	2.281		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-1.526	KM Geo Mean	0.218
KM SD (logged)	1.485	95% Critical H Value (KM-Log)	3.4
KM Standard Error of Mean (logged)	0.344	95% H-UCL (KM -Log)	2.084
KM SD (logged)	1.485	95% Critical H Value (KM-Log)	3.4
KM Standard Error of Mean (logged)	0.344		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.557	Mean in Log Scale	-1.733
SD in Original Scale	0.755	SD in Log Scale	1.803
95% t UCL (Assumes normality)	0.849	95% H-Stat UCL	4.607

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	1.062

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (aroclor 1254_11097-69-1)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	4
Number of Detects	3	Number of Non-Detects	17
Number of Distinct Detects	3	Number of Distinct Non-Detects	1
Minimum Detect	0.032	Minimum Non-Detect	0.033
Maximum Detect	0.15	Maximum Non-Detect	0.033
Variance Detects	0.00428	Percent Non-Detects	85%
Mean Detects	0.0747	SD Detects	0.0654
Median Detects	0.042	CV Detects	0.876
Skewness Detects	1.687	Kurtosis Detects	N/A
Mean of Logged Detects	-2.836	SD of Logged Detects	0.825

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.813	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.358	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.0384	KM Standard Error of Mean	0.00704
KM SD	0.0257	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.0506	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.05	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.0595	95% KM Chebyshev UCL	0.0691
97.5% KM Chebyshev UCL	0.0823	99% KM Chebyshev UCL	0.108

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	2.221	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0336	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	13.33	nu star (bias corrected)	N/A
Mean (detects)	0.0747		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.034
Maximum	0.15	Median	0.0269
SD	0.0324	CV	0.953
k hat (MLE)	1.741	k star (bias corrected MLE)	1.514
Theta hat (MLE)	0.0195	Theta star (bias corrected MLE)	0.0224
nu hat (MLE)	69.66	nu star (bias corrected)	60.54
Adjusted Level of Significance (β)	0.038		
Approximate Chi Square Value (60.54, α)	43.65	Adjusted Chi Square Value (60.54, β)	42.51
95% Gamma Approximate UCL (use when n>=50)	0.0471	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0384	SD (KM)	0.0257
Variance (KM)	6.6024E-4	SE of Mean (KM)	0.00704
k hat (KM)	2.233	k star (KM)	1.932
nu hat (KM)	89.33	nu star (KM)	77.27
theta hat (KM)	0.0172	theta star (KM)	0.0199
80% gamma percentile (KM)	0.0577	90% gamma percentile (KM)	0.0753
95% gamma percentile (KM)	0.0921	99% gamma percentile (KM)	0.129

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (77.27, α)	58.02	Adjusted Chi Square Value (77.27, β)	56.7
95% Gamma Approximate KM-UCL (use when n>=50)	0.0511	95% Gamma Adjusted KM-UCL (use when n<50)	0.0523

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.877	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.324	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0374	Mean in Log Scale	-3.459
SD in Original Scale	0.0292	SD in Log Scale	0.561
95% t UCL (assumes normality of ROS data)	0.0487	95% Percentile Bootstrap UCL	0.0497
95% BCA Bootstrap UCL	0.0548	95% Bootstrap t UCL	0.0606
95% H-UCL (Log ROS)	0.0481		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-3.351	KM Geo Mean	0.035
KM SD (logged)	0.339	95% Critical H Value (KM-Log)	1.88
KM Standard Error of Mean (logged)	0.0928	95% H-UCL (KM -Log)	0.043
KM SD (logged)	0.339	95% Critical H Value (KM-Log)	1.88
KM Standard Error of Mean (logged)	0.0928		

DL/2 Statistics

DL/2 Normal

DL/2 Log-Transformed

Mean in Original Scale	0.0252	Mean in Log Scale	-3.914
SD in Original Scale	0.0301	SD in Log Scale	0.536
95% t UCL (Assumes normality)	0.0369	95% H-Stat UCL	0.0297

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0506

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (aroclor 1260_11096-82-5)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	12
Number of Detects	12	Number of Non-Detects	8
Number of Distinct Detects	12	Number of Distinct Non-Detects	1
Minimum Detect	0.0094	Minimum Non-Detect	0.033
Maximum Detect	0.16	Maximum Non-Detect	0.033
Variance Detects	0.00269	Percent Non-Detects	40%
Mean Detects	0.0795	SD Detects	0.0519
Median Detects	0.082	CV Detects	0.653
Skewness Detects	0.151	Kurtosis Detects	-1.292
Mean of Logged Detects	-2.828	SD of Logged Detects	0.909

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.941	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.859	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.148	Lilliefors GOF Test
5% Lilliefors Critical Value	0.243	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.0547	KM Standard Error of Mean	0.0116
KM SD	0.0491	95% KM (BCA) UCL	0.0752
95% KM (t) UCL	0.0747	95% KM (Percentile Bootstrap) UCL	0.0742
95% KM (z) UCL	0.0737	95% KM Bootstrap t UCL	0.0777
90% KM Chebyshev UCL	0.0894	95% KM Chebyshev UCL	0.105
97.5% KM Chebyshev UCL	0.127	99% KM Chebyshev UCL	0.17

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.378	Anderson-Darling GOF Test
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.172	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.249	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.841	k star (bias corrected MLE)	1.436
Theta hat (MLE)	0.0432	Theta star (bias corrected MLE)	0.0553
nu hat (MLE)	44.19	nu star (bias corrected)	34.47
Mean (detects)	0.0795		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0094	Mean	0.056
Maximum	0.16	Median	0.0337
SD	0.0498	CV	0.888
k hat (MLE)	1.325	k star (bias corrected MLE)	1.16
Theta hat (MLE)	0.0423	Theta star (bias corrected MLE)	0.0483
nu hat (MLE)	53.01	nu star (bias corrected)	46.39
Adjusted Level of Significance (β)	0.038		

Approximate Chi Square Value (46.39, α)	31.76	Adjusted Chi Square Value (46.39, β)	30.8
95% Gamma Approximate UCL (use when n>=50)	0.0819	95% Gamma Adjusted UCL (use when n<50)	0.0844

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0547	SD (KM)	0.0491
Variance (KM)	0.00241	SE of Mean (KM)	0.0116
k hat (KM)	1.237	k star (KM)	1.085
nu hat (KM)	49.48	nu star (KM)	43.4
theta hat (KM)	0.0442	theta star (KM)	0.0504
80% gamma percentile (KM)	0.0874	90% gamma percentile (KM)	0.123
95% gamma percentile (KM)	0.159	99% gamma percentile (KM)	0.242

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (43.40, α)	29.29	Adjusted Chi Square Value (43.40, β)	28.37
95% Gamma Approximate KM-UCL (use when n>=50)	0.081	95% Gamma Adjusted KM-UCL (use when n<50)	0.0836

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.902	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.203	Lilliefors GOF Test
5% Lilliefors Critical Value	0.243	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0554	Mean in Log Scale	-3.329
SD in Original Scale	0.0501	SD in Log Scale	0.997
95% t UCL (assumes normality of ROS data)	0.0747	95% Percentile Bootstrap UCL	0.0746
95% BCA Bootstrap UCL	0.0762	95% Bootstrap t UCL	0.0781
95% H-UCL (Log ROS)	0.107		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-3.343	KM Geo Mean	0.0353
KM SD (logged)	0.956	95% Critical H Value (KM-Log)	2.57
KM Standard Error of Mean (logged)	0.249	95% H-UCL (KM -Log)	0.098
KM SD (logged)	0.956	95% Critical H Value (KM-Log)	2.57
KM Standard Error of Mean (logged)	0.249		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0543	Mean in Log Scale	-3.339
SD in Original Scale	0.0506	SD in Log Scale	0.944
95% t UCL (Assumes normality)	0.0738	95% H-Stat UCL	0.0962

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.0747

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (arsenic_7440-38-2)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	11
		Number of Missing Observations	0
Minimum	1.2	Mean	2.43
Maximum	4.3	Median	2.35
SD	0.663	Std. Error of Mean	0.148
Coefficient of Variation	0.273	Skewness	1.042

Normal GOF Test

Shapiro Wilk Test Statistic	0.917	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.905	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.192	Lilliefors GOF Test
5% Lilliefors Critical Value	0.192	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

		Assuming Normal Distribution	
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	2.686	95% Adjusted-CLT UCL (Chen-1995)	2.711
		95% Modified-t UCL (Johnson-1978)	2.692
		Gamma GOF Test	
A-D Test Statistic	0.503	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.159	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
		Gamma Statistics	
k hat (MLE)	14.82	k star (bias corrected MLE)	12.63
Theta hat (MLE)	0.164	Theta star (bias corrected MLE)	0.192
nu hat (MLE)	593	nu star (bias corrected)	505.4
MLE Mean (bias corrected)	2.43	MLE Sd (bias corrected)	0.684
		Approximate Chi Square Value (0.05)	454.2
Adjusted Level of Significance	0.038	Adjusted Chi Square Value	450.4
		Assuming Gamma Distribution	
95% Approximate Gamma UCL (use when n>=50))	2.704	95% Adjusted Gamma UCL (use when n<50)	2.726
		Lognormal GOF Test	
Shapiro Wilk Test Statistic	0.952	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.789	Data appear Lognormal at 5% Significance Level	0.8
Lilliefors Test Statistic	0.425	Lilliefors Lognormal GOF Test	1.015
5% Lilliefors Critical Value	1.303	Data appear Lognormal at 5% Significance Level	0.608
Data appear Lognormal at 5% Significance Level	0.717		1.023
		Lognormal Statistics	
Minimum of Logged Data	0.793	Mean of logged Data	
Maximum of Logged Data	0.874	SD of logged Data	
	0.233		
	0.226	**Assuming Lognormal Distribution**	
95% H-UCL		90% Chebyshev (MVUE) UCL	
95% Chebyshev (MVUE) UCL		97.5% Chebyshev (MVUE) UCL	
99% Chebyshev (MVUE) UCL			
	0.562		0.17
	0.738	**Nonparametric Distribution Free UCL Statistics**	0.841
Data appear to follow a Discernible Distribution at 5% Significance Level	0.856		0.846
	0.841		1.008
	1.072	**Nonparametric Distribution Free UCLs**	1.302
95% CLT UCL	1.623	95% Jackknife UCL	2.252
95% Standard Bootstrap UCL		95% Bootstrap-t UCL	
95% Hall's Bootstrap UCL		95% Percentile Bootstrap UCL	
95% BCA Bootstrap UCL	0.642		
90% Chebyshev(Mean, Sd) UCL	0.757	95% Chebyshev(Mean, Sd) UCL	
97.5% Chebyshev(Mean, Sd) UCL	0.227	99% Chebyshev(Mean, Sd) UCL	
	0.234		
		Suggested UCL to Use	
95% Student's-t UCL			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. 1.181 0.975
Recommendations are based upon data size, data distribution, and skewness. 0.698 0.808
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). 33.06 27.31
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician. 0.789

result (benzo(a)anthracene_56-55-3)

		General Statistics	
Total Number of Observations		Number of Distinct Observations	
Number of Detects		Number of Non-Detects	
Number of Distinct Detects	0.01	Number of Distinct Non-Detects	0.555
Minimum Detect	2.5	Minimum Non-Detect	0.215
Maximum Detect	0.756	Maximum Non-Detect	1.363
Variance Detects	0.492	Percent Non-Detects	0.451
Mean Detects	1.129	SD Detects	1.23

Median Detects	0.126	CV Detects	0.389
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	-2.115	SD of Logged Detects	0.399

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.126	KM Standard Error of Mean	0.0345
KM SD	0.0345	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.185	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.182	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.229	95% KM Chebyshev UCL	0.276
97.5% KM Chebyshev UCL	0.341	99% KM Chebyshev UCL	0.469

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	12.89	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.00974	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	51.56	nu star (bias corrected)	N/A
Mean (detects)	0.126		

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.126	SD (KM)	0.0345
Variance (KM)	0.00119	SE of Mean (KM)	0.0345
k hat (KM)	13.23	k star (KM)	11.28
nu hat (KM)	529.3	nu star (KM)	451.2
theta hat (KM)	0.00948	theta star (KM)	0.0111
80% gamma percentile (KM)	0.155	90% gamma percentile (KM)	0.175
95% gamma percentile (KM)	0.193	99% gamma percentile (KM)	0.228

Gamma Kaplan-Meier (KM) Statistics

		Adjusted Level of Significance (β)	0.038
Approximate Chi Square Value (451.25, α)	403	Adjusted Chi Square Value (451.25, β)	399.4
95% Gamma Approximate KM-UCL (use when n>=50)	0.141	95% Gamma Adjusted KM-UCL (use when n<50)	0.142

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.139	Mean in Log Scale	-2.115
SD in Original Scale	0.0787	SD in Log Scale	0.555
95% t UCL (assumes normality of ROS data)	0.17	95% Percentile Bootstrap UCL	0.169
95% BCA Bootstrap UCL	0.172	95% Bootstrap t UCL	0.178
95% H-UCL (Log ROS)	0.183		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.115	KM Geo Mean	0.121
KM SD (logged)	0.282	95% Critical H Value (KM-Log)	1.839
KM Standard Error of Mean (logged)	0.282	95% H-UCL (KM -Log)	0.141
KM SD (logged)	0.282	95% Critical H Value (KM-Log)	1.839
KM Standard Error of Mean (logged)	0.282		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0891	Mean in Log Scale	-2.43
SD in Original Scale	0.0168	SD in Log Scale	0.141
95% t UCL (Assumes normality)	0.0955	95% H-Stat UCL	0.0941

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.185	KM H-UCL	0.141

95% KM (BCA) UCL N/A

Warning: One or more Recommended UCL(s) not available!

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzo(a)pyrene_50-32-8)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	3
Number of Detects	2	Number of Non-Detects	18
Number of Distinct Detects	2	Number of Distinct Non-Detects	1
Minimum Detect	0.098	Minimum Non-Detect	0.17
Maximum Detect	0.14	Maximum Non-Detect	0.17
Variance Detects	8.8200E-4	Percent Non-Detects	90%
Mean Detects	0.119	SD Detects	0.0297
Median Detects	0.119	CV Detects	0.25
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	-2.144	SD of Logged Detects	0.252

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.119	KM Standard Error of Mean	0.021
KM SD	0.021	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.155	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.154	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.182	95% KM Chebyshev UCL	0.211
97.5% KM Chebyshev UCL	0.25	99% KM Chebyshev UCL	0.328

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	31.77	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.00375	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	127.1	nu star (bias corrected)	N/A
Mean (detects)	0.119		

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.119	SD (KM)	0.021
Variance (KM)	4.4100E-4	SE of Mean (KM)	0.021
k hat (KM)	32.11	k star (KM)	27.33
nu hat (KM)	1284	nu star (KM)	1093
theta hat (KM)	0.00371	theta star (KM)	0.00435
80% gamma percentile (KM)	0.138	90% gamma percentile (KM)	0.149
95% gamma percentile (KM)	0.159	99% gamma percentile (KM)	0.178

Gamma Kaplan-Meier (KM) Statistics

		Adjusted Level of Significance (β)	0.038
Approximate Chi Square Value (N/A, α)	1017	Adjusted Chi Square Value (N/A, β)	1012
95% Gamma Approximate KM-UCL (use when n>=50)	0.128	95% Gamma Adjusted KM-UCL (use when n<50)	0.129

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.124	Mean in Log Scale	-2.144
SD in Original Scale	0.0439	SD in Log Scale	0.351
95% t UCL (assumes normality of ROS data)	0.141	95% Percentile Bootstrap UCL	0.14
95% BCA Bootstrap UCL	0.142	95% Bootstrap t UCL	0.143
95% H-UCL (Log ROS)	0.145		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.144	KM Geo Mean	0.117
KM SD (logged)	0.178	95% Critical H Value (KM-Log)	1.773
KM Standard Error of Mean (logged)	0.178	95% H-UCL (KM -Log)	0.128
KM SD (logged)	0.178	95% Critical H Value (KM-Log)	1.773
KM Standard Error of Mean (logged)	0.178		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0884	Mean in Log Scale	-2.433
SD in Original Scale	0.0125	SD in Log Scale	0.114
95% t UCL (Assumes normality)	0.0932	95% H-Stat UCL	0.0925

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.155	KM H-UCL	0.128
95% KM (BCA) UCL	N/A		

Warning: One or more Recommended UCL(s) not available!

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (bis(2-ethylhexyl) phthalate_117-81-7)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	19
Number of Detects	18	Number of Non-Detects	2
Number of Distinct Detects	18	Number of Distinct Non-Detects	1
Minimum Detect	0.13	Minimum Non-Detect	0.17
Maximum Detect	37	Maximum Non-Detect	0.17
Variance Detects	96.17	Percent Non-Detects	10%
Mean Detects	5.038	SD Detects	9.807
Median Detects	0.715	CV Detects	1.947
Skewness Detects	2.496	Kurtosis Detects	6.377
Mean of Logged Detects	0.117	SD of Logged Detects	1.669

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.566	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.897	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.419	Lilliefors GOF Test
5% Lilliefors Critical Value	0.202	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	4.547	KM Standard Error of Mean	2.108
KM SD	9.16	95% KM (BCA) UCL	8.295
95% KM (t) UCL	8.192	95% KM (Percentile Bootstrap) UCL	8.155
95% KM (z) UCL	8.014	95% KM Bootstrap t UCL	11.69
90% KM Chebyshev UCL	10.87	95% KM Chebyshev UCL	13.73
97.5% KM Chebyshev UCL	17.71	99% KM Chebyshev UCL	25.52

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.012	Anderson-Darling GOF Test
5% A-D Critical Value	0.814	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.33	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.217	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.433	k star (bias corrected MLE)	0.398
Theta hat (MLE)	11.63	Theta star (bias corrected MLE)	12.66
nu hat (MLE)	15.59	nu star (bias corrected)	14.32
Mean (detects)	5.038		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4.535
Maximum	37	Median	0.625
SD	9.404	CV	2.074
k hat (MLE)	0.359	k star (bias corrected MLE)	0.338
Theta hat (MLE)	12.64	Theta star (bias corrected MLE)	13.41
nu hat (MLE)	14.35	nu star (bias corrected)	13.53
Adjusted Level of Significance (β)	0.038		
Approximate Chi Square Value (13.53, α)	6.249	Adjusted Chi Square Value (13.53, β)	5.861
95% Gamma Approximate UCL (use when n>=50)	9.817	95% Gamma Adjusted UCL (use when n<50)	10.47

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	4.547	SD (KM)	9.16
Variance (KM)	83.91	SE of Mean (KM)	2.108
k hat (KM)	0.246	k star (KM)	0.243
nu hat (KM)	9.855	nu star (KM)	9.71
theta hat (KM)	18.45	theta star (KM)	18.73
80% gamma percentile (KM)	6.533	90% gamma percentile (KM)	13.67
95% gamma percentile (KM)	22.2	99% gamma percentile (KM)	44.99

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (9.71, α)	3.762	Adjusted Chi Square Value (9.71, β)	3.473
95% Gamma Approximate KM-UCL (use when n>=50)	11.74	95% Gamma Adjusted KM-UCL (use when n<50)	12.71

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.869	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.897	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.242	Lilliefors GOF Test
5% Lilliefors Critical Value	0.202	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	4.539	Mean in Log Scale	-0.198
SD in Original Scale	9.402	SD in Log Scale	1.856
95% t UCL (assumes normality of ROS data)	8.175	95% Percentile Bootstrap UCL	8.299
95% BCA Bootstrap UCL	9.173	95% Bootstrap t UCL	11.32
95% H-UCL (Log ROS)	25.74		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.0991	KM Geo Mean	0.906
KM SD (logged)	1.67	95% Critical H Value (KM-Log)	3.717
KM Standard Error of Mean (logged)	0.384	95% H-UCL (KM -Log)	15.16
KM SD (logged)	1.67	95% Critical H Value (KM-Log)	3.717
KM Standard Error of Mean (logged)	0.384		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	4.543	Mean in Log Scale	-0.142
SD in Original Scale	9.401	SD in Log Scale	1.768
95% t UCL (Assumes normality)	8.177	95% H-Stat UCL	20.06

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	13.73

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (chromium, total_7440-47-3)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	18

		Number of Missing Observations	0
Minimum	5.8	Mean	12.2
Maximum	21.3	Median	10.7
SD	3.894	Std. Error of Mean	0.871
Coefficient of Variation	0.319	Skewness	0.78

Normal GOF Test

Shapiro Wilk Test Statistic	0.934	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.905	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.199	Lilliefors GOF Test
5% Lilliefors Critical Value	0.192	Data Not Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	13.7	95% Adjusted-CLT UCL (Chen-1995)	13.79
		95% Modified-t UCL (Johnson-1978)	13.73

Gamma GOF Test

A-D Test Statistic	0.409	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.175	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.84	k star (bias corrected MLE)	9.248
Theta hat (MLE)	1.125	Theta star (bias corrected MLE)	1.319
nu hat (MLE)	433.6	nu star (bias corrected)	369.9
MLE Mean (bias corrected)	12.2	MLE Sd (bias corrected)	4.01
		Approximate Chi Square Value (0.05)	326.3
Adjusted Level of Significance	0.038	Adjusted Chi Square Value	323.1

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	13.82	95% Adjusted Gamma UCL (use when n<50)	13.96

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.969	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.905	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.155	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.192	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.758	Mean of logged Data	2.454
Maximum of Logged Data	3.059	SD of logged Data	0.314

Assuming Lognormal Distribution

95% H-UCL	13.98	90% Chebyshev (MVUE) UCL	14.8
95% Chebyshev (MVUE) UCL	15.98	97.5% Chebyshev (MVUE) UCL	17.62
99% Chebyshev (MVUE) UCL	20.84		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	13.63	95% Jackknife UCL	13.7
95% Standard Bootstrap UCL	13.58	95% Bootstrap-t UCL	13.9
95% Hall's Bootstrap UCL	13.83	95% Percentile Bootstrap UCL	13.56
95% BCA Bootstrap UCL	13.72		
90% Chebyshev(Mean, Sd) UCL	14.81	95% Chebyshev(Mean, Sd) UCL	15.99
97.5% Chebyshev(Mean, Sd) UCL	17.63	99% Chebyshev(Mean, Sd) UCL	20.86

Suggested UCL to Use

95% Student's-t UCL	13.7

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cobalt_7440-48-4)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	14
		Number of Missing Observations	0
Minimum	2	Mean	3.005
Maximum	5.6	Median	2.8
SD	0.889	Std. Error of Mean	0.199
Coefficient of Variation	0.296	Skewness	1.814

Normal GOF Test

Shapiro Wilk Test Statistic	0.791	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.905	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.257	Lilliefors GOF Test
5% Lilliefors Critical Value	0.192	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	3.349	95% Adjusted-CLT UCL (Chen-1995)	3.418
		95% Modified-t UCL (Johnson-1978)	3.362

Gamma GOF Test

A-D Test Statistic	1.198	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.741	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.22	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.194	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	14.87	k star (bias corrected MLE)	12.68
Theta hat (MLE)	0.202	Theta star (bias corrected MLE)	0.237
nu hat (MLE)	594.9	nu star (bias corrected)	507
MLE Mean (bias corrected)	3.005	MLE Sd (bias corrected)	0.844
		Approximate Chi Square Value (0.05)	455.8
Adjusted Level of Significance	0.038	Adjusted Chi Square Value	452

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	3.343	95% Adjusted Gamma UCL (use when n<50)	3.371

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.884	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.905	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.202	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.192	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.693	Mean of logged Data	1.066
Maximum of Logged Data	1.723	SD of logged Data	0.256

Assuming Lognormal Distribution

95% H-UCL	3.339	90% Chebyshev (MVUE) UCL	3.515
95% Chebyshev (MVUE) UCL	3.75	97.5% Chebyshev (MVUE) UCL	4.076
99% Chebyshev (MVUE) UCL	4.717		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	3.332	95% Jackknife UCL	3.349
95% Standard Bootstrap UCL	3.326	95% Bootstrap-t UCL	3.53
95% Hall's Bootstrap UCL	3.582	95% Percentile Bootstrap UCL	3.345
95% BCA Bootstrap UCL	3.415		
90% Chebyshev(Mean, Sd) UCL	3.602	95% Chebyshev(Mean, Sd) UCL	3.872
97.5% Chebyshev(Mean, Sd) UCL	4.247	99% Chebyshev(Mean, Sd) UCL	4.984

Suggested UCL to Use

95% Student's-t UCL	3.349	or 95% Modified-t UCL	3.362

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (naphthalene_91-20-3)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	4
Number of Detects	3	Number of Non-Detects	17
Number of Distinct Detects	3	Number of Distinct Non-Detects	1
Minimum Detect	1	Minimum Non-Detect	0.17
Maximum Detect	16	Maximum Non-Detect	0.17
Variance Detects	63.3	Percent Non-Detects	85%
Mean Detects	6.967	SD Detects	7.956
Median Detects	3.9	CV Detects	1.142
Skewness Detects	1.477	Kurtosis Detects	N/A
Mean of Logged Detects	1.378	SD of Logged Detects	1.386

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.889	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.317	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.19	KM Standard Error of Mean	0.957
KM SD	3.496	95% KM (BCA) UCL	N/A
95% KM (t) UCL	2.845	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	2.764	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	4.062	95% KM Chebyshev UCL	5.362
97.5% KM Chebyshev UCL	7.168	99% KM Chebyshev UCL	10.71

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	1.022	k star (bias corrected MLE)	N/A
Theta hat (MLE)	6.816	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	6.133	nu star (bias corrected)	N/A
Mean (detects)	6.967		

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.054
Maximum	16	Median	0.01
SD	3.627	CV	3.443
k hat (MLE)	0.196	k star (bias corrected MLE)	0.2
Theta hat (MLE)	5.367	Theta star (bias corrected MLE)	5.263
nu hat (MLE)	7.852	nu star (bias corrected)	8.008
Adjusted Level of Significance (β)	0.038		
Approximate Chi Square Value (8.01, α)	2.739	Adjusted Chi Square Value (8.01, β)	2.501
95% Gamma Approximate UCL (use when n>=50)	3.079	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.19	SD (KM)	3.496
Variance (KM)	12.22	SE of Mean (KM)	0.957
k hat (KM)	0.116	k star (KM)	0.132
nu hat (KM)	4.631	nu star (KM)	5.27
theta hat (KM)	10.27	theta star (KM)	9.028

80% gamma percentile (KM)	1.152	90% gamma percentile (KM)	3.448
95% gamma percentile (KM)	6.698	99% gamma percentile (KM)	16.4
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (5.27, α)	1.279	Adjusted Chi Square Value (5.27, β)	1.132
95% Gamma Approximate KM-UCL (use when n>=50)	4.901	95% Gamma Adjusted KM-UCL (use when n<50)	5.537
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	1	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.176	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	1.064	Mean in Log Scale	-5.709
SD in Original Scale	3.625	SD in Log Scale	4.45
95% t UCL (assumes normality of ROS data)	2.465	95% Percentile Bootstrap UCL	2.625
95% BCA Bootstrap UCL	3.647	95% Bootstrap t UCL	17.18
95% H-UCL (Log ROS)	567950		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-1.299	KM Geo Mean	0.273
KM SD (logged)	1.207	95% Critical H Value (KM-Log)	2.947
KM Standard Error of Mean (logged)	0.331	95% H-UCL (KM -Log)	1.278
KM SD (logged)	1.207	95% Critical H Value (KM-Log)	2.947
KM Standard Error of Mean (logged)	0.331		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.117	Mean in Log Scale	-1.889
SD in Original Scale	3.608	SD in Log Scale	1.478
95% t UCL (Assumes normality)	2.512	95% H-Stat UCL	1.423
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Detected Data appear Normal Distributed at 5% Significance Level			
Suggested UCL to Use			
95% KM (t) UCL	2.845		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TABLE B.3
PROUCL 5.1.002 RAW OUTPUT FOR SOIL 0-10FT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.15/25/2017 10:23:01 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

result (2-methylnaphthalene_91-57-6)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	11
Number of Detects	10	Number of Non-Detects	17
Number of Distinct Detects	10	Number of Distinct Non-Detects	1
Minimum Detect	0.15	Minimum Non-Detect	0.17
Maximum Detect	410	Maximum Non-Detect	0.17
Variance Detects	17271	Percent Non-Detects	62.96%
Mean Detects	65.83	SD Detects	131.4
Median Detects	1.3	CV Detects	1.996
Skewness Detects	2.436	Kurtosis Detects	6.068
Mean of Logged Detects	1.595	SD of Logged Detects	2.69

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.594	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.356	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	24.48	KM Standard Error of Mean	16.68
KM SD	82.24	95% KM (BCA) UCL	53.57
95% KM (t) UCL	52.93	95% KM (Percentile Bootstrap) UCL	54.76
95% KM (z) UCL	51.92	95% KM Bootstrap t UCL	159.2
90% KM Chebyshev UCL	74.52	95% KM Chebyshev UCL	97.19
97.5% KM Chebyshev UCL	128.7	99% KM Chebyshev UCL	190.5

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.871	Anderson-Darling GOF Test
5% A-D Critical Value	0.826	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.321	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.29	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.271	k star (bias corrected MLE)	0.256
Theta hat (MLE)	243.3	Theta star (bias corrected MLE)	257.1
nu hat (MLE)	5.411	nu star (bias corrected)	5.121
Mean (detects)	65.83		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	24.39
Maximum	410	Median	0.01
SD	83.83	CV	3.438
k hat (MLE)	0.141	k star (bias corrected MLE)	0.15
Theta hat (MLE)	173	Theta star (bias corrected MLE)	162.6
nu hat (MLE)	7.61	nu star (bias corrected)	8.098
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (8.10, α)	2.792	Adjusted Chi Square Value (8.10, β)	2.596
95% Gamma Approximate UCL (use when n>=50)	70.74	95% Gamma Adjusted UCL (use when n<50)	76.07

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	24.48	SD (KM)	82.24
Variance (KM)	6763	SE of Mean (KM)	16.68
k hat (KM)	0.0886	k star (KM)	0.103

nu hat (KM)	4.783	nu star (KM)	5.585
theta hat (KM)	276.3	theta star (KM)	236.6
80% gamma percentile (KM)	17.81	90% gamma percentile (KM)	66.03
95% gamma percentile (KM)	141.8	99% gamma percentile (KM)	382.3

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (5.58, α)	1.432	Adjusted Chi Square Value (5.58, β)	1.303
95% Gamma Approximate KM-UCL (use when n>=50)	95.48	95% Gamma Adjusted KM-UCL (use when n<50)	104.9

95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.891	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.271	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data Not Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	24.44	Mean in Log Scale	-1.915
SD in Original Scale	83.81	SD in Log Scale	3.689
95% t UCL (assumes normality of ROS data)	51.95	95% Percentile Bootstrap UCL	54.22
95% BCA Bootstrap UCL	70.01	95% Bootstrap t UCL	158.4
95% H-UCL (Log ROS)	20427		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.604	KM Geo Mean	0.547
KM SD (logged)	2.292	95% Critical H Value (KM-Log)	4.526
KM Standard Error of Mean (logged)	0.465	95% H-UCL (KM -Log)	57.91
KM SD (logged)	2.292	95% Critical H Value (KM-Log)	4.526
KM Standard Error of Mean (logged)	0.465		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	24.43	Mean in Log Scale	-0.961
SD in Original Scale	83.82	SD in Log Scale	2.549
95% t UCL (Assumes normality)	51.95	95% H-Stat UCL	117.7

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

99% KM (Chebyshev) UCL 190.5

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (aroclor 1248_12672-29-6)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	15
Number of Detects	14	Number of Non-Detects	6
Number of Distinct Detects	14	Number of Distinct Non-Detects	1
Minimum Detect	0.14	Minimum Non-Detect	0.033
Maximum Detect	2.5	Maximum Non-Detect	0.033
Variance Detects	0.64	Percent Non-Detects	30%
Mean Detects	0.789	SD Detects	0.8
Median Detects	0.425	CV Detects	1.015
Skewness Detects	1.303	Kurtosis Detects	0.608
Mean of Logged Detects	-0.717	SD of Logged Detects	1.023

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.793	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.874	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.233	Lilliefors GOF Test
5% Lilliefors Critical Value	0.226	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.562	KM Standard Error of Mean	0.17
KM SD	0.732	95% KM (BCA) UCL	0.88
95% KM (t) UCL	0.856	95% KM (Percentile Bootstrap) UCL	0.829
95% KM (z) UCL	0.841	95% KM Bootstrap t UCL	0.985
90% KM Chebyshev UCL	1.072	95% KM Chebyshev UCL	1.302
97.5% KM Chebyshev UCL	1.623	99% KM Chebyshev UCL	2.252

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.642	Anderson-Darling GOF Test
5% A-D Critical Value	0.757	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.227	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.234	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.181	k star (bias corrected MLE)	0.975
Theta hat (MLE)	0.668	Theta star (bias corrected MLE)	0.808
nu hat (MLE)	33.06	nu star (bias corrected)	27.31
Mean (detects)	0.789		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.555
Maximum	2.5	Median	0.215
SD	0.756	CV	1.363
k hat (MLE)	0.492	k star (bias corrected MLE)	0.451
Theta hat (MLE)	1.129	Theta star (bias corrected MLE)	1.23
nu hat (MLE)	19.67	nu star (bias corrected)	18.05
Adjusted Level of Significance (β)	0.038		
Approximate Chi Square Value (18.05, α)	9.43	Adjusted Chi Square Value (18.05, β)	8.939
95% Gamma Approximate UCL (use when n>=50)	1.063	95% Gamma Adjusted UCL (use when n<50)	1.121

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.562	SD (KM)	0.732
Variance (KM)	0.536	SE of Mean (KM)	0.17
k hat (KM)	0.589	k star (KM)	0.534
nu hat (KM)	23.56	nu star (KM)	21.36
theta hat (KM)	0.954	theta star (KM)	1.052
80% gamma percentile (KM)	0.925	90% gamma percentile (KM)	1.499
95% gamma percentile (KM)	2.108	99% gamma percentile (KM)	3.597

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (21.36, α)	11.86	Adjusted Chi Square Value (21.36, β)	11.3
95% Gamma Approximate KM-UCL (use when n>=50)	1.012	95% Gamma Adjusted KM-UCL (use when n<50)	1.062

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.908	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.874	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.195	Lilliefors GOF Test
5% Lilliefors Critical Value	0.226	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.565	Mean in Log Scale	-1.48
SD in Original Scale	0.749	SD in Log Scale	1.5
95% t UCL (assumes normality of ROS data)	0.855	95% Percentile Bootstrap UCL	0.848
95% BCA Bootstrap UCL	0.891	95% Bootstrap t UCL	0.965
95% H-UCL (Log ROS)	2.281		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-1.526	KM Geo Mean	0.218
KM SD (logged)	1.485	95% Critical H Value (KM-Log)	3.4
KM Standard Error of Mean (logged)	0.344	95% H-UCL (KM -Log)	2.084
KM SD (logged)	1.485	95% Critical H Value (KM-Log)	3.4
KM Standard Error of Mean (logged)	0.344		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.557	Mean in Log Scale	-1.733
SD in Original Scale	0.755	SD in Log Scale	1.803
95% t UCL (Assumes normality)	0.849	95% H-Stat UCL	4.607

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1) 1.062

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (aroclor 1254_11097-69-1)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	4
Number of Detects	3	Number of Non-Detects	17
Number of Distinct Detects	3	Number of Distinct Non-Detects	1
Minimum Detect	0.032	Minimum Non-Detect	0.033
Maximum Detect	0.15	Maximum Non-Detect	0.033
Variance Detects	0.00428	Percent Non-Detects	85%
Mean Detects	0.0747	SD Detects	0.0654
Median Detects	0.042	CV Detects	0.876
Skewness Detects	1.687	Kurtosis Detects	N/A
Mean of Logged Detects	-2.836	SD of Logged Detects	0.825

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.813	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.358	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.0384	KM Standard Error of Mean	0.00704
KM SD	0.0257	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.0506	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.05	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.0595	95% KM Chebyshev UCL	0.0691
97.5% KM Chebyshev UCL	0.0823	99% KM Chebyshev UCL	0.108

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	2.221	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0336	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	13.33	nu star (bias corrected)	N/A
Mean (detects)	0.0747		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.034
Maximum	0.15	Median	0.0269
SD	0.0324	CV	0.953
k hat (MLE)	1.741	k star (bias corrected MLE)	1.514
Theta hat (MLE)	0.0195	Theta star (bias corrected MLE)	0.0224
nu hat (MLE)	69.66	nu star (bias corrected)	60.54

Adjusted Level of Significance (β)	0.038		
Approximate Chi Square Value (60.54, α)	43.65	Adjusted Chi Square Value (60.54, β)	42.51
95% Gamma Approximate UCL (use when n>=50)	0.0471	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0384	SD (KM)	0.0257
Variance (KM)	6.6024E-4	SE of Mean (KM)	0.00704
k hat (KM)	2.233	k star (KM)	1.932
nu hat (KM)	89.33	nu star (KM)	77.27
theta hat (KM)	0.0172	theta star (KM)	0.0199
80% gamma percentile (KM)	0.0577	90% gamma percentile (KM)	0.0753
95% gamma percentile (KM)	0.0921	99% gamma percentile (KM)	0.129

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (77.27, α)	58.02	Adjusted Chi Square Value (77.27, β)	56.7
95% Gamma Approximate KM-UCL (use when n>=50)	0.0511	95% Gamma Adjusted KM-UCL (use when n<50)	0.0523

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.877	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.324	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0374	Mean in Log Scale	-3.459
SD in Original Scale	0.0292	SD in Log Scale	0.561
95% t UCL (assumes normality of ROS data)	0.0487	95% Percentile Bootstrap UCL	0.0491
95% BCA Bootstrap UCL	0.0559	95% Bootstrap t UCL	0.0612
95% H-UCL (Log ROS)	0.0481		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-3.351	KM Geo Mean	0.035
KM SD (logged)	0.339	95% Critical H Value (KM-Log)	1.88
KM Standard Error of Mean (logged)	0.0928	95% H-UCL (KM -Log)	0.043
KM SD (logged)	0.339	95% Critical H Value (KM-Log)	1.88
KM Standard Error of Mean (logged)	0.0928		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0252	Mean in Log Scale	-3.914
SD in Original Scale	0.0301	SD in Log Scale	0.536
95% t UCL (Assumes normality)	0.0369	95% H-Stat UCL	0.0297

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.0506

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (aroclor 1260_11096-82-5)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	12
Number of Detects	12	Number of Non-Detects	8
Number of Distinct Detects	12	Number of Distinct Non-Detects	1
Minimum Detect	0.0094	Minimum Non-Detect	0.033
Maximum Detect	0.16	Maximum Non-Detect	0.033
Variance Detects	0.00269	Percent Non-Detects	40%
Mean Detects	0.0795	SD Detects	0.0519
Median Detects	0.082	CV Detects	0.653
Skewness Detects	0.151	Kurtosis Detects	-1.292
Mean of Logged Detects	-2.828	SD of Logged Detects	0.909

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.941	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.859	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.148	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.243	Detected Data appear Normal at 5% Significance Level	
Detected Data appear Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	0.0547	KM Standard Error of Mean	0.0116
KM SD	0.0491	95% KM (BCA) UCL	0.0745
95% KM (t) UCL	0.0747	95% KM (Percentile Bootstrap) UCL	0.0753
95% KM (z) UCL	0.0737	95% KM Bootstrap t UCL	0.0802
90% KM Chebyshev UCL	0.0894	95% KM Chebyshev UCL	0.105
97.5% KM Chebyshev UCL	0.127	99% KM Chebyshev UCL	0.17
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.378	Anderson-Darling GOF Test	
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.172	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.249	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	1.841	k star (bias corrected MLE)	1.436
Theta hat (MLE)	0.0432	Theta star (bias corrected MLE)	0.0553
nu hat (MLE)	44.19	nu star (bias corrected)	34.47
Mean (detects)	0.0795		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.0094	Mean	0.056
Maximum	0.16	Median	0.0337
SD	0.0498	CV	0.888
k hat (MLE)	1.325	k star (bias corrected MLE)	1.16
Theta hat (MLE)	0.0423	Theta star (bias corrected MLE)	0.0483
nu hat (MLE)	53.01	nu star (bias corrected)	46.39
Adjusted Level of Significance (β)	0.038		
Approximate Chi Square Value (46.39, α)	31.76	Adjusted Chi Square Value (46.39, β)	30.8
95% Gamma Approximate UCL (use when n>=50)	0.0819	95% Gamma Adjusted UCL (use when n<50)	0.0844
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	0.0547	SD (KM)	0.0491
Variance (KM)	0.00241	SE of Mean (KM)	0.0116
k hat (KM)	1.237	k star (KM)	1.085
nu hat (KM)	49.48	nu star (KM)	43.4
theta hat (KM)	0.0442	theta star (KM)	0.0504
80% gamma percentile (KM)	0.0874	90% gamma percentile (KM)	0.123
95% gamma percentile (KM)	0.159	99% gamma percentile (KM)	0.242
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (43.40, α)	29.29	Adjusted Chi Square Value (43.40, β)	28.37
95% Gamma Approximate KM-UCL (use when n>=50)	0.081	95% Gamma Adjusted KM-UCL (use when n<50)	0.0836
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.902	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.203	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.243	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.0554	Mean in Log Scale	-3.329
SD in Original Scale	0.0501	SD in Log Scale	0.997
95% t UCL (assumes normality of ROS data)	0.0747	95% Percentile Bootstrap UCL	0.0735
95% BCA Bootstrap UCL	0.0754	95% Bootstrap t UCL	0.0773
95% H-UCL (Log ROS)	0.107		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			

KM Mean (logged)	-3.343	KM Geo Mean	0.0353
KM SD (logged)	0.956	95% Critical H Value (KM-Log)	2.57
KM Standard Error of Mean (logged)	0.249	95% H-UCL (KM -Log)	0.098
KM SD (logged)	0.956	95% Critical H Value (KM-Log)	2.57
KM Standard Error of Mean (logged)	0.249		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0543	Mean in Log Scale	-3.339
SD in Original Scale	0.0506	SD in Log Scale	0.944
95% t UCL (Assumes normality)	0.0738	95% H-Stat UCL	0.0962

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.0747

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (arsenic_7440-38-2)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	11
		Number of Missing Observations	0
Minimum	1.2	Mean	2.43
Maximum	4.3	Median	2.35
SD	0.663	Std. Error of Mean	0.148
Coefficient of Variation	0.273	Skewness	1.042

Normal GOF Test

Shapiro Wilk Test Statistic	0.917	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.905	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.192	Lilliefors GOF Test
5% Lilliefors Critical Value	0.192	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	2.686	95% Adjusted-CLT UCL (Chen-1995)	2.711
		95% Modified-t UCL (Johnson-1978)	2.692

Gamma GOF Test

A-D Test Statistic	0.503	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.159	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	14.82	k star (bias corrected MLE)	12.63
Theta hat (MLE)	0.164	Theta star (bias corrected MLE)	0.192
nu hat (MLE)	593	nu star (bias corrected)	505.4
MLE Mean (bias corrected)	2.43	MLE Sd (bias corrected)	0.684
		Approximate Chi Square Value (0.05)	454.2
Adjusted Level of Significance	0.038	Adjusted Chi Square Value	450.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2.704	95% Adjusted Gamma UCL (use when n<50)	2.726

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.952	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.905	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.169	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.192	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.182	Mean of logged Data	0.854
Maximum of Logged Data	1.459	SD of logged Data	0.269

Assuming Lognormal Distribution

95% H-UCL	2.727	90% Chebyshev (MVUE) UCL	2.875
95% Chebyshev (MVUE) UCL	3.076	97.5% Chebyshev (MVUE) UCL	3.355
99% Chebyshev (MVUE) UCL	3.904		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	2.674	95% Jackknife UCL	2.686
95% Standard Bootstrap UCL	2.668	95% Bootstrap-t UCL	2.735
95% Hall's Bootstrap UCL	2.846	95% Percentile Bootstrap UCL	2.69
95% BCA Bootstrap UCL	2.715		
90% Chebyshev(Mean, Sd) UCL	2.874	95% Chebyshev(Mean, Sd) UCL	3.076
97.5% Chebyshev(Mean, Sd) UCL	3.355	99% Chebyshev(Mean, Sd) UCL	3.904

Suggested UCL to Use

95% Student's-t UCL	2.686

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzene_71-43-2)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	8
Number of Detects	6	Number of Non-Detects	21
Number of Distinct Detects	6	Number of Distinct Non-Detects	2
Minimum Detect	0.016	Minimum Non-Detect	0.005
Maximum Detect	3.5	Maximum Non-Detect	0.25
Variance Detects	1.791	Percent Non-Detects	77.78%
Mean Detects	0.918	SD Detects	1.338
Median Detects	0.37	CV Detects	1.458
Skewness Detects	1.934	Kurtosis Detects	3.774
Mean of Logged Detects	-1.304	SD of Logged Detects	1.998

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.748	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.284	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.208	KM Standard Error of Mean	0.145
KM SD	0.69	95% KM (BCA) UCL	0.498
95% KM (t) UCL	0.456	95% KM (Percentile Bootstrap) UCL	0.445
95% KM (z) UCL	0.448	95% KM Bootstrap t UCL	1.122
90% KM Chebyshev UCL	0.645	95% KM Chebyshev UCL	0.842
97.5% KM Chebyshev UCL	1.116	99% KM Chebyshev UCL	1.655

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.185	Anderson-Darling GOF Test
5% A-D Critical Value	0.735	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.154	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.348	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.518	k star (bias corrected MLE)	0.37
Theta hat (MLE)	1.771	Theta star (bias corrected MLE)	2.479
nu hat (MLE)	6.22	nu star (bias corrected)	4.444
Mean (detects)	0.918		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.212
Maximum	3.5	Median	0.01
SD	0.702	CV	3.314
k hat (MLE)	0.298	k star (bias corrected MLE)	0.289
Theta hat (MLE)	0.711	Theta star (bias corrected MLE)	0.732
nu hat (MLE)	16.07	nu star (bias corrected)	15.62
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (15.62, α)	7.696	Adjusted Chi Square Value (15.62, β)	7.341
95% Gamma Approximate UCL (use when n>=50)	0.43	95% Gamma Adjusted UCL (use when n<50)	0.451

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.208	SD (KM)	0.69
Variance (KM)	0.476	SE of Mean (KM)	0.145
k hat (KM)	0.0912	k star (KM)	0.106
nu hat (KM)	4.927	nu star (KM)	5.713
theta hat (KM)	2.283	theta star (KM)	1.969
80% gamma percentile (KM)	0.156	90% gamma percentile (KM)	0.567
95% gamma percentile (KM)	1.204	99% gamma percentile (KM)	3.217

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (5.71, α)	1.495	Adjusted Chi Square Value (5.71, β)	1.363
95% Gamma Approximate KM-UCL (use when n>=50)	0.796	95% Gamma Adjusted KM-UCL (use when n<50)	0.874

95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.979	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.129	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.205	Mean in Log Scale	-7.343
SD in Original Scale	0.704	SD in Log Scale	4.369
95% t UCL (assumes normality of ROS data)	0.436	95% Percentile Bootstrap UCL	0.462
95% BCA Bootstrap UCL	0.605	95% Bootstrap t UCL	1.475
95% H-UCL (Log ROS)	9897		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-4.399	KM Geo Mean	0.0123
KM SD (logged)	1.873	95% Critical H Value (KM-Log)	3.83
KM Standard Error of Mean (logged)	0.397	95% H-UCL (KM -Log)	0.29
KM SD (logged)	1.873	95% Critical H Value (KM-Log)	3.83
KM Standard Error of Mean (logged)	0.397		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.21	Mean in Log Scale	-4.805
SD in Original Scale	0.703	SD in Log Scale	2.228
95% t UCL (Assumes normality)	0.441	95% H-Stat UCL	0.676

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.456

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test

When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzo(a)anthracene_56-55-3)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	3
Number of Detects	2	Number of Non-Detects	25
Number of Distinct Detects	2	Number of Distinct Non-Detects	1
Minimum Detect	0.091	Minimum Non-Detect	0.17
Maximum Detect	0.16	Maximum Non-Detect	0.17
Variance Detects	0.00238	Percent Non-Detects	92.59%
Mean Detects	0.126	SD Detects	0.0488
Median Detects	0.126	CV Detects	0.389
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	-2.115	SD of Logged Detects	0.399

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only
Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.126	KM Standard Error of Mean	0.0345
KM SD	0.0345	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.184	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.182	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.229	95% KM Chebyshev UCL	0.276
97.5% KM Chebyshev UCL	0.341	99% KM Chebyshev UCL	0.469

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	12.89	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.00974	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	51.56	nu star (bias corrected)	N/A
Mean (detects)	0.126		

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.126	SD (KM)	0.0345
Variance (KM)	0.00119	SE of Mean (KM)	0.0345
k hat (KM)	13.23	k star (KM)	11.79
nu hat (KM)	714.6	nu star (KM)	636.5
theta hat (KM)	0.00948	theta star (KM)	0.0106
80% gamma percentile (KM)	0.155	90% gamma percentile (KM)	0.174
95% gamma percentile (KM)	0.191	99% gamma percentile (KM)	0.226

Gamma Kaplan-Meier (KM) Statistics

		Adjusted Level of Significance (β)	0.0401
Approximate Chi Square Value (636.50, α)	579	Adjusted Chi Square Value (636.50, β)	575.5
95% Gamma Approximate KM-UCL (use when n>=50)	0.138	95% Gamma Adjusted KM-UCL (use when n<50)	0.139

Lognormal GOF Test on Detected Observations Only
Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.141	Mean in Log Scale	-2.115
SD in Original Scale	0.0833	SD in Log Scale	0.576
95% t UCL (assumes normality of ROS data)	0.169	95% Percentile Bootstrap UCL	0.168
95% BCA Bootstrap UCL	0.17	95% Bootstrap t UCL	0.173
95% H-UCL (Log ROS)	0.179		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.115	KM Geo Mean	0.121
KM SD (logged)	0.282	95% Critical H Value (KM-Log)	1.809
KM Standard Error of Mean (logged)	0.282	95% H-UCL (KM -Log)	0.139
KM SD (logged)	0.282	95% Critical H Value (KM-Log)	1.809
KM Standard Error of Mean (logged)	0.282		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.088	Mean in Log Scale	-2.439
SD in Original Scale	0.0144	SD in Log Scale	0.122
95% t UCL (Assumes normality)	0.0927	95% H-Stat UCL	0.0916

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.184	KM H-UCL	0.139
95% KM (BCA) UCL	N/A		

Warning: One or more Recommended UCL(s) not available!

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzo(a)pyrene_50-32-8)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	3
Number of Detects	2	Number of Non-Detects	25
Number of Distinct Detects	2	Number of Distinct Non-Detects	1
Minimum Detect	0.098	Minimum Non-Detect	0.17
Maximum Detect	0.14	Maximum Non-Detect	0.17
Variance Detects	8.8200E-4	Percent Non-Detects	92.59%
Mean Detects	0.119	SD Detects	0.0297
Median Detects	0.119	CV Detects	0.25
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	-2.144	SD of Logged Detects	0.252

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.119	KM Standard Error of Mean	0.021
KM SD	0.021	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.155	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.154	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.182	95% KM Chebyshev UCL	0.211
97.5% KM Chebyshev UCL	0.25	99% KM Chebyshev UCL	0.328

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	31.77	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.00375	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	127.1	nu star (bias corrected)	N/A
Mean (detects)	0.119		

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.119	SD (KM)	0.021
Variance (KM)	4.4100E-4	SE of Mean (KM)	0.021
k hat (KM)	32.11	k star (KM)	28.57
nu hat (KM)	1734	nu star (KM)	1543
theta hat (KM)	0.00371	theta star (KM)	0.00417
80% gamma percentile (KM)	0.137	90% gamma percentile (KM)	0.148
95% gamma percentile (KM)	0.158	99% gamma percentile (KM)	0.177

Gamma Kaplan-Meier (KM) Statistics

		Adjusted Level of Significance (β)	0.0401
Approximate Chi Square Value (N/A, α)	1452	Adjusted Chi Square Value (N/A, β)	1447

95% Gamma Approximate KM-UCL (use when n>=50)	0.126	95% Gamma Adjusted KM-UCL (use when n<50)	0.127

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.125	Mean in Log Scale	-2.144
SD in Original Scale	0.0459	SD in Log Scale	0.364
95% t UCL (assumes normality of ROS data)	0.14	95% Percentile Bootstrap UCL	0.14
95% BCA Bootstrap UCL	0.141	95% Bootstrap t UCL	0.142
95% H-UCL (Log ROS)	0.143		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.144	KM Geo Mean	0.117
KM SD (logged)	0.178	95% Critical H Value (KM-Log)	1.749
KM Standard Error of Mean (logged)	0.178	95% H-UCL (KM -Log)	0.127
KM SD (logged)	0.178	95% Critical H Value (KM-Log)	1.749
KM Standard Error of Mean (logged)	0.178		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0875	Mean in Log Scale	-2.441
SD in Original Scale	0.0108	SD in Log Scale	0.0988
95% t UCL (Assumes normality)	0.0911	95% H-Stat UCL	N/A

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.155	KM H-UCL	0.127
95% KM (BCA) UCL	N/A		

Warning: One or more Recommended UCL(s) not available!

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzyl butyl phthalate_85-68-7)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	22
Number of Detects	21	Number of Non-Detects	6
Number of Distinct Detects	21	Number of Distinct Non-Detects	1
Minimum Detect	0.06	Minimum Non-Detect	0.17
Maximum Detect	670	Maximum Non-Detect	0.17
Variance Detects	30968	Percent Non-Detects	22.22%
Mean Detects	67.95	SD Detects	176
Median Detects	0.55	CV Detects	2.59
Skewness Detects	2.932	Kurtosis Detects	8.004
Mean of Logged Detects	0.602	SD of Logged Detects	2.902

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.447	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.908	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.393	Lilliefors GOF Test
5% Lilliefors Critical Value	0.188	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	52.87	KM Standard Error of Mean	30.38
KM SD	154.1	95% KM (BCA) UCL	113.3
95% KM (t) UCL	104.7	95% KM (Percentile Bootstrap) UCL	105.2
95% KM (z) UCL	102.8	95% KM Bootstrap t UCL	292.3
90% KM Chebyshev UCL	144	95% KM Chebyshev UCL	185.3
97.5% KM Chebyshev UCL	242.6	99% KM Chebyshev UCL	355.2

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.302	Anderson-Darling GOF Test

5% A-D Critical Value	0.894	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.303	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.21	Detected Data Not Gamma Distributed at 5% Significance Level	

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.203	k star (bias corrected MLE)	0.206
Theta hat (MLE)	334.7	Theta star (bias corrected MLE)	330.3
nu hat (MLE)	8.527	nu star (bias corrected)	8.642
Mean (detects)	67.95		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	52.86
Maximum	670	Median	0.4
SD	157	CV	2.97
k hat (MLE)	0.167	k star (bias corrected MLE)	0.173
Theta hat (MLE)	316	Theta star (bias corrected MLE)	304.9
nu hat (MLE)	9.031	nu star (bias corrected)	9.361
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (9.36, α)	3.546	Adjusted Chi Square Value (9.36, β)	3.32
95% Gamma Approximate UCL (use when n>=50)	139.5	95% Gamma Adjusted UCL (use when n<50)	149

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	52.87	SD (KM)	154.1
Variance (KM)	23735	SE of Mean (KM)	30.38
k hat (KM)	0.118	k star (KM)	0.129
nu hat (KM)	6.36	nu star (KM)	6.987
theta hat (KM)	448.9	theta star (KM)	408.6
80% gamma percentile (KM)	50.27	90% gamma percentile (KM)	152.7
95% gamma percentile (KM)	298.6	99% gamma percentile (KM)	735.9

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (6.99, α)	2.163	Adjusted Chi Square Value (6.99, β)	1.996
95% Gamma Approximate KM-UCL (use when n>=50)	170.8	95% Gamma Adjusted KM-UCL (use when n<50)	185.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.879	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.908	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.239	Lilliefors GOF Test
5% Lilliefors Critical Value	0.188	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	52.87	Mean in Log Scale	-0.302
SD in Original Scale	157	SD in Log Scale	3.133
95% t UCL (assumes normality of ROS data)	104.4	95% Percentile Bootstrap UCL	101.8
95% BCA Bootstrap UCL	130.5	95% Bootstrap t UCL	298.4
95% H-UCL (Log ROS)	3944		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.0677	KM Geo Mean	0.935
KM SD (logged)	2.798	95% Critical H Value (KM-Log)	5.395
KM Standard Error of Mean (logged)	0.554	95% H-UCL (KM -Log)	905.8
KM SD (logged)	2.798	95% Critical H Value (KM-Log)	5.395
KM Standard Error of Mean (logged)	0.554		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	52.87	Mean in Log Scale	-0.0793
SD in Original Scale	157	SD in Log Scale	2.858
95% t UCL (Assumes normality)	104.4	95% H-Stat UCL	1196

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

99% KM (Chebyshev) UCL 355.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (biphenyl (diphenyl)_92-52-4)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	9
Number of Detects	8	Number of Non-Detects	19
Number of Distinct Detects	8	Number of Distinct Non-Detects	1
Minimum Detect	0.1	Minimum Non-Detect	0.17
Maximum Detect	37	Maximum Non-Detect	0.17
Variance Detects	205.6	Percent Non-Detects	70.37%
Mean Detects	9.201	SD Detects	14.34
Median Detects	0.965	CV Detects	1.558
Skewness Detects	1.476	Kurtosis Detects	0.831
Mean of Logged Detects	0.263	SD of Logged Detects	2.452

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.712	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.327	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	2.815	KM Standard Error of Mean	1.727
KM SD	8.395	95% KM (BCA) UCL	6.091
95% KM (t) UCL	5.761	95% KM (Percentile Bootstrap) UCL	5.731
95% KM (z) UCL	5.656	95% KM Bootstrap t UCL	15.15
90% KM Chebyshev UCL	7.997	95% KM Chebyshev UCL	10.34
97.5% KM Chebyshev UCL	13.6	99% KM Chebyshev UCL	20

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.595	Anderson-Darling GOF Test
5% A-D Critical Value	0.789	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.254	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.315	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.345	k star (bias corrected MLE)	0.299
Theta hat (MLE)	26.7	Theta star (bias corrected MLE)	30.8
nu hat (MLE)	5.514	nu star (bias corrected)	4.78
Mean (detects)	9.201		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2.956
Maximum	37	Median	0.01
SD	8.544	CV	2.89
k hat (MLE)	0.2	k star (bias corrected MLE)	0.202
Theta hat (MLE)	14.82	Theta star (bias corrected MLE)	14.63
nu hat (MLE)	10.78	nu star (bias corrected)	10.91
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (10.91, α)	4.519	Adjusted Chi Square Value (10.91, β)	4.258
95% Gamma Approximate UCL (use when n>=50)	7.138	95% Gamma Adjusted UCL (use when n<50)	7.576

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.815	SD (KM)	8.395
Variance (KM)	70.48	SE of Mean (KM)	1.727
k hat (KM)	0.112	k star (KM)	0.125
nu hat (KM)	6.073	nu star (KM)	6.732

theta hat (KM)	25.03	theta star (KM)	22.58
80% gamma percentile (KM)	2.575	90% gamma percentile (KM)	8.057
95% gamma percentile (KM)	15.98	99% gamma percentile (KM)	39.96

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (6.73, α)	2.025	Adjusted Chi Square Value (6.73, β)	1.864
95% Gamma Approximate KM-UCL (use when n>=50)	9.361	95% Gamma Adjusted KM-UCL (use when n<50)	10.17

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.868	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.212	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.923	Mean in Log Scale	-1.484
SD in Original Scale	8.525	SD in Log Scale	2.192
95% t UCL (assumes normality of ROS data)	5.721	95% Percentile Bootstrap UCL	5.948
95% BCA Bootstrap UCL	6.953	95% Bootstrap t UCL	16.17
95% H-UCL (Log ROS)	16.3		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-1.386	KM Geo Mean	0.25
KM SD (logged)	1.65	95% Critical H Value (KM-Log)	3.472
KM Standard Error of Mean (logged)	0.348	95% H-UCL (KM -Log)	3.004
KM SD (logged)	1.65	95% Critical H Value (KM-Log)	3.472
KM Standard Error of Mean (logged)	0.348		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	2.786	Mean in Log Scale	-1.657
SD in Original Scale	8.565	SD in Log Scale	1.797
95% t UCL (Assumes normality)	5.597	95% H-Stat UCL	3.545

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	10.17

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (bis(2-ethylhexyl) phthalate_117-81-7)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	25
Number of Detects	24	Number of Non-Detects	3
Number of Distinct Detects	24	Number of Distinct Non-Detects	1
Minimum Detect	0.13	Minimum Non-Detect	0.17
Maximum Detect	590	Maximum Non-Detect	0.17
Variance Detects	21157	Percent Non-Detects	11.11%
Mean Detects	53.66	SD Detects	145.5
Median Detects	0.805	CV Detects	2.711
Skewness Detects	3.12	Kurtosis Detects	9.315
Mean of Logged Detects	0.915	SD of Logged Detects	2.464

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.425	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.916	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.427	Lilliefors GOF Test
5% Lilliefors Critical Value	0.177	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	47.71	KM Standard Error of Mean	26.6
KM SD	135.3	95% KM (BCA) UCL	97.21

95% KM (t) UCL	93.08	95% KM (Percentile Bootstrap) UCL	96.2
95% KM (z) UCL	91.46	95% KM Bootstrap t UCL	210.1
90% KM Chebyshev UCL	127.5	95% KM Chebyshev UCL	163.6
97.5% KM Chebyshev UCL	213.8	99% KM Chebyshev UCL	312.4

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.908	Anderson-Darling GOF Test
5% A-D Critical Value	0.883	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.318	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.196	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.234	k star (bias corrected MLE)	0.233
Theta hat (MLE)	229.3	Theta star (bias corrected MLE)	230.8
nu hat (MLE)	11.23	nu star (bias corrected)	11.16
Mean (detects)	53.66		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	47.7
Maximum	590	Median	0.77
SD	137.9	CV	2.891
k hat (MLE)	0.206	k star (bias corrected MLE)	0.207
Theta hat (MLE)	232	Theta star (bias corrected MLE)	229.9
nu hat (MLE)	11.1	nu star (bias corrected)	11.2
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (11.20, α)	4.707	Adjusted Chi Square Value (11.20, β)	4.44
95% Gamma Approximate UCL (use when n>=50)	113.5	95% Gamma Adjusted UCL (use when n<50)	120.4

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	47.71	SD (KM)	135.3
Variance (KM)	18306	SE of Mean (KM)	26.6
k hat (KM)	0.124	k star (KM)	0.135
nu hat (KM)	6.714	nu star (KM)	7.302
theta hat (KM)	383.7	theta star (KM)	352.8
80% gamma percentile (KM)	47.38	90% gamma percentile (KM)	139
95% gamma percentile (KM)	267.5	99% gamma percentile (KM)	648.8

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (7.30, α)	2.338	Adjusted Chi Square Value (7.30, β)	2.162
95% Gamma Approximate KM-UCL (use when n>=50)	149	95% Gamma Adjusted KM-UCL (use when n<50)	161.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.865	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.916	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.229	Lilliefors GOF Test
5% Lilliefors Critical Value	0.177	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	47.7	Mean in Log Scale	0.376
SD in Original Scale	137.9	SD in Log Scale	2.798
95% t UCL (assumes normality of ROS data)	92.96	95% Percentile Bootstrap UCL	97.41
95% BCA Bootstrap UCL	111.6	95% Bootstrap t UCL	211.2
95% H-UCL (Log ROS)	1410		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.586	KM Geo Mean	1.797
KM SD (logged)	2.456	95% Critical H Value (KM-Log)	4.806
KM Standard Error of Mean (logged)	0.483	95% H-UCL (KM -Log)	371.7
KM SD (logged)	2.456	95% Critical H Value (KM-Log)	4.806
KM Standard Error of Mean (logged)	0.483		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	47.7	Mean in Log Scale	0.539

SD in Original Scale	137.9	SD in Log Scale	2.558
95% t UCL (Assumes normality)	92.96	95% H-Stat UCL	548.8

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 213.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (chromium, total_7440-47-3)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	18
		Number of Missing Observations	0
Minimum	5.8	Mean	12.2
Maximum	21.3	Median	10.7
SD	3.894	Std. Error of Mean	0.871
Coefficient of Variation	0.319	Skewness	0.78

Normal GOF Test

Shapiro Wilk Test Statistic	0.934	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.905	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.199	Lilliefors GOF Test
5% Lilliefors Critical Value	0.192	Data Not Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	13.7	95% Adjusted-CLT UCL (Chen-1995)	13.79
		95% Modified-t UCL (Johnson-1978)	13.73

Gamma GOF Test

A-D Test Statistic	0.409	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.175	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.194	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.84	k star (bias corrected MLE)	9.248
Theta hat (MLE)	1.125	Theta star (bias corrected MLE)	1.319
nu hat (MLE)	433.6	nu star (bias corrected)	369.9
MLE Mean (bias corrected)	12.2	MLE Sd (bias corrected)	4.01
		Approximate Chi Square Value (0.05)	326.3
Adjusted Level of Significance	0.038	Adjusted Chi Square Value	323.1

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	13.82	95% Adjusted Gamma UCL (use when n<50)	13.96

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.969	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.905	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.155	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.192	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.758	Mean of logged Data	2.454
Maximum of Logged Data	3.059	SD of logged Data	0.314

Assuming Lognormal Distribution

95% H-UCL	13.98	90% Chebyshev (MVUE) UCL	14.8
95% Chebyshev (MVUE) UCL	15.98	97.5% Chebyshev (MVUE) UCL	17.62
99% Chebyshev (MVUE) UCL	20.84		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	13.63	95% Jackknife UCL	13.7
95% Standard Bootstrap UCL	13.63	95% Bootstrap-t UCL	13.86
95% Hall's Bootstrap UCL	13.88	95% Percentile Bootstrap UCL	13.61
95% BCA Bootstrap UCL	13.75		
90% Chebyshev(Mean, Sd) UCL	14.81	95% Chebyshev(Mean, Sd) UCL	15.99
97.5% Chebyshev(Mean, Sd) UCL	17.63	99% Chebyshev(Mean, Sd) UCL	20.86

Suggested UCL to Use

95% Student's-t UCL	13.7

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test

When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cobalt_7440-48-4)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	14
		Number of Missing Observations	0
Minimum	2	Mean	3.005
Maximum	5.6	Median	2.8
SD	0.889	Std. Error of Mean	0.199
Coefficient of Variation	0.296	Skewness	1.814

Normal GOF Test

Shapiro Wilk Test Statistic	0.791	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.905	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.257	Lilliefors GOF Test
5% Lilliefors Critical Value	0.192	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	3.349	95% Adjusted-CLT UCL (Chen-1995)	3.418
		95% Modified-t UCL (Johnson-1978)	3.362

Gamma GOF Test

A-D Test Statistic	1.198	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.741	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.22	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.194	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	14.87	k star (bias corrected MLE)	12.68
Theta hat (MLE)	0.202	Theta star (bias corrected MLE)	0.237
nu hat (MLE)	594.9	nu star (bias corrected)	507
MLE Mean (bias corrected)	3.005	MLE Sd (bias corrected)	0.844
		Approximate Chi Square Value (0.05)	455.8
Adjusted Level of Significance	0.038	Adjusted Chi Square Value	452

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	3.343	95% Adjusted Gamma UCL (use when n<50)	3.371

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.884	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.905	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.202	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.192	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.693	Mean of logged Data	1.066

Maximum of Logged Data	1.723	SD of logged Data	0.256

Assuming Lognormal Distribution

95% H-UCL	3.339	90% Chebyshev (MVUE) UCL	3.515
95% Chebyshev (MVUE) UCL	3.75	97.5% Chebyshev (MVUE) UCL	4.076
99% Chebyshev (MVUE) UCL	4.717		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	3.332	95% Jackknife UCL	3.349
95% Standard Bootstrap UCL	3.327	95% Bootstrap-t UCL	3.523
95% Hall's Bootstrap UCL	3.546	95% Percentile Bootstrap UCL	3.355
95% BCA Bootstrap UCL	3.39		
90% Chebyshev(Mean, Sd) UCL	3.602	95% Chebyshev(Mean, Sd) UCL	3.872
97.5% Chebyshev(Mean, Sd) UCL	4.247	99% Chebyshev(Mean, Sd) UCL	4.984

Suggested UCL to Use

95% Student's-t UCL	3.349	or 95% Modified-t UCL	3.362

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (dibenzofuran_132-64-9)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	9
Number of Detects	8	Number of Non-Detects	19
Number of Distinct Detects	8	Number of Distinct Non-Detects	1
Minimum Detect	0.088	Minimum Non-Detect	0.17
Maximum Detect	23	Maximum Non-Detect	0.17
Variance Detects	70.51	Percent Non-Detects	70.37%
Mean Detects	5.493	SD Detects	8.397
Median Detects	0.885	CV Detects	1.529
Skewness Detects	1.645	Kurtosis Detects	2.041
Mean of Logged Detects	-0.0495	SD of Logged Detects	2.33

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.733	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.312	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.691	KM Standard Error of Mean	1.016
KM SD	4.936	95% KM (BCA) UCL	3.651
95% KM (t) UCL	3.423	95% KM (Percentile Bootstrap) UCL	3.437
95% KM (z) UCL	3.361	95% KM Bootstrap t UCL	7.529
90% KM Chebyshev UCL	4.738	95% KM Chebyshev UCL	6.118
97.5% KM Chebyshev UCL	8.033	99% KM Chebyshev UCL	11.8

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.515	Anderson-Darling GOF Test
5% A-D Critical Value	0.784	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.221	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.314	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.379	k star (bias corrected MLE)	0.32
Theta hat (MLE)	14.5	Theta star (bias corrected MLE)	17.16
nu hat (MLE)	6.06	nu star (bias corrected)	5.121
Mean (detects)	5.493		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.787
Maximum	23	Median	0.01
SD	5.024	CV	2.811
k hat (MLE)	0.219	k star (bias corrected MLE)	0.219
Theta hat (MLE)	8.155	Theta star (bias corrected MLE)	8.143
nu hat (MLE)	11.83	nu star (bias corrected)	11.85
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (11.85, α)	5.13	Adjusted Chi Square Value (11.85, β)	4.849
95% Gamma Approximate UCL (use when n>=50)	4.129	95% Gamma Adjusted UCL (use when n<50)	4.369

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.691	SD (KM)	4.936
Variance (KM)	24.37	SE of Mean (KM)	1.016
k hat (KM)	0.117	k star (KM)	0.129
nu hat (KM)	6.337	nu star (KM)	6.966
theta hat (KM)	14.41	theta star (KM)	13.11
80% gamma percentile (KM)	1.603	90% gamma percentile (KM)	4.879
95% gamma percentile (KM)	9.553	99% gamma percentile (KM)	23.57

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (6.97, α)	2.152	Adjusted Chi Square Value (6.97, β)	1.985
95% Gamma Approximate KM-UCL (use when n>=50)	5.474	95% Gamma Adjusted KM-UCL (use when n<50)	5.934

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.867	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.216	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.776	Mean in Log Scale	-1.739
SD in Original Scale	5.007	SD in Log Scale	2.107
95% t UCL (assumes normality of ROS data)	3.419	95% Percentile Bootstrap UCL	3.41
95% BCA Bootstrap UCL	4.296	95% Bootstrap t UCL	7.92
95% H-UCL (Log ROS)	9.227		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-1.707	KM Geo Mean	0.181
KM SD (logged)	1.601	95% Critical H Value (KM-Log)	3.395
KM Standard Error of Mean (logged)	0.33	95% H-UCL (KM -Log)	1.899
KM SD (logged)	1.601	95% Critical H Value (KM-Log)	3.395
KM Standard Error of Mean (logged)	0.33		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.687	Mean in Log Scale	-1.749
SD in Original Scale	5.031	SD in Log Scale	1.651
95% t UCL (Assumes normality)	3.339	95% H-Stat UCL	2.09

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	5.934

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (di-n-octylphthalate_117-84-0)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	13
Number of Detects	11	Number of Non-Detects	16
Number of Distinct Detects	11	Number of Distinct Non-Detects	2

Minimum Detect	0.059	Minimum Non-Detect	0.17
Maximum Detect	120	Maximum Non-Detect	0.33
Variance Detects	1285	Percent Non-Detects	59.26%
Mean Detects	16.59	SD Detects	35.84
Median Detects	1.6	CV Detects	2.16
Skewness Detects	2.87	Kurtosis Detects	8.593
Mean of Logged Detects	0.682	SD of Logged Detects	2.394

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.534	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.85	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.367	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.251	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	6.828	KM Standard Error of Mean	4.696
KM SD	23.27	95% KM (BCA) UCL	15.66
95% KM (t) UCL	14.84	95% KM (Percentile Bootstrap) UCL	15.61
95% KM (z) UCL	14.55	95% KM Bootstrap t UCL	44.12
90% KM Chebyshev UCL	20.92	95% KM Chebyshev UCL	27.3
97.5% KM Chebyshev UCL	36.16	99% KM Chebyshev UCL	53.56

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.617	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.816	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.252	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.275	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.321	k star (bias corrected MLE)	0.294
Theta hat (MLE)	51.75	Theta star (bias corrected MLE)	56.48
nu hat (MLE)	7.054	nu star (bias corrected)	6.464
Mean (detects)	16.59		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	6.767
Maximum	120	Median	0.01
SD	23.73	CV	3.507
k hat (MLE)	0.173	k star (bias corrected MLE)	0.178
Theta hat (MLE)	39.22	Theta star (bias corrected MLE)	38
nu hat (MLE)	9.317	nu star (bias corrected)	9.615
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (9.61, α)	3.703	Adjusted Chi Square Value (9.61, β)	3.47
95% Gamma Approximate UCL (use when n>=50)	17.57	95% Gamma Adjusted UCL (use when n<50)	18.75

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	6.828	SD (KM)	23.27
Variance (KM)	541.4	SE of Mean (KM)	4.696
k hat (KM)	0.0861	k star (KM)	0.101
nu hat (KM)	4.65	nu star (KM)	5.467
theta hat (KM)	79.29	theta star (KM)	67.45
80% gamma percentile (KM)	4.822	90% gamma percentile (KM)	18.26
95% gamma percentile (KM)	39.6	99% gamma percentile (KM)	107.8

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (5.47, α)	1.374	Adjusted Chi Square Value (5.47, β)	1.248
95% Gamma Approximate KM-UCL (use when n>=50)	27.17	95% Gamma Adjusted KM-UCL (use when n<50)	29.9

95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.959	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.132	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.251	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	6.883	Mean in Log Scale	-1.221
SD in Original Scale	23.7	SD in Log Scale	2.533
95% t UCL (assumes normality of ROS data)	14.66	95% Percentile Bootstrap UCL	15.31
95% BCA Bootstrap UCL	21.75	95% Bootstrap t UCL	125
95% H-UCL (Log ROS)	84.65		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-1.059	KM Geo Mean	0.347
KM SD (logged)	2.075	95% Critical H Value (KM-Log)	4.162
KM Standard Error of Mean (logged)	0.449	95% H-UCL (KM -Log)	16.24
KM SD (logged)	2.075	95% Critical H Value (KM-Log)	4.162
KM Standard Error of Mean (logged)	0.449		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	6.856	Mean in Log Scale	-0.815
SD in Original Scale	23.7	SD in Log Scale	1.954
95% t UCL (Assumes normality)	14.64	95% H-Stat UCL	13.65

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1) 29.9

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (ethylbenzene_100-41-4)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	8
Number of Detects	7	Number of Non-Detects	20
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	0.16	Minimum Non-Detect	0.005
Maximum Detect	16	Maximum Non-Detect	0.005
Variance Detects	33.09	Percent Non-Detects	74.07%
Mean Detects	3.954	SD Detects	5.752
Median Detects	0.61	CV Detects	1.455
Skewness Detects	1.925	Kurtosis Detects	3.854
Mean of Logged Detects	0.266	SD of Logged Detects	1.717

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.725	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.291	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.029	KM Standard Error of Mean	0.669
KM SD	3.217	95% KM (BCA) UCL	2.262
95% KM (t) UCL	2.169	95% KM (Percentile Bootstrap) UCL	2.194
95% KM (z) UCL	2.129	95% KM Bootstrap t UCL	3.795
90% KM Chebyshev UCL	3.035	95% KM Chebyshev UCL	3.944
97.5% KM Chebyshev UCL	5.205	99% KM Chebyshev UCL	7.682

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.5	Anderson-Darling GOF Test
5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.296	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.326	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.563	k star (bias corrected MLE)	0.417
Theta hat (MLE)	7.026	Theta star (bias corrected MLE)	9.487
nu hat (MLE)	7.879	nu star (bias corrected)	5.835
Mean (detects)	3.954		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.033
Maximum	16	Median	0.01
SD	3.277	CV	3.173
k hat (MLE)	0.216	k star (bias corrected MLE)	0.216
Theta hat (MLE)	4.791	Theta star (bias corrected MLE)	4.774
nu hat (MLE)	11.64	nu star (bias corrected)	11.68
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (11.68, α)	5.017	Adjusted Chi Square Value (11.68, β)	4.739
95% Gamma Approximate UCL (use when n>=50)	2.404	95% Gamma Adjusted UCL (use when n<50)	2.545

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.029	SD (KM)	3.217
Variance (KM)	10.35	SE of Mean (KM)	0.669
k hat (KM)	0.102	k star (KM)	0.116
nu hat (KM)	5.524	nu star (KM)	6.244
theta hat (KM)	10.06	theta star (KM)	8.898
80% gamma percentile (KM)	0.864	90% gamma percentile (KM)	2.884
95% gamma percentile (KM)	5.897	99% gamma percentile (KM)	15.18

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (6.24, α)	1.766	Adjusted Chi Square Value (6.24, β)	1.618
95% Gamma Approximate KM-UCL (use when n>=50)	3.638	95% Gamma Adjusted KM-UCL (use when n<50)	3.97

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.911	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.243	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.034	Mean in Log Scale	-4.863
SD in Original Scale	3.277	SD in Log Scale	4.016
95% t UCL (assumes normality of ROS data)	2.109	95% Percentile Bootstrap UCL	2.192
95% BCA Bootstrap UCL	2.672	95% Bootstrap t UCL	4.003
95% H-UCL (Log ROS)	9312		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-3.856	KM Geo Mean	0.0212
KM SD (logged)	2.569	95% Critical H Value (KM-Log)	5
KM Standard Error of Mean (logged)	0.534	95% H-UCL (KM -Log)	7.135
KM SD (logged)	2.569	95% Critical H Value (KM-Log)	5
KM Standard Error of Mean (logged)	0.534		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.027	Mean in Log Scale	-4.369
SD in Original Scale	3.279	SD in Log Scale	2.914
95% t UCL (Assumes normality)	2.103	95% H-Stat UCL	21.62

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 2.169

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (naphthalene_91-20-3)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	10
Number of Detects	9	Number of Non-Detects	18
Number of Distinct Detects	9	Number of Distinct Non-Detects	1
Minimum Detect	0.42	Minimum Non-Detect	0.17
Maximum Detect	420	Maximum Non-Detect	0.17
Variance Detects	18633	Percent Non-Detects	66.67%
Mean Detects	64.2	SD Detects	136.5
Median Detects	3.9	CV Detects	2.126
Skewness Detects	2.761	Kurtosis Detects	7.855
Mean of Logged Detects	1.978	SD of Logged Detects	2.429

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.545	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.829	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.334	Lilliefors GOF Test
5% Lilliefors Critical Value	0.274	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	21.51	KM Standard Error of Mean	16.37
KM SD	80.2	95% KM (BCA) UCL	52.99
95% KM (t) UCL	49.44	95% KM (Percentile Bootstrap) UCL	51.61
95% KM (z) UCL	48.44	95% KM Bootstrap t UCL	174.2
90% KM Chebyshev UCL	70.63	95% KM Chebyshev UCL	92.87
97.5% KM Chebyshev UCL	123.8	99% KM Chebyshev UCL	184.4

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.561	Anderson-Darling GOF Test
5% A-D Critical Value	0.805	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.234	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.301	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.314	k star (bias corrected MLE)	0.283
Theta hat (MLE)	204.8	Theta star (bias corrected MLE)	226.8
nu hat (MLE)	5.643	nu star (bias corrected)	5.095
Mean (detects)	64.2		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	21.41
Maximum	420	Median	0.01
SD	81.76	CV	3.819
k hat (MLE)	0.142	k star (bias corrected MLE)	0.151
Theta hat (MLE)	151.2	Theta star (bias corrected MLE)	142.2
nu hat (MLE)	7.645	nu star (bias corrected)	8.129
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (8.13, α)	2.81	Adjusted Chi Square Value (8.13, β)	2.613
95% Gamma Approximate UCL (use when n>=50)	61.93	95% Gamma Adjusted UCL (use when n<50)	66.59

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	21.51	SD (KM)	80.2
Variance (KM)	6432	SE of Mean (KM)	16.37
k hat (KM)	0.072	k star (KM)	0.0887
nu hat (KM)	3.886	nu star (KM)	4.787
theta hat (KM)	299	theta star (KM)	242.7
80% gamma percentile (KM)	12.35	90% gamma percentile (KM)	54.12

95% gamma percentile (KM)	125.4	99% gamma percentile (KM)	362.7

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (4.79, α)	1.055	Adjusted Chi Square Value (4.79, β)	0.95
95% Gamma Approximate KM-UCL (use when n>=50)	97.6	95% Gamma Adjusted KM-UCL (use when n<50)	108.4

95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.934	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.156	Lilliefors GOF Test
5% Lilliefors Critical Value	0.274	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	21.41	Mean in Log Scale	-3.837
SD in Original Scale	81.76	SD in Log Scale	5.202
95% t UCL (assumes normality of ROS data)	48.25	95% Percentile Bootstrap UCL	51.38
95% BCA Bootstrap UCL	68.71	95% Bootstrap t UCL	173.2
95% H-UCL (Log ROS)	3.107E+8		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.522	KM Geo Mean	0.593
KM SD (logged)	2.208	95% Critical H Value (KM-Log)	4.383
KM Standard Error of Mean (logged)	0.451	95% H-UCL (KM -Log)	45.26
KM SD (logged)	2.208	95% Critical H Value (KM-Log)	4.383
KM Standard Error of Mean (logged)	0.451		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	21.46	Mean in Log Scale	-0.984
SD in Original Scale	81.74	SD in Log Scale	2.524
95% t UCL (Assumes normality)	48.29	95% H-Stat UCL	103.4

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	108.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (tetrachloroethylene(pce)_127-18-4)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	7
Number of Detects	5	Number of Non-Detects	22
Number of Distinct Detects	5	Number of Distinct Non-Detects	2
Minimum Detect	0.03	Minimum Non-Detect	0.005
Maximum Detect	3	Maximum Non-Detect	0.25
Variance Detects	1.525	Percent Non-Detects	81.48%
Mean Detects	1.222	SD Detects	1.235
Median Detects	0.95	CV Detects	1.011
Skewness Detects	0.717	Kurtosis Detects	-0.906
Mean of Logged Detects	-0.657	SD of Logged Detects	1.865

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.926	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.189	Lilliefors GOF Test
5% Lilliefors Critical Value	0.343	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.231	KM Standard Error of Mean	0.144
KM SD	0.67	95% KM (BCA) UCL	0.473
95% KM (t) UCL	0.477	95% KM (Percentile Bootstrap) UCL	0.466

95% KM (z) UCL	0.468	95% KM Bootstrap t UCL	0.612
90% KM Chebyshev UCL	0.664	95% KM Chebyshev UCL	0.86
97.5% KM Chebyshev UCL	1.132	99% KM Chebyshev UCL	1.666

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.229	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.701	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.185	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.368	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.704	k star (bias corrected MLE)	0.415
Theta hat (MLE)	1.736	Theta star (bias corrected MLE)	2.945
nu hat (MLE)	7.039	nu star (bias corrected)	4.149
Mean (detects)	1.222		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.234
Maximum	3	Median	0.01
SD	0.682	CV	2.908
k hat (MLE)	0.287	k star (bias corrected MLE)	0.279
Theta hat (MLE)	0.818	Theta star (bias corrected MLE)	0.839
nu hat (MLE)	15.48	nu star (bias corrected)	15.09
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (15.09, α)	7.326	Adjusted Chi Square Value (15.09, β)	6.981
95% Gamma Approximate UCL (use when n>=50)	0.483	95% Gamma Adjusted UCL (use when n<50)	0.507

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.231	SD (KM)	0.67
Variance (KM)	0.449	SE of Mean (KM)	0.144
k hat (KM)	0.119	k star (KM)	0.13
nu hat (KM)	6.427	nu star (KM)	7.046
theta hat (KM)	1.943	theta star (KM)	1.772
80% gamma percentile (KM)	0.222	90% gamma percentile (KM)	0.669
95% gamma percentile (KM)	1.304	99% gamma percentile (KM)	3.204

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (7.05, α)	2.196	Adjusted Chi Square Value (7.05, β)	2.027
95% Gamma Approximate KM-UCL (use when n>=50)	0.742	95% Gamma Adjusted KM-UCL (use when n<50)	0.804

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.916	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.227	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.343	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.229	Mean in Log Scale	-6.854
SD in Original Scale	0.684	SD in Log Scale	4.142
95% t UCL (assumes normality of ROS data)	0.453	95% Percentile Bootstrap UCL	0.475
95% BCA Bootstrap UCL	0.583	95% Bootstrap t UCL	0.939
95% H-UCL (Log ROS)	3066		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-4.42	KM Geo Mean	0.012
KM SD (logged)	1.947	95% Critical H Value (KM-Log)	3.951
KM Standard Error of Mean (logged)	0.422	95% H-UCL (KM -Log)	0.363
KM SD (logged)	1.947	95% Critical H Value (KM-Log)	3.951
KM Standard Error of Mean (logged)	0.422		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.237	Mean in Log Scale	-4.714
SD in Original Scale	0.682	SD in Log Scale	2.343

95% t UCL (Assumes normality)	0.461	95% H-Stat UCL	1.161

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.477

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (trichloroethene (tce)_79-01-6)

General Statistics

Total Number of Observations	27	Number of Distinct Observations	5
Number of Detects	3	Number of Non-Detects	24
Number of Distinct Detects	3	Number of Distinct Non-Detects	2
Minimum Detect	0.096	Minimum Non-Detect	0.005
Maximum Detect	33	Maximum Non-Detect	0.25
Variance Detects	360.8	Percent Non-Detects	88.89%
Mean Detects	11.07	SD Detects	19
Median Detects	0.1	CV Detects	1.717
Skewness Detects	1.732	Kurtosis Detects	N/A
Mean of Logged Detects	-0.383	SD of Logged Detects	3.36

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.75	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.385	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.235	KM Standard Error of Mean	1.468
KM SD	6.23	95% KM (BCA) UCL	N/A
95% KM (t) UCL	3.74	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	3.65	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	5.64	95% KM Chebyshev UCL	7.636
97.5% KM Chebyshev UCL	10.4	99% KM Chebyshev UCL	15.85

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	0.254	k star (bias corrected MLE)	N/A
Theta hat (MLE)	43.53	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	1.525	nu star (bias corrected)	N/A
Mean (detects)	11.07		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.238
Maximum	33	Median	0.01
SD	6.348	CV	5.126
k hat (MLE)	0.173	k star (bias corrected MLE)	0.178
Theta hat (MLE)	7.158	Theta star (bias corrected MLE)	6.939
nu hat (MLE)	9.342	nu star (bias corrected)	9.637
Adjusted Level of Significance (β)	0.0401		
Approximate Chi Square Value (9.64, α)	3.716	Adjusted Chi Square Value (9.64, β)	3.484
95% Gamma Approximate UCL (use when n>=50)	3.211	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.235	SD (KM)	6.23
Variance (KM)	38.81	SE of Mean (KM)	1.468
k hat (KM)	0.0393	k star (KM)	0.0596
nu hat (KM)	2.123	nu star (KM)	3.22
theta hat (KM)	31.42	theta star (KM)	20.71
80% gamma percentile (KM)	0.293	90% gamma percentile (KM)	2.31
95% gamma percentile (KM)	6.913	99% gamma percentile (KM)	24.98

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (3.22, α)	0.441	Adjusted Chi Square Value (3.22, β)	0.385
95% Gamma Approximate KM-UCL (use when n>=50)	9.028	95% Gamma Adjusted KM-UCL (use when n<50)	10.32

95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.755	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.767	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.383	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.23	Mean in Log Scale	-13.45
SD in Original Scale	6.349	SD in Log Scale	7.326
95% t UCL (assumes normality of ROS data)	3.314	95% Percentile Bootstrap UCL	3.671
95% BCA Bootstrap UCL	4.908	95% Bootstrap t UCL	423.5
95% H-UCL (Log ROS)	1.758E+14		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-4.712	KM Geo Mean	0.00899
KM SD (logged)	1.816	95% Critical H Value (KM-Log)	3.736
KM Standard Error of Mean (logged)	0.436	95% H-UCL (KM -Log)	0.177
KM SD (logged)	1.816	95% Critical H Value (KM-Log)	3.736
KM Standard Error of Mean (logged)	0.436		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.25	Mean in Log Scale	-4.789
SD in Original Scale	6.346	SD in Log Scale	2.313
95% t UCL (Assumes normality)	3.333	95% H-Stat UCL	0.956

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 3.74

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TABLE B.4

PROUCL 5.1.002 RAW OUTPUT FOR SITE-WIDE GROUNDWATER

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.15/25/2017 10:27:08 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

result (1,1-dichloroethane_75-34-3)

General Statistics

Total Number of Observations	47	Number of Distinct Observations	12
Number of Detects	9	Number of Non-Detects	38
Number of Distinct Detects	9	Number of Distinct Non-Detects	3
Minimum Detect	0.79	Minimum Non-Detect	0.5
Maximum Detect	3.6	Maximum Non-Detect	50
Variance Detects	0.818	Percent Non-Detects	80.85%
Mean Detects	2.221	SD Detects	0.904
Median Detects	2.1	CV Detects	0.407
Skewness Detects	0.176	Kurtosis Detects	-0.511
Mean of Logged Detects	0.712	SD of Logged Detects	0.465

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.967	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.126	Lilliefors GOF Test
5% Lilliefors Critical Value	0.274	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.844	KM Standard Error of Mean	0.124
KM SD	0.787	95% KM (BCA) UCL	1.061
95% KM (t) UCL	1.053	95% KM (Percentile Bootstrap) UCL	1.04
95% KM (z) UCL	1.049	95% KM Bootstrap t UCL	1.082
90% KM Chebyshev UCL	1.218	95% KM Chebyshev UCL	1.387
97.5% KM Chebyshev UCL	1.621	99% KM Chebyshev UCL	2.082

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.207	Anderson-Darling GOF Test
5% A-D Critical Value	0.723	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.117	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.28	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.965	k star (bias corrected MLE)	4.051
Theta hat (MLE)	0.372	Theta star (bias corrected MLE)	0.548
nu hat (MLE)	107.4	nu star (bias corrected)	72.91
Mean (detects)	2.221		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.517
Maximum	3.6	Median	0.01
SD	0.944	CV	1.826
k hat (MLE)	0.3	k star (bias corrected MLE)	0.295
Theta hat (MLE)	1.721	Theta star (bias corrected MLE)	1.75
nu hat (MLE)	28.25	nu star (bias corrected)	27.78
Adjusted Level of Significance (β)	0.0449		
Approximate Chi Square Value (27.78, α)	16.75	Adjusted Chi Square Value (27.78, β)	16.48
95% Gamma Approximate UCL (use when n>=50)	0.857	95% Gamma Adjusted UCL (use when n<50)	0.871

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.844	SD (KM)	0.787
Variance (KM)	0.619	SE of Mean (KM)	0.124
k hat (KM)	1.151	k star (KM)	1.091

nu hat (KM)	108.2	nu star (KM)	102.6
theta hat (KM)	0.734	theta star (KM)	0.774
80% gamma percentile (KM)	1.349	90% gamma percentile (KM)	1.902
95% gamma percentile (KM)	2.452	99% gamma percentile (KM)	3.721

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (102.59, α)	80.22	Adjusted Chi Square Value (102.59, β)	79.6
95% Gamma Approximate KM-UCL (use when n>=50)	1.08	95% Gamma Adjusted KM-UCL (use when n<50)	1.088

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.939	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.144	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.274	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.754	Mean in Log Scale	-0.8
SD in Original Scale	0.85	SD in Log Scale	1.043
95% t UCL (assumes normality of ROS data)	0.962	95% Percentile Bootstrap UCL	0.974
95% BCA Bootstrap UCL	0.987	95% Bootstrap t UCL	1.021
95% H-UCL (Log ROS)	1.116		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.412	KM Geo Mean	0.662
KM SD (logged)	0.595	95% Critical H Value (KM-Log)	1.955
KM Standard Error of Mean (logged)	0.0941	95% H-UCL (KM -Log)	0.939
KM SD (logged)	0.595	95% Critical H Value (KM-Log)	1.955
KM Standard Error of Mean (logged)	0.0941		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.255	Mean in Log Scale	-0.823
SD in Original Scale	3.698	SD in Log Scale	1.109
95% t UCL (Assumes normality)	2.161	95% H-Stat UCL	1.213

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 1.053

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (1,2,3-trichlorobenzene_87-61-6)

General Statistics

Total Number of Observations	47	Number of Distinct Observations	6
Number of Detects	3	Number of Non-Detects	44
Number of Distinct Detects	3	Number of Distinct Non-Detects	3
Minimum Detect	0.37	Minimum Non-Detect	0.5
Maximum Detect	3.5	Maximum Non-Detect	50
Variance Detects	2.983	Percent Non-Detects	93.62%
Mean Detects	2.357	SD Detects	1.727
Median Detects	3.2	CV Detects	0.733
Skewness Detects	-1.673	Kurtosis Detects	N/A
Mean of Logged Detects	0.474	SD of Logged Detects	1.272

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.821	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.354	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.502	KM Standard Error of Mean	0.112
KM SD	0.615	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.691	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.687	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.839	95% KM Chebyshev UCL	0.992
97.5% KM Chebyshev UCL	1.204	99% KM Chebyshev UCL	1.62

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	1.448	k star (bias corrected MLE)	N/A
Theta hat (MLE)	1.627	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	8.69	nu star (bias corrected)	N/A
Mean (detects)	2.357		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.709
Maximum	3.5	Median	0.445
SD	0.831	CV	1.172
k hat (MLE)	0.549	k star (bias corrected MLE)	0.528
Theta hat (MLE)	1.293	Theta star (bias corrected MLE)	1.344
nu hat (MLE)	51.56	nu star (bias corrected)	49.61
Adjusted Level of Significance (β)	0.0449		
Approximate Chi Square Value (49.61, α)	34.44	Adjusted Chi Square Value (49.61, β)	34.04
95% Gamma Approximate UCL (use when n>=50)	1.022	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.502	SD (KM)	0.615
Variance (KM)	0.378	SE of Mean (KM)	0.112
k hat (KM)	0.668	k star (KM)	0.639
nu hat (KM)	62.75	nu star (KM)	60.08
theta hat (KM)	0.753	theta star (KM)	0.786
80% gamma percentile (KM)	0.828	90% gamma percentile (KM)	1.288
95% gamma percentile (KM)	1.767	99% gamma percentile (KM)	2.92

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (60.08, α)	43.26	Adjusted Chi Square Value (60.08, β)	42.81
95% Gamma Approximate KM-UCL (use when n>=50)	0.698	95% Gamma Adjusted KM-UCL (use when n<50)	0.705

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.78	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.373	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.633	Mean in Log Scale	-0.915
SD in Original Scale	0.717	SD in Log Scale	0.964
95% t UCL (assumes normality of ROS data)	0.808	95% Percentile Bootstrap UCL	0.816
95% BCA Bootstrap UCL	0.862	95% Bootstrap t UCL	0.881
95% H-UCL (Log ROS)	0.883		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.896	KM Geo Mean	0.408
KM SD (logged)	0.454	95% Critical H Value (KM-Log)	1.855
KM Standard Error of Mean (logged)	0.0829	95% H-UCL (KM -Log)	0.512
KM SD (logged)	0.454	95% Critical H Value (KM-Log)	1.855
KM Standard Error of Mean (logged)	0.0829		

DL/2 Statistics

DL/2 Normal	DL/2 Log-Transformed

Mean in Original Scale	1.012	Mean in Log Scale	-1.106
SD in Original Scale	3.692	SD in Log Scale	0.934
95% t UCL (Assumes normality)	1.916	95% H-Stat UCL	0.699

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.691

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (1,2,4-trichlorobenzene_120-82-1)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	10
Number of Detects	7	Number of Non-Detects	39
Number of Distinct Detects	7	Number of Distinct Non-Detects	3
Minimum Detect	0.29	Minimum Non-Detect	0.5
Maximum Detect	9.9	Maximum Non-Detect	50
Variance Detects	19.13	Percent Non-Detects	84.78%
Mean Detects	3.014	SD Detects	4.374
Median Detects	0.6	CV Detects	1.451
Skewness Detects	1.245	Kurtosis Detects	-0.726
Mean of Logged Detects	0.0535	SD of Logged Detects	1.518

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.646	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.421	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.777	KM Standard Error of Mean	0.308
KM SD	1.886	95% KM (BCA) UCL	1.395
95% KM (t) UCL	1.294	95% KM (Percentile Bootstrap) UCL	1.325
95% KM (z) UCL	1.283	95% KM Bootstrap t UCL	7.061
90% KM Chebyshev UCL	1.701	95% KM Chebyshev UCL	2.12
97.5% KM Chebyshev UCL	2.701	99% KM Chebyshev UCL	3.842

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.109	Anderson-Darling GOF Test
5% A-D Critical Value	0.746	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.4	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.326	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.59	k star (bias corrected MLE)	0.432
Theta hat (MLE)	5.109	Theta star (bias corrected MLE)	6.971
nu hat (MLE)	8.26	nu star (bias corrected)	6.053
Mean (detects)	3.014		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.793
Maximum	9.9	Median	0.01
SD	1.982	CV	2.501
k hat (MLE)	0.284	k star (bias corrected MLE)	0.28
Theta hat (MLE)	2.79	Theta star (bias corrected MLE)	2.83
nu hat (MLE)	26.14	nu star (bias corrected)	25.77
Adjusted Level of Significance (β)	0.0448		

Approximate Chi Square Value (25.77, α)	15.2	Adjusted Chi Square Value (25.77, β)	14.94
95% Gamma Approximate UCL (use when n>=50)	1.344	95% Gamma Adjusted UCL (use when n<50)	1.367

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.777	SD (KM)	1.886
Variance (KM)	3.557	SE of Mean (KM)	0.308
k hat (KM)	0.17	k star (KM)	0.173
nu hat (KM)	15.6	nu star (KM)	15.92
theta hat (KM)	4.58	theta star (KM)	4.489
80% gamma percentile (KM)	0.939	90% gamma percentile (KM)	2.337
95% gamma percentile (KM)	4.147	99% gamma percentile (KM)	9.257

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (15.92, α)	7.903	Adjusted Chi Square Value (15.92, β)	7.72
95% Gamma Approximate KM-UCL (use when n>=50)	1.564	95% Gamma Adjusted KM-UCL (use when n<50)	1.601

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.752	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.343	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.833	Mean in Log Scale	-0.949
SD in Original Scale	1.877	SD in Log Scale	1.049
95% t UCL (assumes normality of ROS data)	1.298	95% Percentile Bootstrap UCL	1.361
95% BCA Bootstrap UCL	1.563	95% Bootstrap t UCL	3.343
95% H-UCL (Log ROS)	0.974		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.874	KM Geo Mean	0.417
KM SD (logged)	0.701	95% Critical H Value (KM-Log)	2.033
KM Standard Error of Mean (logged)	0.136	95% H-UCL (KM -Log)	0.66
KM SD (logged)	0.701	95% Critical H Value (KM-Log)	2.033
KM Standard Error of Mean (logged)	0.136		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.312	Mean in Log Scale	-1.002
SD in Original Scale	4.087	SD in Log Scale	1.072
95% t UCL (Assumes normality)	2.324	95% H-Stat UCL	0.958

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 2.12

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (1,2-dichloroethane_107-06-2)

General Statistics

Total Number of Observations	47	Number of Distinct Observations	8
Number of Detects	4	Number of Non-Detects	43
Number of Distinct Detects	4	Number of Distinct Non-Detects	4
Minimum Detect	0.34	Minimum Non-Detect	0.5
Maximum Detect	7.6	Maximum Non-Detect	50
Variance Detects	11.76	Percent Non-Detects	91.49%
Mean Detects	2.478	SD Detects	3.43
Median Detects	0.985	CV Detects	1.384
Skewness Detects	1.948	Kurtosis Detects	3.836
Mean of Logged Detects	0.226	SD of Logged Detects	1.304

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.716	Shapiro Wilk GOF Test

5% Shapiro Wilk Critical Value	0.748	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.406	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.375	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	0.531	KM Standard Error of Mean	0.185
KM SD	2.221	95% KM (BCA) UCL	0.904
95% KM (t) UCL	2.1	95% KM (Percentile Bootstrap) UCL	0.407
95% KM (z) UCL	0.176	95% KM Bootstrap t UCL	-0.511
90% KM Chebyshev UCL	0.712	95% KM Chebyshev UCL	0.465
97.5% KM Chebyshev UCL		99% KM Chebyshev UCL	
Gamma GOF Tests on Detected Observations Only	0.907		
A-D Test Statistic	0.829	Anderson-Darling GOF Test	
5% A-D Critical Value	0.126	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.274	Kolmogorov-Smirnov GOF	
5% K-S Critical Value		Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only	0.844		0.124
k hat (MLE)	0.787	k star (bias corrected MLE)	1.061
Theta hat (MLE)	1.053	Theta star (bias corrected MLE)	1.04
nu hat (MLE)	1.049	nu star (bias corrected)	1.082
Mean (detects)	1.218		1.387
	1.621		2.082
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)	0.297		
For such situations, GROS method may yield incorrect values of UCLs and BTVs	0.723		
This is especially true when the sample size is small.	0.117		
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates	0.28		
Minimum		Mean	
Maximum		Median	
SD		CV	
k hat (MLE)	5.965	k star (bias corrected MLE)	4.051
Theta hat (MLE)	0.372	Theta star (bias corrected MLE)	0.548
nu hat (MLE)	107.4	nu star (bias corrected)	72.91
Adjusted Level of Significance (β)	2.221		
Approximate Chi Square Value (26.21, α)		Adjusted Chi Square Value (26.21, β)	
95% Gamma Approximate UCL (use when n>=50)		95% Gamma Adjusted UCL (use when n<50)	
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)		SD (KM)	
Variance (KM)		SE of Mean (KM)	
k hat (KM)		k star (KM)	
nu hat (KM)	0.01	nu star (KM)	0.517
theta hat (KM)	3.6	theta star (KM)	0.01
80% gamma percentile (KM)	0.944	90% gamma percentile (KM)	1.826
95% gamma percentile (KM)	0.3	99% gamma percentile (KM)	0.295
	1.721		1.75
Gamma Kaplan-Meier (KM) Statistics	68.25		27.78
Approximate Chi Square Value (22.80, α)	0.0449	Adjusted Chi Square Value (22.80, β)	
95% Gamma Approximate KM-UCL (use when n>=50)	16.75	95% Gamma Adjusted KM-UCL (use when n<50)	16.48
	0.857		0.871
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic		Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.844	Detected Data appear Lognormal at 5% Significance Level	0.787
Lilliefors Test Statistic	0.619	Lilliefors GOF Test	0.124
5% Lilliefors Critical Value	1.151	Detected Data appear Lognormal at 5% Significance Level	1.091
Detected Data appear Lognormal at 5% Significance Level	108.2		102.6
	0.734		0.774
Lognormal ROS Statistics Using Imputed Non-Detects	1.549		1.902
Mean in Original Scale	2.452	Mean in Log Scale	3.721
SD in Original Scale		SD in Log Scale	
95% t UCL (assumes normality of ROS data)		95% Percentile Bootstrap UCL	
95% BCA Bootstrap UCL	80.22	95% Bootstrap t UCL	79.6
95% H-UCL (Log ROS)	1.08		1.088
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	0.939	KM Geo Mean	

KM SD (logged)	0.502	95% Critical H Value (KM-Log)	1.887
KM Standard Error of Mean (logged)	0.0866	95% H-UCL (KM -Log)	0.499
KM SD (logged)	0.502	95% Critical H Value (KM-Log)	1.887
KM Standard Error of Mean (logged)	0.0866		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.089	Mean in Log Scale	-1.053
SD in Original Scale	3.783	SD in Log Scale	0.967
95% t UCL (Assumes normality)	2.015	95% H-Stat UCL	0.773

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

amma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1) 0.952

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (1,4-dichlorobenzene_106-46-7)

General Statistics

Total Number of Observations	47	Number of Distinct Observations	13
Number of Detects	10	Number of Non-Detects	37
Number of Distinct Detects	10	Number of Distinct Non-Detects	3
Minimum Detect	0.15	Minimum Non-Detect	0.5
Maximum Detect	6.2	Maximum Non-Detect	50
Variance Detects	4.106	Percent Non-Detects	78.72%
Mean Detects	1.902	SD Detects	2.026
Median Detects	0.97	CV Detects	1.065
Skewness Detects	1.156	Kurtosis Detects	0.688
Mean of Logged Detects	-0.0299	SD of Logged Detects	1.33

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.841	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.249	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.594	KM Standard Error of Mean	0.183
KM SD	1.146	95% KM (BCA) UCL	0.986
95% KM (t) UCL	0.901	95% KM (Percentile Bootstrap) UCL	0.929
95% KM (z) UCL	0.895	95% KM Bootstrap t UCL	1.126
90% KM Chebyshev UCL	1.143	95% KM Chebyshev UCL	1.392
97.5% KM Chebyshev UCL	1.737	99% KM Chebyshev UCL	2.416

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.395	Anderson-Darling GOF Test
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.222	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.275	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.872	k star (bias corrected MLE)	0.677
Theta hat (MLE)	2.18	Theta star (bias corrected MLE)	2.808
nu hat (MLE)	17.45	nu star (bias corrected)	13.55
Mean (detects)	1.902		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.553
Maximum	6.2	Median	0.01
SD	1.185	CV	2.144
k hat (MLE)	0.318	k star (bias corrected MLE)	0.312
Theta hat (MLE)	1.739	Theta star (bias corrected MLE)	1.773
nu hat (MLE)	29.87	nu star (bias corrected)	29.3
Adjusted Level of Significance (β)	0.0449		
Approximate Chi Square Value (29.30, α)	17.94	Adjusted Chi Square Value (29.30, β)	17.66
95% Gamma Approximate UCL (use when n>=50)	0.902	95% Gamma Adjusted UCL (use when n<50)	0.917

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.594	SD (KM)	1.146
Variance (KM)	1.314	SE of Mean (KM)	0.183
k hat (KM)	0.268	k star (KM)	0.265
nu hat (KM)	25.23	nu star (KM)	24.95
theta hat (KM)	2.212	theta star (KM)	2.237
80% gamma percentile (KM)	0.88	90% gamma percentile (KM)	1.774
95% gamma percentile (KM)	2.823	99% gamma percentile (KM)	5.592

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (24.95, α)	14.57	Adjusted Chi Square Value (24.95, β)	14.32
95% Gamma Approximate KM-UCL (use when n>=50)	1.017	95% Gamma Adjusted KM-UCL (use when n<50)	1.034

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.928	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.171	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.621	Mean in Log Scale	-1.334
SD in Original Scale	1.139	SD in Log Scale	1.256
95% t UCL (assumes normality of ROS data)	0.9	95% Percentile Bootstrap UCL	0.914
95% BCA Bootstrap UCL	0.996	95% Bootstrap t UCL	1.105
95% H-UCL (Log ROS)	0.942		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-1.219	KM Geo Mean	0.295
KM SD (logged)	0.91	95% Critical H Value (KM-Log)	2.237
KM Standard Error of Mean (logged)	0.205	95% H-UCL (KM -Log)	0.603
KM SD (logged)	0.91	95% Critical H Value (KM-Log)	2.237
KM Standard Error of Mean (logged)	0.205		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.229	Mean in Log Scale	-0.936
SD in Original Scale	3.771	SD in Log Scale	1.093
95% t UCL (Assumes normality)	2.153	95% H-Stat UCL	1.055

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.901

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (1,4-dioxane (p-dioxane)_123-91-1)

General Statistics

Total Number of Observations	49	Number of Distinct Observations	13
Number of Detects	8	Number of Non-Detects	41
Number of Distinct Detects	6	Number of Distinct Non-Detects	7

Minimum Detect	0.13	Minimum Non-Detect	0.4
Maximum Detect	1.3	Maximum Non-Detect	2
Variance Detects	0.248	Percent Non-Detects	83.67%
Mean Detects	0.729	SD Detects	0.498
Median Detects	0.82	CV Detects	0.683
Skewness Detects	-0.164	Kurtosis Detects	-2.238
Mean of Logged Detects	-0.646	SD of Logged Detects	0.979

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.847	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.272	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.312	KM Standard Error of Mean	0.0738
KM SD	0.319	95% KM (BCA) UCL	0.474
95% KM (t) UCL	0.435	95% KM (Percentile Bootstrap) UCL	0.473
95% KM (z) UCL	0.433	95% KM Bootstrap t UCL	0.483
90% KM Chebyshev UCL	0.533	95% KM Chebyshev UCL	0.633
97.5% KM Chebyshev UCL	0.772	99% KM Chebyshev UCL	1.046

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.644	Anderson-Darling GOF Test	
5% A-D Critical Value	0.727	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.295	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.298	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.663	k star (bias corrected MLE)	1.123
Theta hat (MLE)	0.438	Theta star (bias corrected MLE)	0.649
nu hat (MLE)	26.61	nu star (bias corrected)	17.96
Mean (detects)	0.729		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.325
Maximum	1.3	Median	0.212
SD	0.33	CV	1.016
k hat (MLE)	0.885	k star (bias corrected MLE)	0.845
Theta hat (MLE)	0.367	Theta star (bias corrected MLE)	0.384
nu hat (MLE)	86.75	nu star (bias corrected)	82.78
Adjusted Level of Significance (β)	0.0451		
Approximate Chi Square Value (82.78, α)	62.81	Adjusted Chi Square Value (82.78, β)	62.28
95% Gamma Approximate UCL (use when n>=50)	0.428	95% Gamma Adjusted UCL (use when n<50)	0.431

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.312	SD (KM)	0.319
Variance (KM)	0.102	SE of Mean (KM)	0.0738
k hat (KM)	0.954	k star (KM)	0.909
nu hat (KM)	93.49	nu star (KM)	89.1
theta hat (KM)	0.327	theta star (KM)	0.343
80% gamma percentile (KM)	0.505	90% gamma percentile (KM)	0.735
95% gamma percentile (KM)	0.966	99% gamma percentile (KM)	1.507

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (89.10, α)	68.33	Adjusted Chi Square Value (89.10, β)	67.78
95% Gamma Approximate KM-UCL (use when n>=50)	0.406	95% Gamma Adjusted KM-UCL (use when n<50)	0.41

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.82	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.276	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.316	Mean in Log Scale	-1.49
SD in Original Scale	0.304	SD in Log Scale	0.803
95% t UCL (assumes normality of ROS data)	0.389	95% Percentile Bootstrap UCL	0.394
95% BCA Bootstrap UCL	0.399	95% Bootstrap t UCL	0.408
95% H-UCL (Log ROS)	0.399		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-1.495	KM Geo Mean	0.224
KM SD (logged)	0.729	95% Critical H Value (KM-Log)	2.062
KM Standard Error of Mean (logged)	0.257	95% H-UCL (KM -Log)	0.363
KM SD (logged)	0.729	95% Critical H Value (KM-Log)	2.062
KM Standard Error of Mean (logged)	0.257		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.488	Mean in Log Scale	-1.029
SD in Original Scale	0.398	SD in Log Scale	0.776
95% t UCL (Assumes normality)	0.584	95% H-Stat UCL	0.611

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.435

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (4-chloroaniline_106-47-8)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	8
Number of Detects	5	Number of Non-Detects	41
Number of Distinct Detects	5	Number of Distinct Non-Detects	3
Minimum Detect	9.9	Minimum Non-Detect	10
Maximum Detect	6900	Maximum Non-Detect	12
Variance Detects	8694512	Percent Non-Detects	89.13%
Mean Detects	1658	SD Detects	2949
Median Detects	600	CV Detects	1.779
Skewness Detects	2.168	Kurtosis Detects	4.756
Mean of Logged Detects	5.56	SD of Logged Detects	2.59

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.648	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.422	Lilliefors GOF Test
5% Lilliefors Critical Value	0.343	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	189	KM Standard Error of Mean	166.4
KM SD	1010	95% KM (BCA) UCL	475.8
95% KM (t) UCL	468.5	95% KM (Percentile Bootstrap) UCL	488.7
95% KM (z) UCL	462.7	95% KM Bootstrap t UCL	1719
90% KM Chebyshev UCL	688.3	95% KM Chebyshev UCL	914.4
97.5% KM Chebyshev UCL	1228	99% KM Chebyshev UCL	1845

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.313	Anderson-Darling GOF Test
5% A-D Critical Value	0.731	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.242	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.377	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.361	k star (bias corrected MLE)	0.278

Theta hat (MLE)	4592	Theta star (bias corrected MLE)	5969
nu hat (MLE)	3.61	nu star (bias corrected)	2.777
Mean (detects)	1658		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	190.9
Maximum	6900	Median	0.01
SD	1022	CV	5.353
k hat (MLE)	0.0979	k star (bias corrected MLE)	0.106
Theta hat (MLE)	1951	Theta star (bias corrected MLE)	1801
nu hat (MLE)	9.004	nu star (bias corrected)	9.75
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (9.75, α)	3.786	Adjusted Chi Square Value (9.75, β)	3.666
95% Gamma Approximate UCL (use when n>=50)	491.6	95% Gamma Adjusted UCL (use when n<50)	507.7

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	189	SD (KM)	1010
Variance (KM)	1019125	SE of Mean (KM)	166.4
k hat (KM)	0.0351	k star (KM)	0.0473
nu hat (KM)	3.225	nu star (KM)	4.348
theta hat (KM)	5392	theta star (KM)	3999
80% gamma percentile (KM)	20.87	90% gamma percentile (KM)	267.3
95% gamma percentile (KM)	983.8	99% gamma percentile (KM)	4203

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (4.35, α)	0.864	Adjusted Chi Square Value (4.35, β)	0.817
95% Gamma Approximate KM-UCL (use when n>=50)	951.4	95% Gamma Adjusted KM-UCL (use when n<50)	1007

95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.955	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.227	Lilliefors GOF Test
5% Lilliefors Critical Value	0.343	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	198.4	Mean in Log Scale	2.041
SD in Original Scale	1019	SD in Log Scale	2.361
95% t UCL (assumes normality of ROS data)	450.9	95% Percentile Bootstrap UCL	491
95% BCA Bootstrap UCL	665.3	95% Bootstrap t UCL	2119
95% H-UCL (Log ROS)	527.4		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	2.648	KM Geo Mean	14.12
KM SD (logged)	1.272	95% Critical H Value (KM-Log)	2.633
KM Standard Error of Mean (logged)	0.21	95% H-UCL (KM -Log)	52.22
KM SD (logged)	1.272	95% Critical H Value (KM-Log)	2.633
KM Standard Error of Mean (logged)	0.21		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	184.8	Mean in Log Scale	2.074
SD in Original Scale	1021	SD in Log Scale	1.454
95% t UCL (Assumes normality)	437.8	95% H-Stat UCL	42.49

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

amma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1) 1007

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (aluminum_7429-90-5)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	36
Number of Detects	37	Number of Non-Detects	9
Number of Distinct Detects	35	Number of Distinct Non-Detects	1
Minimum Detect	5.4	Minimum Non-Detect	20
Maximum Detect	2270	Maximum Non-Detect	20
Variance Detects	142536	Percent Non-Detects	19.57%
Mean Detects	159.1	SD Detects	377.5
Median Detects	42.2	CV Detects	2.373
Skewness Detects	5.142	Kurtosis Detects	28.85
Mean of Logged Detects	4.048	SD of Logged Detects	1.328

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.394	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.936	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.342	Lilliefors GOF Test
5% Lilliefors Critical Value	0.144	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	130	KM Standard Error of Mean	50.7
KM SD	339.2	95% KM (BCA) UCL	235.9
95% KM (t) UCL	215.2	95% KM (Percentile Bootstrap) UCL	219.7
95% KM (z) UCL	213.4	95% KM Bootstrap t UCL	376.1
90% KM Chebyshev UCL	282.1	95% KM Chebyshev UCL	351
97.5% KM Chebyshev UCL	446.6	99% KM Chebyshev UCL	634.5

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.086	Anderson-Darling GOF Test
5% A-D Critical Value	0.802	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.215	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.152	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.604	k star (bias corrected MLE)	0.573
Theta hat (MLE)	263.4	Theta star (bias corrected MLE)	277.6
nu hat (MLE)	44.7	nu star (bias corrected)	42.41
Mean (detects)	159.1		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	128
Maximum	2270	Median	33.75
SD	343.7	CV	2.685
k hat (MLE)	0.279	k star (bias corrected MLE)	0.276
Theta hat (MLE)	458.1	Theta star (bias corrected MLE)	464.3
nu hat (MLE)	25.7	nu star (bias corrected)	25.36
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (25.36, α)	14.89	Adjusted Chi Square Value (25.36, β)	14.63
95% Gamma Approximate UCL (use when n>=50)	218	95% Gamma Adjusted UCL (use when n<50)	221.9

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	130	SD (KM)	339.2
Variance (KM)	115036	SE of Mean (KM)	50.7
k hat (KM)	0.147	k star (KM)	0.152
nu hat (KM)	13.52	nu star (KM)	13.97
theta hat (KM)	884.8	theta star (KM)	856.2
80% gamma percentile (KM)	143	90% gamma percentile (KM)	386.2
95% gamma percentile (KM)	713.9	99% gamma percentile (KM)	1662

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (13.97, α)	6.551	Adjusted Chi Square Value (13.97, β)	6.386

95% Gamma Approximate KM-UCL (use when n>=50)	277.3	95% Gamma Adjusted KM-UCL (use when n<50)	284.4

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.962	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.936	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.12	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.144	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	129.7	Mean in Log Scale	3.647
SD in Original Scale	343	SD in Log Scale	1.471
95% t UCL (assumes normality of ROS data)	214.6	95% Percentile Bootstrap UCL	219.5
95% BCA Bootstrap UCL	281.3	95% Bootstrap t UCL	369.4
95% H-UCL (Log ROS)	212.7		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	3.691	KM Geo Mean	40.08
KM SD (logged)	1.397	95% Critical H Value (KM-Log)	2.784
KM Standard Error of Mean (logged)	0.215	95% H-UCL (KM -Log)	189.7
KM SD (logged)	1.397	95% Critical H Value (KM-Log)	2.784
KM Standard Error of Mean (logged)	0.215		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	129.9	Mean in Log Scale	3.706
SD in Original Scale	342.9	SD in Log Scale	1.378
95% t UCL (Assumes normality)	214.9	95% H-Stat UCL	185.6

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

KM H-UCL	189.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (arsenic_7440-38-2)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	32
Number of Detects	34	Number of Non-Detects	12
Number of Distinct Detects	30	Number of Distinct Non-Detects	2
Minimum Detect	0.1	Minimum Non-Detect	0.2
Maximum Detect	7.7	Maximum Non-Detect	1
Variance Detects	6.148	Percent Non-Detects	26.09%
Mean Detects	3.126	SD Detects	2.48
Median Detects	2.75	CV Detects	0.793
Skewness Detects	0.306	Kurtosis Detects	-1.128
Mean of Logged Detects	0.48	SD of Logged Detects	1.476

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.905	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.933	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.146	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.15	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	2.356	KM Standard Error of Mean	0.37
KM SD	2.468	95% KM (BCA) UCL	3.059
95% KM (t) UCL	2.976	95% KM (Percentile Bootstrap) UCL	2.982
95% KM (z) UCL	2.964	95% KM Bootstrap t UCL	3.018
90% KM Chebyshev UCL	3.464	95% KM Chebyshev UCL	3.966
97.5% KM Chebyshev UCL	4.663	99% KM Chebyshev UCL	6.032

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.617	Anderson-Darling GOF Test	
5% A-D Critical Value	0.781	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.198	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.156	Detected Data Not Gamma Distributed at 5% Significance Level	

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.887	k star (bias corrected MLE)	0.829
Theta hat (MLE)	3.523	Theta star (bias corrected MLE)	3.772
nu hat (MLE)	60.34	nu star (bias corrected)	56.35
Mean (detects)	3.126		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.1	Mean	2.494
Maximum	7.7	Median	1.79
SD	2.386	CV	0.957
k hat (MLE)	0.859	k star (bias corrected MLE)	0.818
Theta hat (MLE)	2.902	Theta star (bias corrected MLE)	3.049
nu hat (MLE)	79.07	nu star (bias corrected)	75.24
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (75.24, α)	56.27	Adjusted Chi Square Value (75.24, β)	55.73
95% Gamma Approximate UCL (use when n>=50)	3.335	95% Gamma Adjusted UCL (use when n<50)	3.367

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.356	SD (KM)	2.468
Variance (KM)	6.092	SE of Mean (KM)	0.37
k hat (KM)	0.911	k star (KM)	0.866
nu hat (KM)	83.81	nu star (KM)	79.68
theta hat (KM)	2.586	theta star (KM)	2.72
80% gamma percentile (KM)	3.832	90% gamma percentile (KM)	5.619
95% gamma percentile (KM)	7.428	99% gamma percentile (KM)	11.67

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (79.68, α)	60.11	Adjusted Chi Square Value (79.68, β)	59.56
95% Gamma Approximate KM-UCL (use when n>=50)	3.123	95% Gamma Adjusted KM-UCL (use when n<50)	3.151

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.815	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.933	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.259	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.15	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.392	Mean in Log Scale	1.6152E-4
SD in Original Scale	2.465	SD in Log Scale	1.544
95% t UCL (assumes normality of ROS data)	3.003	95% Percentile Bootstrap UCL	2.95
95% BCA Bootstrap UCL	3.026	95% Bootstrap t UCL	3.043
95% H-UCL (Log ROS)	6.521		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.126	KM Geo Mean	0.881
KM SD (logged)	1.626	95% Critical H Value (KM-Log)	3.077
KM Standard Error of Mean (logged)	0.246	95% H-UCL (KM -Log)	6.971
KM SD (logged)	1.626	95% Critical H Value (KM-Log)	3.077
KM Standard Error of Mean (logged)	0.246		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	2.397	Mean in Log Scale	-0.00128
SD in Original Scale	2.461	SD in Log Scale	1.561
95% t UCL (Assumes normality)	3.007	95% H-Stat UCL	6.775

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 2.976

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (barium_7440-39-3)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	42
Number of Detects	45	Number of Non-Detects	1
Number of Distinct Detects	41	Number of Distinct Non-Detects	1
Minimum Detect	23.6	Minimum Non-Detect	10
Maximum Detect	1180	Maximum Non-Detect	10
Variance Detects	50180	Percent Non-Detects	2.174%
Mean Detects	143.6	SD Detects	224
Median Detects	83	CV Detects	1.56
Skewness Detects	4.066	Kurtosis Detects	16.7
Mean of Logged Detects	4.516	SD of Logged Detects	0.815

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.448	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.323	Lilliefors GOF Test
5% Lilliefors Critical Value	0.131	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	140.7	KM Standard Error of Mean	32.8
KM SD	220	95% KM (BCA) UCL	203.7
95% KM (t) UCL	195.8	95% KM (Percentile Bootstrap) UCL	199.1
95% KM (z) UCL	194.7	95% KM Bootstrap t UCL	323.6
90% KM Chebyshev UCL	239.1	95% KM Chebyshev UCL	283.7
97.5% KM Chebyshev UCL	345.5	99% KM Chebyshev UCL	467

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.117	Anderson-Darling GOF Test
5% A-D Critical Value	0.772	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.215	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.135	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.248	k star (bias corrected MLE)	1.18
Theta hat (MLE)	115.1	Theta star (bias corrected MLE)	121.7
nu hat (MLE)	112.3	nu star (bias corrected)	106.2
Mean (detects)	143.6		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	140.5
Maximum	1180	Median	82.25
SD	222.5	CV	1.584
k hat (MLE)	0.928	k star (bias corrected MLE)	0.882
Theta hat (MLE)	151.4	Theta star (bias corrected MLE)	159.3
nu hat (MLE)	85.36	nu star (bias corrected)	81.13
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (81.13, α)	61.37	Adjusted Chi Square Value (81.13, β)	60.82
95% Gamma Approximate UCL (use when n>=50)	185.7	95% Gamma Adjusted UCL (use when n<50)	187.4

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	140.7	SD (KM)	220
Variance (KM)	48378	SE of Mean (KM)	32.8
k hat (KM)	0.409	k star (KM)	0.397
nu hat (KM)	37.65	nu star (KM)	36.53
theta hat (KM)	343.8	theta star (KM)	354.4
80% gamma percentile (KM)	226.9	90% gamma percentile (KM)	398
95% gamma percentile (KM)	586.1	99% gamma percentile (KM)	1060

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (36.53, α)	23.7	Adjusted Chi Square Value (36.53, β)	23.36
95% Gamma Approximate KM-UCL (use when n>=50)	216.9	95% Gamma Adjusted KM-UCL (use when n<50)	220

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.912	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.131	Lilliefors GOF Test
5% Lilliefors Critical Value	0.131	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	140.8	Mean in Log Scale	4.472
SD in Original Scale	222.4	SD in Log Scale	0.86
95% t UCL (assumes normality of ROS data)	195.8	95% Percentile Bootstrap UCL	199.1
95% BCA Bootstrap UCL	229.3	95% Bootstrap t UCL	318.9
95% H-UCL (Log ROS)	167.5		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	4.468	KM Geo Mean	87.15
KM SD (logged)	0.86	95% Critical H Value (KM-Log)	2.185
KM Standard Error of Mean (logged)	0.128	95% H-UCL (KM -Log)	166.9
KM SD (logged)	0.86	95% Critical H Value (KM-Log)	2.185
KM Standard Error of Mean (logged)	0.128		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	140.6	Mean in Log Scale	4.453
SD in Original Scale	222.4	SD in Log Scale	0.913
95% t UCL (Assumes normality)	195.7	95% H-Stat UCL	176.6

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 283.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzene_71-43-2)

General Statistics

Total Number of Observations	47	Number of Distinct Observations	12
Number of Detects	10	Number of Non-Detects	37
Number of Distinct Detects	10	Number of Distinct Non-Detects	2
Minimum Detect	0.49	Minimum Non-Detect	0.5
Maximum Detect	49	Maximum Non-Detect	10
Variance Detects	234.3	Percent Non-Detects	78.72%
Mean Detects	16.49	SD Detects	15.31
Median Detects	16	CV Detects	0.928
Skewness Detects	1.007	Kurtosis Detects	1.089
Mean of Logged Detects	1.978	SD of Logged Detects	1.751

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.894	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.209	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	3.894	KM Standard Error of Mean	1.44
KM SD	9.368	95% KM (BCA) UCL	6.454
95% KM (t) UCL	6.312	95% KM (Percentile Bootstrap) UCL	6.298
95% KM (z) UCL	6.264	95% KM Bootstrap t UCL	7.573
90% KM Chebyshev UCL	8.215	95% KM Chebyshev UCL	10.17
97.5% KM Chebyshev UCL	12.89	99% KM Chebyshev UCL	18.23

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.669	Anderson-Darling GOF Test
5% A-D Critical Value	0.759	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.232	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.276	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.729	k star (bias corrected MLE)	0.577
Theta hat (MLE)	22.63	Theta star (bias corrected MLE)	28.59
nu hat (MLE)	14.57	nu star (bias corrected)	11.54
Mean (detects)	16.49		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	3.698
Maximum	49	Median	0.01
SD	9.569	CV	2.588
k hat (MLE)	0.183	k star (bias corrected MLE)	0.185
Theta hat (MLE)	20.26	Theta star (bias corrected MLE)	19.98
nu hat (MLE)	17.16	nu star (bias corrected)	17.4
Adjusted Level of Significance (β)	0.0449		
Approximate Chi Square Value (17.40, α)	8.956	Adjusted Chi Square Value (17.40, β)	8.763
95% Gamma Approximate UCL (use when n>=50)	7.183	95% Gamma Adjusted UCL (use when n<50)	7.341

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	3.894	SD (KM)	9.368
Variance (KM)	87.75	SE of Mean (KM)	1.44
k hat (KM)	0.173	k star (KM)	0.176
nu hat (KM)	16.25	nu star (KM)	16.54
theta hat (KM)	22.53	theta star (KM)	22.13
80% gamma percentile (KM)	4.763	90% gamma percentile (KM)	11.73
95% gamma percentile (KM)	20.71	99% gamma percentile (KM)	45.99

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (16.54, α)	8.347	Adjusted Chi Square Value (16.54, β)	8.162
95% Gamma Approximate KM-UCL (use when n>=50)	7.719	95% Gamma Adjusted KM-UCL (use when n<50)	7.894

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.808	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.295	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	3.92	Mean in Log Scale	-0.868
SD in Original Scale	9.478	SD in Log Scale	2.243
95% t UCL (assumes normality of ROS data)	6.241	95% Percentile Bootstrap UCL	6.28
95% BCA Bootstrap UCL	7.081	95% Bootstrap t UCL	7.962
95% H-UCL (Log ROS)	19.08		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.14	KM Geo Mean	0.869
KM SD (logged)	1.342	95% Critical H Value (KM-Log)	2.722
KM Standard Error of Mean (logged)	0.206	95% H-UCL (KM -Log)	3.663
KM SD (logged)	1.342	95% Critical H Value (KM-Log)	2.722
KM Standard Error of Mean (logged)	0.206		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	3.806	Mean in Log Scale	-0.607
SD in Original Scale	9.526	SD in Log Scale	1.623
95% t UCL (Assumes normality)	6.139	95% H-Stat UCL	4.254

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	6.312

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (biphenyl (diphenyl)_92-52-4)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	11
Number of Detects	3	Number of Non-Detects	43
Number of Distinct Detects	3	Number of Distinct Non-Detects	8
Minimum Detect	1	Minimum Non-Detect	5
Maximum Detect	1.6	Maximum Non-Detect	5.8
Variance Detects	0.0933	Percent Non-Detects	93.48%
Mean Detects	1.333	SD Detects	0.306
Median Detects	1.4	CV Detects	0.229
Skewness Detects	-0.935	Kurtosis Detects	N/A
Mean of Logged Detects	0.269	SD of Logged Detects	0.242

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.964	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.253	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.333	KM Standard Error of Mean	0.176
KM SD	0.249	95% KM (BCA) UCL	N/A
95% KM (t) UCL	1.63	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	1.623	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	1.862	95% KM Chebyshev UCL	2.102
97.5% KM Chebyshev UCL	2.435	99% KM Chebyshev UCL	3.088

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	26.68	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.05	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	160.1	nu star (bias corrected)	N/A
Mean (detects)	1.333		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.636	Mean	1.341
Maximum	2.189	Median	1.325
SD	0.339	CV	0.253
k hat (MLE)	15.42	k star (bias corrected MLE)	14.43

Theta hat (MLE)	0.0869	Theta star (bias corrected MLE)	0.0929
nu hat (MLE)	1419	nu star (bias corrected)	1328
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (N/A, α)	1244	Adjusted Chi Square Value (N/A, β)	1241
95% Gamma Approximate UCL (use when n>=50)	1.431	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.333	SD (KM)	0.249
Variance (KM)	0.0622	SE of Mean (KM)	0.176
k hat (KM)	28.57	k star (KM)	26.72
nu hat (KM)	2629	nu star (KM)	2458
theta hat (KM)	0.0467	theta star (KM)	0.0499
80% gamma percentile (KM)	1.544	90% gamma percentile (KM)	1.673
95% gamma percentile (KM)	1.784	99% gamma percentile (KM)	2.006

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (N/A, α)	2344	Adjusted Chi Square Value (N/A, β)	2341
95% Gamma Approximate KM-UCL (use when n>=50)	1.398	95% Gamma Adjusted KM-UCL (use when n<50)	1.4

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.941	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.277	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.354	Mean in Log Scale	0.269
SD in Original Scale	0.364	SD in Log Scale	0.266
95% t UCL (assumes normality of ROS data)	1.444	95% Percentile Bootstrap UCL	1.445
95% BCA Bootstrap UCL	1.449	95% Bootstrap t UCL	1.446
95% H-UCL (Log ROS)	1.455		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.269	KM Geo Mean	1.308
KM SD (logged)	0.198	95% Critical H Value (KM-Log)	1.771
KM Standard Error of Mean (logged)	0.14	95% H-UCL (KM -Log)	1.406
KM SD (logged)	0.198	95% Critical H Value (KM-Log)	1.771
KM Standard Error of Mean (logged)	0.14		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	2.52	Mean in Log Scale	0.91
SD in Original Scale	0.347	SD in Log Scale	0.185
95% t UCL (Assumes normality)	2.606	95% H-Stat UCL	2.655

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 1.63

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (chlorobenzene_108-90-7)

General Statistics

Total Number of Observations	47	Number of Distinct Observations	12
Number of Detects	9	Number of Non-Detects	38
Number of Distinct Detects	9	Number of Distinct Non-Detects	3
Minimum Detect	0.89	Minimum Non-Detect	0.5
Maximum Detect	21	Maximum Non-Detect	50
Variance Detects	68.82	Percent Non-Detects	80.85%
Mean Detects	10.8	SD Detects	8.296
Median Detects	9.6	CV Detects	0.768
Skewness Detects	0.047	Kurtosis Detects	-2.027

Mean of Logged Detects	1.887	SD of Logged Detects	1.261

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.873	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.183	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.274	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	2.525	KM Standard Error of Mean	0.839
KM SD	5.357	95% KM (BCA) UCL	3.914
95% KM (t) UCL	3.933	95% KM (Percentile Bootstrap) UCL	3.903
95% KM (z) UCL	3.905	95% KM Bootstrap t UCL	4.371
90% KM Chebyshev UCL	5.041	95% KM Chebyshev UCL	6.181
97.5% KM Chebyshev UCL	7.762	99% KM Chebyshev UCL	10.87

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.531	Anderson-Darling GOF Test	
5% A-D Critical Value	0.741	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.22	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.286	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.153	k star (bias corrected MLE)	0.843
Theta hat (MLE)	9.369	Theta star (bias corrected MLE)	12.82
nu hat (MLE)	20.75	nu star (bias corrected)	15.17
Mean (detects)	10.8		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2.09
Maximum	21	Median	0.01
SD	5.508	CV	2.636
k hat (MLE)	0.186	k star (bias corrected MLE)	0.188
Theta hat (MLE)	11.26	Theta star (bias corrected MLE)	11.12
nu hat (MLE)	17.45	nu star (bias corrected)	17.67
Adjusted Level of Significance (β)	0.0449		
Approximate Chi Square Value (17.67, α)	9.152	Adjusted Chi Square Value (17.67, β)	8.957
95% Gamma Approximate UCL (use when n>=50)	4.035	95% Gamma Adjusted UCL (use when n<50)	4.123

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.525	SD (KM)	5.357
Variance (KM)	28.69	SE of Mean (KM)	0.839
k hat (KM)	0.222	k star (KM)	0.222
nu hat (KM)	20.89	nu star (KM)	20.89
theta hat (KM)	11.36	theta star (KM)	11.36
80% gamma percentile (KM)	3.501	90% gamma percentile (KM)	7.627
95% gamma percentile (KM)	12.65	99% gamma percentile (KM)	26.24

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (20.89, α)	11.51	Adjusted Chi Square Value (20.89, β)	11.29
95% Gamma Approximate KM-UCL (use when n>=50)	4.583	95% Gamma Adjusted KM-UCL (use when n<50)	4.673

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.833	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.203	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.274	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.261	Mean in Log Scale	-1.734
SD in Original Scale	5.45	SD in Log Scale	2.495
95% t UCL (assumes normality of ROS data)	3.595	95% Percentile Bootstrap UCL	3.686
95% BCA Bootstrap UCL	3.945	95% Bootstrap t UCL	4.216

95% H-UCL (Log ROS)	19.27		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.184	KM Geo Mean	0.832
KM SD (logged)	1.153	95% Critical H Value (KM-Log)	2.5
KM Standard Error of Mean (logged)	0.181	95% H-UCL (KM -Log)	2.475
KM SD (logged)	1.153	95% Critical H Value (KM-Log)	2.5
KM Standard Error of Mean (logged)	0.181		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	2.898	Mean in Log Scale	-0.598
SD in Original Scale	6.355	SD in Log Scale	1.547
95% t UCL (Assumes normality)	4.454	95% H-Stat UCL	3.594

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	3.933

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (chromium, total_7440-47-3)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	32
Number of Detects	37	Number of Non-Detects	9
Number of Distinct Detects	31	Number of Distinct Non-Detects	1
Minimum Detect	0.13	Minimum Non-Detect	2
Maximum Detect	2.7	Maximum Non-Detect	2
Variance Detects	0.408	Percent Non-Detects	19.57%
Mean Detects	0.935	SD Detects	0.639
Median Detects	0.84	CV Detects	0.683
Skewness Detects	0.86	Kurtosis Detects	0.311
Mean of Logged Detects	-0.336	SD of Logged Detects	0.802

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.926	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.936	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.13	Lilliefors GOF Test
5% Lilliefors Critical Value	0.144	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.917	KM Standard Error of Mean	0.0991
KM SD	0.611	95% KM (BCA) UCL	1.081
95% KM (t) UCL	1.084	95% KM (Percentile Bootstrap) UCL	1.087
95% KM (z) UCL	1.08	95% KM Bootstrap t UCL	1.093
90% KM Chebyshev UCL	1.215	95% KM Chebyshev UCL	1.349
97.5% KM Chebyshev UCL	1.536	99% KM Chebyshev UCL	1.903

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.245	Anderson-Darling GOF Test
5% A-D Critical Value	0.759	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0896	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.147	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.012	k star (bias corrected MLE)	1.867
Theta hat (MLE)	0.465	Theta star (bias corrected MLE)	0.501
nu hat (MLE)	148.9	nu star (bias corrected)	138.2
Mean (detects)	0.935		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.13	Mean	0.912
Maximum	2.7	Median	0.83
SD	0.603	CV	0.661
k hat (MLE)	2.186	k star (bias corrected MLE)	2.058
Theta hat (MLE)	0.417	Theta star (bias corrected MLE)	0.443
nu hat (MLE)	201.2	nu star (bias corrected)	189.4
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (189.37, α)	158.5	Adjusted Chi Square Value (189.37, β)	157.6
95% Gamma Approximate UCL (use when n>=50)	1.089	95% Gamma Adjusted UCL (use when n<50)	1.095

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.917	SD (KM)	0.611
Variance (KM)	0.373	SE of Mean (KM)	0.0991
k hat (KM)	2.254	k star (KM)	2.122
nu hat (KM)	207.4	nu star (KM)	195.2
theta hat (KM)	0.407	theta star (KM)	0.432
80% gamma percentile (KM)	1.364	90% gamma percentile (KM)	1.76
95% gamma percentile (KM)	2.136	99% gamma percentile (KM)	2.967

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (195.21, α)	163.9	Adjusted Chi Square Value (195.21, β)	163
95% Gamma Approximate KM-UCL (use when n>=50)	1.093	95% Gamma Adjusted KM-UCL (use when n<50)	1.099

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.952	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.936	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.109	Lilliefors GOF Test
5% Lilliefors Critical Value	0.144	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.904	Mean in Log Scale	-0.352
SD in Original Scale	0.608	SD in Log Scale	0.765
95% t UCL (assumes normality of ROS data)	1.054	95% Percentile Bootstrap UCL	1.044
95% BCA Bootstrap UCL	1.07	95% Bootstrap t UCL	1.075
95% H-UCL (Log ROS)	1.196		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.35	KM Geo Mean	0.705
KM SD (logged)	0.784	95% Critical H Value (KM-Log)	2.111
KM Standard Error of Mean (logged)	0.13	95% H-UCL (KM -Log)	1.227
KM SD (logged)	0.784	95% Critical H Value (KM-Log)	2.111
KM Standard Error of Mean (logged)	0.13		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.948	Mean in Log Scale	-0.27
SD in Original Scale	0.572	SD in Log Scale	0.73
95% t UCL (Assumes normality)	1.089	95% H-Stat UCL	1.246

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 1.084

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cis-1,2-dichloroethylene_156-59-2)

General Statistics			
Total Number of Observations	48	Number of Distinct Observations	16
Number of Detects	14	Number of Non-Detects	34
Number of Distinct Detects	14	Number of Distinct Non-Detects	2
Minimum Detect	0.26	Minimum Non-Detect	0.5
Maximum Detect	44	Maximum Non-Detect	5
Variance Detects	174.7	Percent Non-Detects	70.83%
Mean Detects	9.721	SD Detects	13.22
Median Detects	4.55	CV Detects	1.36
Skewness Detects	1.775	Kurtosis Detects	2.589
Mean of Logged Detects	1.252	SD of Logged Detects	1.657
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.739	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.874	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.226	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	3.118	KM Standard Error of Mean	1.212
KM SD	8.084	95% KM (BCA) UCL	5.533
95% KM (t) UCL	5.151	95% KM (Percentile Bootstrap) UCL	5.183
95% KM (z) UCL	5.111	95% KM Bootstrap t UCL	7.768
90% KM Chebyshev UCL	6.754	95% KM Chebyshev UCL	8.401
97.5% KM Chebyshev UCL	10.69	99% KM Chebyshev UCL	15.18
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.376	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.784	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.171	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.24	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.604	k star (bias corrected MLE)	0.522
Theta hat (MLE)	16.1	Theta star (bias corrected MLE)	18.62
nu hat (MLE)	16.91	nu star (bias corrected)	14.62
Mean (detects)	9.721		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	2.909
Maximum	44	Median	0.01
SD	8.243	CV	2.834
k hat (MLE)	0.199	k star (bias corrected MLE)	0.201
Theta hat (MLE)	14.6	Theta star (bias corrected MLE)	14.49
nu hat (MLE)	19.13	nu star (bias corrected)	19.27
Adjusted Level of Significance (β)	0.045		
Approximate Chi Square Value (19.27, α)	10.32	Adjusted Chi Square Value (19.27, β)	10.11
95% Gamma Approximate UCL (use when n>=50)	5.435	95% Gamma Adjusted UCL (use when n<50)	5.544
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	3.118	SD (KM)	8.084
Variance (KM)	65.36	SE of Mean (KM)	1.212
k hat (KM)	0.149	k star (KM)	0.153
nu hat (KM)	14.28	nu star (KM)	14.72
theta hat (KM)	20.96	theta star (KM)	20.34
80% gamma percentile (KM)	3.454	90% gamma percentile (KM)	9.272
95% gamma percentile (KM)	17.09	99% gamma percentile (KM)	39.66
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (14.72, α)	7.066	Adjusted Chi Square Value (14.72, β)	6.901
95% Gamma Approximate KM-UCL (use when n>=50)	6.494	95% Gamma Adjusted KM-UCL (use when n<50)	6.649
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.947	**Shapiro Wilk GOF Test**	

5% Shapiro Wilk Critical Value	0.874	Detected Data appear Lognormal at 5% Significance Level		
Lilliefors Test Statistic	0.143	Lilliefors GOF Test		
5% Lilliefors Critical Value	0.226	Detected Data appear Lognormal at 5% Significance Level		

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	3.212	Mean in Log Scale	-0.528
SD in Original Scale	8.145	SD in Log Scale	1.811
95% t UCL (assumes normality of ROS data)	5.185	95% Percentile Bootstrap UCL	5.253
95% BCA Bootstrap UCL	6.167	95% Bootstrap t UCL	7.909
95% H-UCL (Log ROS)	7.344		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.342	KM Geo Mean	0.71
KM SD (logged)	1.364	95% Critical H Value (KM-Log)	2.756
KM Standard Error of Mean (logged)	0.23	95% H-UCL (KM -Log)	3.114
KM SD (logged)	1.364	95% Critical H Value (KM-Log)	2.756
KM Standard Error of Mean (logged)	0.23		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	3.153	Mean in Log Scale	-0.473
SD in Original Scale	8.171	SD in Log Scale	1.523
95% t UCL (Assumes normality)	5.132	95% H-Stat UCL	3.834

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

amma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	6.649

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cobalt_7440-48-4)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	33
Number of Detects	37	Number of Non-Detects	9
Number of Distinct Detects	32	Number of Distinct Non-Detects	1
Minimum Detect	0.26	Minimum Non-Detect	1
Maximum Detect	30.6	Maximum Non-Detect	1
Variance Detects	62.45	Percent Non-Detects	19.57%
Mean Detects	6.782	SD Detects	7.902
Median Detects	3.6	CV Detects	1.165
Skewness Detects	1.759	Kurtosis Detects	2.541
Mean of Logged Detects	1.227	SD of Logged Detects	1.295

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.76	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.936	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.235	Lilliefors GOF Test
5% Lilliefors Critical Value	0.144	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	5.528	KM Standard Error of Mean	1.112
KM SD	7.439	95% KM (BCA) UCL	7.522
95% KM (t) UCL	7.396	95% KM (Percentile Bootstrap) UCL	7.428
95% KM (z) UCL	7.357	95% KM Bootstrap t UCL	7.983
90% KM Chebyshev UCL	8.864	95% KM Chebyshev UCL	10.38
97.5% KM Chebyshev UCL	12.47	99% KM Chebyshev UCL	16.59

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.492	Anderson-Darling GOF Test
5% A-D Critical Value	0.783	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.117	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.15	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.856	k star (bias corrected MLE)	0.805
Theta hat (MLE)	7.919	Theta star (bias corrected MLE)	8.425
nu hat (MLE)	63.38	nu star (bias corrected)	59.57
Mean (detects)	6.782		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	5.457
Maximum	30.6	Median	2.2
SD	7.572	CV	1.387
k hat (MLE)	0.407	k star (bias corrected MLE)	0.395
Theta hat (MLE)	13.4	Theta star (bias corrected MLE)	13.81
nu hat (MLE)	37.48	nu star (bias corrected)	36.37
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (36.37, α)	23.56	Adjusted Chi Square Value (36.37, β)	23.23
95% Gamma Approximate UCL (use when n>=50)	8.422	95% Gamma Adjusted UCL (use when n<50)	8.544

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.528	SD (KM)	7.439
Variance (KM)	55.35	SE of Mean (KM)	1.112
k hat (KM)	0.552	k star (KM)	0.531
nu hat (KM)	50.79	nu star (KM)	48.81
theta hat (KM)	10.01	theta star (KM)	10.42
80% gamma percentile (KM)	9.098	90% gamma percentile (KM)	14.77
95% gamma percentile (KM)	20.79	99% gamma percentile (KM)	35.51

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (48.81, α)	33.78	Adjusted Chi Square Value (48.81, β)	33.37
95% Gamma Approximate KM-UCL (use when n>=50)	7.989	95% Gamma Adjusted KM-UCL (use when n<50)	8.086

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.959	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.936	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0898	Lilliefors GOF Test
5% Lilliefors Critical Value	0.144	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	5.548	Mean in Log Scale	0.809
SD in Original Scale	7.508	SD in Log Scale	1.467
95% t UCL (assumes normality of ROS data)	7.407	95% Percentile Bootstrap UCL	7.385
95% BCA Bootstrap UCL	7.914	95% Bootstrap t UCL	7.817
95% H-UCL (Log ROS)	12.35		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.784	KM Geo Mean	2.19
KM SD (logged)	1.462	95% Critical H Value (KM-Log)	2.867
KM Standard Error of Mean (logged)	0.221	95% H-UCL (KM -Log)	11.91
KM SD (logged)	1.462	95% Critical H Value (KM-Log)	2.867
KM Standard Error of Mean (logged)	0.221		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	5.553	Mean in Log Scale	0.852
SD in Original Scale	7.504	SD in Log Scale	1.391
95% t UCL (Assumes normality)	7.411	95% H-Stat UCL	10.96

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

amma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	8.086

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cyanide_57-12-5)

General Statistics

Total Number of Observations	45	Number of Distinct Observations	4
Number of Detects	3	Number of Non-Detects	42
Number of Distinct Detects	3	Number of Distinct Non-Detects	1
Minimum Detect	3.9	Minimum Non-Detect	10
Maximum Detect	102	Maximum Non-Detect	10
Variance Detects	3198	Percent Non-Detects	93.33%
Mean Detects	36.7	SD Detects	56.55
Median Detects	4.2	CV Detects	1.541
Skewness Detects	1.732	Kurtosis Detects	N/A
Mean of Logged Detects	2.474	SD of Logged Detects	1.863

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.752	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.384	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	6.227	KM Standard Error of Mean	2.639
KM SD	14.44	95% KM (BCA) UCL	N/A
95% KM (t) UCL	10.66	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	10.57	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	14.14	95% KM Chebyshev UCL	17.73
97.5% KM Chebyshev UCL	22.71	99% KM Chebyshev UCL	32.49

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	0.554	k star (bias corrected MLE)	N/A
Theta hat (MLE)	66.27	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	3.323	nu star (bias corrected)	N/A
Mean (detects)	36.7		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	12.39
Maximum	102	Median	3.9
SD	20.37	CV	1.644
k hat (MLE)	0.252	k star (bias corrected MLE)	0.25
Theta hat (MLE)	49.08	Theta star (bias corrected MLE)	49.48
nu hat (MLE)	22.72	nu star (bias corrected)	22.54
Adjusted Level of Significance (β)	0.0447		
Approximate Chi Square Value (22.54, α)	12.74	Adjusted Chi Square Value (22.54, β)	12.5
95% Gamma Approximate UCL (use when n>=50)	21.92	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	6.227	SD (KM)	14.44
Variance (KM)	208.5	SE of Mean (KM)	2.639
k hat (KM)	0.186	k star (KM)	0.188
nu hat (KM)	16.74	nu star (KM)	16.95
theta hat (KM)	33.48	theta star (KM)	33.05
80% gamma percentile (KM)	7.939	90% gamma percentile (KM)	18.81
95% gamma percentile (KM)	32.58	99% gamma percentile (KM)	70.85

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (16.95, α)	8.64	Adjusted Chi Square Value (16.95, β)	8.442
95% Gamma Approximate KM-UCL (use when n>=50)	12.22	95% Gamma Adjusted KM-UCL (use when n<50)	12.5

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.767	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.378	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	9.643	Mean in Log Scale	1.535
SD in Original Scale	16.43	SD in Log Scale	1.197
95% t UCL (assumes normality of ROS data)	13.76	95% Percentile Bootstrap UCL	14.15
95% BCA Bootstrap UCL	16.49	95% Bootstrap t UCL	18.49
95% H-UCL (Log ROS)	15.19		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	1.47	KM Geo Mean	4.348
KM SD (logged)	0.477	95% Critical H Value (KM-Log)	1.889
KM Standard Error of Mean (logged)	0.0923	95% H-UCL (KM -Log)	5.581
KM SD (logged)	0.477	95% Critical H Value (KM-Log)	1.889
KM Standard Error of Mean (logged)	0.0923		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	7.113	Mean in Log Scale	1.667
SD in Original Scale	14.47	SD in Log Scale	0.453
95% t UCL (Assumes normality)	10.74	95% H-Stat UCL	6.67

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	10.66

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (ethylbenzene_100-41-4)

General Statistics

Total Number of Observations	47	Number of Distinct Observations	13
Number of Detects	11	Number of Non-Detects	36
Number of Distinct Detects	11	Number of Distinct Non-Detects	2
Minimum Detect	0.39	Minimum Non-Detect	0.5
Maximum Detect	920	Maximum Non-Detect	10
Variance Detects	95781	Percent Non-Detects	76.6%
Mean Detects	177.1	SD Detects	309.5
Median Detects	4	CV Detects	1.748
Skewness Detects	1.836	Kurtosis Detects	2.638
Mean of Logged Detects	2.47	SD of Logged Detects	2.905

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.661	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.85	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.346	Lilliefors GOF Test
5% Lilliefors Critical Value	0.251	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	41.78	KM Standard Error of Mean	24.66
KM SD	161.2	95% KM (BCA) UCL	83.47

95% KM (t) UCL	83.17	95% KM (Percentile Bootstrap) UCL	84.94
95% KM (z) UCL	82.34	95% KM Bootstrap t UCL	243.9
90% KM Chebyshev UCL	115.7	95% KM Chebyshev UCL	149.3
97.5% KM Chebyshev UCL	195.8	99% KM Chebyshev UCL	287.1

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.851	Anderson-Darling GOF Test	
5% A-D Critical Value	0.836	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.313	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.278	Detected Data Not Gamma Distributed at 5% Significance Level	

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.261	k star (bias corrected MLE)	0.25
Theta hat (MLE)	679.3	Theta star (bias corrected MLE)	707.8
nu hat (MLE)	5.735	nu star (bias corrected)	5.504
Mean (detects)	177.1		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	41.45
Maximum	920	Median	0.01
SD	163	CV	3.932
k hat (MLE)	0.119	k star (bias corrected MLE)	0.126
Theta hat (MLE)	348.4	Theta star (bias corrected MLE)	330.2
nu hat (MLE)	11.18	nu star (bias corrected)	11.8
Adjusted Level of Significance (β)	0.0449		
Approximate Chi Square Value (11.80, α)	5.097	Adjusted Chi Square Value (11.80, β)	4.957
95% Gamma Approximate UCL (use when n>=50)	95.99	95% Gamma Adjusted UCL (use when n<50)	98.69

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	41.78	SD (KM)	161.2
Variance (KM)	25973	SE of Mean (KM)	24.66
k hat (KM)	0.0672	k star (KM)	0.0771
nu hat (KM)	6.318	nu star (KM)	7.248
theta hat (KM)	621.6	theta star (KM)	541.9
80% gamma percentile (KM)	18.48	90% gamma percentile (KM)	96.73
95% gamma percentile (KM)	242.5	99% gamma percentile (KM)	752.9

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (7.25, α)	2.308	Adjusted Chi Square Value (7.25, β)	2.221
95% Gamma Approximate KM-UCL (use when n>=50)	131.2	95% Gamma Adjusted KM-UCL (use when n<50)	136.4

95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.881	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.227	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.251	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	41.95	Mean in Log Scale	-1.005
SD in Original Scale	162.9	SD in Log Scale	3.101
95% t UCL (assumes normality of ROS data)	81.82	95% Percentile Bootstrap UCL	85.53
95% BCA Bootstrap UCL	107.3	95% Bootstrap t UCL	166.5
95% H-UCL (Log ROS)	479.8		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.0668	KM Geo Mean	0.935
KM SD (logged)	1.944	95% Critical H Value (KM-Log)	3.514
KM Standard Error of Mean (logged)	0.303	95% H-UCL (KM -Log)	16.95
KM SD (logged)	1.944	95% Critical H Value (KM-Log)	3.514
KM Standard Error of Mean (logged)	0.303		

DL/2 Statistics

DL/2 Normal | DL/2 Log-Transformed

Mean in Original Scale	41.74	Mean in Log Scale	-0.42
SD in Original Scale	162.9	SD in Log Scale	2.152
95% t UCL (Assumes normality)	81.63	95% H-Stat UCL	22.28

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 195.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (iron_7439-89-6)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	37
Number of Detects	36	Number of Non-Detects	10
Number of Distinct Detects	36	Number of Distinct Non-Detects	1
Minimum Detect	43.6	Minimum Non-Detect	200
Maximum Detect	53800	Maximum Non-Detect	200
Variance Detects	2.841E+8	Percent Non-Detects	21.74%
Mean Detects	12525	SD Detects	16856
Median Detects	1975	CV Detects	1.346
Skewness Detects	1.194	Kurtosis Detects	0.0889
Mean of Logged Detects	7.611	SD of Logged Detects	2.432

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.751	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.935	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.254	Lilliefors GOF Test
5% Lilliefors Critical Value	0.145	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	9824	KM Standard Error of Mean	2328
KM SD	15571	95% KM (BCA) UCL	13741
95% KM (t) UCL	13734	95% KM (Percentile Bootstrap) UCL	13717
95% KM (z) UCL	13653	95% KM Bootstrap t UCL	14589
90% KM Chebyshev UCL	16809	95% KM Chebyshev UCL	19973
97.5% KM Chebyshev UCL	24364	99% KM Chebyshev UCL	32991

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.363	Anderson-Darling GOF Test
5% A-D Critical Value	0.842	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.174	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.158	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.366	k star (bias corrected MLE)	0.354
Theta hat (MLE)	34234	Theta star (bias corrected MLE)	35392
nu hat (MLE)	26.34	nu star (bias corrected)	25.48
Mean (detects)	12525		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	9833
Maximum	53800	Median	565.6
SD	15738	CV	1.601
k hat (MLE)	0.206	k star (bias corrected MLE)	0.207
Theta hat (MLE)	47646	Theta star (bias corrected MLE)	47409
nu hat (MLE)	18.99	nu star (bias corrected)	19.08
Adjusted Level of Significance (β)	0.0448		

Approximate Chi Square Value (19.08, α)	10.18	Adjusted Chi Square Value (19.08, β)	9.966
95% Gamma Approximate UCL (use when n>=50)	18437	95% Gamma Adjusted UCL (use when n<50)	18827

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	9824	SD (KM)	15571
Variance (KM)	2.425E+8	SE of Mean (KM)	2328
k hat (KM)	0.398	k star (KM)	0.387
nu hat (KM)	36.62	nu star (KM)	35.56
theta hat (KM)	24681	theta star (KM)	25413
80% gamma percentile (KM)	15788	90% gamma percentile (KM)	27913
95% gamma percentile (KM)	41300	99% gamma percentile (KM)	75086

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (35.56, α)	22.92	Adjusted Chi Square Value (35.56, β)	22.59
95% Gamma Approximate KM-UCL (use when n>=50)	15244	95% Gamma Adjusted KM-UCL (use when n<50)	15467

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.888	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.935	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.152	Lilliefors GOF Test
5% Lilliefors Critical Value	0.145	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	9831	Mean in Log Scale	6.911
SD in Original Scale	15738	SD in Log Scale	2.589
95% t UCL (assumes normality of ROS data)	13729	95% Percentile Bootstrap UCL	13766
95% BCA Bootstrap UCL	14179	95% Bootstrap t UCL	14699
95% H-UCL (Log ROS)	157719		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	6.934	KM Geo Mean	1026
KM SD (logged)	2.489	95% Critical H Value (KM-Log)	4.274
KM Standard Error of Mean (logged)	0.375	95% H-UCL (KM -Log)	111045
KM SD (logged)	2.489	95% Critical H Value (KM-Log)	4.274
KM Standard Error of Mean (logged)	0.375		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	9824	Mean in Log Scale	6.957
SD in Original Scale	15743	SD in Log Scale	2.484
95% t UCL (Assumes normality)	13722	95% H-Stat UCL	111524

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 24364

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (manganese_7439-96-5)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	46
		Number of Missing Observations	0
Minimum	22.5	Mean	2087
Maximum	14300	Median	356
SD	3524	Std. Error of Mean	519.5
Coefficient of Variation	1.688	Skewness	2.299

Normal GOF Test

Shapiro Wilk Test Statistic	0.629	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.281	Lilliefors GOF Test
5% Lilliefors Critical Value	0.129	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	2960	95% Adjusted-CLT UCL (Chen-1995)	3130
		95% Modified-t UCL (Johnson-1978)	2989

Gamma GOF Test

A-D Test Statistic	2.085	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.829	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.193	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.139	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.435	k star (bias corrected MLE)	0.421
Theta hat (MLE)	4801	Theta star (bias corrected MLE)	4959
nu hat (MLE)	40	nu star (bias corrected)	38.72
MLE Mean (bias corrected)	2087	MLE Sd (bias corrected)	3217
		Approximate Chi Square Value (0.05)	25.47
Adjusted Level of Significance	0.0448	Adjusted Chi Square Value	25.12

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	3173	95% Adjusted Gamma UCL (use when n<50)	3217

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.912	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.945	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.148	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.129	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.114	Mean of logged Data	6.15
Maximum of Logged Data	9.568	SD of logged Data	1.884

Assuming Lognormal Distribution

95% H-UCL	7231	90% Chebyshev (MVUE) UCL	5473
95% Chebyshev (MVUE) UCL	6816	97.5% Chebyshev (MVUE) UCL	8679
99% Chebyshev (MVUE) UCL	12339		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	2942	95% Jackknife UCL	2960
95% Standard Bootstrap UCL	2940	95% Bootstrap-t UCL	3277
95% Hall's Bootstrap UCL	3065	95% Percentile Bootstrap UCL	2964
95% BCA Bootstrap UCL	3184		
90% Chebyshev(Mean, Sd) UCL	3646	95% Chebyshev(Mean, Sd) UCL	4352
97.5% Chebyshev(Mean, Sd) UCL	5332	99% Chebyshev(Mean, Sd) UCL	7257

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	4352

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (mercury_7439-97-6)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	9
Number of Detects	8	Number of Non-Detects	38
Number of Distinct Detects	8	Number of Distinct Non-Detects	1
Minimum Detect	0.055	Minimum Non-Detect	0.2
Maximum Detect	0.39	Maximum Non-Detect	0.2
Variance Detects	0.0174	Percent Non-Detects	82.61%
Mean Detects	0.218	SD Detects	0.132
Median Detects	0.255	CV Detects	0.607
Skewness Detects	-0.236	Kurtosis Detects	-1.871

Mean of Logged Detects	-1.76	SD of Logged Detects	0.803
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.877	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.232	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Detected Data appear Normal at 5% Significance Level	
Detected Data appear Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	0.0935	KM Standard Error of Mean	0.0131
KM SD	0.0773	95% KM (BCA) UCL	0.207
95% KM (t) UCL	0.116	95% KM (Percentile Bootstrap) UCL	0.124
95% KM (z) UCL	0.115	95% KM Bootstrap t UCL	0.118
90% KM Chebyshev UCL	0.133	95% KM Chebyshev UCL	0.151
97.5% KM Chebyshev UCL	0.175	99% KM Chebyshev UCL	0.224
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.705	Anderson-Darling GOF Test	
5% A-D Critical Value	0.723	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.269	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.297	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	2.273	k star (bias corrected MLE)	1.504
Theta hat (MLE)	0.0958	Theta star (bias corrected MLE)	0.145
nu hat (MLE)	36.37	nu star (bias corrected)	24.07
Mean (detects)	0.218		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.104
Maximum	0.39	Median	0.0768
SD	0.0928	CV	0.893
k hat (MLE)	1.203	k star (bias corrected MLE)	1.139
Theta hat (MLE)	0.0864	Theta star (bias corrected MLE)	0.0913
nu hat (MLE)	110.7	nu star (bias corrected)	104.8
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (104.79, α)	82.17	Adjusted Chi Square Value (104.79, β)	81.52
95% Gamma Approximate UCL (use when n>=50)	0.133	95% Gamma Adjusted UCL (use when n<50)	0.134
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	0.0935	SD (KM)	0.0773
Variance (KM)	0.00598	SE of Mean (KM)	0.0131
k hat (KM)	1.463	k star (KM)	1.382
nu hat (KM)	134.6	nu star (KM)	127.1
theta hat (KM)	0.0639	theta star (KM)	0.0677
80% gamma percentile (KM)	0.146	90% gamma percentile (KM)	0.199
95% gamma percentile (KM)	0.25	99% gamma percentile (KM)	0.367
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (127.14, α)	102.1	Adjusted Chi Square Value (127.14, β)	101.4
95% Gamma Approximate KM-UCL (use when n>=50)	0.116	95% Gamma Adjusted KM-UCL (use when n<50)	0.117
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.822	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.286	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Detected Data Not Lognormal at 5% Significance Level	
Detected Data appear Approximate Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.106	Mean in Log Scale	-2.507
SD in Original Scale	0.0846	SD in Log Scale	0.725
95% t UCL (assumes normality of ROS data)	0.127	95% Percentile Bootstrap UCL	0.127
95% BCA Bootstrap UCL	0.129	95% Bootstrap t UCL	0.13

95% H-UCL (Log ROS)	0.132		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.543	KM Geo Mean	0.0786
KM SD (logged)	0.494	95% Critical H Value (KM-Log)	1.88
KM Standard Error of Mean (logged)	0.108	95% H-UCL (KM -Log)	0.102
KM SD (logged)	0.494	95% Critical H Value (KM-Log)	1.88
KM Standard Error of Mean (logged)	0.108		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.12	Mean in Log Scale	-2.208
SD in Original Scale	0.0689	SD in Log Scale	0.379
95% t UCL (Assumes normality)	0.138	95% H-Stat UCL	0.131

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.116

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (methylcyclohexane_108-87-2)

General Statistics

Total Number of Observations	47	Number of Distinct Observations	8
Number of Detects	5	Number of Non-Detects	42
Number of Distinct Detects	5	Number of Distinct Non-Detects	3
Minimum Detect	0.57	Minimum Non-Detect	0.5
Maximum Detect	1.5	Maximum Non-Detect	50
Variance Detects	0.181	Percent Non-Detects	89.36%
Mean Detects	1.042	SD Detects	0.426
Median Detects	1.1	CV Detects	0.409
Skewness Detects	-0.151	Kurtosis Detects	-2.828
Mean of Logged Detects	-0.0342	SD of Logged Detects	0.446

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.885	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.227	Lilliefors GOF Test
5% Lilliefors Critical Value	0.343	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.56	KM Standard Error of Mean	0.0354
KM SD	0.212	95% KM (BCA) UCL	0.626
95% KM (t) UCL	0.62	95% KM (Percentile Bootstrap) UCL	0.615
95% KM (z) UCL	0.618	95% KM Bootstrap t UCL	0.608
90% KM Chebyshev UCL	0.666	95% KM Chebyshev UCL	0.715
97.5% KM Chebyshev UCL	0.781	99% KM Chebyshev UCL	0.913

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.425	Anderson-Darling GOF Test
5% A-D Critical Value	0.68	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.251	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.358	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	6.796	k star (bias corrected MLE)	2.852
Theta hat (MLE)	0.153	Theta star (bias corrected MLE)	0.365
nu hat (MLE)	67.96	nu star (bias corrected)	28.52
Mean (detects)	1.042		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.137
Maximum	1.5	Median	0.01
SD	0.346	CV	2.524
k hat (MLE)	0.356	k star (bias corrected MLE)	0.347
Theta hat (MLE)	0.386	Theta star (bias corrected MLE)	0.395
nu hat (MLE)	33.42	nu star (bias corrected)	32.62
Adjusted Level of Significance (β)	0.0449		
Approximate Chi Square Value (32.62, α)	20.57	Adjusted Chi Square Value (32.62, β)	20.26
95% Gamma Approximate UCL (use when n>=50)	0.217	95% Gamma Adjusted UCL (use when n<50)	0.221

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.56	SD (KM)	0.212
Variance (KM)	0.0451	SE of Mean (KM)	0.0354
k hat (KM)	6.953	k star (KM)	6.523
nu hat (KM)	653.6	nu star (KM)	613.2
theta hat (KM)	0.0806	theta star (KM)	0.0859
80% gamma percentile (KM)	0.732	90% gamma percentile (KM)	0.853
95% gamma percentile (KM)	0.963	99% gamma percentile (KM)	1.192

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (613.18, α)	556.7	Adjusted Chi Square Value (613.18, β)	555
95% Gamma Approximate KM-UCL (use when n>=50)	0.617	95% Gamma Adjusted KM-UCL (use when n<50)	0.619

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.87	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.222	Lilliefors GOF Test
5% Lilliefors Critical Value	0.343	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.222	Mean in Log Scale	-2.279
SD in Original Scale	0.331	SD in Log Scale	1.274
95% t UCL (assumes normality of ROS data)	0.303	95% Percentile Bootstrap UCL	0.305
95% BCA Bootstrap UCL	0.328	95% Bootstrap t UCL	0.346
95% H-UCL (Log ROS)	0.379		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.62	KM Geo Mean	0.538
KM SD (logged)	0.246	95% Critical H Value (KM-Log)	1.792
KM Standard Error of Mean (logged)	0.041	95% H-UCL (KM -Log)	0.592
KM SD (logged)	0.246	95% Critical H Value (KM-Log)	1.792
KM Standard Error of Mean (logged)	0.041		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.962	Mean in Log Scale	-1.081
SD in Original Scale	3.657	SD in Log Scale	0.881
95% t UCL (Assumes normality)	1.857	95% H-Stat UCL	0.667

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.62

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (methylene chloride_75-09-2)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	5
Number of Detects	3	Number of Non-Detects	43

Number of Distinct Detects	3	Number of Distinct Non-Detects	2
Minimum Detect	0.19	Minimum Non-Detect	0.5
Maximum Detect	240	Maximum Non-Detect	10
Variance Detects	18724	Percent Non-Detects	93.48%
Mean Detects	82.03	SD Detects	136.8
Median Detects	5.9	CV Detects	1.668
Skewness Detects	1.729	Kurtosis Detects	N/A
Mean of Logged Detects	1.865	SD of Logged Detects	3.572

Warning: Data set has only 3 Detected Values.

This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.768	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.378	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	5.53	KM Standard Error of Mean	6.314
KM SD	34.96	95% KM (BCA) UCL	N/A
95% KM (t) UCL	16.13	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	15.92	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	24.47	95% KM Chebyshev UCL	33.05
97.5% KM Chebyshev UCL	44.96	99% KM Chebyshev UCL	68.35

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	0.275	k star (bias corrected MLE)	N/A
Theta hat (MLE)	298.2	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	1.651	nu star (bias corrected)	N/A
Mean (detects)	82.03		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	8.754
Maximum	240	Median	0.01
SD	36.58	CV	4.179
k hat (MLE)	0.144	k star (bias corrected MLE)	0.149
Theta hat (MLE)	60.84	Theta star (bias corrected MLE)	58.76
nu hat (MLE)	13.24	nu star (bias corrected)	13.71
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (13.71, α)	6.371	Adjusted Chi Square Value (13.71, β)	6.209
95% Gamma Approximate UCL (use when n>=50)	18.83	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.53	SD (KM)	34.96
Variance (KM)	1222	SE of Mean (KM)	6.314
k hat (KM)	0.025	k star (KM)	0.0379
nu hat (KM)	2.302	nu star (KM)	3.485
theta hat (KM)	221	theta star (KM)	146
80% gamma percentile (KM)	0.234	90% gamma percentile (KM)	5.425
95% gamma percentile (KM)	25.67	99% gamma percentile (KM)	133.1

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (3.48, α)	0.53	Adjusted Chi Square Value (3.48, β)	0.496
95% Gamma Approximate KM-UCL (use when n>=50)	36.4	95% Gamma Adjusted KM-UCL (use when n<50)	38.83

95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	1	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.178	Lilliefors GOF Test	

5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	6.182	Mean in Log Scale	-1.757
SD in Original Scale	35.29	SD in Log Scale	2.524
95% t UCL (assumes normality of ROS data)	14.92	95% Percentile Bootstrap UCL	16.51
95% BCA Bootstrap UCL	22.06	95% Bootstrap t UCL	147.3
95% H-UCL (Log ROS)	21.25		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-1.429	KM Geo Mean	0.24
KM SD (logged)	1.148	95% Critical H Value (KM-Log)	2.489
KM Standard Error of Mean (logged)	0.208	95% H-UCL (KM -Log)	0.709
KM SD (logged)	1.148	95% Critical H Value (KM-Log)	2.489
KM Standard Error of Mean (logged)	0.208		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	5.687	Mean in Log Scale	-1.109
SD in Original Scale	35.33	SD in Log Scale	1.18
95% t UCL (Assumes normality)	14.44	95% H-Stat UCL	1.032

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	16.13

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (naphthalene_91-20-3)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	12
Number of Detects	4	Number of Non-Detects	42
Number of Distinct Detects	4	Number of Distinct Non-Detects	8
Minimum Detect	3.2	Minimum Non-Detect	5
Maximum Detect	68	Maximum Non-Detect	5.8
Variance Detects	786.4	Percent Non-Detects	91.3%
Mean Detects	27.55	SD Detects	28.04
Median Detects	19.5	CV Detects	1.018
Skewness Detects	1.532	Kurtosis Detects	2.871
Mean of Logged Detects	2.831	SD of Logged Detects	1.258

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.847	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.356	Lilliefors GOF Test
5% Lilliefors Critical Value	0.375	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	5.317	KM Standard Error of Mean	1.689
KM SD	9.918	95% KM (BCA) UCL	N/A
95% KM (t) UCL	8.153	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	8.095	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	10.38	95% KM Chebyshev UCL	12.68
97.5% KM Chebyshev UCL	15.86	99% KM Chebyshev UCL	22.12

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.312	Anderson-Darling GOF Test
5% A-D Critical Value	0.665	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.254	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.401	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.169	k star (bias corrected MLE)	0.459
Theta hat (MLE)	23.57	Theta star (bias corrected MLE)	60.04
nu hat (MLE)	9.35	nu star (bias corrected)	3.671
Mean (detects)	27.55		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4.7
Maximum	68	Median	0.01
SD	11.17	CV	2.376
k hat (MLE)	0.204	k star (bias corrected MLE)	0.205
Theta hat (MLE)	23.05	Theta star (bias corrected MLE)	22.92
nu hat (MLE)	18.76	nu star (bias corrected)	18.87
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (18.87, α)	10.02	Adjusted Chi Square Value (18.87, β)	9.812
95% Gamma Approximate UCL (use when n>=50)	8.85	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.317	SD (KM)	9.918
Variance (KM)	98.36	SE of Mean (KM)	1.689
k hat (KM)	0.287	k star (KM)	0.283
nu hat (KM)	26.45	nu star (KM)	26.05
theta hat (KM)	18.5	theta star (KM)	18.78
80% gamma percentile (KM)	8.033	90% gamma percentile (KM)	15.79
95% gamma percentile (KM)	24.77	99% gamma percentile (KM)	48.31

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (26.05, α)	15.42	Adjusted Chi Square Value (26.05, β)	15.16
95% Gamma Approximate KM-UCL (use when n>=50)	8.984	95% Gamma Adjusted KM-UCL (use when n<50)	9.141

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.936	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.286	Lilliefors GOF Test
5% Lilliefors Critical Value	0.375	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	5.933	Mean in Log Scale	1.191
SD in Original Scale	10.35	SD in Log Scale	1.007
95% t UCL (assumes normality of ROS data)	8.495	95% Percentile Bootstrap UCL	8.704
95% BCA Bootstrap UCL	9.996	95% Bootstrap t UCL	11.96
95% H-UCL (Log ROS)	7.757		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	1.308	KM Geo Mean	3.699
KM SD (logged)	0.569	95% Critical H Value (KM-Log)	1.933
KM Standard Error of Mean (logged)	0.0969	95% H-UCL (KM -Log)	5.126
KM SD (logged)	0.569	95% Critical H Value (KM-Log)	1.933
KM Standard Error of Mean (logged)	0.0969		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	4.772	Mean in Log Scale	1.118
SD in Original Scale	10.15	SD in Log Scale	0.627
95% t UCL (Assumes normality)	7.284	95% H-Stat UCL	4.481

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 8.153

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (o-xylene (1,2-dimethylbenzene)_95-47-6)

General Statistics

Total Number of Observations	47	Number of Distinct Observations	11
Number of Detects	10	Number of Non-Detects	37
Number of Distinct Detects	9	Number of Distinct Non-Detects	2
Minimum Detect	2.3	Minimum Non-Detect	0.5
Maximum Detect	200	Maximum Non-Detect	10
Variance Detects	5892	Percent Non-Detects	78.72%
Mean Detects	76.14	SD Detects	76.76
Median Detects	56.5	CV Detects	1.008
Skewness Detects	0.499	Kurtosis Detects	-1.494
Mean of Logged Detects	3.376	SD of Logged Detects	1.768

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.86	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.213	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	16.6	KM Standard Error of Mean	7.023
KM SD	45.68	95% KM (BCA) UCL	28.91
95% KM (t) UCL	28.39	95% KM (Percentile Bootstrap) UCL	28.73
95% KM (z) UCL	28.15	95% KM Bootstrap t UCL	33.74
90% KM Chebyshev UCL	37.67	95% KM Chebyshev UCL	47.21
97.5% KM Chebyshev UCL	60.46	99% KM Chebyshev UCL	86.48

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.577	Anderson-Darling GOF Test
5% A-D Critical Value	0.766	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.209	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.278	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.64	k star (bias corrected MLE)	0.515
Theta hat (MLE)	119	Theta star (bias corrected MLE)	147.9
nu hat (MLE)	12.8	nu star (bias corrected)	10.29
Mean (detects)	76.14		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	16.21
Maximum	200	Median	0.01
SD	46.31	CV	2.857
k hat (MLE)	0.137	k star (bias corrected MLE)	0.142
Theta hat (MLE)	118.5	Theta star (bias corrected MLE)	113.9
nu hat (MLE)	12.86	nu star (bias corrected)	13.37
Adjusted Level of Significance (β)	0.0449		
Approximate Chi Square Value (13.37, α)	6.144	Adjusted Chi Square Value (13.37, β)	5.989
95% Gamma Approximate UCL (use when n>=50)	35.28	95% Gamma Adjusted UCL (use when n<50)	36.19

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	16.6	SD (KM)	45.68
Variance (KM)	2086	SE of Mean (KM)	7.023
k hat (KM)	0.132	k star (KM)	0.138
nu hat (KM)	12.42	nu star (KM)	12.96
theta hat (KM)	125.7	theta star (KM)	120.4
80% gamma percentile (KM)	16.79	90% gamma percentile (KM)	48.56
95% gamma percentile (KM)	92.8	99% gamma percentile (KM)	223.5

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (12.96, α)	5.866	Adjusted Chi Square Value (12.96, β)	5.714
95% Gamma Approximate KM-UCL (use when n>=50)	36.68	95% Gamma Adjusted KM-UCL (use when n<50)	37.65

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.859	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.213	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.262	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	16.45	Mean in Log Scale	-1.909
SD in Original Scale	46.23	SD in Log Scale	3.8
95% t UCL (assumes normality of ROS data)	27.77	95% Percentile Bootstrap UCL	28.08
95% BCA Bootstrap UCL	30.96	95% Bootstrap t UCL	34.35
95% H-UCL (Log ROS)	6687		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.177	KM Geo Mean	1.194
KM SD (logged)	1.837	95% Critical H Value (KM-Log)	3.367
KM Standard Error of Mean (logged)	0.283	95% H-UCL (KM -Log)	16.06
KM SD (logged)	1.837	95% Critical H Value (KM-Log)	3.367
KM Standard Error of Mean (logged)	0.283		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	16.5	Mean in Log Scale	-0.309
SD in Original Scale	46.21	SD in Log Scale	2.134
95% t UCL (Assumes normality)	27.81	95% H-Stat UCL	23.47

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 28.39

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (tetrachloroethylene(pce)_127-18-4)

General Statistics

Total Number of Observations	51	Number of Distinct Observations	22
Number of Detects	20	Number of Non-Detects	31
Number of Distinct Detects	19	Number of Distinct Non-Detects	4
Minimum Detect	0.25	Minimum Non-Detect	0.5
Maximum Detect	3000	Maximum Non-Detect	50
Variance Detects	576913	Percent Non-Detects	60.78%
Mean Detects	284.4	SD Detects	759.5
Median Detects	0.915	CV Detects	2.67
Skewness Detects	3.093	Kurtosis Detects	9.431
Mean of Logged Detects	1.399	SD of Logged Detects	3.137

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.441	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.905	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.399	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.192	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	111.8	KM Standard Error of Mean	69.52
KM SD	483.9	95% KM (BCA) UCL	237.1
95% KM (t) UCL	228.3	95% KM (Percentile Bootstrap) UCL	238.3
95% KM (z) UCL	226.1	95% KM Bootstrap t UCL	775.6
90% KM Chebyshev UCL	320.3	95% KM Chebyshev UCL	414.8
97.5% KM Chebyshev UCL	545.9	99% KM Chebyshev UCL	803.5

Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	2.849	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.914	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.36	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.217	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.176	k star (bias corrected MLE)	0.183
Theta hat (MLE)	1612	Theta star (bias corrected MLE)	1552
nu hat (MLE)	7.058	nu star (bias corrected)	7.333
Mean (detects)	284.4		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	111.6
Maximum	3000	Median	0.01
SD	488.8	CV	4.381
k hat (MLE)	0.115	k star (bias corrected MLE)	0.121
Theta hat (MLE)	973.7	Theta star (bias corrected MLE)	922.7
nu hat (MLE)	11.69	nu star (bias corrected)	12.33
Adjusted Level of Significance (β)	0.0453		
Approximate Chi Square Value (12.33, α)	5.446	Adjusted Chi Square Value (12.33, β)	5.313
95% Gamma Approximate UCL (use when n>=50)	252.6	95% Gamma Adjusted UCL (use when n<50)	258.9
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	111.8	SD (KM)	483.9
Variance (KM)	234166	SE of Mean (KM)	69.52
k hat (KM)	0.0533	k star (KM)	0.0633
nu hat (KM)	5.441	nu star (KM)	6.455
theta hat (KM)	2095	theta star (KM)	1766
80% gamma percentile (KM)	31.19	90% gamma percentile (KM)	221.3
95% gamma percentile (KM)	633.2	99% gamma percentile (KM)	2203
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (6.45, α)	1.876	Adjusted Chi Square Value (6.45, β)	1.806
95% Gamma Approximate KM-UCL (use when n>=50)	384.5	95% Gamma Adjusted KM-UCL (use when n<50)	399.5
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.785	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.905	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.252	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.192	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	111.8	Mean in Log Scale	-0.554
SD in Original Scale	488.7	SD in Log Scale	2.861
95% t UCL (assumes normality of ROS data)	226.5	95% Percentile Bootstrap UCL	236
95% BCA Bootstrap UCL	311.6	95% Bootstrap t UCL	776.8
95% H-UCL (Log ROS)	234.7		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-0.0964	KM Geo Mean	0.908
KM SD (logged)	2.268	95% Critical H Value (KM-Log)	3.901
KM Standard Error of Mean (logged)	0.33	95% H-UCL (KM -Log)	41.57
KM SD (logged)	2.268	95% Critical H Value (KM-Log)	3.901
KM Standard Error of Mean (logged)	0.33		
DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	112.2	Mean in Log Scale	-0.127
SD in Original Scale	488.6	SD in Log Scale	2.41
95% t UCL (Assumes normality)	226.9	95% H-Stat UCL	64.9
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 545.9

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (thallium_7440-28-0)

General Statistics

Total Number of Observations	46	Number of Distinct Observations	8
Number of Detects	6	Number of Non-Detects	40
Number of Distinct Detects	6	Number of Distinct Non-Detects	2
Minimum Detect	0.074	Minimum Non-Detect	0.24
Maximum Detect	1.2	Maximum Non-Detect	1
Variance Detects	0.168	Percent Non-Detects	86.96%
Mean Detects	0.636	SD Detects	0.409
Median Detects	0.605	CV Detects	0.644
Skewness Detects	0.0768	Kurtosis Detects	-0.783
Mean of Logged Detects	-0.75	SD of Logged Detects	1.005

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.989	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.126	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.194	KM Standard Error of Mean	0.0573
KM SD	0.275	95% KM (BCA) UCL	0.402
95% KM (t) UCL	0.29	95% KM (Percentile Bootstrap) UCL	0.381
95% KM (z) UCL	0.288	95% KM Bootstrap t UCL	0.291
90% KM Chebyshev UCL	0.366	95% KM Chebyshev UCL	0.444
97.5% KM Chebyshev UCL	0.552	99% KM Chebyshev UCL	0.764

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.277	Anderson-Darling GOF Test
5% A-D Critical Value	0.705	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.162	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.336	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.834	k star (bias corrected MLE)	1.028
Theta hat (MLE)	0.347	Theta star (bias corrected MLE)	0.618
nu hat (MLE)	22.01	nu star (bias corrected)	12.34
Mean (detects)	0.636		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.216
Maximum	1.2	Median	0.105
SD	0.275	CV	1.275
k hat (MLE)	0.588	k star (bias corrected MLE)	0.564
Theta hat (MLE)	0.366	Theta star (bias corrected MLE)	0.382
nu hat (MLE)	54.11	nu star (bias corrected)	51.92
Adjusted Level of Significance (β)	0.0448		
Approximate Chi Square Value (51.92, α)	36.37	Adjusted Chi Square Value (51.92, β)	35.95
95% Gamma Approximate UCL (use when n>=50)	0.308	95% Gamma Adjusted UCL (use when n<50)	0.311

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.194	SD (KM)	0.275
Variance (KM)	0.0754	SE of Mean (KM)	0.0573

k hat (KM)	0.499	k star (KM)	0.481
nu hat (KM)	45.88	nu star (KM)	44.22
theta hat (KM)	0.389	theta star (KM)	0.403
80% gamma percentile (KM)	0.318	90% gamma percentile (KM)	0.529
95% gamma percentile (KM)	0.755	99% gamma percentile (KM)	1.315

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (44.22, α)	29.97	Adjusted Chi Square Value (44.22, β)	29.59
95% Gamma Approximate KM-UCL (use when n>=50)	0.286	95% Gamma Adjusted KM-UCL (use when n<50)	0.29

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.869	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.227	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.209	Mean in Log Scale	-2.125
SD in Original Scale	0.252	SD in Log Scale	1.072
95% t UCL (assumes normality of ROS data)	0.271	95% Percentile Bootstrap UCL	0.272
95% BCA Bootstrap UCL	0.278	95% Bootstrap t UCL	0.29
95% H-UCL (Log ROS)	0.311		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.188	KM Geo Mean	0.112
KM SD (logged)	0.871	95% Critical H Value (KM-Log)	2.195
KM Standard Error of Mean (logged)	0.189	95% H-UCL (KM -Log)	0.218
KM SD (logged)	0.871	95% Critical H Value (KM-Log)	2.195
KM Standard Error of Mean (logged)	0.189		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.369	Mean in Log Scale	-1.259
SD in Original Scale	0.248	SD in Log Scale	0.775
95% t UCL (Assumes normality)	0.43	95% H-Stat UCL	0.489

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.29

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (trichloroethene (tce)_79-01-6)

General Statistics

Total Number of Observations	51	Number of Distinct Observations	15
Number of Detects	12	Number of Non-Detects	39
Number of Distinct Detects	12	Number of Distinct Non-Detects	4
Minimum Detect	0.081	Minimum Non-Detect	0.5
Maximum Detect	160	Maximum Non-Detect	50
Variance Detects	2080	Percent Non-Detects	76.47%
Mean Detects	16.99	SD Detects	45.6
Median Detects	1.1	CV Detects	2.685
Skewness Detects	3.322	Kurtosis Detects	11.23
Mean of Logged Detects	0.547	SD of Logged Detects	2.114

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.424	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.859	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.394	Lilliefors GOF Test
5% Lilliefors Critical Value	0.243	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	4.249	KM Standard Error of Mean	3.268
KM SD	22.33	95% KM (BCA) UCL	11.17
95% KM (t) UCL	9.726	95% KM (Percentile Bootstrap) UCL	10.31
95% KM (z) UCL	9.624	95% KM Bootstrap t UCL	60.56
90% KM Chebyshev UCL	14.05	95% KM Chebyshev UCL	18.49
97.5% KM Chebyshev UCL	24.66	99% KM Chebyshev UCL	36.76

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.244	Anderson-Darling GOF Test	
5% A-D Critical Value	0.824	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.319	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.265	Detected Data Not Gamma Distributed at 5% Significance Level	

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.301	k star (bias corrected MLE)	0.282
Theta hat (MLE)	56.34	Theta star (bias corrected MLE)	60.31
nu hat (MLE)	7.235	nu star (bias corrected)	6.76
Mean (detects)	16.99		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4.007
Maximum	160	Median	0.01
SD	22.59	CV	5.638
k hat (MLE)	0.161	k star (bias corrected MLE)	0.165
Theta hat (MLE)	24.9	Theta star (bias corrected MLE)	24.36
nu hat (MLE)	16.41	nu star (bias corrected)	16.78
Adjusted Level of Significance (β)	0.0453		
Approximate Chi Square Value (16.78, α)	8.516	Adjusted Chi Square Value (16.78, β)	8.344
95% Gamma Approximate UCL (use when n>=50)	7.896	95% Gamma Adjusted UCL (use when n<50)	8.059

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	4.249	SD (KM)	22.33
Variance (KM)	498.8	SE of Mean (KM)	3.268
k hat (KM)	0.0362	k star (KM)	0.0471
nu hat (KM)	3.692	nu star (KM)	4.808
theta hat (KM)	117.4	theta star (KM)	90.14
80% gamma percentile (KM)	0.464	90% gamma percentile (KM)	5.985
95% gamma percentile (KM)	22.09	99% gamma percentile (KM)	94.57

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (4.81, α)	1.064	Adjusted Chi Square Value (4.81, β)	1.015
95% Gamma Approximate KM-UCL (use when n>=50)	19.19	95% Gamma Adjusted KM-UCL (use when n<50)	20.12

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.947	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.181	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.243	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	4.267	Mean in Log Scale	-1.22
SD in Original Scale	22.55	SD in Log Scale	1.853
95% t UCL (assumes normality of ROS data)	9.559	95% Percentile Bootstrap UCL	10.35
95% BCA Bootstrap UCL	14.62	95% Bootstrap t UCL	64.35
95% H-UCL (Log ROS)	3.943		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.924	KM Geo Mean	0.397
KM SD (logged)	1.423	95% Critical H Value (KM-Log)	2.785
KM Standard Error of Mean (logged)	0.351	95% H-UCL (KM -Log)	1.911
KM SD (logged)	1.423	95% Critical H Value (KM-Log)	2.785
KM Standard Error of Mean (logged)	0.351		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	4.825	Mean in Log Scale	-0.674
SD in Original Scale	22.72	SD in Log Scale	1.469
95% t UCL (Assumes normality)	10.16	95% H-Stat UCL	2.703

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	18.49

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (vinyl chloride_75-01-4)

General Statistics

Total Number of Observations	37	Number of Distinct Observations	13
Number of Detects	13	Number of Non-Detects	24
Number of Distinct Detects	11	Number of Distinct Non-Detects	3
Minimum Detect	0.01	Minimum Non-Detect	0.05
Maximum Detect	14	Maximum Non-Detect	5
Variance Detects	16.91	Percent Non-Detects	64.86%
Mean Detects	2.894	SD Detects	4.113
Median Detects	0.65	CV Detects	1.421
Skewness Detects	1.833	Kurtosis Detects	3.696
Mean of Logged Detects	-0.725	SD of Logged Detects	2.567

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.739	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.866	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.275	Lilliefors GOF Test
5% Lilliefors Critical Value	0.234	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.052	KM Standard Error of Mean	0.468
KM SD	2.719	95% KM (BCA) UCL	1.876
95% KM (t) UCL	1.842	95% KM (Percentile Bootstrap) UCL	1.863
95% KM (z) UCL	1.821	95% KM Bootstrap t UCL	2.433
90% KM Chebyshev UCL	2.455	95% KM Chebyshev UCL	3.09
97.5% KM Chebyshev UCL	3.972	99% KM Chebyshev UCL	5.705

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.416	Anderson-Darling GOF Test
5% A-D Critical Value	0.815	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.161	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.254	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.372	k star (bias corrected MLE)	0.338
Theta hat (MLE)	7.771	Theta star (bias corrected MLE)	8.569
nu hat (MLE)	9.683	nu star (bias corrected)	8.782
Mean (detects)	2.894		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.037
Maximum	14	Median	0.01
SD	2.751	CV	2.653
k hat (MLE)	0.227	k star (bias corrected MLE)	0.227
Theta hat (MLE)	4.56	Theta star (bias corrected MLE)	4.569
nu hat (MLE)	16.83	nu star (bias corrected)	16.8

TABLE B.4
PROUCL 5.1.002 RAW OUTPUT FOR SITE-WIDE GROUNDWATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Adjusted Level of Significance (β)	0.0431		
Approximate Chi Square Value (16.80, α)	8.526	Adjusted Chi Square Value (16.80, β)	8.27
95% Gamma Approximate UCL (use when n>=50)	2.043	95% Gamma Adjusted UCL (use when n<50)	2.106
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	1.052	SD (KM)	2.719
Variance (KM)	7.393	SE of Mean (KM)	0.468
k hat (KM)	0.15	k star (KM)	0.156
nu hat (KM)	11.08	nu star (KM)	11.52
theta hat (KM)	7.026	theta star (KM)	6.761
80% gamma percentile (KM)	1.18	90% gamma percentile (KM)	3.135
95% gamma percentile (KM)	5.749	99% gamma percentile (KM)	13.28
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (11.52, α)	4.91	Adjusted Chi Square Value (11.52, β)	4.723
95% Gamma Approximate KM-UCL (use when n>=50)	2.468	95% Gamma Adjusted KM-UCL (use when n<50)	2.566
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.905	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.866	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.182	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.234	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	1.045	Mean in Log Scale	-2.993
SD in Original Scale	2.747	SD in Log Scale	2.658
95% t UCL (assumes normality of ROS data)	1.807	95% Percentile Bootstrap UCL	1.838
95% BCA Bootstrap UCL	2.218	95% Bootstrap t UCL	2.511
95% H-UCL (Log ROS)	13.92		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-2.955	KM Geo Mean	0.0521
KM SD (logged)	2.292	95% Critical H Value (KM-Log)	4.164
KM Standard Error of Mean (logged)	0.414	95% H-UCL (KM -Log)	3.53
KM SD (logged)	2.292	95% Critical H Value (KM-Log)	4.164
KM Standard Error of Mean (logged)	0.414		
DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	1.319	Mean in Log Scale	-1.963
SD in Original Scale	2.752	SD in Log Scale	2.26
95% t UCL (Assumes normality)	2.083	95% H-Stat UCL	8.505
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Detected Data appear Gamma Distributed at 5% Significance Level			
Suggested UCL to Use			
amma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	2.566		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TABLE B.5
PROUCL 5.1.002 RAW OUTPUT FOR SEEP WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.15/25/2017 10:33:16 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

result (1,1,1-trichloroethane_71-55-6)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	2
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	1

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (1,1,1-trichloroethane_71-55-6) was not processed!

result (1,1-dichloroethane_75-34-3)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	2
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	1

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (1,1-dichloroethane_75-34-3) was not processed!

result (1,1-dichloroethene_75-35-4)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	2
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	1

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (1,1-dichloroethene_75-35-4) was not processed!

result (aluminum_7429-90-5)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	437	Mean	7376
Maximum	32600	Median	1060
SD	12503	Std. Error of Mean	4420
Coefficient of Variation	1.695	Skewness	1.673

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.627	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.44	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	15751	95% Adjusted-CLT UCL (Chen-1995)	17440
		95% Modified-t UCL (Johnson-1978)	16187
Gamma GOF Test			
A-D Test Statistic	1.251	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.42	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.31	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0.465	k star (bias corrected MLE)	0.374
Theta hat (MLE)	15872	Theta star (bias corrected MLE)	19733
nu hat (MLE)	7.436	nu star (bias corrected)	5.981
MLE Mean (bias corrected)	7376	MLE Sd (bias corrected)	12065
		Approximate Chi Square Value (0.05)	1.63
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.123
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	27064	95% Adjusted Gamma UCL (use when n<50)	39280
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.764	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.818	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.355	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.283	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	6.08	Mean of logged Data	7.524
Maximum of Logged Data	10.39	SD of logged Data	1.684
Assuming Lognormal Distribution			
95% H-UCL	215394	90% Chebyshev (MVUE) UCL	15530
95% Chebyshev (MVUE) UCL	20028	97.5% Chebyshev (MVUE) UCL	26271
99% Chebyshev (MVUE) UCL	38533		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	14647	95% Jackknife UCL	15751
95% Standard Bootstrap UCL	14025	95% Bootstrap-t UCL	281424
95% Hall's Bootstrap UCL	189992	95% Percentile Bootstrap UCL	15168
95% BCA Bootstrap UCL	16487		
90% Chebyshev(Mean, Sd) UCL	20638	95% Chebyshev(Mean, Sd) UCL	26645
97.5% Chebyshev(Mean, Sd) UCL	34982	99% Chebyshev(Mean, Sd) UCL	51359
Suggested UCL to Use			
95% Hall's Bootstrap UCL	189992		

Recommended UCL exceeds the maximum observation

In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (arsenic_7440-38-2)

General Statistics			
Total Number of Observations	8	Number of Distinct Observations	7
		Number of Missing Observations	0
Minimum	0.79	Mean	6.528
Maximum	35.8	Median	1.065
SD	12.11	Std. Error of Mean	4.28
Coefficient of Variation	1.855	Skewness	2.597

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.561	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.352	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	14.64	95% Adjusted-CLT UCL (Chen-1995)	17.77
		95% Modified-t UCL (Johnson-1978)	15.29

Gamma GOF Test

A-D Test Statistic	1.079	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.334	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.307	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.588	k star (bias corrected MLE)	0.451
Theta hat (MLE)	11.1	Theta star (bias corrected MLE)	14.47
nu hat (MLE)	9.412	nu star (bias corrected)	7.216
MLE Mean (bias corrected)	6.528	MLE Sd (bias corrected)	9.72
		Approximate Chi Square Value (0.05)	2.29
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.653

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	20.57	95% Adjusted Gamma UCL (use when n<50)	28.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.789	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.818	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.303	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.283	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-0.236	Mean of logged Data	0.823
Maximum of Logged Data	3.578	SD of logged Data	1.388

Assuming Lognormal Distribution

95% H-UCL	61.1	90% Chebyshev (MVUE) UCL	12.33
95% Chebyshev (MVUE) UCL	15.67	97.5% Chebyshev (MVUE) UCL	20.31
99% Chebyshev (MVUE) UCL	29.42		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	13.57	95% Jackknife UCL	14.64
95% Standard Bootstrap UCL	13.01	95% Bootstrap-t UCL	78.9
95% Hall's Bootstrap UCL	81.13	95% Percentile Bootstrap UCL	14.29
95% BCA Bootstrap UCL	18.32		
90% Chebyshev(Mean, Sd) UCL	19.37	95% Chebyshev(Mean, Sd) UCL	25.18
97.5% Chebyshev(Mean, Sd) UCL	33.26	99% Chebyshev(Mean, Sd) UCL	49.11

Suggested UCL to Use

95% Hall's Bootstrap UCL	81.13

Recommended UCL exceeds the maximum observation

In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (beryllium_7440-41-7)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	7	Number of Non-Detects	1
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	0.11	Minimum Non-Detect	1
Maximum Detect	11.6	Maximum Non-Detect	1
Variance Detects	17.84	Percent Non-Detects	12.5%
Mean Detects	2.196	SD Detects	4.224
Median Detects	0.34	CV Detects	1.924
Skewness Detects	2.464	Kurtosis Detects	6.173
Mean of Logged Detects	-0.543	SD of Logged Detects	1.646

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.578	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.372	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.956	KM Standard Error of Mean	1.418
KM SD	3.713	95% KM (BCA) UCL	4.554
95% KM (t) UCL	4.642	95% KM (Percentile Bootstrap) UCL	4.561
95% KM (z) UCL	4.288	95% KM Bootstrap t UCL	50.86
90% KM Chebyshev UCL	6.21	95% KM Chebyshev UCL	8.136
97.5% KM Chebyshev UCL	10.81	99% KM Chebyshev UCL	16.06

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.783	Anderson-Darling GOF Test
5% A-D Critical Value	0.755	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.345	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.328	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.481	k star (bias corrected MLE)	0.37
Theta hat (MLE)	4.567	Theta star (bias corrected MLE)	5.935
nu hat (MLE)	6.731	nu star (bias corrected)	5.18
Mean (detects)	2.196		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.923
Maximum	11.6	Median	0.31
SD	3.986	CV	2.073
k hat (MLE)	0.388	k star (bias corrected MLE)	0.326
Theta hat (MLE)	4.954	Theta star (bias corrected MLE)	5.9
nu hat (MLE)	6.209	nu star (bias corrected)	5.214
Adjusted Level of Significance (β)	0.0195		
Approximate Chi Square Value (5.21, α)	1.252	Adjusted Chi Square Value (5.21, β)	0.83
95% Gamma Approximate UCL (use when n>=50)	8.005	95% Gamma Adjusted UCL (use when n<50)	12.07

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.956	SD (KM)	3.713
Variance (KM)	13.79	SE of Mean (KM)	1.418
k hat (KM)	0.277	k star (KM)	0.257

nu hat (KM)	4.438	nu star (KM)	4.107
theta hat (KM)	7.05	theta star (KM)	7.618
80% gamma percentile (KM)	2.866	90% gamma percentile (KM)	5.858
95% gamma percentile (KM)	9.391	99% gamma percentile (KM)	18.76

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (4.11, α)	0.765	Adjusted Chi Square Value (4.11, β)	0.472
95% Gamma Approximate KM-UCL (use when n>=50)	10.51	95% Gamma Adjusted KM-UCL (use when n<50)	17.02

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.888	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.261	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.957	Mean in Log Scale	-0.63
SD in Original Scale	3.968	SD in Log Scale	1.544
95% t UCL (assumes normality of ROS data)	4.615	95% Percentile Bootstrap UCL	4.535
95% BCA Bootstrap UCL	5.929	95% Bootstrap t UCL	56.84
95% H-UCL (Log ROS)	29.95		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.653	KM Geo Mean	0.52
KM SD (logged)	1.467	95% Critical H Value (KM-Log)	4.652
KM Standard Error of Mean (logged)	0.566	95% H-UCL (KM -Log)	20.16
KM SD (logged)	1.467	95% Critical H Value (KM-Log)	4.652
KM Standard Error of Mean (logged)	0.566		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.984	Mean in Log Scale	-0.562
SD in Original Scale	3.956	SD in Log Scale	1.525
95% t UCL (Assumes normality)	4.634	95% H-Stat UCL	29.21

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	10.81	99% KM (Chebyshev) UCL	16.06

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cadmium_7440-43-9)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	0.065	Mean	1.711
Maximum	10.2	Median	0.205
SD	3.518	Std. Error of Mean	1.244
Coefficient of Variation	2.056	Skewness	2.584

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.544	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.408	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

TABLE B.5
PROUCL 5.1.002 RAW OUTPUT FOR SEEP WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	4.067	95% Adjusted-CLT UCL (Chen-1995)	4.97
		95% Modified-t UCL (Johnson-1978)	4.256

Gamma GOF Test

A-D Test Statistic	1.157	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.773	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.401	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.312	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.436	k star (bias corrected MLE)	0.356
Theta hat (MLE)	3.921	Theta star (bias corrected MLE)	4.805
nu hat (MLE)	6.98	nu star (bias corrected)	5.696
MLE Mean (bias corrected)	1.711	MLE Sd (bias corrected)	2.867
		Approximate Chi Square Value (0.05)	1.487
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.011

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	6.555	95% Adjusted Gamma UCL (use when n<50)	9.64

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.825	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.326	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.283	Data Not Lognormal at 5% Significance Level	

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-2.733	Mean of logged Data	-0.951
Maximum of Logged Data	2.322	SD of logged Data	1.676

Assuming Lognormal Distribution

95% H-UCL	43.2	90% Chebyshev (MVUE) UCL	3.206
95% Chebyshev (MVUE) UCL	4.134	97.5% Chebyshev (MVUE) UCL	5.421
99% Chebyshev (MVUE) UCL	7.949		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	3.756	95% Jackknife UCL	4.067
95% Standard Bootstrap UCL	3.653	95% Bootstrap-t UCL	87.78
95% Hall's Bootstrap UCL	38.73	95% Percentile Bootstrap UCL	3.951
95% BCA Bootstrap UCL	5.201		
90% Chebyshev(Mean, Sd) UCL	5.442	95% Chebyshev(Mean, Sd) UCL	7.132
97.5% Chebyshev(Mean, Sd) UCL	9.477	99% Chebyshev(Mean, Sd) UCL	14.08

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL	14.08

Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (carbon disulfide_75-15-0)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	3
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	2

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (carbon disulfide_75-15-0) was not processed!

TABLE B.5
PROUCL 5.1.002 RAW OUTPUT FOR SEEP WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

result (cis-1,2-dichloroethylene_156-59-2)

General Statistics

Total Number of Observations	13	Number of Distinct Observations	7
Number of Detects	6	Number of Non-Detects	7
Number of Distinct Detects	6	Number of Distinct Non-Detects	1
Minimum Detect	1	Minimum Non-Detect	0.5
Maximum Detect	80	Maximum Non-Detect	0.5
Variance Detects	923.4	Percent Non-Detects	53.85%
Mean Detects	21.88	SD Detects	30.39
Median Detects	9.75	CV Detects	1.389
Skewness Detects	1.859	Kurtosis Detects	3.483
Mean of Logged Detects	2.092	SD of Logged Detects	1.687

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.763	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.256	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	10.37	KM Standard Error of Mean	6.578
KM SD	21.65	95% KM (BCA) UCL	20.88
95% KM (t) UCL	22.09	95% KM (Percentile Bootstrap) UCL	21.14
95% KM (z) UCL	21.19	95% KM Bootstrap t UCL	52.6
90% KM Chebyshev UCL	30.1	95% KM Chebyshev UCL	39.04
97.5% KM Chebyshev UCL	51.45	99% KM Chebyshev UCL	75.82

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.256	Anderson-Darling GOF Test
5% A-D Critical Value	0.729	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.203	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.346	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.619	k star (bias corrected MLE)	0.42
Theta hat (MLE)	35.37	Theta star (bias corrected MLE)	52.05
nu hat (MLE)	7.424	nu star (bias corrected)	5.046
Mean (detects)	21.88		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	10.11
Maximum	80	Median	0.01
SD	22.66	CV	2.243
k hat (MLE)	0.193	k star (bias corrected MLE)	0.2
Theta hat (MLE)	52.28	Theta star (bias corrected MLE)	50.53
nu hat (MLE)	5.026	nu star (bias corrected)	5.199
Adjusted Level of Significance (β)	0.0301		
Approximate Chi Square Value (5.20, α)	1.245	Adjusted Chi Square Value (5.20, β)	0.994
95% Gamma Approximate UCL (use when n>=50)	42.19	95% Gamma Adjusted UCL (use when n<50)	52.85

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	10.37	SD (KM)	21.65
Variance (KM)	468.8	SE of Mean (KM)	6.578
k hat (KM)	0.229	k star (KM)	0.228
nu hat (KM)	5.963	nu star (KM)	5.92
theta hat (KM)	45.21	theta star (KM)	45.54
80% gamma percentile (KM)	14.52	90% gamma percentile (KM)	31.29
95% gamma percentile (KM)	51.57	99% gamma percentile (KM)	106.3

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (5.92, α)	1.599	Adjusted Chi Square Value (5.92, β)	1.302

95% Gamma Approximate KM-UCL (use when n>=50)	38.39	95% Gamma Adjusted KM-UCL (use when n<50)	47.14

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.963	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.147	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	10.15	Mean in Log Scale	-0.823
SD in Original Scale	22.64	SD in Log Scale	3.277
95% t UCL (assumes normality of ROS data)	21.34	95% Percentile Bootstrap UCL	21.19
95% BCA Bootstrap UCL	27.35	95% Bootstrap t UCL	56.15
95% H-UCL (Log ROS)	118961		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.592	KM Geo Mean	1.808
KM SD (logged)	1.738	95% Critical H Value (KM-Log)	4.208
KM Standard Error of Mean (logged)	0.528	95% H-UCL (KM -Log)	67.7
KM SD (logged)	1.738	95% Critical H Value (KM-Log)	4.208
KM Standard Error of Mean (logged)	0.528		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	10.23	Mean in Log Scale	0.219
SD in Original Scale	22.6	SD in Log Scale	2.108
95% t UCL (Assumes normality)	21.41	95% H-Stat UCL	247

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	22.09

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cobalt_7440-48-4)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	0.75	Mean	15.66
Maximum	91.2	Median	4.2
SD	30.87	Std. Error of Mean	10.91
Coefficient of Variation	1.971	Skewness	2.71

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.539	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.381	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	36.34	95% Adjusted-CLT UCL (Chen-1995)	44.78
		95% Modified-t UCL (Johnson-1978)	38.08

Gamma GOF Test

A-D Test Statistic	0.707	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.76	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.288	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.308	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.53	k star (bias corrected MLE)	0.414
Theta hat (MLE)	29.58	Theta star (bias corrected MLE)	37.8
nu hat (MLE)	8.472	nu star (bias corrected)	6.628
MLE Mean (bias corrected)	15.66	MLE Sd (bias corrected)	24.33
		Approximate Chi Square Value (0.05)	1.969
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.393

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	52.72	95% Adjusted Gamma UCL (use when n<50)	74.53

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.941	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.178	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.283	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-0.288	Mean of logged Data	1.562
Maximum of Logged Data	4.513	SD of logged Data	1.543

Assuming Lognormal Distribution

95% H-UCL	267	90% Chebyshev (MVUE) UCL	32.41
95% Chebyshev (MVUE) UCL	41.54	97.5% Chebyshev (MVUE) UCL	54.21
99% Chebyshev (MVUE) UCL	79.09		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	33.61	95% Jackknife UCL	36.34
95% Standard Bootstrap UCL	32.45	95% Bootstrap-t UCL	207.9
95% Hall's Bootstrap UCL	130.4	95% Percentile Bootstrap UCL	36.19
95% BCA Bootstrap UCL	47.08		
90% Chebyshev(Mean, Sd) UCL	48.4	95% Chebyshev(Mean, Sd) UCL	63.23
97.5% Chebyshev(Mean, Sd) UCL	83.81	99% Chebyshev(Mean, Sd) UCL	124.2

Suggested UCL to Use

95% Adjusted Gamma UCL	74.53

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (lead_7439-92-1)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	1.7	Mean	71.34
Maximum	471	Median	6.25
SD	162.9	Std. Error of Mean	57.61
Coefficient of Variation	2.284	Skewness	2.735

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.504	Shapiro Wilk GOF Test	

5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.391	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	180.5	95% Adjusted-CLT UCL (Chen-1995)	225.6
		95% Modified-t UCL (Johnson-1978)	189.8

Gamma GOF Test

A-D Test Statistic	1.035	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.787	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.344	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.315	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.36	k star (bias corrected MLE)	0.309
Theta hat (MLE)	198	Theta star (bias corrected MLE)	231.2
nu hat (MLE)	5.766	nu star (bias corrected)	4.937
MLE Mean (bias corrected)	71.34	MLE Sd (bias corrected)	128.4
		Approximate Chi Square Value (0.05)	1.123
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	0.733

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	313.6	95% Adjusted Gamma UCL (use when n<50)	480.4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.867	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.229	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.283	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.531	Mean of logged Data	2.41
Maximum of Logged Data	6.155	SD of logged Data	1.886

Assuming Lognormal Distribution

95% H-UCL	4159	90% Chebyshev (MVUE) UCL	127.5
95% Chebyshev (MVUE) UCL	165.7	97.5% Chebyshev (MVUE) UCL	218.6
99% Chebyshev (MVUE) UCL	322.7		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	166.1	95% Jackknife UCL	180.5
95% Standard Bootstrap UCL	160.5	95% Bootstrap-t UCL	3079
95% Hall's Bootstrap UCL	1485	95% Percentile Bootstrap UCL	181.2
95% BCA Bootstrap UCL	203.2		
90% Chebyshev(Mean, Sd) UCL	244.2	95% Chebyshev(Mean, Sd) UCL	322.4
97.5% Chebyshev(Mean, Sd) UCL	431.1	99% Chebyshev(Mean, Sd) UCL	644.5

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL	644.5

Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (manganese_7439-96-5)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0

TABLE B.5
PROUCL 5.1.002 RAW OUTPUT FOR SEEP WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Minimum	34.7	Mean	1465
Maximum	7470	Median	651.5
SD	2498	Std. Error of Mean	883
Coefficient of Variation	1.705	Skewness	2.53

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.622	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.33	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	3138	95% Adjusted-CLT UCL (Chen-1995)	3761
		95% Modified-t UCL (Johnson-1978)	3270

Gamma GOF Test

A-D Test Statistic	0.35	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.761	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.176	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.309	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.523	k star (bias corrected MLE)	0.41
Theta hat (MLE)	2800	Theta star (bias corrected MLE)	3570
nu hat (MLE)	8.371	nu star (bias corrected)	6.565
MLE Mean (bias corrected)	1465	MLE Sd (bias corrected)	2287
		Approximate Chi Square Value (0.05)	1.935
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.366

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	4970	95% Adjusted Gamma UCL (use when n<50)	7043

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.966	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.165	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.283	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.547	Mean of logged Data	6.084
Maximum of Logged Data	8.919	SD of logged Data	1.787

Assuming Lognormal Distribution

95% H-UCL	91076	90% Chebyshev (MVUE) UCL	4310
95% Chebyshev (MVUE) UCL	5581	97.5% Chebyshev (MVUE) UCL	7344
99% Chebyshev (MVUE) UCL	10808		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	2918	95% Jackknife UCL	3138
95% Standard Bootstrap UCL	2828	95% Bootstrap-t UCL	7824
95% Hall's Bootstrap UCL	8843	95% Percentile Bootstrap UCL	3067
95% BCA Bootstrap UCL	3957		
90% Chebyshev(Mean, Sd) UCL	4114	95% Chebyshev(Mean, Sd) UCL	5314
97.5% Chebyshev(Mean, Sd) UCL	6980	99% Chebyshev(Mean, Sd) UCL	10251

Suggested UCL to Use

95% Adjusted Gamma UCL	7043

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (mercury_7439-97-6)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	4
Number of Detects	3	Number of Non-Detects	5
Number of Distinct Detects	3	Number of Distinct Non-Detects	1
Minimum Detect	0.07	Minimum Non-Detect	0.2
Maximum Detect	1.2	Maximum Non-Detect	0.2
Variance Detects	0.377	Percent Non-Detects	62.5%
Mean Detects	0.497	SD Detects	0.614
Median Detects	0.22	CV Detects	1.236
Skewness Detects	1.616	Kurtosis Detects	N/A
Mean of Logged Detects	-1.33	SD of Logged Detects	1.43

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.848	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.341	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.23	KM Standard Error of Mean	0.16
KM SD	0.37	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.533	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.493	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.711	95% KM Chebyshev UCL	0.928
97.5% KM Chebyshev UCL	1.23	99% KM Chebyshev UCL	1.824

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	0.924	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.537	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	5.545	nu star (bias corrected)	N/A
Mean (detects)	0.497		

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.22
Maximum	1.2	Median	0.0586
SD	0.405	CV	1.842
k hat (MLE)	0.49	k star (bias corrected MLE)	0.39
Theta hat (MLE)	0.448	Theta star (bias corrected MLE)	0.564
nu hat (MLE)	7.845	nu star (bias corrected)	6.236
Adjusted Level of Significance (β)	0.0195		
Approximate Chi Square Value (6.24, α)	1.762	Adjusted Chi Square Value (6.24, β)	1.227
95% Gamma Approximate UCL (use when n>=50)	0.778	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.23	SD (KM)	0.37
Variance (KM)	0.137	SE of Mean (KM)	0.16
k hat (KM)	0.387	k star (KM)	0.325

nu hat (KM)	6.186	nu star (KM)	5.2
theta hat (KM)	0.595	theta star (KM)	0.708
80% gamma percentile (KM)	0.359	90% gamma percentile (KM)	0.671
95% gamma percentile (KM)	1.025	99% gamma percentile (KM)	1.936

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (5.20, α)	1.245	Adjusted Chi Square Value (5.20, β)	0.825
95% Gamma Approximate KM-UCL (use when n>=50)	0.96	95% Gamma Adjusted KM-UCL (use when n<50)	1.449

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.988	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.218	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.232	Mean in Log Scale	-2.298
SD in Original Scale	0.397	SD in Log Scale	1.281
95% t UCL (assumes normality of ROS data)	0.498	95% Percentile Bootstrap UCL	0.505
95% BCA Bootstrap UCL	0.626	95% Bootstrap t UCL	1.712
95% H-UCL (Log ROS)	1.7		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.161	KM Geo Mean	0.115
KM SD (logged)	0.962	95% Critical H Value (KM-Log)	3.332
KM Standard Error of Mean (logged)	0.416	95% H-UCL (KM -Log)	0.614
KM SD (logged)	0.962	95% Critical H Value (KM-Log)	3.332
KM Standard Error of Mean (logged)	0.416		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.249	Mean in Log Scale	-1.938
SD in Original Scale	0.387	SD in Log Scale	0.915
95% t UCL (Assumes normality)	0.508	95% H-Stat UCL	0.666

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.533

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (tetrachloroethylene(pce)_127-18-4)

General Statistics

Total Number of Observations	19	Number of Distinct Observations	14
Number of Detects	14	Number of Non-Detects	5
Number of Distinct Detects	13	Number of Distinct Non-Detects	1
Minimum Detect	0.3	Minimum Non-Detect	0.5
Maximum Detect	1700	Maximum Non-Detect	0.5
Variance Detects	201399	Percent Non-Detects	26.32%
Mean Detects	207.7	SD Detects	448.8
Median Detects	17.15	CV Detects	2.16
Skewness Detects	3.237	Kurtosis Detects	11.16
Mean of Logged Detects	3.09	SD of Logged Detects	2.588

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.514	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.874	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.322	Lilliefors GOF Test
5% Lilliefors Critical Value	0.226	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	153.1	KM Standard Error of Mean	91.01

KM SD	382.3	95% KM (BCA) UCL	311.2
95% KM (t) UCL	311	95% KM (Percentile Bootstrap) UCL	320.5
95% KM (z) UCL	302.8	95% KM Bootstrap t UCL	660.9
90% KM Chebyshev UCL	426.2	95% KM Chebyshev UCL	549.9
97.5% KM Chebyshev UCL	721.5	99% KM Chebyshev UCL	1059

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.571	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.831	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.201	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.248	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.306	k star (bias corrected MLE)	0.288
Theta hat (MLE)	678.8	Theta star (bias corrected MLE)	721.1
nu hat (MLE)	8.569	nu star (bias corrected)	8.066
Mean (detects)	207.7		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	153.1
Maximum	1700	Median	5.1
SD	392.8	CV	2.566
k hat (MLE)	0.187	k star (bias corrected MLE)	0.193
Theta hat (MLE)	816.6	Theta star (bias corrected MLE)	793.4
nu hat (MLE)	7.123	nu star (bias corrected)	7.332
Adjusted Level of Significance (β)	0.0369		
Approximate Chi Square Value (7.33, α)	2.354	Adjusted Chi Square Value (7.33, β)	2.115
95% Gamma Approximate UCL (use when n>=50)	476.7	95% Gamma Adjusted UCL (use when n<50)	530.5

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	153.1	SD (KM)	382.3
Variance (KM)	146143	SE of Mean (KM)	91.01
k hat (KM)	0.16	k star (KM)	0.17
nu hat (KM)	6.098	nu star (KM)	6.469
theta hat (KM)	954.3	theta star (KM)	899.6
80% gamma percentile (KM)	183.2	90% gamma percentile (KM)	460.3
95% gamma percentile (KM)	820.7	99% gamma percentile (KM)	1841

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (6.47, α)	1.884	Adjusted Chi Square Value (6.47, β)	1.676
95% Gamma Approximate KM-UCL (use when n>=50)	525.8	95% Gamma Adjusted KM-UCL (use when n<50)	591

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.961	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.142	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.226	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	153.1	Mean in Log Scale	1.728
SD in Original Scale	392.8	SD in Log Scale	3.28
95% t UCL (assumes normality of ROS data)	309.4	95% Percentile Bootstrap UCL	320.5
95% BCA Bootstrap UCL	421.7	95% Bootstrap t UCL	665.8
95% H-UCL (Log ROS)	201016		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	1.96	KM Geo Mean	7.102
KM SD (logged)	2.856	95% Critical H Value (KM-Log)	5.81
KM Standard Error of Mean (logged)	0.68	95% H-UCL (KM -Log)	20983
KM SD (logged)	2.856	95% Critical H Value (KM-Log)	5.81
KM Standard Error of Mean (logged)	0.68		

DL/2 Statistics

DL/2 Normal	**DL/2 Log-Transformed**

Mean in Original Scale	153.1	Mean in Log Scale	1.912
SD in Original Scale	392.8	SD in Log Scale	2.99
95% t UCL (Assumes normality)	309.4	95% H-Stat UCL	42286

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1) 591

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (thallium_7440-28-0)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	2
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	1

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (thallium_7440-28-0) was not processed!

result (trichloroethene (tce)_79-01-6)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	12
Number of Detects	11	Number of Non-Detects	6
Number of Distinct Detects	11	Number of Distinct Non-Detects	1
Minimum Detect	0.34	Minimum Non-Detect	0.5
Maximum Detect	150	Maximum Non-Detect	0.5
Variance Detects	2258	Percent Non-Detects	35.29%
Mean Detects	30.48	SD Detects	47.52
Median Detects	7.3	CV Detects	1.559
Skewness Detects	1.953	Kurtosis Detects	3.596
Mean of Logged Detects	1.956	SD of Logged Detects	2.023

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.706	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.85	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.303	Lilliefors GOF Test
5% Lilliefors Critical Value	0.251	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	19.84	KM Standard Error of Mean	9.968
KM SD	39.19	95% KM (BCA) UCL	39.08
95% KM (t) UCL	37.25	95% KM (Percentile Bootstrap) UCL	36.85
95% KM (z) UCL	36.24	95% KM Bootstrap t UCL	68.91
90% KM Chebyshev UCL	49.75	95% KM Chebyshev UCL	63.29
97.5% KM Chebyshev UCL	82.09	99% KM Chebyshev UCL	119

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.402	Anderson-Darling GOF Test
5% A-D Critical Value	0.792	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.18	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.271	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.443	k star (bias corrected MLE)	0.383
Theta hat (MLE)	68.8	Theta star (bias corrected MLE)	79.62
nu hat (MLE)	9.747	nu star (bias corrected)	8.422
Mean (detects)	30.48		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	19.73
Maximum	150	Median	1.2
SD	40.45	CV	2.051
k hat (MLE)	0.217	k star (bias corrected MLE)	0.218
Theta hat (MLE)	90.75	Theta star (bias corrected MLE)	90.4
nu hat (MLE)	7.39	nu star (bias corrected)	7.419
Adjusted Level of Significance (β)	0.0346		
Approximate Chi Square Value (7.42, α)	2.404	Adjusted Chi Square Value (7.42, β)	2.115
95% Gamma Approximate UCL (use when n>=50)	60.89	95% Gamma Adjusted UCL (use when n<50)	69.2

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	19.84	SD (KM)	39.19
Variance (KM)	1536	SE of Mean (KM)	9.968
k hat (KM)	0.256	k star (KM)	0.25
nu hat (KM)	8.718	nu star (KM)	8.513
theta hat (KM)	77.39	theta star (KM)	79.25
80% gamma percentile (KM)	28.83	90% gamma percentile (KM)	59.55
95% gamma percentile (KM)	96.01	99% gamma percentile (KM)	193

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (8.51, α)	3.035	Adjusted Chi Square Value (8.51, β)	2.702
95% Gamma Approximate KM-UCL (use when n>=50)	55.65	95% Gamma Adjusted KM-UCL (use when n<50)	62.51

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.957	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.125	Lilliefors GOF Test
5% Lilliefors Critical Value	0.251	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	19.8	Mean in Log Scale	0.54
SD in Original Scale	40.41	SD in Log Scale	2.641
95% t UCL (assumes normality of ROS data)	36.91	95% Percentile Bootstrap UCL	36.31
95% BCA Bootstrap UCL	42.86	95% Bootstrap t UCL	62.4
95% H-UCL (Log ROS)	2255		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.885	KM Geo Mean	2.423
KM SD (logged)	2.124	95% Critical H Value (KM-Log)	4.617
KM Standard Error of Mean (logged)	0.54	95% H-UCL (KM -Log)	268.2
KM SD (logged)	2.124	95% Critical H Value (KM-Log)	4.617
KM Standard Error of Mean (logged)	0.54		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	19.81	Mean in Log Scale	0.776
SD in Original Scale	40.41	SD in Log Scale	2.295
95% t UCL (Assumes normality)	36.92	95% H-Stat UCL	515.2

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	62.51

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (vanadium_7440-62-2)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	0.84	Mean	18.72
Maximum	106	Median	2.4
SD	36.8	Std. Error of Mean	13.01
Coefficient of Variation	1.966	Skewness	2.442

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.573	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.411	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	43.37	95% Adjusted-CLT UCL (Chen-1995)	52.12
		95% Modified-t UCL (Johnson-1978)	45.24

Gamma GOF Test

A-D Test Statistic	1.056	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.773	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.385	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.312	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.436	k star (bias corrected MLE)	0.356
Theta hat (MLE)	42.9	Theta star (bias corrected MLE)	52.57
nu hat (MLE)	6.981	nu star (bias corrected)	5.696
MLE Mean (bias corrected)	18.72	MLE Sd (bias corrected)	31.37
		Approximate Chi Square Value (0.05)	1.487
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.011

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	71.72	95% Adjusted Gamma UCL (use when n<50)	105.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.833	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.301	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.283	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-0.174	Mean of logged Data	1.442
Maximum of Logged Data	4.663	SD of logged Data	1.709

Assuming Lognormal Distribution

95% H-UCL	566.7	90% Chebyshev (MVUE) UCL	36.9
95% Chebyshev (MVUE) UCL	47.63	97.5% Chebyshev (MVUE) UCL	62.54
99% Chebyshev (MVUE) UCL	91.81		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	40.12	95% Jackknife UCL	43.37
95% Standard Bootstrap UCL	39.33	95% Bootstrap-t UCL	727.9
95% Hall's Bootstrap UCL	291.8	95% Percentile Bootstrap UCL	41.04
95% BCA Bootstrap UCL	53.9		
90% Chebyshev(Mean, Sd) UCL	57.75	95% Chebyshev(Mean, Sd) UCL	75.43
97.5% Chebyshev(Mean, Sd) UCL	99.97	99% Chebyshev(Mean, Sd) UCL	148.2

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 148.2

Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (vinyl chloride_75-01-4)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	3
Number of Detects	2	Number of Non-Detects	6
Number of Distinct Detects	2	Number of Distinct Non-Detects	1
Minimum Detect	0.013	Minimum Non-Detect	0.05
Maximum Detect	0.094	Maximum Non-Detect	0.05
Variance Detects	0.00328	Percent Non-Detects	75%
Mean Detects	0.0535	SD Detects	0.0573
Median Detects	0.0535	CV Detects	1.071
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	-3.354	SD of Logged Detects	1.399

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.0231	KM Standard Error of Mean	0.0134
KM SD	0.0268	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.0485	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.0452	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.0633	95% KM Chebyshev UCL	0.0815
97.5% KM Chebyshev UCL	0.107	99% KM Chebyshev UCL	0.156

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	1.317	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0406	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	5.267	nu star (bias corrected)	N/A
Mean (detects)	0.0535		

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0231	SD (KM)	0.0268
Variance (KM)	7.1761E-4	SE of Mean (KM)	0.0134
k hat (KM)	0.745	k star (KM)	0.549
nu hat (KM)	11.92	nu star (KM)	8.785
theta hat (KM)	0.031	theta star (KM)	0.0421
80% gamma percentile (KM)	0.0381	90% gamma percentile (KM)	0.0613
95% gamma percentile (KM)	0.0859	99% gamma percentile (KM)	0.146

Gamma Kaplan-Meier (KM) Statistics

		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (8.79, α)	3.198	Adjusted Chi Square Value (8.79, β)	2.407
95% Gamma Approximate KM-UCL (use when n>=50)	0.0635	95% Gamma Adjusted KM-UCL (use when n<50)	0.0844

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0252	Mean in Log Scale	-4.126

SD in Original Scale	0.0294	SD in Log Scale	0.969
95% t UCL (assumes normality of ROS data)	0.0449	95% Percentile Bootstrap UCL	0.0435
95% BCA Bootstrap UCL	0.0521	95% Bootstrap t UCL	0.092
95% H-UCL (Log ROS)	0.0882		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-4.096	KM Geo Mean	0.0166
KM SD (logged)	0.654	95% Critical H Value (KM-Log)	2.64
KM Standard Error of Mean (logged)	0.327	95% H-UCL (KM -Log)	0.0396
KM SD (logged)	0.654	95% Critical H Value (KM-Log)	2.64
KM Standard Error of Mean (logged)	0.327		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0321	Mean in Log Scale	-3.605
SD in Original Scale	0.0254	SD in Log Scale	0.551
95% t UCL (Assumes normality)	0.0491	95% H-Stat UCL	0.0526

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 0.0815

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TABLE B.6
PROUCL 5.1.002 RAW OUTPUT FOR SURFACE WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.15/25/2017 10:34:56 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

result (1,4-dichlorobenzene_106-46-7)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	2
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	1

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (1,4-dichlorobenzene_106-46-7) was not processed!

result (4-chloroaniline_106-47-8)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	3
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	2

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (4-chloroaniline_106-47-8) was not processed!

result (arsenic_7440-38-2)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	7	Number of Non-Detects	1
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	0.34	Minimum Non-Detect	0.2
Maximum Detect	3.2	Maximum Non-Detect	0.2
Variance Detects	1.051	Percent Non-Detects	12.5%
Mean Detects	0.891	SD Detects	1.025
Median Detects	0.55	CV Detects	1.15
Skewness Detects	2.57	Kurtosis Detects	6.695
Mean of Logged Detects	-0.441	SD of Logged Detects	0.748

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.566	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.439	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.304	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.805	KM Standard Error of Mean	0.35
KM SD	0.917	95% KM (BCA) UCL	1.494
95% KM (t) UCL	1.468	95% KM (Percentile Bootstrap) UCL	1.481
95% KM (z) UCL	1.381	95% KM Bootstrap t UCL	3.656
90% KM Chebyshev UCL	1.855	95% KM Chebyshev UCL	2.331
97.5% KM Chebyshev UCL	2.991	99% KM Chebyshev UCL	4.288

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.106	Anderson-Darling GOF Test	
5% A-D Critical Value	0.719	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.385	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.316	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	1.679	k star (bias corrected MLE)	1.055
Theta hat (MLE)	0.531	Theta star (bias corrected MLE)	0.845
nu hat (MLE)	23.5	nu star (bias corrected)	14.76
Mean (detects)	0.891		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.781
Maximum	3.2	Median	0.495
SD	0.999	CV	1.279
k hat (MLE)	0.827	k star (bias corrected MLE)	0.6
Theta hat (MLE)	0.945	Theta star (bias corrected MLE)	1.302
nu hat (MLE)	13.22	nu star (bias corrected)	9.599
Adjusted Level of Significance (β)	0.0195		
Approximate Chi Square Value (9.60, α)	3.692	Adjusted Chi Square Value (9.60, β)	2.827
95% Gamma Approximate UCL (use when n>=50)	2.031	95% Gamma Adjusted UCL (use when n<50)	2.653
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	0.805	SD (KM)	0.917
Variance (KM)	0.84	SE of Mean (KM)	0.35
k hat (KM)	0.771	k star (KM)	0.565
nu hat (KM)	12.34	nu star (KM)	9.045
theta hat (KM)	1.044	theta star (KM)	1.424
80% gamma percentile (KM)	1.327	90% gamma percentile (KM)	2.122
95% gamma percentile (KM)	2.959	99% gamma percentile (KM)	4.997
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (9.05, α)	3.354	Adjusted Chi Square Value (9.05, β)	2.539
95% Gamma Approximate KM-UCL (use when n>=50)	2.171	95% Gamma Adjusted KM-UCL (use when n<50)	2.867
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.762	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.327	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.304	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.795	Mean in Log Scale	-0.649
SD in Original Scale	0.987	SD in Log Scale	0.908
95% t UCL (assumes normality of ROS data)	1.457	95% Percentile Bootstrap UCL	1.449
95% BCA Bootstrap UCL	1.79	95% Bootstrap t UCL	3.45
95% H-UCL (Log ROS)	2.368		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-0.587	KM Geo Mean	0.556
KM SD (logged)	0.754	95% Critical H Value (KM-Log)	2.851
KM Standard Error of Mean (logged)	0.288	95% H-UCL (KM -Log)	1.665
KM SD (logged)	0.754	95% Critical H Value (KM-Log)	2.851
KM Standard Error of Mean (logged)	0.288		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.793	Mean in Log Scale	-0.674
SD in Original Scale	0.989	SD in Log Scale	0.955
95% t UCL (Assumes normality)	1.455	95% H-Stat UCL	2.663
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			

Suggested UCL to Use

95% KM (Chebyshev) UCL	2.331

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzene_71-43-2)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	2
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	1

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (benzene_71-43-2) was not processed!

result (chromium, total_7440-47-3)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	7	Number of Non-Detects	1
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	0.22	Minimum Non-Detect	2
Maximum Detect	0.85	Maximum Non-Detect	2
Variance Detects	0.046	Percent Non-Detects	12.5%
Mean Detects	0.461	SD Detects	0.215
Median Detects	0.41	CV Detects	0.465
Skewness Detects	0.954	Kurtosis Detects	0.784
Mean of Logged Detects	-0.864	SD of Logged Detects	0.461

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.936	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.18	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.461	KM Standard Error of Mean	0.0811
KM SD	0.199	95% KM (BCA) UCL	0.609
95% KM (t) UCL	0.615	95% KM (Percentile Bootstrap) UCL	0.604
95% KM (z) UCL	0.595	95% KM Bootstrap t UCL	0.704
90% KM Chebyshev UCL	0.705	95% KM Chebyshev UCL	0.815
97.5% KM Chebyshev UCL	0.968	99% KM Chebyshev UCL	1.268

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.182	Anderson-Darling GOF Test
5% A-D Critical Value	0.71	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.134	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.313	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.687	k star (bias corrected MLE)	3.345
Theta hat (MLE)	0.0811	Theta star (bias corrected MLE)	0.138
nu hat (MLE)	79.61	nu star (bias corrected)	46.83
Mean (detects)	0.461		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.22	Mean	0.459
Maximum	0.85	Median	0.426
SD	0.199	CV	0.433
k hat (MLE)	6.468	k star (bias corrected MLE)	4.126
Theta hat (MLE)	0.0709	Theta star (bias corrected MLE)	0.111
nu hat (MLE)	103.5	nu star (bias corrected)	66.01
Adjusted Level of Significance (β)	0.0195		
Approximate Chi Square Value (66.01, α)	48.32	Adjusted Chi Square Value (66.01, β)	44.51
95% Gamma Approximate UCL (use when n>=50)	0.627	95% Gamma Adjusted UCL (use when n<50)	0.681

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.461	SD (KM)	0.199
Variance (KM)	0.0394	SE of Mean (KM)	0.0811
k hat (KM)	5.398	k star (KM)	3.457
nu hat (KM)	86.37	nu star (KM)	55.32
theta hat (KM)	0.0855	theta star (KM)	0.133
80% gamma percentile (KM)	0.647	90% gamma percentile (KM)	0.794
95% gamma percentile (KM)	0.93	99% gamma percentile (KM)	1.224

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (55.32, α)	39.23	Adjusted Chi Square Value (55.32, β)	35.83
95% Gamma Approximate KM-UCL (use when n>=50)	0.651	95% Gamma Adjusted KM-UCL (use when n<50)	0.712

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.983	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.147	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.456	Mean in Log Scale	-0.864
SD in Original Scale	0.199	SD in Log Scale	0.427
95% t UCL (assumes normality of ROS data)	0.59	95% Percentile Bootstrap UCL	0.571
95% BCA Bootstrap UCL	0.589	95% Bootstrap t UCL	0.661
95% H-UCL (Log ROS)	0.662		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.864	KM Geo Mean	0.422
KM SD (logged)	0.427	95% Critical H Value (KM-Log)	2.235
KM Standard Error of Mean (logged)	0.174	95% H-UCL (KM -Log)	0.662
KM SD (logged)	0.427	95% Critical H Value (KM-Log)	2.235
KM Standard Error of Mean (logged)	0.174		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.529	Mean in Log Scale	-0.756
SD in Original Scale	0.275	SD in Log Scale	0.525
95% t UCL (Assumes normality)	0.713	95% H-Stat UCL	0.867

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.615

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cis-1,2-dichloroethylene_156-59-2)

General Statistics

Total Number of Observations	16	Number of Distinct Observations	13

Number of Detects	12	Number of Non-Detects	4
Number of Distinct Detects	12	Number of Distinct Non-Detects	1
Minimum Detect	0.11	Minimum Non-Detect	0.5
Maximum Detect	61	Maximum Non-Detect	0.5
Variance Detects	302.9	Percent Non-Detects	25%
Mean Detects	5.75	SD Detects	17.4
Median Detects	0.685	CV Detects	3.027
Skewness Detects	3.46	Kurtosis Detects	11.98
Mean of Logged Detects	-0.116	SD of Logged Detects	1.487
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.347	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.859	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.504	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.243	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	4.375	KM Standard Error of Mean	3.819
KM SD	14.63	95% KM (BCA) UCL	12.14
95% KM (t) UCL	11.07	95% KM (Percentile Bootstrap) UCL	11.89
95% KM (z) UCL	10.66	95% KM Bootstrap t UCL	225.4
90% KM Chebyshev UCL	15.83	95% KM Chebyshev UCL	21.02
97.5% KM Chebyshev UCL	28.23	99% KM Chebyshev UCL	42.38
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	2.769	Anderson-Darling GOF Test	
5% A-D Critical Value	0.812	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.429	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.263	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.359	k star (bias corrected MLE)	0.325
Theta hat (MLE)	16.01	Theta star (bias corrected MLE)	17.7
nu hat (MLE)	8.617	nu star (bias corrected)	7.796
Mean (detects)	5.75		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	4.315
Maximum	61	Median	0.6
SD	15.12	CV	3.505
k hat (MLE)	0.261	k star (bias corrected MLE)	0.254
Theta hat (MLE)	16.52	Theta star (bias corrected MLE)	17
nu hat (MLE)	8.358	nu star (bias corrected)	8.124
Adjusted Level of Significance (β)	0.0335		
Approximate Chi Square Value (8.12, α)	2.807	Adjusted Chi Square Value (8.12, β)	2.463
95% Gamma Approximate UCL (use when n>=50)	12.49	95% Gamma Adjusted UCL (use when n<50)	14.23
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	4.375	SD (KM)	14.63
Variance (KM)	213.9	SE of Mean (KM)	3.819
k hat (KM)	0.0895	k star (KM)	0.114
nu hat (KM)	2.863	nu star (KM)	3.66
theta hat (KM)	48.9	theta star (KM)	38.26
80% gamma percentile (KM)	3.627	90% gamma percentile (KM)	12.22
95% gamma percentile (KM)	25.11	99% gamma percentile (KM)	64.92
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (3.66, α)	0.592	Adjusted Chi Square Value (3.66, β)	0.473
95% Gamma Approximate KM-UCL (use when n>=50)	27.04	95% Gamma Adjusted KM-UCL (use when n<50)	33.88
95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)			
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.728	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.859	Detected Data Not Lognormal at 5% Significance Level	

Lilliefors Test Statistic	0.31	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.243	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	4.348	Mean in Log Scale	-0.61
SD in Original Scale	15.11	SD in Log Scale	1.574
95% t UCL (assumes normality of ROS data)	10.97	95% Percentile Bootstrap UCL	11.88
95% BCA Bootstrap UCL	15.71	95% Bootstrap t UCL	213.8
95% H-UCL (Log ROS)	8.357		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.48	KM Geo Mean	0.618
KM SD (logged)	1.421	95% Critical H Value (KM-Log)	3.403
KM Standard Error of Mean (logged)	0.398	95% H-UCL (KM -Log)	5.911
KM SD (logged)	1.421	95% Critical H Value (KM-Log)	3.403
KM Standard Error of Mean (logged)	0.398		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	4.375	Mean in Log Scale	-0.433
SD in Original Scale	15.11	SD in Log Scale	1.394
95% t UCL (Assumes normality)	11	95% H-Stat UCL	5.732

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 21.02

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cobalt_7440-48-4)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7
Number of Detects	7	Number of Non-Detects	1
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	0.53	Minimum Non-Detect	1
Maximum Detect	3.2	Maximum Non-Detect	1
Variance Detects	0.879	Percent Non-Detects	12.5%
Mean Detects	1.106	SD Detects	0.938
Median Detects	0.81	CV Detects	0.848
Skewness Detects	2.481	Kurtosis Detects	6.341
Mean of Logged Detects	-0.0932	SD of Logged Detects	0.596

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.622	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.402	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.304	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.056	KM Standard Error of Mean	0.315
KM SD	0.824	95% KM (BCA) UCL	1.678
95% KM (t) UCL	1.653	95% KM (Percentile Bootstrap) UCL	1.65
95% KM (z) UCL	1.575	95% KM Bootstrap t UCL	3.397
90% KM Chebyshev UCL	2.002	95% KM Chebyshev UCL	2.43
97.5% KM Chebyshev UCL	3.025	99% KM Chebyshev UCL	4.193

Gamma GOF Tests on Detected Observations Only

TABLE B.6
PROUCL 5.1.002 RAW OUTPUT FOR SURFACE WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

A-D Test Statistic	0.907	Anderson-Darling GOF Test	
5% A-D Critical Value	0.713	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.341	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.314	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	2.737	k star (bias corrected MLE)	1.659
Theta hat (MLE)	0.404	Theta star (bias corrected MLE)	0.666
nu hat (MLE)	38.32	nu star (bias corrected)	23.23
Mean (detects)	1.106		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.53	Mean	1.054
Maximum	3.2	Median	0.76
SD	0.881	CV	0.836
k hat (MLE)	2.928	k star (bias corrected MLE)	1.913
Theta hat (MLE)	0.36	Theta star (bias corrected MLE)	0.551
nu hat (MLE)	46.84	nu star (bias corrected)	30.61
Adjusted Level of Significance (β)	0.0195		
Approximate Chi Square Value (30.61, α)	18.97	Adjusted Chi Square Value (30.61, β)	16.7
95% Gamma Approximate UCL (use when n>=50)	1.7	95% Gamma Adjusted UCL (use when n<50)	1.931
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	1.056	SD (KM)	0.824
Variance (KM)	0.679	SE of Mean (KM)	0.315
k hat (KM)	1.643	k star (KM)	1.11
nu hat (KM)	26.28	nu star (KM)	17.76
theta hat (KM)	0.643	theta star (KM)	0.951
80% gamma percentile (KM)	1.684	90% gamma percentile (KM)	2.37
95% gamma percentile (KM)	3.05	99% gamma percentile (KM)	4.616
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (17.76, α)	9.218	Adjusted Chi Square Value (17.76, β)	7.712
95% Gamma Approximate KM-UCL (use when n>=50)	2.035	95% Gamma Adjusted KM-UCL (use when n<50)	2.432
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.802	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.295	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.304	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Approximate Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	1.058	Mean in Log Scale	-0.122
SD in Original Scale	0.879	SD in Log Scale	0.558
95% t UCL (assumes normality of ROS data)	1.646	95% Percentile Bootstrap UCL	1.644
95% BCA Bootstrap UCL	1.957	95% Bootstrap t UCL	3.611
95% H-UCL (Log ROS)	1.735		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-0.127	KM Geo Mean	0.881
KM SD (logged)	0.528	95% Critical H Value (KM-Log)	2.402
KM Standard Error of Mean (logged)	0.204	95% H-UCL (KM -Log)	1.636
KM SD (logged)	0.528	95% Critical H Value (KM-Log)	2.402
KM Standard Error of Mean (logged)	0.204		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.03	Mean in Log Scale	-0.168
SD in Original Scale	0.894	SD in Log Scale	0.591
95% t UCL (Assumes normality)	1.629	95% H-Stat UCL	1.767
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Detected Data appear Approximate Lognormal Distributed at 5% Significance Level			

TABLE B.6
PROUCL 5.1.002 RAW OUTPUT FOR SURFACE WATER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Suggested UCL to Use

KM H-UCL 1.636

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (iron_7439-89-6)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	305	Mean	4234
Maximum	29500	Median	633.5
SD	10213	Std. Error of Mean	3611
Coefficient of Variation	2.412	Skewness	2.824

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.444	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.494	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	11075	95% Adjusted-CLT UCL (Chen-1995)	14025
		95% Modified-t UCL (Johnson-1978)	11676

Gamma GOF Test

A-D Test Statistic	1.694	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.775	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.441	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.312	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.428	k star (bias corrected MLE)	0.351
Theta hat (MLE)	9896	Theta star (bias corrected MLE)	12072
nu hat (MLE)	6.845	nu star (bias corrected)	5.611
MLE Mean (bias corrected)	4234	MLE Sd (bias corrected)	7149
		Approximate Chi Square Value (0.05)	1.445
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	0.978

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	16445	95% Adjusted Gamma UCL (use when n<50)	24285

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.709	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.316	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.283	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.72	Mean of logged Data	6.829
Maximum of Logged Data	10.29	SD of logged Data	1.47

Assuming Lognormal Distribution

95% H-UCL	36241	90% Chebyshev (MVUE) UCL	5640
95% Chebyshev (MVUE) UCL	7201	97.5% Chebyshev (MVUE) UCL	9369
99% Chebyshev (MVUE) UCL	13626		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	10173	95% Jackknife UCL	11075
95% Standard Bootstrap UCL	9763	95% Bootstrap-t UCL	186976
95% Hall's Bootstrap UCL	95996	95% Percentile Bootstrap UCL	11396
95% BCA Bootstrap UCL	15063		
90% Chebyshev(Mean, Sd) UCL	15066	95% Chebyshev(Mean, Sd) UCL	19973
97.5% Chebyshev(Mean, Sd) UCL	26784	99% Chebyshev(Mean, Sd) UCL	40161

Suggested UCL to Use

95% Hall's Bootstrap UCL 95996

Recommended UCL exceeds the maximum observation

In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (manganese_7439-96-5)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	198	Mean	865.8
Maximum	4630	Median	381
SD	1525	Std. Error of Mean	539.2
Coefficient of Variation	1.761	Skewness	2.799

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.485	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.473	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1887	95% Adjusted-CLT UCL (Chen-1995)	2323
		95% Modified-t UCL (Johnson-1978)	1976

Gamma GOF Test

A-D Test Statistic	1.465	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.741	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.417	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.303	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.85	k star (bias corrected MLE)	0.614
Theta hat (MLE)	1019	Theta star (bias corrected MLE)	1409
nu hat (MLE)	13.6	nu star (bias corrected)	9.831
MLE Mean (bias corrected)	865.8	MLE Sd (bias corrected)	1104
		Approximate Chi Square Value (0.05)	3.837
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	2.95

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2218	95% Adjusted Gamma UCL (use when n<50)	2885

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.725	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.329	Lilliefors Lognormal GOF Test

5% Lilliefors Critical Value	0.283	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.288	Mean of logged Data	6.071
Maximum of Logged Data	8.44	SD of logged Data	1.021

Assuming Lognormal Distribution

95% H-UCL	2793	90% Chebyshev (MVUE) UCL	1409
95% Chebyshev (MVUE) UCL	1745	97.5% Chebyshev (MVUE) UCL	2210
99% Chebyshev (MVUE) UCL	3124		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	1753	95% Jackknife UCL	1887
95% Standard Bootstrap UCL	1688	95% Bootstrap-t UCL	9774
95% Hall's Bootstrap UCL	8253	95% Percentile Bootstrap UCL	1933
95% BCA Bootstrap UCL	2463		
90% Chebyshev(Mean, Sd) UCL	2483	95% Chebyshev(Mean, Sd) UCL	3216
97.5% Chebyshev(Mean, Sd) UCL	4233	99% Chebyshev(Mean, Sd) UCL	6230

Suggested UCL to Use

95% Hall's Bootstrap UCL	8253

Recommended UCL exceeds the maximum observation

In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (tetrachloroethylene(pce)_127-18-4)

General Statistics

Total Number of Observations	16	Number of Distinct Observations	10
Number of Detects	10	Number of Non-Detects	6
Number of Distinct Detects	9	Number of Distinct Non-Detects	1
Minimum Detect	0.69	Minimum Non-Detect	0.5
Maximum Detect	490	Maximum Non-Detect	0.5
Variance Detects	23544	Percent Non-Detects	37.5%
Mean Detects	53.52	SD Detects	153.4
Median Detects	3.25	CV Detects	2.867
Skewness Detects	3.156	Kurtosis Detects	9.973
Mean of Logged Detects	1.763	SD of Logged Detects	1.76

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.389	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.492	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.262	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	33.64	KM Standard Error of Mean	31.07
KM SD	117.9	95% KM (BCA) UCL	93.68
95% KM (t) UCL	88.11	95% KM (Percentile Bootstrap) UCL	94.43
95% KM (z) UCL	84.74	95% KM Bootstrap t UCL	2107
90% KM Chebyshev UCL	126.9	95% KM Chebyshev UCL	169.1
97.5% KM Chebyshev UCL	227.7	99% KM Chebyshev UCL	342.8

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.031	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.812	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.405	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.288	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.31	k star (bias corrected MLE)	0.283
Theta hat (MLE)	172.9	Theta star (bias corrected MLE)	188.9
nu hat (MLE)	6.19	nu star (bias corrected)	5.667
Mean (detects)	53.52		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	33.45
Maximum	490	Median	2.6
SD	121.8	CV	3.642
k hat (MLE)	0.181	k star (bias corrected MLE)	0.189
Theta hat (MLE)	185.1	Theta star (bias corrected MLE)	177.4
nu hat (MLE)	5.785	nu star (bias corrected)	6.033
Adjusted Level of Significance (β)	0.0335		
Approximate Chi Square Value (6.03, α)	1.657	Adjusted Chi Square Value (6.03, β)	1.411
95% Gamma Approximate UCL (use when n>=50)	121.8	95% Gamma Adjusted UCL (use when n<50)	143.1

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	33.64	SD (KM)	117.9
Variance (KM)	13902	SE of Mean (KM)	31.07
k hat (KM)	0.0814	k star (KM)	0.108
nu hat (KM)	2.604	nu star (KM)	3.449
theta hat (KM)	413.3	theta star (KM)	312.1
80% gamma percentile (KM)	25.89	90% gamma percentile (KM)	92.14
95% gamma percentile (KM)	194.2	99% gamma percentile (KM)	514.5

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (3.45, α)	0.517	Adjusted Chi Square Value (3.45, β)	0.41
95% Gamma Approximate KM-UCL (use when n>=50)	224.4	95% Gamma Adjusted KM-UCL (use when n<50)	283.2

95% Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50)

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.784	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.286	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	33.5	Mean in Log Scale	0.172
SD in Original Scale	121.8	SD in Log Scale	2.614
95% t UCL (assumes normality of ROS data)	86.89	95% Percentile Bootstrap UCL	94.02
95% BCA Bootstrap UCL	124.7	95% Bootstrap t UCL	1918
95% H-UCL (Log ROS)	1643		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.842	KM Geo Mean	2.322
KM SD (logged)	1.777	95% Critical H Value (KM-Log)	4.05
KM Standard Error of Mean (logged)	0.468	95% H-UCL (KM -Log)	72.15
KM SD (logged)	1.777	95% Critical H Value (KM-Log)	4.05
KM Standard Error of Mean (logged)	0.468		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	33.54	Mean in Log Scale	0.582
SD in Original Scale	121.8	SD in Log Scale	2.083
95% t UCL (Assumes normality)	86.92	95% H-Stat UCL	188.9

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

975% KM (Chebyshev) UCL	227.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (trichloroethene (tce)_79-01-6)

General Statistics

Total Number of Observations	12	Number of Distinct Observations	7
Number of Detects	6	Number of Non-Detects	6
Number of Distinct Detects	6	Number of Distinct Non-Detects	1
Minimum Detect	0.15	Minimum Non-Detect	0.5
Maximum Detect	62	Maximum Non-Detect	0.5
Variance Detects	620.8	Percent Non-Detects	50%
Mean Detects	11.17	SD Detects	24.92
Median Detects	0.795	CV Detects	2.23
Skewness Detects	2.443	Kurtosis Detects	5.974
Mean of Logged Detects	0.373	SD of Logged Detects	2.058

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.525	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.466	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	5.661	KM Standard Error of Mean	5.376
KM SD	17	95% KM (BCA) UCL	16.19
95% KM (t) UCL	15.32	95% KM (Percentile Bootstrap) UCL	15.91
95% KM (z) UCL	14.5	95% KM Bootstrap t UCL	356.9
90% KM Chebyshev UCL	21.79	95% KM Chebyshev UCL	29.1
97.5% KM Chebyshev UCL	39.24	99% KM Chebyshev UCL	59.15

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.909	Anderson-Darling GOF Test
5% A-D Critical Value	0.762	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.358	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.355	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.332	k star (bias corrected MLE)	0.277
Theta hat (MLE)	33.62	Theta star (bias corrected MLE)	40.29
nu hat (MLE)	3.988	nu star (bias corrected)	3.327
Mean (detects)	11.17		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	5.591
Maximum	62	Median	0.08
SD	17.78	CV	3.18
k hat (MLE)	0.193	k star (bias corrected MLE)	0.2
Theta hat (MLE)	28.99	Theta star (bias corrected MLE)	27.93
nu hat (MLE)	4.629	nu star (bias corrected)	4.805
Adjusted Level of Significance (β)	0.029		
Approximate Chi Square Value (4.80, α)	1.063	Adjusted Chi Square Value (4.80, β)	0.823
95% Gamma Approximate UCL (use when n>=50)	25.27	95% Gamma Adjusted UCL (use when n<50)	32.63

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.661	SD (KM)	17
Variance (KM)	289	SE of Mean (KM)	5.376
k hat (KM)	0.111	k star (KM)	0.139
nu hat (KM)	2.661	nu star (KM)	3.329
theta hat (KM)	51.06	theta star (KM)	40.81
80% gamma percentile (KM)	5.757	90% gamma percentile (KM)	16.58
95% gamma percentile (KM)	31.61	99% gamma percentile (KM)	75.96

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (3.33, α)	0.476	Adjusted Chi Square Value (3.33, β)	0.346
95% Gamma Approximate KM-UCL (use when n>=50)	39.57	95% Gamma Adjusted KM-UCL (use when n<50)	54.47

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.876	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.276	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	5.636	Mean in Log Scale	-1.252
SD in Original Scale	17.77	SD in Log Scale	2.367
95% t UCL (assumes normality of ROS data)	14.85	95% Percentile Bootstrap UCL	15.77
95% BCA Bootstrap UCL	21.19	95% Bootstrap t UCL	326.6
95% H-UCL (Log ROS)	289.9		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.762	KM Geo Mean	0.467
KM SD (logged)	1.747	95% Critical H Value (KM-Log)	4.416
KM Standard Error of Mean (logged)	0.552	95% H-UCL (KM -Log)	21.98
KM SD (logged)	1.747	95% Critical H Value (KM-Log)	4.416
KM Standard Error of Mean (logged)	0.552		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	5.711	Mean in Log Scale	-0.507
SD in Original Scale	17.74	SD in Log Scale	1.664
95% t UCL (Assumes normality)	14.91	95% H-Stat UCL	20.16

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

99% KM (Chebyshev) UCL	59.15

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (vinyl chloride_75-01-4)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7
Number of Detects	7	Number of Non-Detects	1
Number of Distinct Detects	6	Number of Distinct Non-Detects	1
Minimum Detect	0.014	Minimum Non-Detect	0.05
Maximum Detect	0.33	Maximum Non-Detect	0.05
Variance Detects	0.0128	Percent Non-Detects	12.5%
Mean Detects	0.0787	SD Detects	0.113
Median Detects	0.052	CV Detects	1.435
Skewness Detects	2.442	Kurtosis Detects	6.184
Mean of Logged Detects	-3.171	SD of Logged Detects	1.134

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.618	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.416	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.304	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.0708	KM Standard Error of Mean	0.0382

KM SD	0.1	95% KM (BCA) UCL	0.144
95% KM (t) UCL	0.143	95% KM (Percentile Bootstrap) UCL	0.139
95% KM (z) UCL	0.134	95% KM Bootstrap t UCL	0.317
90% KM Chebyshev UCL	0.185	95% KM Chebyshev UCL	0.237
97.5% KM Chebyshev UCL	0.309	99% KM Chebyshev UCL	0.451

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.67	Anderson-Darling GOF Test	
5% A-D Critical Value	0.73	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.303	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.321	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.926	k star (bias corrected MLE)	0.624
Theta hat (MLE)	0.085	Theta star (bias corrected MLE)	0.126
nu hat (MLE)	12.96	nu star (bias corrected)	8.741
Mean (detects)	0.0787		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.0701
Maximum	0.33	Median	0.035
SD	0.107	CV	1.531
k hat (MLE)	0.85	k star (bias corrected MLE)	0.615
Theta hat (MLE)	0.0825	Theta star (bias corrected MLE)	0.114
nu hat (MLE)	13.6	nu star (bias corrected)	9.832
Adjusted Level of Significance (β)	0.0195		
Approximate Chi Square Value (9.83, α)	3.837	Adjusted Chi Square Value (9.83, β)	2.95
95% Gamma Approximate UCL (use when n>=50)	0.18	95% Gamma Adjusted UCL (use when n<50)	0.234

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0708	SD (KM)	0.1
Variance (KM)	0.01	SE of Mean (KM)	0.0382
k hat (KM)	0.501	k star (KM)	0.396
nu hat (KM)	8.015	nu star (KM)	6.343
theta hat (KM)	0.141	theta star (KM)	0.179
80% gamma percentile (KM)	0.114	90% gamma percentile (KM)	0.2
95% gamma percentile (KM)	0.295	99% gamma percentile (KM)	0.534

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (6.34, α)	1.817	Adjusted Chi Square Value (6.34, β)	1.272
95% Gamma Approximate KM-UCL (use when n>=50)	0.247	95% Gamma Adjusted KM-UCL (use when n<50)	0.353

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.87	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.222	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.304	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0709	Mean in Log Scale	-3.291
SD in Original Scale	0.107	SD in Log Scale	1.103
95% t UCL (assumes normality of ROS data)	0.142	95% Percentile Bootstrap UCL	0.144
95% BCA Bootstrap UCL	0.173	95% Bootstrap t UCL	0.319
95% H-UCL (Log ROS)	0.318		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-3.298	KM Geo Mean	0.037
KM SD (logged)	1.039	95% Critical H Value (KM-Log)	3.522
KM Standard Error of Mean (logged)	0.397	95% H-UCL (KM -Log)	0.253
KM SD (logged)	1.039	95% Critical H Value (KM-Log)	3.522
KM Standard Error of Mean (logged)	0.397		

DL/2 Statistics

DL/2 Normal | DL/2 Log-Transformed

Mean in Original Scale	0.072	Mean in Log Scale	-3.236
SD in Original Scale	0.106	SD in Log Scale	1.066
95% t UCL (Assumes normality)	0.143	95% H-Stat UCL	0.295

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM Bootstrap t UCL	0.317	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	0.353

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TABLE B.7
PROUCL 5.1.002 RAW OUTPUT FOR SEEP SEDIMENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.15/25/2017 10:31:26 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

result (aluminum_7429-90-5)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	1180	Mean	6381
Maximum	18100	Median	4780
SD	5463	Std. Error of Mean	1931
Coefficient of Variation	0.856	Skewness	1.66

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.838	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.25	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	10041	95% Adjusted-CLT UCL (Chen-1995)	10769
		95% Modified-t UCL (Johnson-1978)	10229

Gamma GOF Test

A-D Test Statistic	0.209	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.726	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.152	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.298	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.826	k star (bias corrected MLE)	1.225
Theta hat (MLE)	3495	Theta star (bias corrected MLE)	5211
nu hat (MLE)	29.22	nu star (bias corrected)	19.59
MLE Mean (bias corrected)	6381	MLE Sd (bias corrected)	5766
		Approximate Chi Square Value (0.05)	10.55
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	8.923

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	11849	95% Adjusted Gamma UCL (use when n<50)	14012

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.991	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.135	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.283	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	7.073	Mean of logged Data	8.463
Maximum of Logged Data	9.804	SD of logged Data	0.84

Assuming Lognormal Distribution

95% H-UCL	17700	90% Chebyshev (MVUE) UCL	12182
95% Chebyshev (MVUE) UCL	14808	97.5% Chebyshev (MVUE) UCL	18453
99% Chebyshev (MVUE) UCL	25613		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	9558	95% Jackknife UCL	10041
95% Standard Bootstrap UCL	9363	95% Bootstrap-t UCL	14723
95% Hall's Bootstrap UCL	26463	95% Percentile Bootstrap UCL	9508
95% BCA Bootstrap UCL	10590		
90% Chebyshev(Mean, Sd) UCL	12176	95% Chebyshev(Mean, Sd) UCL	14800
97.5% Chebyshev(Mean, Sd) UCL	18443	99% Chebyshev(Mean, Sd) UCL	25599

Suggested UCL to Use

95% Student's-t UCL 10041

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (arsenic_7440-38-2)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	1.3	Mean	4.55
Maximum	14.2	Median	3.85
SD	4.077	Std. Error of Mean	1.442
Coefficient of Variation	0.896	Skewness	2.343

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.696	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.37	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	7.281	95% Adjusted-CLT UCL (Chen-1995)	8.197
		95% Modified-t UCL (Johnson-1978)	7.48

Gamma GOF Test

A-D Test Statistic	0.532	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.724	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.278	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.297	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.126	k star (bias corrected MLE)	1.412
Theta hat (MLE)	2.14	Theta star (bias corrected MLE)	3.222
nu hat (MLE)	34.02	nu star (bias corrected)	22.6
MLE Mean (bias corrected)	4.55	MLE Sd (bias corrected)	3.829
		Approximate Chi Square Value (0.05)	12.79
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	10.97

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	8.041	95% Adjusted Gamma UCL (use when n<50)	9.375

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.929	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.232	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.283	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.262	Mean of logged Data	1.262
Maximum of Logged Data	2.653	SD of logged Data	0.723

Assuming Lognormal Distribution

95% H-UCL	9.815	90% Chebyshev (MVUE) UCL	7.858
95% Chebyshev (MVUE) UCL	9.418	97.5% Chebyshev (MVUE) UCL	11.58
99% Chebyshev (MVUE) UCL	15.83		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	6.921	95% Jackknife UCL	7.281
95% Standard Bootstrap UCL	6.769	95% Bootstrap-t UCL	10.58
95% Hall's Bootstrap UCL	17.3	95% Percentile Bootstrap UCL	7.163
95% BCA Bootstrap UCL	7.675		
90% Chebyshev(Mean, Sd) UCL	8.875	95% Chebyshev(Mean, Sd) UCL	10.83
97.5% Chebyshev(Mean, Sd) UCL	13.55	99% Chebyshev(Mean, Sd) UCL	18.89

Suggested UCL to Use

95% Adjusted Gamma UCL	9.375

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzo(a)anthracene_56-55-3)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7
Number of Detects	2	Number of Non-Detects	6
Number of Distinct Detects	2	Number of Distinct Non-Detects	5
Minimum Detect	0.092	Minimum Non-Detect	0.26
Maximum Detect	0.25	Maximum Non-Detect	0.63
Variance Detects	0.0125	Percent Non-Detects	75%
Mean Detects	0.171	SD Detects	0.112
Median Detects	0.171	CV Detects	0.653
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	-1.886	SD of Logged Detects	0.707

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.171	KM Standard Error of Mean	0.079
KM SD	0.079	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.321	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.301	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.408	95% KM Chebyshev UCL	0.515
97.5% KM Chebyshev UCL	0.664	99% KM Chebyshev UCL	0.957

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	4.325	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0395	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	17.3	nu star (bias corrected)	N/A
Mean (detects)	0.171		

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.171	SD (KM)	0.079
Variance (KM)	0.00624	SE of Mean (KM)	0.079
k hat (KM)	4.685	k star (KM)	3.012
nu hat (KM)	74.96	nu star (KM)	48.19
theta hat (KM)	0.0365	theta star (KM)	0.0568
80% gamma percentile (KM)	0.244	90% gamma percentile (KM)	0.303
95% gamma percentile (KM)	0.358	99% gamma percentile (KM)	0.478

Gamma Kaplan-Meier (KM) Statistics

		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (48.19, α)	33.25	Adjusted Chi Square Value (48.19, β)	30.15
95% Gamma Approximate KM-UCL (use when n>=50)	0.248	95% Gamma Adjusted KM-UCL (use when n<50)	0.273

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.161	Mean in Log Scale	-1.886
SD in Original Scale	0.0606	SD in Log Scale	0.378
95% t UCL (assumes normality of ROS data)	0.202	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A	95% Bootstrap t UCL	N/A
95% H-UCL (Log ROS)	0.222		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-1.886	KM Geo Mean	0.152
KM SD (logged)	0.5	95% Critical H Value (KM-Log)	2.354
KM Standard Error of Mean (logged)	0.5	95% H-UCL (KM -Log)	0.268
KM SD (logged)	0.5	95% Critical H Value (KM-Log)	2.354
KM Standard Error of Mean (logged)	0.5		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.175	Mean in Log Scale	-1.811
SD in Original Scale	0.073	SD in Log Scale	0.39
95% t UCL (Assumes normality)	0.224	95% H-Stat UCL	0.243

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 0.515

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzo(a)pyrene_50-32-8)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	6
Number of Detects	3	Number of Non-Detects	5
Number of Distinct Detects	3	Number of Distinct Non-Detects	4
Minimum Detect	0.065	Minimum Non-Detect	0.26
Maximum Detect	0.26	Maximum Non-Detect	0.37
Variance Detects	0.0104	Percent Non-Detects	62.5%
Mean Detects	0.145	SD Detects	0.102
Median Detects	0.11	CV Detects	0.704
Skewness Detects	1.361	Kurtosis Detects	N/A
Mean of Logged Detects	-2.096	SD of Logged Detects	0.7

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).

Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.912	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.301	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.131	KM Standard Error of Mean	0.048
KM SD	0.0772	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.222	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.21	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.275	95% KM Chebyshev UCL	0.34
97.5% KM Chebyshev UCL	0.431	99% KM Chebyshev UCL	0.608

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	3.189	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0455	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	19.14	nu star (bias corrected)	N/A
Mean (detects)	0.145		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.065	Mean	0.125
Maximum	0.26	Median	0.114
SD	0.0623	CV	0.498
k hat (MLE)	5.718	k star (bias corrected MLE)	3.657
Theta hat (MLE)	0.0219	Theta star (bias corrected MLE)	0.0342
nu hat (MLE)	91.49	nu star (bias corrected)	58.52
Adjusted Level of Significance (β)	0.0195		
Approximate Chi Square Value (58.52, α)	41.93	Adjusted Chi Square Value (58.52, β)	38.41
95% Gamma Approximate UCL (use when n>=50)	0.175	95% Gamma Adjusted UCL (use when n<50)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.131	SD (KM)	0.0772
Variance (KM)	0.00596	SE of Mean (KM)	0.048
k hat (KM)	2.863	k star (KM)	1.873
nu hat (KM)	45.81	nu star (KM)	29.97
theta hat (KM)	0.0456	theta star (KM)	0.0697
80% gamma percentile (KM)	0.197	90% gamma percentile (KM)	0.258
95% gamma percentile (KM)	0.316	99% gamma percentile (KM)	0.446

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (29.97, α)	18.47	Adjusted Chi Square Value (29.97, β)	16.22
95% Gamma Approximate KM-UCL (use when n>=50)	0.212	95% Gamma Adjusted KM-UCL (use when n<50)	0.241

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.981	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.23	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.121	Mean in Log Scale	-2.201
SD in Original Scale	0.0619	SD in Log Scale	0.43
95% t UCL (assumes normality of ROS data)	0.163	95% Percentile Bootstrap UCL	0.159
95% BCA Bootstrap UCL	0.171	95% Bootstrap t UCL	0.217
95% H-UCL (Log ROS)	0.175		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.19	KM Geo Mean	0.112

KM SD (logged)	0.537	95% Critical H Value (KM-Log)	2.418
KM Standard Error of Mean (logged)	0.343	95% H-UCL (KM -Log)	0.211
KM SD (logged)	0.537	95% Critical H Value (KM-Log)	2.418
KM Standard Error of Mean (logged)	0.343		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.148	Mean in Log Scale	-1.981
SD in Original Scale	0.0569	SD in Log Scale	0.399
95% t UCL (Assumes normality)	0.186	95% H-Stat UCL	0.208

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.222

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzo(b)fluoranthene_205-99-2)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7
Number of Detects	5	Number of Non-Detects	3
Number of Distinct Detects	5	Number of Distinct Non-Detects	2
Minimum Detect	0.028	Minimum Non-Detect	0.28
Maximum Detect	0.38	Maximum Non-Detect	0.37
Variance Detects	0.0203	Percent Non-Detects	37.5%
Mean Detects	0.155	SD Detects	0.143
Median Detects	0.15	CV Detects	0.92
Skewness Detects	1.109	Kurtosis Detects	1.124
Mean of Logged Detects	-2.29	SD of Logged Detects	1.107

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.886	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.23	Lilliefors GOF Test
5% Lilliefors Critical Value	0.343	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.134	KM Standard Error of Mean	0.0493
KM SD	0.112	95% KM (BCA) UCL	0.213
95% KM (t) UCL	0.227	95% KM (Percentile Bootstrap) UCL	0.217
95% KM (z) UCL	0.215	95% KM Bootstrap t UCL	0.239
90% KM Chebyshev UCL	0.282	95% KM Chebyshev UCL	0.349
97.5% KM Chebyshev UCL	0.442	99% KM Chebyshev UCL	0.625

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.32	Anderson-Darling GOF Test
5% A-D Critical Value	0.688	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.245	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.363	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.315	k star (bias corrected MLE)	0.659
Theta hat (MLE)	0.118	Theta star (bias corrected MLE)	0.235
nu hat (MLE)	13.15	nu star (bias corrected)	6.594
Mean (detects)	0.155		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.028	Mean	0.131
Maximum	0.38	Median	0.111
SD	0.115	CV	0.872
k hat (MLE)	1.706	k star (bias corrected MLE)	1.15
Theta hat (MLE)	0.077	Theta star (bias corrected MLE)	0.114
nu hat (MLE)	27.3	nu star (bias corrected)	18.39
Adjusted Level of Significance (β)	0.0195		
Approximate Chi Square Value (18.39, α)	9.676	Adjusted Chi Square Value (18.39, β)	8.127
95% Gamma Approximate UCL (use when n>=50)	0.25	95% Gamma Adjusted UCL (use when n<50)	0.297

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.134	SD (KM)	0.112
Variance (KM)	0.0126	SE of Mean (KM)	0.0493
k hat (KM)	1.423	k star (KM)	0.973
nu hat (KM)	22.77	nu star (KM)	15.56
theta hat (KM)	0.0941	theta star (KM)	0.138
80% gamma percentile (KM)	0.216	90% gamma percentile (KM)	0.31
95% gamma percentile (KM)	0.405	99% gamma percentile (KM)	0.625

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (15.56, α)	7.656	Adjusted Chi Square Value (15.56, β)	6.306
95% Gamma Approximate KM-UCL (use when n>=50)	0.272	95% Gamma Adjusted KM-UCL (use when n<50)	0.331

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.913	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.239	Lilliefors GOF Test
5% Lilliefors Critical Value	0.343	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.125	Mean in Log Scale	-2.427
SD in Original Scale	0.117	SD in Log Scale	0.887
95% t UCL (assumes normality of ROS data)	0.203	95% Percentile Bootstrap UCL	0.196
95% BCA Bootstrap UCL	0.219	95% Bootstrap t UCL	0.267
95% H-UCL (Log ROS)	0.377		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.414	KM Geo Mean	0.0894
KM SD (logged)	0.945	95% Critical H Value (KM-Log)	3.291
KM Standard Error of Mean (logged)	0.457	95% H-UCL (KM -Log)	0.452
KM SD (logged)	0.945	95% Critical H Value (KM-Log)	3.291
KM Standard Error of Mean (logged)	0.457		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.155	Mean in Log Scale	-2.134
SD in Original Scale	0.109	SD in Log Scale	0.868
95% t UCL (Assumes normality)	0.228	95% H-Stat UCL	0.479

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 0.227

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (chromium, total_7440-47-3)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7

TABLE B.7
PROUCL 5.1.002 RAW OUTPUT FOR SEEP SEDIMENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

		Number of Missing Observations	0
Minimum	1.3	Mean	6.838
Maximum	28.7	Median	3.3
SD	9.144	Std. Error of Mean	3.233
Coefficient of Variation	1.337	Skewness	2.483

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.636	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.317	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	12.96	95% Adjusted-CLT UCL (Chen-1995)	15.19
		95% Modified-t UCL (Johnson-1978)	13.44

Gamma GOF Test

A-D Test Statistic	0.645	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.734	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.222	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.301	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.106	k star (bias corrected MLE)	0.774
Theta hat (MLE)	6.185	Theta star (bias corrected MLE)	8.831
nu hat (MLE)	17.69	nu star (bias corrected)	12.39
MLE Mean (bias corrected)	6.838	MLE Sd (bias corrected)	7.77
		Approximate Chi Square Value (0.05)	5.484
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	4.379

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	15.45	95% Adjusted Gamma UCL (use when n<50)	19.34

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.917	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.19	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.283	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.262	Mean of logged Data	1.406
Maximum of Logged Data	3.357	SD of logged Data	0.99

Assuming Lognormal Distribution

95% H-UCL	23.78	90% Chebyshev (MVUE) UCL	12.74
95% Chebyshev (MVUE) UCL	15.73	97.5% Chebyshev (MVUE) UCL	19.88
99% Chebyshev (MVUE) UCL	28.02		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	12.16	95% Jackknife UCL	12.96
95% Standard Bootstrap UCL	11.75	95% Bootstrap-t UCL	31.67
95% Hall's Bootstrap UCL	34.99	95% Percentile Bootstrap UCL	12.83
95% BCA Bootstrap UCL	16.2		
90% Chebyshev(Mean, Sd) UCL	16.54	95% Chebyshev(Mean, Sd) UCL	20.93
97.5% Chebyshev(Mean, Sd) UCL	27.03	99% Chebyshev(Mean, Sd) UCL	39

Suggested UCL to Use

95% Adjusted Gamma UCL	19.34

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cobalt_7440-48-4)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	0.89	Mean	12.04
Maximum	57.2	Median	2.1
SD	19.69	Std. Error of Mean	6.96
Coefficient of Variation	1.636	Skewness	2.188

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.65	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.329	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	25.22	95% Adjusted-CLT UCL (Chen-1995)	29.24
		95% Modified-t UCL (Johnson-1978)	26.12

Gamma GOF Test

A-D Test Statistic	0.784	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.321	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.307	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.589	k star (bias corrected MLE)	0.451
Theta hat (MLE)	20.44	Theta star (bias corrected MLE)	26.66
nu hat (MLE)	9.423	nu star (bias corrected)	7.223
MLE Mean (bias corrected)	12.04	MLE Sd (bias corrected)	17.91
		Approximate Chi Square Value (0.05)	2.294
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.656

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	37.9	95% Adjusted Gamma UCL (use when n<50)	52.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.871	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.272	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.283	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-0.117	Mean of logged Data	1.436
Maximum of Logged Data	4.047	SD of logged Data	1.49

Assuming Lognormal Distribution

95% H-UCL	181.5	90% Chebyshev (MVUE) UCL	26.42
95% Chebyshev (MVUE) UCL	33.76	97.5% Chebyshev (MVUE) UCL	43.96
99% Chebyshev (MVUE) UCL	64		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	23.48	95% Jackknife UCL	25.22

95% Standard Bootstrap UCL	22.64	95% Bootstrap-t UCL	92.42
95% Hall's Bootstrap UCL	101.1	95% Percentile Bootstrap UCL	23.45
95% BCA Bootstrap UCL	30.22		
90% Chebyshev(Mean, Sd) UCL	32.92	95% Chebyshev(Mean, Sd) UCL	42.38
97.5% Chebyshev(Mean, Sd) UCL	55.5	99% Chebyshev(Mean, Sd) UCL	81.29

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 42.38

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cyanide_57-12-5)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	2
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	1

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (cyanide_57-12-5) was not processed!

result (iron_7439-89-6)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	1060	Mean	7229
Maximum	38200	Median	2985
SD	12598	Std. Error of Mean	4454
Coefficient of Variation	1.743	Skewness	2.755

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.527	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.441	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	15667	95% Adjusted-CLT UCL (Chen-1995)	19190
		95% Modified-t UCL (Johnson-1978)	16390

Gamma GOF Test

A-D Test Statistic	0.961	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.744	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.336	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.304	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.788	k star (bias corrected MLE)	0.576
Theta hat (MLE)	9176	Theta star (bias corrected MLE)	12556
nu hat (MLE)	12.6	nu star (bias corrected)	9.211
MLE Mean (bias corrected)	7229	MLE Sd (bias corrected)	9527
		Approximate Chi Square Value (0.05)	3.455
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	2.625

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	19272	95% Adjusted Gamma UCL (use when n<50)	25368

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.868	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.234	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.283	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	6.966	Mean of logged Data	8.131
Maximum of Logged Data	10.55	SD of logged Data	1.135

Assuming Lognormal Distribution

95% H-UCL	32561	90% Chebyshev (MVUE) UCL	12897
95% Chebyshev (MVUE) UCL	16117	97.5% Chebyshev (MVUE) UCL	20586
99% Chebyshev (MVUE) UCL	29366		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	14555	95% Jackknife UCL	15667
95% Standard Bootstrap UCL	14152	95% Bootstrap-t UCL	60142
95% Hall's Bootstrap UCL	51067	95% Percentile Bootstrap UCL	16045
95% BCA Bootstrap UCL	20386		
90% Chebyshev(Mean, Sd) UCL	20591	95% Chebyshev(Mean, Sd) UCL	26643
97.5% Chebyshev(Mean, Sd) UCL	35044	99% Chebyshev(Mean, Sd) UCL	51545

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 26643

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (manganese_7439-96-5)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	19.9	Mean	1100
Maximum	7480	Median	64.65
SD	2594	Std. Error of Mean	917.2
Coefficient of Variation	2.359	Skewness	2.761

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.494	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.409	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	2838	95% Adjusted-CLT UCL (Chen-1995)	3565
		95% Modified-t UCL (Johnson-1978)	2987

Gamma GOF Test

A-D Test Statistic	0.976	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.794	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.286	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.316	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.321	k star (bias corrected MLE)	0.284
Theta hat (MLE)	3428	Theta star (bias corrected MLE)	3875
nu hat (MLE)	5.133	nu star (bias corrected)	4.541
MLE Mean (bias corrected)	1100	MLE Sd (bias corrected)	2064
		Approximate Chi Square Value (0.05)	0.946
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	0.602

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	5277	95% Adjusted Gamma UCL (use when n<50)	8291

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.868	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.209	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.283	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.991	Mean of logged Data	4.877
Maximum of Logged Data	8.92	SD of logged Data	2.075

Assuming Lognormal Distribution

95% H-UCL	164365	90% Chebyshev (MVUE) UCL	2024
95% Chebyshev (MVUE) UCL	2644	97.5% Chebyshev (MVUE) UCL	3506
99% Chebyshev (MVUE) UCL	5198		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	2608	95% Jackknife UCL	2838
95% Standard Bootstrap UCL	2481	95% Bootstrap-t UCL	37861
95% Hall's Bootstrap UCL	29851	95% Percentile Bootstrap UCL	2863
95% BCA Bootstrap UCL	3771		
90% Chebyshev(Mean, Sd) UCL	3851	95% Chebyshev(Mean, Sd) UCL	5098
97.5% Chebyshev(Mean, Sd) UCL	6828	99% Chebyshev(Mean, Sd) UCL	10226

Suggested UCL to Use

95% Adjusted Gamma UCL 8291

Recommended UCL exceeds the maximum observation

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (methylcyclohexane_108-87-2)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	7

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable result (methylcyclohexane_108-87-2) was not processed!

result (tetrachloroethylene(pce)_127-18-4)

General Statistics

Total Number of Observations	17	Number of Distinct Observations	17
Number of Detects	11	Number of Non-Detects	6
Number of Distinct Detects	11	Number of Distinct Non-Detects	6

Minimum Detect	0.0072	Minimum Non-Detect	0.009
Maximum Detect	11	Maximum Non-Detect	0.03
Variance Detects	13.41	Percent Non-Detects	35.29%
Mean Detects	2.317	SD Detects	3.662
Median Detects	0.41	CV Detects	1.581
Skewness Detects	1.683	Kurtosis Detects	2.127
Mean of Logged Detects	-1.384	SD of Logged Detects	2.818

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.699	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.85	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.347	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.251	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.502	KM Standard Error of Mean	0.767
KM SD	3.017	95% KM (BCA) UCL	2.875
95% KM (t) UCL	2.842	95% KM (Percentile Bootstrap) UCL	2.811
95% KM (z) UCL	2.765	95% KM Bootstrap t UCL	3.788
90% KM Chebyshev UCL	3.805	95% KM Chebyshev UCL	4.848
97.5% KM Chebyshev UCL	6.295	99% KM Chebyshev UCL	9.139

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.49	Anderson-Darling GOF Test	
5% A-D Critical Value	0.818	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.182	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.276	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.309	k star (bias corrected MLE)	0.285
Theta hat (MLE)	7.508	Theta star (bias corrected MLE)	8.129
nu hat (MLE)	6.788	nu star (bias corrected)	6.27
Mean (detects)	2.317		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0072	Mean	1.503
Maximum	11	Median	0.011
SD	3.11	CV	2.07
k hat (MLE)	0.244	k star (bias corrected MLE)	0.24
Theta hat (MLE)	6.169	Theta star (bias corrected MLE)	6.266
nu hat (MLE)	8.282	nu star (bias corrected)	8.153
Adjusted Level of Significance (β)	0.0346		
Approximate Chi Square Value (8.15, α)	2.824	Adjusted Chi Square Value (8.15, β)	2.505
95% Gamma Approximate UCL (use when n>=50)	4.338	95% Gamma Adjusted UCL (use when n<50)	4.89

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.502	SD (KM)	3.017
Variance (KM)	9.103	SE of Mean (KM)	0.767
k hat (KM)	0.248	k star (KM)	0.243
nu hat (KM)	8.431	nu star (KM)	8.276
theta hat (KM)	6.059	theta star (KM)	6.172
80% gamma percentile (KM)	2.161	90% gamma percentile (KM)	4.518
95% gamma percentile (KM)	7.33	99% gamma percentile (KM)	14.84

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (8.28, α)	2.896	Adjusted Chi Square Value (8.28, β)	2.572
95% Gamma Approximate KM-UCL (use when n>=50)	4.294	95% Gamma Adjusted KM-UCL (use when n<50)	4.834

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.894	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.174	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.251	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.502	Mean in Log Scale	-2.566
SD in Original Scale	3.11	SD in Log Scale	2.782
95% t UCL (assumes normality of ROS data)	2.819	95% Percentile Bootstrap UCL	2.802
95% BCA Bootstrap UCL	3.273	95% Bootstrap t UCL	3.733
95% H-UCL (Log ROS)	218.6		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-2.557	KM Geo Mean	0.0775
KM SD (logged)	2.687	95% Critical H Value (KM-Log)	5.686
KM Standard Error of Mean (logged)	0.686	95% H-UCL (KM -Log)	130.5
KM SD (logged)	2.687	95% Critical H Value (KM-Log)	5.686
KM Standard Error of Mean (logged)	0.686		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.503	Mean in Log Scale	-2.534
SD in Original Scale	3.11	SD in Log Scale	2.758
95% t UCL (Assumes normality)	2.82	95% H-Stat UCL	196.6

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1) 4.834

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (trichloroethene (tce)_79-01-6)

General Statistics

Total Number of Observations	15	Number of Distinct Observations	15
Number of Detects	9	Number of Non-Detects	6
Number of Distinct Detects	9	Number of Distinct Non-Detects	6
Minimum Detect	0.0066	Minimum Non-Detect	0.009
Maximum Detect	1	Maximum Non-Detect	0.03
Variance Detects	0.0994	Percent Non-Detects	40%
Mean Detects	0.187	SD Detects	0.315
Median Detects	0.06	CV Detects	1.688
Skewness Detects	2.66	Kurtosis Detects	7.355
Mean of Logged Detects	-2.647	SD of Logged Detects	1.504

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.599	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.829	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.337	Lilliefors GOF Test
5% Lilliefors Critical Value	0.274	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.115	KM Standard Error of Mean	0.0675
KM SD	0.246	95% KM (BCA) UCL	0.245
95% KM (t) UCL	0.234	95% KM (Percentile Bootstrap) UCL	0.24
95% KM (z) UCL	0.226	95% KM Bootstrap t UCL	0.66
90% KM Chebyshev UCL	0.318	95% KM Chebyshev UCL	0.41
97.5% KM Chebyshev UCL	0.537	99% KM Chebyshev UCL	0.787

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.45	Anderson-Darling GOF Test
5% A-D Critical Value	0.761	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.195	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.292	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.632	k star (bias corrected MLE)	0.496

Theta hat (MLE)	0.296	Theta star (bias corrected MLE)	0.377
nu hat (MLE)	11.38	nu star (bias corrected)	8.92
Mean (detects)	0.187		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0066	Mean	0.116
Maximum	1	Median	0.013
SD	0.255	CV	2.194
k hat (MLE)	0.498	k star (bias corrected MLE)	0.443
Theta hat (MLE)	0.233	Theta star (bias corrected MLE)	0.262
nu hat (MLE)	14.93	nu star (bias corrected)	13.28
Adjusted Level of Significance (β)	0.0324		
Approximate Chi Square Value (13.28, α)	6.08	Adjusted Chi Square Value (13.28, β)	5.49
95% Gamma Approximate UCL (use when n>=50)	0.254	95% Gamma Adjusted UCL (use when n<50)	0.281

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.115	SD (KM)	0.246
Variance (KM)	0.0607	SE of Mean (KM)	0.0675
k hat (KM)	0.22	k star (KM)	0.22
nu hat (KM)	6.59	nu star (KM)	6.606
theta hat (KM)	0.526	theta star (KM)	0.524
80% gamma percentile (KM)	0.159	90% gamma percentile (KM)	0.349
95% gamma percentile (KM)	0.58	99% gamma percentile (KM)	1.206

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (6.61, α)	1.957	Adjusted Chi Square Value (6.61, β)	1.661
95% Gamma Approximate KM-UCL (use when n>=50)	0.39	95% Gamma Adjusted KM-UCL (use when n<50)	0.459

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.977	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.17	Lilliefors GOF Test
5% Lilliefors Critical Value	0.274	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.115	Mean in Log Scale	-3.581
SD in Original Scale	0.255	SD in Log Scale	1.648
95% t UCL (assumes normality of ROS data)	0.231	95% Percentile Bootstrap UCL	0.231
95% BCA Bootstrap UCL	0.306	95% Bootstrap t UCL	0.653
95% H-UCL (Log ROS)	0.599		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-3.521	KM Geo Mean	0.0296
KM SD (logged)	1.546	95% Critical H Value (KM-Log)	3.696
KM Standard Error of Mean (logged)	0.431	95% H-UCL (KM -Log)	0.45
KM SD (logged)	1.546	95% Critical H Value (KM-Log)	3.696
KM Standard Error of Mean (logged)	0.431		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.116	Mean in Log Scale	-3.445
SD in Original Scale	0.255	SD in Log Scale	1.546
95% t UCL (Assumes normality)	0.232	95% H-Stat UCL	0.486

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	0.459

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ATTACHMENT C

USEPA RSL Calculator Inputs and Outputs

For Particulate Emission and Volatilization Factors

ATTACHMENT C TABLE OF CONTENTS:

TABLE C.1

USEPA RSL Calculator Input Values for Particulate Emission & Volatilization Factors - Resident

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Variable	Value	Site-Specific?
THQ (target hazard quotient) unitless	1	
TR (target risk) unitless	0.000001	
LT (lifetime) year	70	
ETres (exposure time) hour	24	
ETres-c (child exposure time) hour	24	
ETres-a (adult exposure time) hour	24	
ET0-2 (mutagenic exposure time) hour	24	
ET2-6 (mutagenic exposure time) hour	24	
ET6-16 (mutagenic exposure time) hour	24	
ET16-26 (mutagenic exposure time) hour	24	
EDres (exposure duration) year	26	
EDres-c (exposure duration - child) year	6	
EDres-a (exposure duration - adult) year	20	
ED0-2 (mutagenic exposure duration) year	2	
ED2-6 (mutagenic exposure duration) year	4	
ED6-16 (mutagenic exposure duration) year	10	
ED16-26 (mutagenic exposure duration) year	10	
BWres-c (body weight - child) kg	15	
BWres-a (body weight - adult) kg	80	
BW0-2 (mutagenic body weight) kg	15	
BW2-6 (mutagenic body weight) kg	15	
BW6-16 (mutagenic body weight) kg	80	
BW16-26 (mutagenic body weight) kg	80	
SAres-c (skin surface area - child) cm2/day	2373	
SAres-a (skin surface area - adult) cm2/day	6032	
SA0-2 (mutagenic skin surface area) cm2/day	2373	
SA2-6 (mutagenic skin surface area) cm2/day	2373	
SA6-16 (mutagenic skin surface area) cm2/day	6032	
SA16-26 (mutagenic skin surface area) cm2/day	6032	
EFres (exposure frequency) day/year	350	
EFres-c (exposure frequency - child) day/year	350	
EFres-a (exposure frequency - adult) day/yea	350	
EF0-2 (mutagenic exposure frequency) day/year	350	
EF2-6 (mutagenic exposure frequency) day/year	350	
EF6-16 (mutagenic exposure frequency) day/year	350	
EF16-26 (mutagenic exposure frequency) day/year	350	
IFSres-adj (age-adjusted soil ingestion factor) mg/kg	36750	
IFSMres-adj (mutagenic age-adjusted soil ingestion factor) mg/kg	166833.33	
IRSres-c (soil intake rate - child) mg/day	200	
IRSres-a (soil intake rate - adult) mg/day	100	
IRS0-2 (mutagenic soil intake rate) mg/day	200	
IRS2-6 (mutagenic soil intake rate) mg/day	200	
IRS6-16 (mutagenic soil intake rate) mg/day	100	
IRS16-26 (mutagenic soil intake rate) mg/day	100	
AFres-a (skin adherence factor - adult) mg/cm2	0.07	
AFres-c (skin adherence factor - child) mg/cm2	0.2	
AF0-2 (mutagenic skin adherence factor) mg/cm2	0.2	
AF2-6 (mutagenic skin adherence factor) mg/cm2	0.2	
AF6-16 (mutagenic skin adherence factor) mg/cm2	0.07	
AF16-26 (mutagenic skin adherence factor) mg/cm2	0.07	
DFSres-adj (age-adjusted soil dermal factor) mg/kg	103390	
DFSMres-adj (mutagenic age-adjusted soil dermal factor) mg/kg	428260	
CityPEF (Climate Zone) Selection	Philadelphia, P	Philadephia, PA (Region 8 on map)
As (acres)	72	72 acres
Q/Cwp (inverse of the ratio of the geometric mean air concentration to the emission fl	39.80322712	
PEF (particulate emission factor) m3/kg	1472876849	
A (PEF Dispersion Constant)	14.0111	
B (PEF Dispersion Constant)	19.6154	
C (PEF Dispersion Constant)	225.3397	
V (fraction of vegetative cover) unitless	0.5	
Um (mean annual wind speed) m/s	4.29	
Ut (equivalent threshold value)	11.32	
F(x) (function dependant on Um/Ut) unitless	0.0993	
CityVF (Climate Zone) Selection	Philadelphia, P	Philadephia, PA (Region 8 on map)
As (acres)	72	72 acres
Q/Cvol(inverse of the ratio of the geometric mean air concentration to the emission fl	39.80322712	
foc (fraction organic carbon in soil) g/g	0.006	
pb (dry soil bulk density) g/cm3	1.5	
ps (soil particle density) g/cm3	2.65	

TABLE C.1

USEPA RSL Calculator Input Values for Particulate Emission & Volatilization Factors - Resident

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Variable	Value	Site-Specific?
n (total soil porosity) Lpore/Lsoil	0.43396	
a (air-filled soil porosity) Lair/Lsoil	0.28396	
w (water-filled soil porosity) Lwater/Lsoil	0.15	
T (exposure interval) s	819936000	
A (VF Dispersion Constant)	14.0111	
B (VF Dispersion Constant)	19.6154	
C (VF Dispersion Constant)	225.3397	
CityVF mass-loading (Climate Zone) Selection	Default	
VFml (volitization factor - mass-limit) m3/kg	0	
Q/Cvol (inverse of the ratio of the geometric mean air concentration to the emission	68.18	
As (acres)	0.5	
T (exposure interval) yr	26	
ds (depth of source) m	.	
pb (dry soil bulk density) g/cm3	1.5	
A (VF Dispersion Constant - Mass Limit)	11.911	
B (VF Dispersion Constant - Mass Limit)	18.4385	
C (VF Dispersion Constant - Mass Limit)	209.7845	

Output generated 03MAR2017:11:22:37

TABLE C.2
USEPA RSL Calculator Output for Particulate Emission & Volatilization Factors - Resident
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Site-specific
Resident Screening Levels (RSL) for Soil

Chemical	CAS Number	Factor	(m^3/kg)
Aluminum	7429-90-5	-	1.47E+09
Arsenic, Inorganic	7440-38-2	-	1.47E+09
Barium	7440-39-3	-	1.47E+09
Benzene	71-43-2	2.06E+03	1.47E+09
Beryllium and compounds	7440-41-7	-	1.47E+09
Biphenyl, 1,1'-	92-52-4	6.65E+04	1.47E+09
Cadmium (Diet)	7440-43-9	-	1.47E+09
Carbon Disulfide	75-15-0	6.81E+02	1.47E+09
Chloroaniline, p-	106-47-8	-	1.47E+09
Chlorobenzene	108-90-7	3.76E+03	1.47E+09
Chromium, Total	7440-47-3	-	1.47E+09
Cobalt	7440-48-4	-	1.47E+09
Cumene	98-82-8	3.62E+03	1.47E+09
Cyanide (CN-)	57-12-5	3.11E+04	1.47E+09
Dichlorobenzene, 1,4-	106-46-7	6.10E+03	1.47E+09
Dichloroethane, 1,1-	75-34-3	1.22E+03	1.47E+09
Dichloroethane, 1,2-	107-06-2	2.67E+03	1.47E+09
Dichloroethylene, 1,1-	75-35-4	6.75E+02	1.47E+09
Dichloroethylene, 1,2-cis-	156-59-2	1.46E+03	1.47E+09
Dioxane, 1,4-	123-91-1	2.31E+04	1.47E+09
Ethyl Chloride	75-00-3	7.56E+02	1.47E+09
Ethylbenzene	100-41-4	3.31E+03	1.47E+09
Dibenzofuran	132-64-9	9.09E+04	1.47E+09
Hexachlorocyclohexane, Delta-	319-86-8	-	1.47E+09
Iron	7439-89-6	-	1.47E+09
Lead and Compounds	7439-92-1	-	1.47E+09
Manganese (Non-diet)	7439-96-5	-	1.47E+09
Methylcyclohexane	108-87-2	5.78E+02	1.47E+09
Methylene Chloride	75-09-2	1.28E+03	1.47E+09
Mercury (elemental)	7439-97-6	2.03E+04	1.47E+09
Bis(2-ethylhexyl)phthalate	117-81-7	-	1.47E+09
Butyl Benzyl Phthalate	85-68-7	-	1.47E+09
Octyl Phthalate, di-N-	117-84-0	-	1.47E+09
Aroclor 1248	12672-29-6	3.65E+05	1.47E+09
Aroclor 1254	11097-69-1	4.92E+05	1.47E+09
Aroclor 1260	11096-82-5	7.67E+05	1.47E+09
Benz[a]anthracene	56-55-3	2.58E+06	1.47E+09
Benzo[a]pyrene	50-32-8	-	1.47E+09
Benzo[b]fluoranthene	205-99-2	-	1.47E+09
Methylnaphthalene, 2-	91-57-6	3.39E+04	1.47E+09
Naphthalene	91-20-3	2.70E+04	1.47E+09
Tetrachloroethylene	127-18-4	1.37E+03	1.47E+09
Thallium (Soluble Salts)	7440-28-0	-	1.47E+09
Trichlorobenzene, 1,2,3-	87-61-6	1.88E+04	1.47E+09
Trichlorobenzene, 1,2,4-	120-82-1	1.75E+04	1.47E+09
Trichloroethane, 1,1,1-	71-55-6	9.63E+02	1.47E+09
Trichloroethylene	79-01-6	1.29E+03	1.47E+09
Vanadium and Compounds	7440-62-2	-	1.47E+09
Vinyl Chloride	75-01-4	5.58E+02	1.47E+09
Xylene, o-	95-47-6	3.77E+03	1.47E+09

Output generated 03MAR2017:11:22:37

TABLE C.3

USEPA RSL Calculator Input Values for Particulate Emission & Volatilization Factors - Recreator

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Variable	Value	Site-Specific?
TR (target cancer risk) unitless	0.000001	
THQ (target hazard quotient) unitless	1	
SArec-c (skin surface area - child) cm2/day	2373	
SArec-a (skin surface area - adult) cm2/day	6032	
SA0-2 (skin surface area - mutagenic) cm2/day	2373	
SA2-6 (skin surface area - mutagenic) cm2/day	2373	
SA6-16 (skin surface area - mutagenic) cm2/day	6032	
SA16-30 (skin surface area - mutagenic) cm2/day	6032	
LT (lifetime - recreator) year	70	
IFSrec-adj (age-adjusted soil ingestion factor) mg/kg	5460	
DFSrec-adj (age-adjusted soil dermal factor) mg/kg	15360.8	
IFSMrec-adj (mutagenic age-adjusted soil ingestion factor) mg/kg	24786.667	
DFSMrec-adj (mutagenic age-adjusted soil dermal factor) mg/kg	63627.2	
EF0-2 (exposure frequency) day/year	52	site-specific
EF2-6 (exposure frequency) day/year	52	site-specific
EF6-16 (exposure frequency) day/year	52	site-specific
EF16-30 (exposure frequency) day/year	52	site-specific
EFrec-c (exposure frequency - child) day/year	52	site-specific
EFrec-a (exposure frequency - adult) day/yea	52	site-specific
EFrec (exposure frequency - recreator) day/yea	52	site-specific
IRS0-2 (soil intake rate) mg/day	200	
IRS2-6 (soil intake rate) mg/day	200	
IRS6-16 (soil intake rate) mg/day	100	
IRS16-30 (soil intake rate) mg/day	100	
IRSrec-c (soil intake rate - child) mg/day	200	
IRSrec-a (soil intake rate - adult) mg/day	100	
ED0-2 (exposure duration) year	2	
ED2-6 (exposure duration) year	4	
ED6-16 (exposure duration) year	10	
ED16-30 (exposure duration) year	10	
EDrec-c (exposure duration - child) year	6	
EDrec-a (exposure duration - adult) year	20	
EDrec (exposure duration - recreator) yea	26	
ET0-2 (exposure time) hr/day	2	site-specific
ET2-6 (exposure time) hr/day	2	site-specific
ET6-16 (exposure time) hr/day	2	site-specific
ET16-30 (exposure time) hr/day	2	site-specific
ETrec-c (exposure time - child) hr/day	2	site-specific
ETrec-a (exposure time - adult) hr/day	2	site-specific
ETrec (exposure time - recreator) hr/day	2	site-specific
BW0-2 (body weight) kg	15	
BW2-6 (body weight) kg	15	
BW6-16 (body weight) kg	80	
BW16-30 (body weight) kg	80	
BWrec-c (body weight - child) kg	15	
BWrec-a (body weight - adult) kg	80	
AF0-2 (skin adherence factor) mg/cm2	0.2	
AF2-6 (skin adherence factor) mg/cm2	0.2	
AF6-16 (skin adherence factor) mg/cm2	0.07	
AF16-30 (skin adherence factor) mg/cm2	0.07	
AFrec-c (skin adherence factor - child) mg/cm2	0.2	
AFrec-a (skin adherence factor - adult) mg/cm2	0.07	
CityPEF (Climate Zone) Selection	Philadelphia, P	Philadephia, PA (Region 8 on map)
As (acres)	72	72 acres
Q/Cwp (inverse of the ratio of the geometric mean air concentration to the emission fl	39.80322712	
PEF (particulate emission factor) m3/kg	1472876849	
A (PEF Dispersion Constant)	14.0111	
B (PEF Dispersion Constant)	19.6154	
C (PEF Dispersion Constant)	225.3397	
V (fraction of vegetative cover) unitless	0.5	
Um (mean annual wind speed) m/s	4.29	
Ut (equivalent threshold value)	11.32	
F(x) (function dependant on Um/Ut) unitless	0.0993	
CityVF (Climate Zone) Selection	Philadelphia, P	Philadephia, PA (Region 8 on map)
As (acres)	72	72 acres
Q/Cvol(inverse of the ratio of the geometric mean air concentration to the emission fl	39.80322712	
foc (fraction organic carbon in soil) g/g	0.006	
pb (dry soil bulk density) g/cm3	1.5	

TABLE C.3

USEPA RSL Calculator Input Values for Particulate Emission & Volatilization Factors - Recreator

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Variable	Value	Site-Specific?
ps (soil particle density) g/cm3	2.65	
n (total soil porosity) Lpore/Lsoil	0.43396	
a (air-filled soil porosity) Lair/Lsoil	0.28396	
w (water-filled soil porosity) Lwater/Lsoil	0.15	
T (exposure interval) s	819936000	
A (VF Dispersion Constant)	14.0111	
B (VF Dispersion Constant)	19.6154	
C (VF Dispersion Constant)	225.3397	
CityVF mass-loading (Climate Zone) Selection	Default	
VFml (volitization factor - mass-limit) m3/kg	0	
Q/Cvol (inverse of the ratio of the geometric mean air concentration to the emission	68.18	
As (acres)	0.5	
T (exposure interval) yr	26	
ds (depth of source) m	.	
pb (dry soil bulk density) g/cm3	1.5	
A (VF Dispersion Constant - Mass Limit)	11.911	
B (VF Dispersion Constant - Mass Limit)	18.4385	
C (VF Dispersion Constant - Mass Limit)	209.7845	

Output generated 03MAR2017:11:40:25

TABLE C.4
USEPA RSL Calculator Output for Particulate Emission & Volatilization Factors - Recreator
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Site-specific
Recreator Screening Levels (RSL) for Soil

Chemical	CAS Number	Volatilization Factor (m^3/kg)	Particulate Emission Factor (m^3/kg)
Aluminum	7429-90-5	-	1.47E+09
Arsenic, Inorganic	7440-38-2	-	1.47E+09
Barium	7440-39-3	-	1.47E+09
Benzene	71-43-2	2.06E+03	1.47E+09
Beryllium and compounds	7440-41-7	-	1.47E+09
Biphenyl, 1,1'-	92-52-4	6.65E+04	1.47E+09
Cadmium (Diet)	7440-43-9	-	1.47E+09
Carbon Disulfide	75-15-0	6.81E+02	1.47E+09
Chloroaniline, p-	106-47-8	-	1.47E+09
Chlorobenzene	108-90-7	3.76E+03	1.47E+09
Chromium, Total	7440-47-3	-	1.47E+09
Cobalt	7440-48-4	-	1.47E+09
Cumene	98-82-8	3.62E+03	1.47E+09
Cyanide (CN-)	57-12-5	3.11E+04	1.47E+09
Dichlorobenzene, 1,4-	106-46-7	6.10E+03	1.47E+09
Dichloroethane, 1,1-	75-34-3	1.22E+03	1.47E+09
Dichloroethane, 1,2-	107-06-2	2.67E+03	1.47E+09
Dichloroethylene, 1,1-	75-35-4	6.75E+02	1.47E+09
Dichloroethylene, 1,2-cis-	156-59-2	1.46E+03	1.47E+09
Dioxane, 1,4-	123-91-1	2.31E+04	1.47E+09
Ethyl Chloride	75-00-3	7.56E+02	1.47E+09
Ethylbenzene	100-41-4	3.31E+03	1.47E+09
Dibenzofuran	132-64-9	9.09E+04	1.47E+09
Hexachlorocyclohexane, Delta-	319-86-8	-	1.47E+09
Iron	7439-89-6	-	1.47E+09
Lead and Compounds	7439-92-1	-	1.47E+09
Manganese (Non-diet)	7439-96-5	-	1.47E+09
Methylcyclohexane	108-87-2	5.78E+02	1.47E+09
Methylene Chloride	75-09-2	1.28E+03	1.47E+09
Mercury (elemental)	7439-97-6	2.03E+04	1.47E+09
Bis(2-ethylhexyl)phthalate	117-81-7	-	1.47E+09
Butyl Benzyl Phthalate	85-68-7	-	1.47E+09
Octyl Phthalate, di-N-	117-84-0	-	1.47E+09
Aroclor 1248	12672-29-6	3.65E+05	1.47E+09
Aroclor 1254	11097-69-1	4.92E+05	1.47E+09
Aroclor 1260	11096-82-5	7.67E+05	1.47E+09
Benz[a]anthracene	56-55-3	2.58E+06	1.47E+09
Benzo[a]pyrene	50-32-8	-	1.47E+09
Benzo[b]fluoranthene	205-99-2	-	1.47E+09
Methylnaphthalene, 2-	91-57-6	3.39E+04	1.47E+09
Naphthalene	91-20-3	2.70E+04	1.47E+09
Tetrachloroethylene	127-18-4	1.37E+03	1.47E+09
Thallium (Soluble Salts)	7440-28-0	-	1.47E+09
Trichlorobenzene, 1,2,3-	87-61-6	1.88E+04	1.47E+09
Trichlorobenzene, 1,2,4-	120-82-1	1.75E+04	1.47E+09
Trichloroethane, 1,1,1-	71-55-6	9.63E+02	1.47E+09
Trichloroethylene	79-01-6	1.29E+03	1.47E+09
Vanadium and Compounds	7440-62-2	-	1.47E+09
Vinyl Chloride	75-01-4	5.58E+02	1.47E+09
Xylene, o-	95-47-6	3.77E+03	1.47E+09

Output generated 03MAR2017:11:40:25

TABLE C.5

USEPA RSL Calculator Input Values for Particulate Emission & Volatilization Factors - Worker

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Variable	Value	Site-Specific?
TR (target cancer risk) unitless	0.000001	
THQ (target hazard quotient) unitless	1	
ATw (averaging time)	365	
EFw (exposure frequency) d/yr	250	
EDw (exposure duration) yr	25	
ETw (exposure time) hr	8	
LT (lifetime) yr	70	
BWw (body weight)	80	
IRw (soil ingestion rate) mg/day	100	
SAw (surface area) cm2/day	3527	
AFw (skin adherence factor) mg/cm2	0.12	
CityPEF (Climate Zone) Selection	Philadelphia, P	Philadephia, PA (Region 8 on map)
As (acres)	72	72 acres
Q/Cwp (inverse of the ratio of the geometric mean air concentration to the emission flu	39.80322712	
PEF (particulate emission factor) m3/kg	1472876849	
A (PEF Dispersion Constant)	14.0111	
B (PEF Dispersion Constant)	19.6154	
C (PEF Dispersion Constant)	225.3397	
V (fraction of vegetative cover) unitless	0.5	
Um (mean annual wind speed) m/s	4.29	
Ut (equivalent threshold value)	11.32	
F(x) (function dependant on Um/Ut) unitless	0.0993	
CityVF (Climate Zone) Selection	Philadelphia, P	Philadephia, PA (Region 8 on map)
As (acres)	72	72 acres
Q/Cvol(inverse of the ratio of the geometric mean air concentration to the emission flu	39.80322712	
foc (fraction organic carbon in soil) g/g	0.006	
pb (dry soil bulk density) g/cm3	1.5	
ps (soil particle density) g/cm3	2.65	
n (total soil porosity) Lpore/Lsoil	0.43396	
a (air-filled soil porosity) Lair/Lsoil	0.28396	
w (water-filled soil porosity) Lwater/Lsoil	0.15	
T (exposure interval) s	819936000	
A (VF Dispersion Constant)	14.0111	
B (VF Dispersion Constant)	19.6154	
C (VF Dispersion Constant)	225.3397	
CityVF mass-loading (Climate Zone) Selection	Default	
VFml (volitization factor - mass-limit) m3/kg	0	
Q/Cvol (inverse of the ratio of the geometric mean air concentration to the emission fl	68.18	
As (acres)	0.5	
T (exposure interval) yr	26	
ds (depth of source) m	.	
pb (dry soil bulk density) g/cm3	1.5	
A (VF Dispersion Constant - Mass Limit)	11.911	
B (VF Dispersion Constant - Mass Limit)	18.4385	
C (VF Dispersion Constant - Mass Limit)	209.7845	

Output generated 03MAR2017:13:06:34

TABLE C.6

USEPA RSL Calculator Output for Particulate Emission & Volatilization Factors - Worker

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Site-specific
Composite Worker Screening Levels (RSL) for Soil

Chemical	CAS Number	Volatilization Factor (m^3/kg)	Particulate Emission Factor (m^3/kg)
Aluminum	7429-90-5	-	1.47E+09
Arsenic, Inorganic	7440-38-2	-	1.47E+09
Barium	7440-39-3	-	1.47E+09
Benzene	71-43-2	2.06E+03	1.47E+09
Beryllium and compounds	7440-41-7	-	1.47E+09
Biphenyl, 1,1'-	92-52-4	6.65E+04	1.47E+09
Cadmium (Diet)	7440-43-9	-	1.47E+09
Carbon Disulfide	75-15-0	6.81E+02	1.47E+09
Chloroaniline, p-	106-47-8	-	1.47E+09
Chlorobenzene	108-90-7	3.76E+03	1.47E+09
Chromium, Total	7440-47-3	-	1.47E+09
Cobalt	7440-48-4	-	1.47E+09
Cumene	98-82-8	3.62E+03	1.47E+09
Cyanide (CN-)	57-12-5	3.11E+04	1.47E+09
Dichlorobenzene, 1,4-	106-46-7	6.10E+03	1.47E+09
Dichloroethane, 1,1-	75-34-3	1.22E+03	1.47E+09
Dichloroethane, 1,2-	107-06-2	2.67E+03	1.47E+09
Dichloroethylene, 1,1-	75-35-4	6.75E+02	1.47E+09
Dichloroethylene, 1,2-cis-	156-59-2	1.46E+03	1.47E+09
Dioxane, 1,4-	123-91-1	2.31E+04	1.47E+09
Ethyl Chloride	75-00-3	7.56E+02	1.47E+09
Ethylbenzene	100-41-4	3.31E+03	1.47E+09
Dibenzofuran	132-64-9	9.09E+04	1.47E+09
Hexachlorocyclohexane, Delta-	319-86-8	-	1.47E+09
Iron	7439-89-6	-	1.47E+09
Lead and Compounds	7439-92-1	-	1.47E+09
Manganese (Non-diet)	7439-96-5	-	1.47E+09
Methylcyclohexane	108-87-2	5.78E+02	1.47E+09
Methylene Chloride	75-09-2	1.28E+03	1.47E+09
Mercury (elemental)	7439-97-6	2.03E+04	1.47E+09
Bis(2-ethylhexyl)phthalate	117-81-7	-	1.47E+09
Butyl Benzyl Phthalate	85-68-7	-	1.47E+09
Octyl Phthalate, di-N-	117-84-0	-	1.47E+09
Aroclor 1248	12672-29-6	3.65E+05	1.47E+09
Aroclor 1254	11097-69-1	4.92E+05	1.47E+09
Aroclor 1260	11096-82-5	7.67E+05	1.47E+09
Benz[a]anthracene	56-55-3	2.58E+06	1.47E+09
Benzo[a]pyrene	50-32-8	-	1.47E+09
Benzo[b]fluoranthene	205-99-2	-	1.47E+09
Methylnaphthalene, 2-	91-57-6	3.39E+04	1.47E+09
Naphthalene	91-20-3	2.70E+04	1.47E+09
Tetrachloroethylene	127-18-4	1.37E+03	1.47E+09
Thallium (Soluble Salts)	7440-28-0	-	1.47E+09
Trichlorobenzene, 1,2,3-	87-61-6	1.88E+04	1.47E+09
Trichlorobenzene, 1,2,4-	120-82-1	1.75E+04	1.47E+09
Trichloroethane, 1,1,1-	71-55-6	9.63E+02	1.47E+09
Trichloroethylene	79-01-6	1.29E+03	1.47E+09
Vanadium and Compounds	7440-62-2	-	1.47E+09
Vinyl Chloride	75-01-4	5.58E+02	1.47E+09
Xylene, o-	95-47-6	3.77E+03	1.47E+09

Output generated 03MAR2017:13:06:34

TABLE C.7

USEPA RSL Calculator Input Values for Particulate Emission & Volatilization Factors - Construction Worker

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Variable	Value	Site-Specific?
TR (target cancer risk) unitless	0.000001	
THQ (target hazard quotient) unitless	1	
EFcw (exposure frequency - construction worker) day/y	250	
EDcw (exposure duration - construction worker) yı	1	
ETcw (exposure time - construction worker) hr/day	8	
LT (lifetime) yr	70	
BWcw (body weight - construction worker) kg	80	
IRcw (soil ingestion rate - construction worker) mg/day	330	
SAcw (surface area - construction worker) cm2/day	3527	
AFcw (skin adherence factor - construction worker) mg/cm2	0.3	
ATcw (averaging time - construction worker)	365	
EWcw (overall duration of construction) weeks/yea	50	
DWcw (days worked - construction worker) days/week	5	
Ac (acres)	72	72 acres
Atill (areal extent of tilling) acres	72	72 acres
Aexcav (area of excavation site) m2	145687	50% of site (36 acres)
Ac-grade (areal extent of grading) acres	72	72 acres
Ac-doz (areal extent of dozing) acres	72	72 acres
Mm-doz (Gravimetric soil moisture content) %	7.9	
Mm-excav (Gravimetric soil moisture content) %	12	
psoil (density) g/cm3 - chemical-specific	1.68	
NA-dump (number of times soil is dumped)	2	
NA-till (number of times soil is tilled)	2	
still (soil silt content) %	18	
sdoz (soil silt content) %	6.9	
Bl (dozing blade length) m	2.337	2.337 m from caterpillar CAT brand
Bl (grading blade length) m	1.524	1.524 m from CAT brand
NA-doz (number of times site was dozed)	1	once
NA-grade (number of times site was graded)	1	once
Sdoz (dozing speed) kph	11.4	
Sgrade (dozing speed) kph	11.4	
dexcav (average depth of excavation site) m	2.44	8 ft, consistent with VADEQ trench scenario
V (fraction of vegetative cover	0	
Um (mean annual wind speed) m/s	4.69	
Ut (equivalent threshold value) m/s	11.32	
tc (overall duration of construction) hours	8400	
FD Unitless Dispersion Correction Factor	0.185837208	
T (time over which traffic occurs) s	7200000	
J`T (g/m2s)	8.8838E-07	
F(x) (function dependant on Um/Ut derived using Cowherd et al. (1985))	0.194	
Mwind (dust emitted by wind erosion) g	1267763.551	
Mdoz (dust emitted from dozing operations) g	3704.858474	
Mtill (dust emitted from tilling operations) g	363121.4339	
Mgrade (dust emitted from grading operations) g	83489.0874	
Mexcav (dust emitted from excavation soil dumping) g	145646.9488	
VKTdoz (sum of fleet vehicle km traveled) km	124.6829268	
VKTgrade (sum of fleet vehicle km traveled) km	191.1968504	
Q/Csa (inverse of the ratio of the geometric mean air concentration to the emission fl	6.24544654	
PEF`sc (particulate emission factor) m3/kg	37829618.42	
A (PEF Dispersion Constant)	2.4538	
B (PEF Dispersion Constant)	17.566	
C (PEF Dispersion Constant)	189.0426	
Asurf (areal extent of site) m2	291373.92	
As (VFulim-sc acres)	72	72 acres
T (temperature) C	14.23	Avg temperature of 14.23 degC.
foc (fraction organic carbon in soil) g/g	0.006	
pb (dry soil bulk density) g/cm3	1.5	
ps (soil particle density) g/cm3	2.65	
w (water-filled soil porosity) Lwater/Lsoil	0.15	
A (VF Dispersion Constant)	2.4538	
B (VF Dispersion Constant)	17.566	
C (VF Dispersion Constant)	189.0426	
Q/Csa (inverse of the ratio of the geometric mean air concentration to the emission fl	6.24544654	
n (total soil porosity) Lpore/Lsoil	0.43396	
a (air-filled soil porosity) Lair/Lsoil	0.28396	
As (VFmlim-sc acres)	0.5	
pb (dry soil bulk density) g/cm3	1.5	

TABLE C.7

USEPA RSL Calculator Input Values for Particulate Emission & Volatilization Factors - Construction Worker

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Variable	Value	Site-Specific?
ds (average source depth) m	.	
Q/Cvol (inverse of the ratio of the geometric mean air concentration to the emission	14.31407	
VFmlim-sc (volitization factor) m3air/kgsoi	0	

Output generated 03MAR2017:13:17:02

TABLE C.8

USEPA RSL Calculator Output for Particulate Emission & Volatilization Factors - Construction Worker

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Site-specific
Construction Worker Screening Levels (RSL) for Soil - Other Construction Activities

Chemical	CAS Number	Volatilization Factor (m^3/kg)	Particulate Emission Factor (m^3/kg)
Aluminum	7429-90-5	-	3.78E+07
Arsenic, Inorganic	7440-38-2	-	3.78E+07
Barium	7440-39-3	-	3.78E+07
Benzene	71-43-2	3.35E+02	3.78E+07
Beryllium and compounds	7440-41-7	-	3.78E+07
Biphenyl, 1,1'-	92-52-4	1.08E+04	3.78E+07
Cadmium (Diet)	7440-43-9	-	3.78E+07
Carbon Disulfide	75-15-0	1.10E+02	3.78E+07
Chloroaniline, p-	106-47-8	-	3.78E+07
Chlorobenzene	108-90-7	6.10E+02	3.78E+07
Chromium, Total	7440-47-3	-	3.78E+07
Cobalt	7440-48-4	-	3.78E+07
Cumene	98-82-8	5.88E+02	3.78E+07
Cyanide (CN-)	57-12-5	5.05E+03	3.78E+07
Dichlorobenzene, 1,4-	106-46-7	9.89E+02	3.78E+07
Dichloroethane, 1,1-	75-34-3	1.97E+02	3.78E+07
Dichloroethane, 1,2-	107-06-2	4.33E+02	3.78E+07
Dichloroethylene, 1,1-	75-35-4	1.09E+02	3.78E+07
Dichloroethylene, 1,2-cis-	156-59-2	2.37E+02	3.78E+07
Dioxane, 1,4-	123-91-1	3.75E+03	3.78E+07
Ethyl Chloride	75-00-3	1.23E+02	3.78E+07
Ethylbenzene	100-41-4	5.36E+02	3.78E+07
Dibenzofuran	132-64-9	1.47E+04	3.78E+07
Hexachlorocyclohexane, Delta-	319-86-8	-	3.78E+07
Iron	7439-89-6	-	3.78E+07
Lead and Compounds	7439-92-1	-	3.78E+07
Manganese (Non-diet)	7439-96-5	-	3.78E+07
Methylcyclohexane	108-87-2	9.37E+01	3.78E+07
Methylene Chloride	75-09-2	2.07E+02	3.78E+07
Mercury (elemental)	7439-97-6	3.29E+03	3.78E+07
Bis(2-ethylhexyl)phthalate	117-81-7	-	3.78E+07
Butyl Benzyl Phthalate	85-68-7	-	3.78E+07
Octyl Phthalate, di-N-	117-84-0	-	3.78E+07
Aroclor 1248	12672-29-6	5.92E+04	3.78E+07
Aroclor 1254	11097-69-1	7.98E+04	3.78E+07
Aroclor 1260	11096-82-5	1.24E+05	3.78E+07
Benz[a]anthracene	56-55-3	4.18E+05	3.78E+07
Benzo[a]pyrene	50-32-8	-	3.78E+07
Benzo[b]fluoranthene	205-99-2	-	3.78E+07
Methylnaphthalene, 2-	91-57-6	5.49E+03	3.78E+07
Naphthalene	91-20-3	4.39E+03	3.78E+07
Tetrachloroethylene	127-18-4	2.22E+02	3.78E+07
Thallium (Soluble Salts)	7440-28-0	-	3.78E+07
Trichlorobenzene, 1,2,3-	87-61-6	3.05E+03	3.78E+07
Trichlorobenzene, 1,2,4-	120-82-1	2.83E+03	3.78E+07
Trichloroethane, 1,1,1-	71-55-6	1.56E+02	3.78E+07
Trichloroethylene	79-01-6	2.09E+02	3.78E+07
Vanadium and Compounds	7440-62-2	-	3.78E+07
Vinyl Chloride	75-01-4	9.05E+01	3.78E+07
Xylene, o-	95-47-6	6.11E+02	3.78E+07

Output generated 03MAR2017:13:17:02

ATTACHMENT D

USEPA VISL Calculator Inputs and Outputs for Groundwater Vapor Intrusion

ATTACHMENT D TABLE OF CONTENTS:

Table D.2
CALCULATION OF SITE-SPECIFIC COMMERCIAL VISLS
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

EPA-OLEM VAPOR INTRUSION ASSESSMENT
Vapor Intrusion Screening Level (VISL) Calculator Version 3.5.1 (May 2016 RSLs)

The primary objective of risk-based screening is to identify sites or buildings unlikely to pose a health concern through the vapor intrusion pathway. Generally, at properties where subsurface concentrations of vapor-forming chemicals (e.g., groundwater or "near source" soil gas concentrations) fall below screening levels (i.e., VISLs), no further action or study is warranted, so long as the exposure assumptions match those taken into account by the calculations and the site fulfills the conditions and assumptions of the generic conceptual model underlying the screening levels. In a similar fashion, the results of risk-based screening can help the data review team identify areas, buildings, and/or chemicals that can be eliminated from further assessment. The generic conceptual model underlying these screening levels is described in OSWER Publication 9200.2-154 (OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway From Subsurface Vapor Sources to Indoor Air) (EPA 2015; Section 6.5)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens
Average Groundwater Temperature (^{o}C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations. Matlack - The default temperature of 25 deg C (default) was applied.

	CAS	Chemical Name	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1) Yes/No	Does chemical have inhalation toxicity data? (IUR and/or RfC) Yes/No	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? Cvp > Cia,target? Yes/No	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? Chc > Cia,target? Yes/No	Target Indoor Air Conc. @ TCR = 1E-06 or THQ = 1 MIN(Cia,c;Cia,nc) (ug/m^3)	Toxicity Basis C/NC	Target Sub-Slab and Exterior Soil Gas Conc. @ TCR = 1E-06 or THQ = 1 Csg (ug/m^3)	Target Ground Water Conc. @ TCR = 1E-06 or THQ = 1 Cgw (ug/L)	Is Target Ground Water Conc. < MCL? Cgw<MCL? Yes/No (MCL ug/L)	Pure Phase Vapor Conc. @ 25^{o}C Cvp (ug/m^3)	Maximum Groundwater Vapor Conc. Chc (ug/m^3)	Temperature for Max. Groundwater Vapor Conc. Tgw or 25 C	Lower Explosive Limit** LEL (% by vol)	LEL Source	Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06 Cia,c (ug/m^3)	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 1 Cia,nc (ug/m^3)
x	7429-90-5	Aluminum	No	Yes	No (not volatile)	No (not volatile)																	
x	7440-38-2	Arsenic, Inorganic	No	Yes	No (not volatile)	No (not volatile)											4.30E-03	I	1.50E-05	CA			
x	7440-39-3	Barium	No	Yes	No (not volatile)	No (not volatile)																	
x	71-43-2	Benzene	Yes	Yes	Yes	Yes	3.6E-01	C	1.2E+01	1.6E+00	Yes (5)	3.98E+08	4.06E+08	25	1.2	N	7.80E-06	I	3.00E-02	I		3.6E-01	3.1E+01
x	92-52-4	Biphenyl, 1,1'-	Yes	Yes	Yes	Yes	4.2E-01	NC	1.4E+01	3.3E+01	--	7.41E+04	9.42E+04	25	0.6	N			4.00E-04	X			4.2E-01
x	106-47-8	Chloroaniline, p-	No	No	No (not volatile)	No (not volatile)																	
x	108-90-7	Chlorobenzene	Yes	Yes	Yes	Yes	5.2E+01	NC	1.7E+03	4.1E+02	No (100)	7.25E+07	6.33E+07	25	1.3	N			5.00E-02	P			5.2E+01
x	7440-47-3	Chromium, Total	No	No	No (not volatile)	No (not volatile)																	
x	7440-48-4	Cobalt	No	Yes	No (not volatile)	No (not volatile)																	
x	57-12-5	Cyanide (CN-)	Yes	Yes	Yes	Yes	8.3E-01	NC	2.8E+01	8.4E-01	Yes (200)	4.31E+08	9.44E+10	25					8.00E-04	S			8.3E-01
x	106-46-7	Dichlorobenzene, 1,4-	Yes	Yes	Yes	Yes	2.6E-01	C	8.5E+00	2.6E+00	Yes (75)	1.38E+07	8.01E+06	25	2.5	N	1.10E-05	CA	8.00E-01	I		2.6E-01	8.3E+02
x	75-34-3	Dichloroethane, 1,1-	Yes	Yes	Yes	Yes	1.8E+00	C	5.8E+01	7.6E+00	--	1.21E+09	1.16E+09	25	5.4	N	1.60E-06	CA				1.8E+00	
x	107-06-2	Dichloroethane, 1,2-	Yes	Yes	Yes	Yes	1.1E-01	C	3.6E+00	2.2E+00	Yes (5)	4.20E+08	4.15E+08	25	6.2	N	2.60E-05	I	7.00E-03	P		1.1E-01	7.3E+00
x	156-59-2	Dichloroethylene, 1,2-cis-	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info										M							
x	123-91-1	Dioxane, 1,4-	Yes	Yes	Yes	Yes	5.6E-01	C	1.9E+01	2.9E+03	--	1.81E+08	1.96E+08	25	2	N	5.00E-06	I	3.00E-02	I		5.6E-01	3.1E+01
x	100-41-4	Ethylbenzene	Yes	Yes	Yes	Yes	1.1E+00	C	3.7E+01	3.5E+00	Yes (700)	5.48E+07	5.44E+07	25	0.8	N	2.50E-06	CA	1.00E+00	I		1.1E+00	1.0E+03
x	7439-89-6	Iron	No	No	No (not volatile)	No (not volatile)																	
x	7439-96-5	Manganese (Diet)	No	Yes	No (not volatile)	No (not volatile)													5.00E-05	I			
x	7439-96-5	Manganese (Diet)	No	Yes	No (not volatile)	No (not volatile)																	
x	7439-97-6	Mercury (elemental)	Yes	Yes	Yes	Yes	3.1E-01	NC	1.0E+01	8.9E-01	Yes (2)	2.11E+04	2.11E+04	25					3.00E-04	I			3.1E-01
x	75-09-2	Methylene Chloride	Yes	Yes	Yes	Yes	1.0E+02	C	3.4E+03	7.6E+02	No (5)	1.99E+09	1.73E+09	25	13	N	1.00E-08	I	6.00E-01	I	Mut	1.0E+02	6.3E+02
x	91-20-3	Naphthalene	Yes	Yes	Yes	Yes	8.3E-02	C	2.8E+00	4.6E+00	--	5.86E+05	5.58E+05	25	0.9	N	3.40E-05	CA	3.00E-03	I		8.3E-02	3.1E+00
x	127-18-4	Tetrachloroethylene	Yes	Yes	Yes	Yes	1.1E+01	C	3.6E+02	1.5E+01	No (5)	1.65E+08	1.49E+08	25			2.60E-07	I	4.00E-02	I		1.1E+01	4.2E+01
x	7440-28-0	Thallium (Soluble Salts)	No	No	No (not volatile)	No (not volatile)																	
x	87-61-6	Trichlorobenzene, 1,2,3-	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info																	
x	120-82-1	Trichlorobenzene, 1,2,4-	Yes	Yes	Yes	Yes	2.1E+00	NC	7.0E+01	3.6E+01	Yes (70)	4.49E+06	2.84E+06	25	2.5	N			2.00E-03	P			2.1E+00
x	79-01-6	Trichloroethylene	Yes	Yes	Yes	Yes	4.8E-01	C	1.6E+01	1.2E+00	Yes (5)	4.88E+08	5.15E+08	25	8	N	see note	I	2.00E-03	I	TCE	4.8E-01	2.1E+00
x	75-01-4	Vinyl Chloride	Yes	Yes	Yes	Yes	1.7E-01	C	5.6E+00	1.5E-01	Yes (2)	1.00E+10	1.00E+10	25	3.6	N	4.40E-06	I	1.00E-01	I	VC	1.7E-01	1.0E+02
x	95-47-6	Xylene, o-	Yes	Yes	Yes	Yes	1.0E+02	NC	3.5E+03	4.9E+02	--	3.78E+07	3.77E+07	25	0.9	N			1.00E-01	S			1.0E+02

Notes:

(1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G15) Symbol	Selected Value
Averaging time for carcinogens	(yrs)	ATc_R	70	ATc_C	70	ATc	70
Averaging time for non-carcinogens	(yrs)	ATnc_R	26	ATnc_C	25	ATnc	26
Exposure duration	(yrs)	ED_R	26	ED_C	25	ED	26
Exposure frequency	(days/yr)	EF_R	350	EF_C	250	EF	350
Exposure time	(hr/day)	ET_R	24	ET_C	8	ET	24

(2) **Generic Attenuation Factors:**

Source Medium of Vapors	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G15) Symbol	Selected Value
Groundwater	(-)	AFgw_R	0.001	AFgw_C	0.001	AFgw	0.001
Sub-Slab and Exterior Soil Gas	(-)	AFss_R	0.03	AFss_C	0.03	AFss	0.03

(3) **Formulas**

Cia, target = MIN(Cia,c; Cia,nc)
Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)
Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**

Trichloroethylene	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G15) Symbol	Selected Value
	mIURTCE_R	1.00E-06	mIURTCE_C	0.00E+00	mIURTCE	1.00E-06
	IURTCE_R	3.10E-06	IURTCE_C	4.10E-06	IURTCE	3.10E-06

Mutagenic Chemicals

The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

Age Cohort	Exposure Duration (years)	Age-dependent adjustment factor
0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 72 This factor is used in the equations for mutagenic chemicals.

See the Navigation Guide equation for Cia,c for vinyl chloride.

Notation:
NVT = Not sufficiently volatile and/or toxic to pose inhalation risk in selected exposure scenario for the indicated medium
C = Carcinogenic
NC = Non-carcinogenic
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at: http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at: http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5
X = PPRTV Appendix
E = The Engineering ToolBox. Available online at http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html
N = Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH). Pocket Guide to Chemical Hazards. Available online at: http://www.cdc.gov/niosh/npg/default.html http://www.cdc.gov/niosh/npg/default.html
M = Chemical-specific MSDS
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).
TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).
Yellow highlighting indicates site-specific parameters that may be edited by the user.
Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.
**Lower explosive limit is the minimum concentration of the compound in air (% by volume) that is needed for the gas to ignite and explode.

Table D.2
CALCULATION OF SITE-SPECIFIC COMMERCIAL VISLS
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

EPA-OLEM VAPOR INTRUSION ASSESSMENT
Vapor Intrusion Screening Level (VISL) Calculator Version 3.5.1 (May 2016 RSLs)

The primary objective of risk-based screening is to identify sites or buildings unlikely to pose a health concern through the vapor intrusion pathway. Generally, at properties where subsurface concentrations of vapor-forming chemicals (e.g., groundwater or "near source" soil gas concentrations) fall below screening levels (i.e., VISLs), no further action or study is warranted, so long as the exposure assumptions match those taken into account by the calculations and the site fulfills the conditions and assumptions of the generic conceptual model underlying the screening levels. In a similar fashion, the results of risk-based screening can help the data review team identify areas, buildings, and/or chemicals that can be eliminated from further assessment. The generic conceptual model underlying these screening levels is described in OSWER Publication 9200.2-154 (OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway From Subsurface Vapor Sources to Indoor Air) (EPA 2015; Section 6.5)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations. Matlack - The default temperature of 25 deg C (default) was applied.

	CAS	Chemical Name	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1) Yes/No	Does chemical have inhalation toxicity data? (IUR and/or RfC) Yes/No	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? Cvp > Cia,target? Yes/No	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? Chc > Cia,target? Yes/No	Target Indoor Air Conc. @ TCR = 1E-06 or THQ = 1 MIN(Cia,c;Cia,nc) (ug/m³)	Toxicity Basis C/NC	Target Sub-Slab and Exterior Soil Gas Conc. @ TCR = 1E-06 or THQ = 1 Csg (ug/m³)	Target Ground Water Conc. @ TCR = 1E-06 or THQ = 1 Cgw (ug/L)	Is Target Ground Water Conc. < MCL? Cgw<MCL? Yes/No (MCL ug/L)	Pure Phase Vapor Conc. @ 25°C Cvp (ug/m³)	Maximum Groundwater Vapor Conc. Chc (ug/m³)	Temperature for Max. Groundwater Vapor Conc. Tgw or 25 C	Lower Explosive Limit** LEL (% by vol)	LEL Source	Inhalation Unit Risk IUR $(ug/m^3)^{-1}$	IUR Source*	Reference Concentration RfC (mg/m³)	RFC Source*	Mutagenic Indicator i	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06 Cia,c (ug/m³)	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 1 Cia,nc (ug/m³)
x	7429-90-5	Aluminum	No	Yes	No (not volatile)	No (not volatile)																	
x	7440-38-2	Arsenic, Inorganic	No	Yes	No (not volatile)	No (not volatile)											4.30E-03	I	1.50E-05	CA			
x	7440-39-3	Barium	No	Yes	No (not volatile)	No (not volatile)																	
x	71-43-2	Benzene	Yes	Yes	Yes	Yes	1.6E+00	C	5.2E+01	6.9E+00	No (5)	3.98E+08	4.06E+08	25	1.2	N	7.80E-06	I	3.00E-02	I		1.6E+00	1.3E+02
x	92-52-4	Biphenyl, 1,1'-	Yes	Yes	Yes	Yes	1.8E+00	NC	5.8E+01	1.4E+02	--	7.41E+04	9.42E+04	25	0.6	N			4.00E-04	X			1.8E+00
x	106-47-8	Chloroaniline, p-	No	No	No (not volatile)	No (not volatile)																	
x	108-90-7	Chlorobenzene	Yes	Yes	Yes	Yes	2.2E+02	NC	7.3E+03	1.7E+03	No (100)	7.25E+07	6.33E+07	25	1.3	N			5.00E-02	P			2.2E+02
x	7440-47-3	Chromium, Total	No	No	No (not volatile)	No (not volatile)																	
x	7440-48-4	Cobalt	No	Yes	No (not volatile)	No (not volatile)																	
x	57-12-5	Cyanide (CN-)	Yes	Yes	Yes	Yes	3.5E+00	NC	1.2E+02	3.5E+00	Yes (200)	4.31E+08	9.44E+10	25					8.00E-04	S			3.5E+00
x	106-46-7	Dichlorobenzene, 1,4-	Yes	Yes	Yes	Yes	1.1E+00	C	3.7E+01	1.1E+01	Yes (75)	1.38E+07	8.01E+06	25	2.5	N	1.10E-05	CA	8.00E-01	I		1.1E+00	3.5E+03
x	75-34-3	Dichloroethane, 1,1-	Yes	Yes	Yes	Yes	7.7E+00	C	2.6E+02	3.3E+01	--	1.21E+09	1.16E+09	25	5.4	N	1.60E-06	CA				7.7E+00	
x	107-06-2	Dichloroethane, 1,2-	Yes	Yes	Yes	Yes	4.7E-01	C	1.6E+01	9.8E+00	No (5)	4.20E+08	4.15E+08	25	6.2	N	2.60E-05	I	7.00E-03	P		4.7E-01	3.1E+01
x	156-59-2	Dichloroethylene, 1,2-cis-	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info										M							
x	123-91-1	Dioxane, 1,4-	Yes	Yes	Yes	Yes	2.5E+00	C	8.2E+01	1.3E+04	--	1.81E+08	1.96E+08	25	2	N	5.00E-06	I	3.00E-02	I		2.5E+00	1.3E+02
x	100-41-4	Ethylbenzene	Yes	Yes	Yes	Yes	4.9E+00	C	1.6E+02	1.5E+01	Yes (700)	5.48E+07	5.44E+07	25	0.8	N	2.50E-06	CA	1.00E+00	I		4.9E+00	4.4E+03
x	7439-89-6	Iron	No	No	No (not volatile)	No (not volatile)																	
x	7439-96-5	Manganese (Diet)	No	Yes	No (not volatile)	No (not volatile)													5.00E-05	I			
x	7439-96-5	Manganese (Diet)	No	Yes	No (not volatile)	No (not volatile)																	
x	7439-97-6	Mercury (elemental)	Yes	Yes	Yes	Yes	1.3E+00	NC	4.4E+01	3.7E+00	No (2)	2.11E+04	2.11E+04	25					3.00E-04	I			1.3E+00
x	75-09-2	Methylene Chloride	Yes	Yes	Yes	Yes	1.2E+03	C	4.1E+04	9.2E+03	No (5)	1.99E+09	1.73E+09	25	13	N	1.00E-08	I	6.00E-01	I	Mut	1.2E+03	2.6E+03
x	91-20-3	Naphthalene	Yes	Yes	Yes	Yes	3.6E-01	C	1.2E+01	2.0E+01	--	5.86E+05	5.58E+05	25	0.9	N	3.40E-05	CA	3.00E-03	I		3.6E-01	1.3E+01
x	127-18-4	Tetrachloroethylene	Yes	Yes	Yes	Yes	4.7E+01	C	1.6E+03	6.5E+01	No (5)	1.65E+08	1.49E+08	25			2.60E-07	I	4.00E-02	I		4.7E+01	1.8E+02
x	7440-28-0	Thallium (Soluble Salts)	No	No	No (not volatile)	No (not volatile)																	
x	87-61-6	Trichlorobenzene, 1,2,3-	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info																	
x	120-82-1	Trichlorobenzene, 1,2,4-	Yes	Yes	Yes	Yes	8.8E+00	NC	2.9E+02	1.5E+02	No (70)	4.49E+06	2.84E+06	25	2.5	N			2.00E-03	P			8.8E+00
x	79-01-6	Trichloroethylene	Yes	Yes	Yes	Yes	3.0E+00	C	1.0E+02	7.4E+00	No (5)	4.88E+08	5.15E+08	25	8	N	see note	I	2.00E-03	I	TCE	3.0E+00	8.8E+00
x	75-01-4	Vinyl Chloride	Yes	Yes	Yes	Yes	2.8E+00	C	9.3E+01	2.5E+00	No (2)	1.00E+10	1.00E+10	25	3.6	N	4.40E-06	I	1.00E-01	I	VC	2.8E+00	4.4E+02
x	95-47-6	Xylene, o-	Yes	Yes	Yes	Yes	4.4E+02	NC	1.5E+04	2.1E+03	--	3.78E+07	3.77E+07	25	0.9	N			1.00E-01	S			4.4E+02

Notes:

(1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G15) Symbol	Selected Value
Averaging time for carcinogens	(yrs)	ATc_R	70	ATc_C	70	ATc	70
Averaging time for non-carcinogens	(yrs)	ATnc_R	26	ATnc_C	25	ATnc	25
Exposure duration	(yrs)	ED_R	26	ED_C	25	ED	25
Exposure frequency	(days/yr)	EF_R	350	EF_C	250	EF	250
Exposure time	(hr/day)	ET_R	24	ET_C	8	ET	8

(2) **Generic Attenuation Factors:**

Source Medium of Vapors	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G15) Symbol	Selected Value
Groundwater	(-)	AFgw_R	0.001	AFgw_C	0.001	AFgw	0.001
Sub-Slab and Exterior Soil Gas	(-)	AFss_R	0.03	AFss_C	0.03	AFss	0.03

(3) **Formulas**

Cia, target = MIN(Cia,c; Cia,nc)

Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)

Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**

	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G15) Symbol	Selected Value
Trichloroethylene	mIURTCE_R	1.00E-06	mIURTCE_C	0.00E+00	mIURTCE	0.00E+00
	IURTCE_R	3.10E-06	IURTCE_C	4.10E-06	IURTCE	4.10E-06

Mutagenic Chemicals

The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

Age Cohort	Exposure Duration (years)	Age-dependent adjustment factor
0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 25 This factor is used in the equations for mutagenic chemicals.

See the Navigation Guide equation for Cia,c for vinyl chloride.

Notation:

NVT = Not sufficiently volatile and/or toxic to pose inhalation risk in selected exposure scenario for the indicated medium
C = Carcinogenic
NC = Non-carcinogenic
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at: http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at: http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5
X = PPRTV Appendix
E = The Engineering ToolBox. Available online at http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html
N = Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH). Pocket Guide to Chemical Hazards. Available online at: http://www.cdc.gov/niosh/npg/default.html http://www.cdc.gov/niosh/npg/default.html
M = Chemical-specific MSDS
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).
TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).
Yellow highlighting indicates site-specific parameters that may be edited by the user.
Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.
**Lower explosive limit is the minimum concentration of the compound in air (% by volume) that is needed for the gas to ignite and explode.

TABLE D.3
COMPARISON OF MAXIMUM GROUNDWATER CONCENTRATIONS FOR COPCS TO SITE-SPECIFIC VISLS
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	CASRN	Residential VISL Target Groundwater (ug/L)	Commercial VISL Target Groundwater (ug/L)	Matlack Maximum Groundwater Concentration (ug/L)
VOC	1,1-Dichloroethane	75-34-3	7.64	33.4	3.6
VOC	1,2,3-Trichlorobenzene	87-61-6	NA	NA	3.5
VOC	1,2,4-Trichlorobenzene	120-82-1	35.9	150.9	9.9
VOC	1,2-Dichloroethane	107-06-2	2.24	9.78	7.6
VOC	1,4-Dichlorobenzene	106-46-7	2.59	11.3	6.2
VOC	1,4-Dioxane	123-91-1	2862	12502	1.3
VOC	Benzene*	71-43-2	1.59	6.93	**49**
VOC	Chlorobenzene	108-90-7	410	1722	21
VOC	cis-1,2-Dichloroethylene*	156-59-2	NA	NA	44
VOC	Ethylbenzene*	100-41-4	3.49	15.2	**920**
VOC	Methylcyclohexane	108-87-2	NA	NA	1.5
VOC	Methylene chloride	75-09-2	763	9230	240
VOC	o-Xylene*	95-47-6	492	2068	200
VOC	Tetrachloroethylene*	127-18-4	14.9	65.2	**3000**
VOC	Trichloroethylene*	79-01-6	1.19	7.43	**160**
VOC	Vinyl chloride*	75-01-4	0.147	2.45	**14**
SVOC	4-Chloroaniline*	106-47-8	NA	NA	6900
SVOC	Biphenyl (diphenyl)	92-52-4	33.1	139	1.6
SVOC	Naphthalene	91-20-3	4.59	20.1	**68**
INORGANIC	Aluminum	7429-90-5	NA	NA	2270
INORGANIC	Arsenic	7440-38-2	NA	NA	7.7
INORGANIC	Barium	7440-39-3	NA	NA	1180
INORGANIC	Chromium (Total)	7440-47-3	NA	NA	2.7
INORGANIC	Cobalt	7440-48-4	NA	NA	30.6
INORGANIC	Cyanide	57-12-5	0.843	3.54	**102**
INORGANIC	Iron	7439-89-6	NA	NA	53800
INORGANIC	Manganese	7439-96-5	NA	NA	14300
INORGANIC	Mercury	7439-97-6	0.889	3.73	0.39
INORGANIC	Thallium	7440-28-0	NA	NA	1.2

Note:
*The site-related COPCs associated with the Core of the Plume evaluation in Attachment F are marked with a star (*) symbol.
The VISLs are calculated at a target cancer risk of 1E-06 or target hazard quotient of 1 and using the default groundwater temperature of 25 degC.
Concentrations greater than the Residential VISL are shaded and concentrations greater than the Commercial VISL are **bold**.

Abbreviations:
COPC -- Constituent of potential concern
NA -- Not available
VISL -- Vapor Intrusion Screening Level

ATTACHMENT E

VADEQ Calculator Outputs of Air Concentrations in a Trench

(Based on Groundwater Concentrations)

ATTACHMENT E TABLE OF CONTENTS:

TABLE E.1

Virginia Department of Environmental Quality (VADEQ)

3.2.2 Exposure of Workers to Volatiles in a Construction/Utility Trench

Inputs

For Mass-Transfer Coefficients

Kg,H2O	0.833	cm/s
MWH2O	18	
Kl,O2	0.002	cm/s
MWO2	32	
T	**57.61**	F
T	287	K
R	8.20E-05	atm-m3/mol-K

For Emission Flux and Concentration in Trench

CF1	1.00E-03	L/cm3
CF2	1.00E+04	cm2/m2
CF3	3600	s/hr
F	**1**	
ACH	2	hr-1

Trench dimensions

Length	**8**	ft
	2.44	m
Width	**3**	ft
	0.91	m
Depth	**8**	ft
	2.44	m
Width/Depth	0.38	

Note:

Calculator defaults were applied except for groundwater temperature. The temperature was adjusted to 14.23 degC (57.61 degF) based on average temperature readings from Round 1 and 2 sampling.

References:

VADEQ 2007. Voluntary Remediation Program - Risk Assessment Guidance. 3.2.2 Exposure of Workers to Volatiles in a Construction/Utility Trench. October 7. Available online: http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RemediationProgram/VoluntaryRemediationProgram/VRPRiskAssessmentGuidance/Guidance.aspx#3.22

TABLE E.2
Virginia Department of Environmental Quality (VADEQ)
3.2.2 Exposure of Workers to Volatiles in a Construction/Utility Trench
Calculation of Chemical Concentrations in Air

VADEQ Table 3.8 Exposure-point concentrations (inhalation) for construction/utility workers in a trench: Groundwater less than 15 feet deep revised 10/5/07 **Chemical**	**CAS No.**	**Molecular Weight MWi g/mol**	**Henry's Law Constant Hi atm-m3/mol**	**Gas-Phase Mass Transfer Coefficient KiG cm/s**	**Liquid-Phase Mass Transfer Coefficient KiL cm/s**	**Overall Mass Transfer Coefficient Ki cm/s**	**EPC Concentration of Contaminant in Groundwater Cgw ug/L**	**Volatilization Factor VF L/m3**	**Concentration of Contaminant in Trench Ctrench ug/m3**	**Concentration of Contaminant in Trench Ctrench mg/m3**
Aluminum	7429-90-5	26.98					1.90E+02			
Arsenic	7440-38-2	74.92					2.98E+00			
Barium	7440-39-3	137.33					2.84E+02			
Chromium	7440-47-3	52.00					1.08E+00			
Cobalt	7440-48-4	58.93					8.09E+00			
Cyanide	57-12-5	26.02					1.07E+01			
Iron	7439-89-6	55.85					2.44E+04			
Manganese (nonfood)	7439-96-5	54.94					4.35E+03			
Mercury	7439-97-6	200.59	1.14E-02	3.58E-01	7.69E-04	7.66E-04	1.16E-01	5.65E+00	6.56E-01	6.56E-04
Thallium	7440-28-0	204.38					2.90E-01			
Benzene	71-43-2	78.11	5.55E-03	4.91E-01	1.23E-03	1.22E-03	6.31E+00	9.00E+00	5.68E+01	5.68E-02
Chlorobenzene	108-90-7	112.56	3.70E-03	4.34E-01	1.03E-03	1.01E-03	3.93E+00	7.47E+00	2.94E+01	2.94E-02
1,4-Dichlorobenzene (para)	106-46-7	147.00	2.43E-03	3.97E-01	8.99E-04	8.79E-04	9.01E-01	6.49E+00	5.85E+00	5.85E-03
1,1-Dichloroethane	75-34-3	98.96	5.62E-03	4.53E-01	1.10E-03	1.08E-03	1.05E+00	8.00E+00	8.43E+00	8.43E-03
1,2-Dichloroethane	107-06-2	98.96	9.79E-04	4.53E-01	1.10E-03	1.04E-03	9.52E-01	7.64E+00	7.27E+00	7.27E-03
cis-1,2-Dichloroethene	156-59-2	96.94	4.08E-03	4.56E-01	1.11E-03	1.09E-03	6.65E+00	8.06E+00	5.36E+01	5.36E-02
1,4-dioxane	123-91-1	88.11	4.80E-06	4.71E-01	1.16E-03	8.87E-05	4.35E-01	6.55E-01	2.85E-01	2.85E-04
Ethylbenzene	100-41-4	106.17	7.88E-03	4.43E-01	1.06E-03	1.05E-03	1.96E+02	7.75E+00	1.52E+03	1.52E+00
Methylcyclohexane	108-87-2	98.19	4.30E-01	4.54E-01	1.10E-03	1.10E-03	6.20E-01	8.12E+00	5.03E+00	5.03E-03
Methylene chloride	75-09-2	84.93	2.19E-03	4.77E-01	1.18E-03	1.15E-03	1.61E+01	8.50E+00	1.37E+02	1.37E-01
Tetrachloroethene	127-18-4	165.83	1.84E-02	3.81E-01	8.46E-04	8.44E-04	5.46E+02	6.23E+00	3.40E+03	3.40E+00
1,2,3-Trichlorobenzene	87-61-6	181.45	1.25E-03	3.70E-01	8.09E-04	7.77E-04	6.91E-01	5.74E+00	3.96E+00	3.96E-03
1,2,4-Trichlorobenzene	120-82-1	181.45	1.42E-03	3.70E-01	8.09E-04	7.81E-04	2.08E+00	5.76E+00	1.20E+01	1.20E-02
Trichloroethene	79-01-6	131.39	1.03E-02	4.12E-01	9.51E-04	9.46E-04	1.85E+01	6.98E+00	1.29E+02	1.29E-01
Vinyl Chloride	75-01-4	62.50	2.70E-02	5.29E-01	1.38E-03	1.38E-03	2.57E+00	1.02E+01	2.60E+01	2.60E-02
o-xylene	95-47-6	106.17	5.19E-03	4.43E-01	1.06E-03	1.05E-03	2.84E+01	7.72E+00	2.19E+02	2.19E-01
1,1'-Biphenyl	92-52-4	154.21	3.00E-04	3.91E-01	8.77E-04	7.46E-04	1.60E+00	5.51E+00	8.81E+00	8.81E-03
4-Chloroaniline	106-47-8	127.57	3.31E-07	4.16E-01	9.65E-04	5.82E-06	1.01E+03	4.30E-02	4.33E+01	4.33E-02
Naphthalene	91-20-3	128.17	4.83E-04	4.16E-01	9.62E-04	8.65E-04	8.15E+00	6.38E+00	5.21E+01	5.21E-02

Note:
The groundwater concentrations are the same exposure point concentrations (EPCs) that are used in the risk assessment.

References:

VADEQ 2007. Voluntary Remediation Program - Risk Assessment Guidance. 3.2.2 Exposure of Workers to Volatiles in a Construction/Utility Trench. October 7. Available online:
http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RemediationProgram/VoluntaryRemediationProgram/VRPRiskAssessmentGuidance/Guidance.aspx#3.22
USEPA 2004. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. February 22. Figure 8. Available online: http://www.epa.gov/oswer/vaporintrusion/

TABLE E.3
Virginia Department of Environmental Quality (VADEQ)
3.2.2 Exposure of Workers to Volatiles in a Construction/Utility Trench
Calculation of Chemical Concentrations in Air for Groundwater Core of the Plume

VADEQ Table 3.8 Exposure-point concentrations (inhalation) for construction/utility workers in a trench: Groundwater less than 15 feet deep revised 10/5/07 Chemical	**CAS No.**	**Molecular Weight MWi g/mol**	**Henry's Law Constant Hi atm-m3/mol**	**Gas-Phase Mass Transfer Coefficient KiG cm/s**	**Liquid-Phase Mass Transfer Coefficient KiL cm/s**	**Overall Mass Transfer Coefficient Ki cm/s**	**EPC Concentration of Contaminant in Groundwater Cgw ug/L**	**Volatilization Factor VF L/m3**	**Concentration of Contaminant in Trench Ctrench ug/m3**	**Concentration of Contaminant in Trench Ctrench mg/m3**
Benzene	71-43-2	78.11	5.55E-03	4.91E-01	1.23E-03	1.22E-03	2.35E+01	9.00E+00	2.12E+02	2.12E-01
cis-1,2-Dichloroethene	156-59-2	96.94	4.08E-03	4.56E-01	1.11E-03	1.09E-03	2.40E+01	8.06E+00	1.93E+02	1.93E-01
Ethylbenzene	100-41-4	106.17	7.88E-03	4.43E-01	1.06E-03	1.05E-03	6.22E+02	7.75E+00	4.82E+03	4.82E+00
Tetrachloroethene	127-18-4	165.83	1.84E-02	3.81E-01	8.46E-04	8.44E-04	1.88E+03	6.23E+00	1.17E+04	1.17E+01
Trichloroethene	79-01-6	131.39	1.03E-02	4.12E-01	9.51E-04	9.46E-04	1.09E+02	6.98E+00	7.61E+02	7.61E-01
Vinyl Chloride	75-01-4	62.50	2.70E-02	5.29E-01	1.38E-03	1.38E-03	6.30E+00	1.02E+01	6.39E+01	6.39E-02
o-xylene	95-47-6	106.17	5.19E-03	4.43E-01	1.06E-03	1.05E-03	1.11E+02	7.72E+00	8.60E+02	8.60E-01
4-Chloroaniline	106-47-8	127.57	3.31E-07	4.16E-01	9.65E-04	5.82E-06	6.90E+03	4.30E-02	2.96E+02	2.96E-01

Note:
The groundwater concentrations are the same exposure point concentrations (EPCs) that are used in the risk assessment.

References:

VADEQ 2007. Voluntary Remediation Program - Risk Assessment Guidance. 3.2.2 Exposure of Workers to Volatiles in a Construction/Utility Trench. October 7. Available online: http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RemediationProgram/VoluntaryRemediationProgram/VRPRiskAssessmentGuidance/Guidance.aspx#3.22
USEPA 2004. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. February 22. Figure 8. Available online: http://www.epa.gov/oswer/vaporintrusion/

ATTACHMENT F

Groundwater Core of the Plume Evaluation

ATTACHMENT F TABLE OF CONTENTS:

TABLE F.1
EXPOSURE POINT CONCENTRATION SUMMARY FOR GROUNDWATER CORE OF THE PLUME
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

T or D	COPC Group	COPC	CASRN	Medium-Specific COPC	Units	Maximum Detected Concentration	95% UCL	95% UCL Method	ProUCL Notes	Sample Count	Detect Count	Detection Frequency (%)	Exposure Point Concentration (EPC)		
													Value	Statistic	Rationale
T	VOC	Benzene	71-43-2	Yes	ug/L	49	23.49	95% KM (t) UCL		11	9	82	23.49	UCL	Lower of the max and UCL
T	VOC	cis-1,2-Dichloroethylene	156-59-2	Yes	ug/L	44	23.99	95% KM Bootstrap t UCL		12	10	85	23.99	UCL	Lower of the max and UCL
T	VOC	Ethylbenzene	100-41-4	Yes	ug/L	920	621.6	95% KM Bootstrap t UCL		11	9	82	621.6	UCL	Lower of the max and UCL
T	VOC	o-Xylene	95-47-6	Yes	ug/L	200	111.3	95% KM (t) UCL		11	8	72.73	111.3	UCL	Lower of the max and UCL
T	VOC	Tetrachloroethylene	127-18-4	Yes	ug/L	3000	1880	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)		13	9	69	1880	UCL	Lower of the max and UCL
T	VOC	Trichloroethylene	79-01-6	Yes	ug/L	160	109	97.5% KM (Chebyshev) UCL		11	9	82	109	UCL	Lower of the max and UCL
T	VOC	Vinyl chloride	75-01-4	Yes	ug/L	14	6.296	95% KM (t) UCL		10	8	75	6.296	UCL	Lower of the max and UCL
T	SVOC	4-Chloroaniline	106-47-8	Yes	ug/L	6900	7258	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	i	10	5	50	6900	Max	Lower of the max and UCL

Notes:

Groundwater data that do not meet the requirements in the USEPA memorandum titled Determining Groundwater Exposure Point Concentrations, Supplemental Guidance are excluded from the evaluation, e.g., samples collected from piezometers (USEPA 2014).
For the Core of the Plume evaluation, data are restricted to the concentrations from the five wells with the highest concentrations described in the text.
These EPCs for groundwater will be used in the resident, worker and construction worker scenarios. Only unfiltered (total) groundwater data are evaluated.
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL) of the arithmetic mean. When the UCL is greater than the maximum detected concentration or ProUCL did not calculate an UCL, the maximum detected concentration is chosen.
The most appropriate UCL is chosen from those ProUCL suggests based on the distribution of the databset and ProUCL guidance. ProUCL outputs are provided in Attachment B
EPCs were calculated for COPCs across all media and medium-specific COPCs are marked.

Abbreviations:

COPC -- Constituent of potential concern
EPC -- Exposure point concentration
NA -- Not analyzed or applicable
ND -- Not detected
UCL -- 95% Upper confidence limit

ProUCL Notes and Warnings:

i Suggested UCL exceeds the maximum observation.

References:

USEPA. 2016. ProUCL Version 5.1.02. September 19. Available online: https://www.epa.gov/land-research/proucl-software
USEPA. 2015. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: https://www.epa.gov/land-research/proucl-version-5100-documentation-downloads
USEPA. 2014. Memorandum – Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. March 11. Available online: http://www2.epa.gov/risk/exposure-point-concentrations-groundwater

TABLE F.2
CALCULATION OF DA-EVENT FOR DERMAL EXPOSURE TO GROUNDWATER CORE OF THE PLUME
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	Casrn	EPC (1)	Permeability Coefficient	Ratio of Permeability Coefficients	Lag Time	Time to Reach Steady State	Fraction Absorbed	Duration of Event (t-event)				DA-event							
			Cw	K_p	B	τ_{event}	t*	FA	Construction Worker	Outdoor Worker	Resident Adult	Resident Child (0-6 yrs)	Construction Worker		Worker		Resident Adult		Resident Child (0-6 yrs)	
			ug/L	cm/hr	unitless	hr/event	hr	unitless	hr/event	hr/event	hr/event	hr/event	mg/cm2-event	Eqn	mg/cm2-event	Eqn	mg/cm2-event	Eqn	mg/cm2-event	Eqn
VOC	Benzene	71-43-2	23.49	0.015	0.051	0.29	0.69	1	4	1	0.71	0.54	1.5E-06	3	5.4E-07	3	4.5E-07	3	3.8E-07	2
VOC	cis-1,2-Dichloroethylene	156-59-2	23.99	0.011	0.042	0.37	0.88	1	4	1	0.71	0.54	1.2E-06	3	4.6E-07	3	3.7E-07	2	3.2E-07	2
VOC	Ethylbenzene	100-41-4	621.6	0.049	0.20	0.41	0.99	1	4	1	0.71	0.54	1.3E-04	3	5.6E-05	3	4.6E-05	2	4.0E-05	2
VOC	o-Xylene	95-47-6	111.3	0.047	0.19	0.41	0.99	1	4	1	0.71	0.54	2.3E-05	3	9.5E-06	3	7.9E-06	2	6.8E-06	2
VOC	Tetrachloroethylene	127-18-4	1880	0.033	0.17	0.89	2.14	1	4	1	0.71	0.54	3.5E-04	3	1.6E-04	2	1.4E-04	2	1.2E-04	2
VOC	Trichloroethylene	79-01-6	109	0.012	0.051	0.57	1.37	1	4	1	0.71	0.54	6.3E-06	3	2.6E-06	2	2.2E-06	2	1.9E-06	2
VOC	Vinyl chloride	75-01-4	6.296	0.0084	0.025	0.24	0.57	1	4	1	0.71	0.54	2.3E-07	3	7.7E-08	3	6.2E-08	3	5.2E-08	2
SVOC	4-Chloroaniline	106-47-8	6900	0.0050	0.022	0.54	1.31	1	4	1	0.71	0.54	1.7E-04	3	7.0E-05	2	5.9E-05	2	5.1E-05	2

Equations:

Inorganics: DAevent (mg/cm^2-event) =

(Eq 1) DA_{event} =
Kp x CW x tevent x CF1 x CF2
where CF1 = 0.001 mg/ug and CF2 = 0.001 L/cm3

Organics: DA_{event} (mg/cm^2-event) =

(Eq 2) $t_{event} \leq t^*$: DA_{event} (mg/cm^2-event) =
$2 \times FA \times K_p \times C_w \times (\mathrm{sqrt}((6 \times \tau_{event} \times t_{event}) / (\pi))) \times CF1 \times CF2$

(Eq 3) $t_{event} > t^*$: DA_{event} (mg/cm^2-event) =
$FA \times K_p \times C_W \times (t_{event}/(1+B) + 2 \times \tau_{event} \times ((1 + 3B + 3B^2)/(1+B)^2)) \times CF1 \times CF2$

Note:
(1) The EPC is the lower of the 95% upper confidence limit and maximum detected concentration. See Table 3s.
Hexavalent chromium's permeability coefficient value is input as a surrogate for chromium total.

Abbreviations:
CF1 -- Conversion Factor 1 (0.001 mg/ug)
CF2 -- Conversion Factor 2 (0.001 L/cm^3)
Cw -- Groundwater or surface water concentration
PEST -- Pesticide
SVOC -- Semi-volatile organic compound
VOC -- Volatile organic compound

Reference:
USEPA. 2004. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online: https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part-e

TABLE F.3
BATHROOM AIR CONCENTRATIONS FROM EXPOSURE TO TAPWATER FOR A RESIDENT USING GROUNDWATER CORE OF THE PLUME
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

COPC Group	COPC	CASRN	EPC (1)	Adult		Child (0-6 years)	
			CW	$C_{a\text{-}max}$	C_a	C_{amax}	C_a
			mg/L	mg/m^3	mg/m^3	mg/m^3	mg/m^3
VOC	Benzene	71-43-2	0.0235	0.881	0.726	1.163	0.807
VOC	cis-1,2-Dichloroethylene	156-59-2	0.0240	0.900	0.741	1.188	0.825
VOC	Ethylbenzene	100-41-4	0.6216	23.31	19.21	30.769	21.368
VOC	o-Xylene	95-47-6	0.111	4.17	3.44	5.51	3.83
VOC	Tetrachloroethylene	127-18-4	1.880	70.50	58.09	93.06	64.63
VOC	Trichloroethylene	79-01-6	0.109	4.088	3.368	5.396	3.747

Variables	Units	Exposure Assumptions
C_a = concentration of chemical in air	mg/m^3	Solved by Eq 1
C_{amax} = maximum concentration of chemical in air	mg/m^3	Solved by Eq 2
t_1 = Adult time in shower	hr	0.25
t_1 = Child time in shower	hr	0.33
t_2 = Adult time in bathroom after shower	hr	0.46
t_2 = Child time in bathroom after shower	hr	0.21
f = fraction volatilized for chemical	unitless	0.9
F_w = shower water flow rate	L/hr	1000
V_a = bathroom volume	m^3	6

Equation 1:	C_a =	$((C_{amax}/2) * t_1 + C_{amax} * t_2) / (t_1 + t_2)$
Equation 2:	C_{amax} =	$(C_w * f * F_w * t_1) / V_a$

Note:
(1) The EPC is the lower of the 95% UCL and maximum detected concentration - see Table 3s.
The most conservative value of the ranges for each exposure parameter, as presented in Schaum et al 1994, is applied for the calculations. The shower model air chemical concentrations are calculated for only VOCs.

Total exposure times for are 0.71 hr for an adult and 0.54 hr for a child (0-6 years). Professional judgement is used to split up the time spent in the shower versus in the bathroom after shower. An adult is assumed to spend approximately 15 minutes showering followed by 28 minutes in the bathroom, for a total of 43 minutes (0.71 hr). A child is assumed to spend approximately 20 minutes bathing followed by 13 minutes in the bathroom for a total of 32 minutes (0.54 hr).

Abbreviation:
CW -- Groundwater water concentration
EPC -- Exposure point concentration
VOC -- Volatile organic compound

Reference:
Wang, Rhoda G.M. et al. 1994. Water Consumption and Health: Integration of Exposure Assessment, Toxicology, and Risk Assessment. Wang. Macel Dekker, Inc., New York. Estimating Dermal and Inhalation Exposure to Volatile Chemicals in Domestic Water, Schaum et al., Pages 307-320.

TABLE F.4
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A CONSTRUCTION WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
									Exposure Intake		CSF/IUR		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Soil (0-10 ft)	Ingestion	VOC	Benzene	71-43-2	4.6E-01	mg/kg	1.8E-08	mg/kg-day	5.5E-02	(mg/kg-day)-1	1.0E-09	1.3E-06	mg/kg-day	4.0E-03	mg/kg-day	3.2E-04
				VOC	Ethylbenzene	100-41-4	2.2E+00	mg/kg	8.8E-08	mg/kg-day	1.1E-02	(mg/kg-day)-1	9.6E-10	6.1E-06	mg/kg-day	1.0E-01	mg/kg-day	6.1E-05
				VOC	Tetrachloroethylene	127-18-4	4.8E-01	mg/kg	1.9E-08	mg/kg-day	2.1E-03	(mg/kg-day)-1	4.0E-11	1.3E-06	mg/kg-day	6.0E-03	mg/kg-day	2.2E-04
				VOC	Trichloroethylene	79-01-6	3.7E+00	mg/kg	1.5E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	6.9E-09	1.1E-05	mg/kg-day	5.0E-04	mg/kg-day	2.1E-02
				SVOC	2-Methylnaphthalene	91-57-6	1.9E+02	mg/kg	7.7E-06	mg/kg-day				5.4E-04	mg/kg-day	4.0E-03	mg/kg-day	1.3E-01
				SVOC	Benzo(a)anthracene	56-55-3	1.6E-01	mg/kg	6.5E-09	mg/kg-day	1.0E-01	(mg/kg-day)-1	6.5E-10	4.5E-07	mg/kg-day	3.0E-05	mg/kg-day	1.5E-02
				SVOC	Benzo(a)pyrene	50-32-8	1.4E-01	mg/kg	5.7E-09	mg/kg-day	1.0E+00	(mg/kg-day)-1	5.7E-09	4.0E-07	mg/kg-day	3.0E-04	mg/kg-day	1.3E-03
				SVOC	Benzyl Butyl Phthalate	85-68-7	3.6E+02	mg/kg	1.4E-05	mg/kg-day	1.9E-03	(mg/kg-day)-1	2.7E-08	1.0E-03	mg/kg-day	2.0E-01	mg/kg-day	5.0E-03
				SVOC	Biphenyl (diphenyl)	92-52-4	1.0E+01	mg/kg	4.1E-07	mg/kg-day	8.0E-03	(mg/kg-day)-1	3.3E-09	2.9E-05	mg/kg-day	5.0E-01	mg/kg-day	5.7E-05
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	2.1E+02	mg/kg	8.6E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	1.2E-07	6.0E-04	mg/kg-day	2.0E-02	mg/kg-day	3.0E-02
				SVOC	Di-n-octylphthalate	117-84-0	3.0E+01	mg/kg	1.2E-06	mg/kg-day				8.4E-05	mg/kg-day	1.0E-02	mg/kg-day	8.4E-03
				SVOC	Naphthalene	91-20-3	1.1E+02	mg/kg	4.4E-06	mg/kg-day				3.1E-04	mg/kg-day	2.0E-02	mg/kg-day	1.5E-02
				PEST	Dibenzofuran	132-64-9	5.9E+00	mg/kg	2.4E-07	mg/kg-day				1.7E-05	mg/kg-day	1.0E-03	mg/kg-day	1.7E-02
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	1.1E+00	mg/kg	4.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	8.6E-08	3.0E-06	mg/kg-day	2.0E-05	mg/kg-day	1.5E-01
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	5.1E-02	mg/kg	2.0E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.1E-09	1.4E-07	mg/kg-day	2.0E-05	mg/kg-day	7.1E-03
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	7.5E-02	mg/kg	3.0E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.0E-09	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				INORGANIC	Arsenic	7440-38-2	2.7E+00	mg/kg	6.5E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.8E-08	4.6E-06	mg/kg-day	3.0E-04	mg/kg-day	1.5E-02
				INORGANIC	Chromium (Total)	7440-47-3	1.4E+01	mg/kg	5.5E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.8E-07	3.9E-05	mg/kg-day	3.0E-03	mg/kg-day	1.3E-02
				INORGANIC	Cobalt	7440-48-4	3.3E+00	mg/kg	1.4E-07	mg/kg-day				9.5E-06	mg/kg-day	3.0E-04	mg/kg-day	3.2E-02
			Ingestion Total										**6.4E-07**					**4.8E-01**
Soil	Soil	Soil (0-10 ft)	Dermal	VOC	Benzene	71-43-2	4.6E-01	mg/kg			5.5E-02	(mg/kg-day)-1				4.0E-03	mg/kg-day	
				VOC	Ethylbenzene	100-41-4	2.2E+00	mg/kg			1.1E-02	(mg/kg-day)-1				1.0E-01	mg/kg-day	
				VOC	Tetrachloroethylene	127-18-4	4.8E-01	mg/kg			2.1E-03	(mg/kg-day)-1				6.0E-03	mg/kg-day	
				VOC	Trichloroethylene	79-01-6	3.7E+00	mg/kg			4.6E-02	(mg/kg-day)-1				5.0E-04	mg/kg-day	
				SVOC	2-Methylnaphthalene	91-57-6	1.9E+02	mg/kg	3.2E-06	mg/kg-day				2.2E-04	mg/kg-day	4.0E-03	mg/kg-day	9.0E-07
				SVOC	Benzo(a)anthracene	56-55-3	1.6E-01	mg/kg	2.7E-09	mg/kg-day	1.0E-01	(mg/kg-day)-1	2.7E-10	1.9E-07	mg/kg-day	3.0E-05	mg/kg-day	5.7E-12
				SVOC	Benzo(a)pyrene	50-32-8	1.4E-01	mg/kg	2.4E-09	mg/kg-day	1.0E+00	(mg/kg-day)-1	2.4E-09	1.6E-07	mg/kg-day	3.0E-04	mg/kg-day	4.9E-11
				SVOC	Benzyl Butyl Phthalate	85-68-7	3.6E+02	mg/kg	4.6E-06	mg/kg-day	1.9E-03	(mg/kg-day)-1	8.7E-09	3.2E-04	mg/kg-day	2.0E-01	mg/kg-day	6.4E-05
				SVOC	Biphenyl (diphenyl)	92-52-4	1.0E+01	mg/kg			8.0E-03	(mg/kg-day)-1				5.0E-01	mg/kg-day	
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	2.1E+02	mg/kg	2.8E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	3.9E-08	1.9E-04	mg/kg-day	2.0E-02	mg/kg-day	3.9E-06
				SVOC	Di-n-octylphthalate	117-84-0	3.0E+01	mg/kg	3.9E-07	mg/kg-day				2.7E-05	mg/kg-day	1.0E-02	mg/kg-day	2.7E-07
				SVOC	Naphthalene	91-20-3	1.1E+02	mg/kg	1.8E-06	mg/kg-day				1.3E-04	mg/kg-day	2.0E-02	mg/kg-day	2.6E-06
				PEST	Dibenzofuran	132-64-9	5.9E+00	mg/kg	2.3E-08	mg/kg-day				1.6E-06	mg/kg-day	1.0E-03	mg/kg-day	1.6E-09
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	1.1E+00	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.8E-08	1.3E-06	mg/kg-day	2.0E-05	mg/kg-day	2.7E-11
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	5.1E-02	mg/kg	9.2E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-09	6.4E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-12
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	7.5E-02	mg/kg	1.4E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.7E-09	9.5E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-12
				INORGANIC	Arsenic	7440-38-2	2.7E+00	mg/kg	1.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-08	7.3E-07	mg/kg-day	3.0E-04	mg/kg-day	2.2E-10
				INORGANIC	Chromium (Total)	7440-47-3	1.4E+01	mg/kg			2.0E+01	(mg/kg-day)-1				7.5E-05	mg/kg-day	
				INORGANIC	Cobalt	7440-48-4	3.3E+00	mg/kg								3.0E-04	mg/kg-day	
			Dermal Total										**1.1E-07**					**7.2E-05**
Soil	Soil	Soil (0-10 ft)	Outdoor Inhalation	VOC	Benzene	71-43-2	1.2E-08	mg/m3	3.9E-11	mg/m3	7.8E-03	(mg/m3)-1	3.1E-13	2.8E-09	mg/m3	3.0E-02	mg/m3	9.2E-08
				VOC	Ethylbenzene	100-41-4	5.7E-08	mg/m3	1.9E-10	mg/m3	2.5E-03	(mg/m3)-1	4.7E-13	1.3E-08	mg/m3	1.0E+00	mg/m3	1.3E-08
				VOC	Tetrachloroethylene	127-18-4	1.3E-08	mg/m3	4.1E-11	mg/m3	2.6E-04	(mg/m3)-1	1.1E-14	2.9E-09	mg/m3	4.0E-02	mg/m3	7.2E-08
				VOC	Trichloroethylene	79-01-6	9.9E-08	mg/m3	3.2E-10	mg/m3	4.1E-03	(mg/m3)-1	1.3E-12	2.3E-08	mg/m3	2.0E-03	mg/m3	1.1E-05
				SVOC	2-Methylnaphthalene	91-57-6	5.0E-06	mg/m3	1.6E-08	mg/m3				1.2E-06	mg/m3			
				SVOC	Benzo(a)anthracene	56-55-3	4.2E-09	mg/m3	1.4E-11	mg/m3	6.0E-02	(mg/m3)-1	8.2E-13	9.6E-10	mg/m3	2.0E-07	mg/m3	4.8E-03
				SVOC	Benzo(a)pyrene	50-32-8	3.7E-09	mg/m3	1.2E-11	mg/m3	6.0E-01	(mg/m3)-1	7.2E-12	8.5E-10	mg/m3	2.0E-06	mg/m3	4.2E-04
				SVOC	Benzyl Butyl Phthalate	85-68-7	9.4E-06	mg/m3	3.1E-08	mg/m3				2.1E-06	mg/m3			
				SVOC	Biphenyl (diphenyl)	92-52-4	2.7E-07	mg/m3	8.8E-10	mg/m3				6.1E-08	mg/m3	4.0E-04	mg/m3	1.5E-04
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	5.7E-06	mg/m3	1.8E-08	mg/m3	2.4E-03	(mg/m3)-1	4.4E-11	1.3E-06	mg/m3			
				SVOC	Di-n-octylphthalate	117-84-0	7.9E-07	mg/m3	2.6E-09	mg/m3				1.8E-07	mg/m3			
				SVOC	Naphthalene	91-20-3	2.9E-06	mg/m3	9.4E-09	mg/m3	3.4E-02	(mg/m3)-1	3.2E-10	6.5E-07	mg/m3	3.0E-03	mg/m3	2.2E-04
				PEST	Dibenzofuran	132-64-9	1.6E-07	mg/m3	5.1E-10	mg/m3				3.6E-08	mg/m3			
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	2.8E-08	mg/m3	9.1E-11	mg/m3	5.7E-01	(mg/m3)-1	5.2E-11	6.4E-09	mg/m3			
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	1.3E-09	mg/m3	4.4E-12	mg/m3	5.7E-01	(mg/m3)-1	2.5E-12	3.0E-10	mg/m3			
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	2.0E-09	mg/m3	6.4E-12	mg/m3	5.7E-01	(mg/m3)-1	3.7E-12	4.5E-10	mg/m3			
				INORGANIC	Arsenic	7440-38-2	7.1E-08	mg/m3	2.3E-10	mg/m3	4.3E+00	(mg/m3)-1	1.0E-09	1.6E-08	mg/m3	1.5E-05	mg/m3	1.1E-03
				INORGANIC	Chromium (Total)	7440-47-3	3.6E-07	mg/m3	1.2E-09	mg/m3	8.4E+01	(mg/m3)-1	9.9E-08	8.3E-08	mg/m3	1.0E-04	mg/m3	8.3E-04
				INORGANIC	Cobalt	7440-48-4	8.9E-08	mg/m3	2.9E-10	mg/m3	9.0E+00	(mg/m3)-1	2.6E-09	2.0E-08	mg/m3	6.0E-06	mg/m3	3.4E-03
			Outdoor Inhalation Total										**1.0E-07**					**1.1E-02**
Soil (0-10ft) Total													**8.5E-07**					**4.9E-01**

TABLE F.4
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A CONSTRUCTION WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
									Exposure Intake		CSF/IUR			Exposure Intake		RfD/RfC		
							Value	Units	Value	Units	Value	Units	Cancer Risk	Value	Units	Value	Units	Hazard Quotient
Groundwater	Groundwater	Groundwater	Incidental Ingestion	VOC	Benzene	71-43-2	2.3E+01	ug/L	5.7E-08	mg/kg-day	5.5E-02	(mg/kg-day)-1	3.2E-09	4.0E-06	mg/kg-day	4.0E-03	mg/kg-day	1.0E-03
				VOC	cis-1,2-Dichloroethylene	156-59-2	2.4E+01	ug/L	5.9E-08	mg/kg-day				4.1E-06	mg/kg-day	2.0E-03	mg/kg-day	2.1E-03
				VOC	Ethylbenzene	100-41-4	6.2E+02	ug/L	1.5E-06	mg/kg-day	1.1E-02	(mg/kg-day)-1	1.7E-08	1.1E-04	mg/kg-day	1.0E-01	mg/kg-day	1.1E-03
				VOC	o-Xylene	95-47-6	1.1E+02	ug/L	2.7E-07	mg/kg-day				1.9E-05	mg/kg-day	2.0E-01	mg/kg-day	9.5E-05
				VOC	Tetrachloroethylene	127-18-4	1.9E+03	ug/L	4.6E-06	mg/kg-day	2.1E-03	(mg/kg-day)-1	9.7E-09	3.2E-04	mg/kg-day	6.0E-03	mg/kg-day	5.4E-02
				VOC	Trichloroethylene	79-01-6	1.1E+02	ug/L	2.7E-07	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.2E-08	1.9E-05	mg/kg-day	5.0E-04	mg/kg-day	3.7E-02
				SVOC	4-Chloroaniline	106-47-8	6.9E+03	ug/L	1.7E-05	mg/kg-day	2.0E-01	(mg/kg-day)-1	3.4E-06	1.2E-03	mg/kg-day	4.0E-03	mg/kg-day	3.0E-01
			Ingestion Total										**3.4E-06**					**3.9E-01**
Groundwater	Groundwater	Groundwater	Dermal	VOC	Benzene	71-43-2	2.3E+01	ug/L	6.7E-07	mg/kg-day	5.5E-02	(mg/kg-day)-1	3.7E-08	4.7E-05	mg/kg-day	4.0E-03	mg/kg-day	1.2E-02
				VOC	cis-1,2-Dichloroethylene	156-59-2	2.4E+01	ug/L	5.2E-07	mg/kg-day				3.7E-05	mg/kg-day	2.0E-03	mg/kg-day	1.8E-02
				VOC	Ethylbenzene	100-41-4	6.2E+02	ug/L	5.7E-05	mg/kg-day	1.1E-02	(mg/kg-day)-1	6.3E-07	4.0E-03	mg/kg-day	1.0E-01	mg/kg-day	4.0E-02
				VOC	o-Xylene	95-47-6	1.1E+02	ug/L	9.8E-06	mg/kg-day				6.9E-04	mg/kg-day	2.0E-01	mg/kg-day	3.4E-03
				VOC	Tetrachloroethylene	127-18-4	1.9E+03	ug/L	1.5E-04	mg/kg-day	2.1E-03	(mg/kg-day)-1	3.1E-07	1.0E-02	mg/kg-day	6.0E-03	mg/kg-day	1.7E+00
				VOC	Trichloroethylene	79-01-6	1.1E+02	ug/L	2.7E-06	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.3E-07	1.9E-04	mg/kg-day	5.0E-04	mg/kg-day	3.8E-01
				SVOC	4-Chloroaniline	106-47-8	6.9E+03	ug/L	7.4E-05	mg/kg-day	2.0E-01	(mg/kg-day)-1	1.5E-05	5.2E-03	mg/kg-day	4.0E-03	mg/kg-day	1.3E+00
			Dermal Total										**1.6E-05**					**3.5E+00**
Groundwater	Groundwater	Groundwater	Outdoor Inhalation	VOC	Benzene	71-43-2	2.1E-01	mg/m3	3.4E-04	mg/m3	7.8E-03	(mg/m3)-1	2.7E-06	2.4E-02	mg/m3	3.0E-02	mg/m3	8.0E-01
				VOC	cis-1,2-Dichloroethylene	156-59-2	1.9E-01	mg/m3	3.2E-04	mg/m3				2.2E-02	mg/m3			
				VOC	Ethylbenzene	100-41-4	4.8E+00	mg/m3	7.9E-03	mg/m3	2.5E-03	(mg/m3)-1	2.0E-05	5.5E-01	mg/m3	1.0E+00	mg/m3	5.5E-01
				VOC	o-Xylene	95-47-6	8.6E-01	mg/m3	1.4E-03	mg/m3				9.8E-02	mg/m3	1.0E-01	mg/m3	9.8E-01
				VOC	Tetrachloroethylene	127-18-4	1.2E+01	mg/m3	1.9E-02	mg/m3	2.6E-04	(mg/m3)-1	5.0E-06	1.3E+00	mg/m3	4.0E-02	mg/m3	3.3E+01
				VOC	Trichloroethylene	79-01-6	7.6E-01	mg/m3	1.2E-03	mg/m3	4.1E-03	(mg/m3)-1	5.1E-06	8.7E-02	mg/m3	2.0E-03	mg/m3	4.3E+01
				SVOC	4-Chloroaniline	106-47-8	3.0E-01	mg/m3	4.8E-04	mg/m3				3.4E-02	mg/m3			
			Outdoor Inhalation Total										**3.2E-05**					**7.9E+01**
Groundwater Total													**5.2E-05**					**8.3E+01**
Receptor Total													**5.3E-05**					**8.4E+01**

Notes:
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL), except when the UCL was greater than the maximum detected concentration or ProUCL did not calculate an UCL.
The constituent of potential concern (COPC) list is based on exceedances from screening of maximum detected concentrations against the May 2016 USEPA Regional Screening Levels at a target risk of 1E-06 and target hazard quotient of 0.1.
Cumulative risk estimates that are greater than or equal to the acceptable cancer limit of 1E-06 and noncancer limit of 0.1 are shaded.
The single-chemical cancer risks incorporate the one hit equations for cancer risks > 0.01, per RAGs Part A Chapter 8: Risk = 1 - exp(-Dose x SF).
RAGS Part E does not provide dermal soil absorption fraction values (ABSd) for most VOCs and inorganics; therefore a dermally absorbed dose is not calculated.

Abbreviations:
COPC -- Constituent of potential concern
CSF -- Oral cancer slope factor
EPC -- Exposure point concentration
IUR - Inhalation unit risk
NA -- Not applicable.
RfC -- Inhalation reference concentration
RfD -- Oral reference dose

TABLE F.5
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
									Exposure Intake		CSF/IUR		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Surface Soil (0-2 ft)	Ingestion															
				SVOC	Benzo(a)anthracene	56-55-3	1.6E-01	mg/kg	4.9E-08	mg/kg-day	1.0E-01	(mg/kg-day)-1	4.9E-09	1.4E-07	mg/kg-day	3.0E-05	mg/kg-day	4.6E-03
				SVOC	Benzo(a)pyrene	50-32-8	1.4E-01	mg/kg	4.3E-08	mg/kg-day	1.0E+00	(mg/kg-day)-1	4.3E-08	1.2E-07	mg/kg-day	3.0E-04	mg/kg-day	4.0E-04
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	1.4E+01	mg/kg	4.2E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	5.9E-08	1.2E-05	mg/kg-day	2.0E-02	mg/kg-day	5.9E-04
				SVOC	Naphthalene	91-20-3	2.8E+00	mg/kg	8.7E-07	mg/kg-day				2.4E-06	mg/kg-day	2.0E-02	mg/kg-day	1.2E-04
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	1.1E+00	mg/kg	3.2E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.5E-07	9.1E-07	mg/kg-day	2.0E-05	mg/kg-day	4.5E-02
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	5.1E-02	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.1E-08	4.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.2E-03
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	7.5E-02	mg/kg	2.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.6E-08	6.4E-08	mg/kg-day	2.0E-05	mg/kg-day	3.2E-03
				INORGANIC	Arsenic	7440-38-2	2.7E+00	mg/kg	4.9E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.4E-07	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	4.6E-03
				INORGANIC	Chromium (Total)	7440-47-3	1.4E+01	mg/kg	4.2E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.1E-06	1.2E-05	mg/kg-day	3.0E-03	mg/kg-day	3.9E-03
				INORGANIC	Cobalt	7440-48-4	3.3E+00	mg/kg	1.0E-06	mg/kg-day				2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	9.6E-03
			Ingestion Total										**3.7E-06**					**7.5E-02**
Soil	Soil	Surface Soil (0-2 ft)	Dermal															
				SVOC	Benzo(a)anthracene	56-55-3	1.6E-01	mg/kg	2.7E-08	mg/kg-day	1.0E-01	(mg/kg-day)-1	2.7E-09	7.5E-08	mg/kg-day	3.0E-05	mg/kg-day	2.5E-03
				SVOC	Benzo(a)pyrene	50-32-8	1.4E-01	mg/kg	2.4E-08	mg/kg-day	1.0E+00	(mg/kg-day)-1	2.4E-08	6.6E-08	mg/kg-day	3.0E-04	mg/kg-day	2.2E-04
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	1.4E+01	mg/kg	1.8E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	2.5E-08	5.0E-06	mg/kg-day	2.0E-02	mg/kg-day	2.5E-04
				SVOC	Naphthalene	91-20-3	2.8E+00	mg/kg	4.8E-07	mg/kg-day				1.3E-06	mg/kg-day	2.0E-02	mg/kg-day	6.7E-05
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	1.1E+00	mg/kg	1.9E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.8E-07	5.4E-07	mg/kg-day	2.0E-05	mg/kg-day	2.7E-02
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	5.1E-02	mg/kg	9.2E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-08	2.6E-08	mg/kg-day	2.0E-05	mg/kg-day	1.3E-03
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	7.5E-02	mg/kg	1.4E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.7E-08	3.8E-08	mg/kg-day	2.0E-05	mg/kg-day	1.9E-03
				INORGANIC	Arsenic	7440-38-2	2.7E+00	mg/kg	1.0E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-07	2.9E-07	mg/kg-day	3.0E-04	mg/kg-day	9.7E-04
				INORGANIC	Chromium (Total)	7440-47-3	1.4E+01	mg/kg			2.0E+01	(mg/kg-day)-1				7.5E-05	mg/kg-day	
				INORGANIC	Cobalt	7440-48-4	3.3E+00	mg/kg								3.0E-04	mg/kg-day	
			Dermal Total										**6.4E-07**					**3.4E-02**
Soil	Soil	Surface Soil (0-2 ft)	Outdoor Inhalation															
				SVOC	Benzo(a)anthracene	56-55-3	1.1E-10	mg/m3	8.9E-12	mg/m3	6.0E-02	(mg/m3)-1	5.3E-13	2.5E-11	mg/m3	2.0E-07	mg/m3	1.2E-04
				SVOC	Benzo(a)pyrene	50-32-8	9.5E-11	mg/m3	7.8E-12	mg/m3	6.0E-01	(mg/m3)-1	4.7E-12	2.2E-11	mg/m3	2.0E-06	mg/m3	1.1E-05
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	9.3E-09	mg/m3	7.6E-10	mg/m3	2.4E-03	(mg/m3)-1	1.8E-12	2.1E-09	mg/m3			
				SVOC	Naphthalene	91-20-3	1.9E-09	mg/m3	1.6E-10	mg/m3	3.4E-02	(mg/m3)-1	5.4E-12	4.4E-10	mg/m3	3.0E-03	mg/m3	1.5E-07
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	7.2E-10	mg/m3	5.9E-11	mg/m3	5.7E-01	(mg/m3)-1	3.4E-11	1.6E-10	mg/m3			
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	3.4E-11	mg/m3	2.8E-12	mg/m3	5.7E-01	(mg/m3)-1	1.6E-12	7.9E-12	mg/m3			
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	5.1E-11	mg/m3	4.1E-12	mg/m3	5.7E-01	(mg/m3)-1	2.4E-12	1.2E-11	mg/m3			
				INORGANIC	Arsenic	7440-38-2	1.8E-09	mg/m3	1.5E-10	mg/m3	4.3E+00	(mg/m3)-1	6.4E-10	4.2E-10	mg/m3	1.5E-05	mg/m3	2.8E-05
				INORGANIC	Chromium (Total)	7440-47-3	9.3E-09	mg/m3	7.6E-10	mg/m3	8.4E+01	(mg/m3)-1	6.4E-08	2.1E-09	mg/m3	1.0E-04	mg/m3	2.1E-05
				INORGANIC	Cobalt	7440-48-4	2.3E-09	mg/m3	1.9E-10	mg/m3	9.0E+00	(mg/m3)-1	1.7E-09	5.2E-10	mg/m3	6.0E-06	mg/m3	8.7E-05
			Outdoor Inhalation Total										**6.6E-08**					**2.7E-04**
Surface Soil Total													**4.4E-06**					**1.1E-01**
Groundwater	Groundwater	Tapwater	Dermal															
				VOC	Benzene	71-43-2	2.3E+01	ug/L	5.9E-06	mg/kg-day	5.5E-02	(mg/kg-day)-1	3.2E-07	1.6E-05	mg/kg-day	4.0E-03	mg/kg-day	4.1E-03
				VOC	cis-1,2-Dichloroethylene	156-59-2	2.4E+01	ug/L	4.9E-06	mg/kg-day				1.4E-05	mg/kg-day	2.0E-03	mg/kg-day	6.9E-03
				VOC	Ethylbenzene	100-41-4	6.2E+02	ug/L	6.0E-04	mg/kg-day	1.1E-02	(mg/kg-day)-1	6.6E-06	1.7E-03	mg/kg-day	1.0E-01	mg/kg-day	1.7E-02
				VOC	o-Xylene	95-47-6	1.1E+02	ug/L	1.0E-04	mg/kg-day				2.9E-04	mg/kg-day	2.0E-01	mg/kg-day	1.4E-03
				VOC	Tetrachloroethylene	127-18-4	1.9E+03	ug/L	1.8E-03	mg/kg-day	2.1E-03	(mg/kg-day)-1	3.7E-06	5.0E-03	mg/kg-day	6.0E-03	mg/kg-day	8.3E-01
				VOC	Trichloroethylene	79-01-6	1.1E+02	ug/L	2.9E-05	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.3E-06	8.0E-05	mg/kg-day	5.0E-04	mg/kg-day	1.6E-01
				SVOC	4-Chloroaniline	106-47-8	6.9E+03	ug/L	7.5E-04	mg/kg-day	2.0E-01	(mg/kg-day)-1	1.5E-04	2.1E-03	mg/kg-day	4.0E-03	mg/kg-day	5.3E-01
			Dermal Total										**1.6E-04**					**1.5E+00**
Groundwater Total													**1.6E-04**					**1.5E+00**
Receptor Total													**1.7E-04**					**1.7E+00**

Notes:
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL), except when the UCL was greater than the maximum detected concentration or ProUCL did not calculate an UCL.
The constituent of potential concern (COPC) list is based on exceedances from screening of maximum detected concentrations against the May 2016 USEPA Regional Screening Levels at a target risk of 1E-06 and target hazard quotient of 0.1.
Cumulative risk estimates that are greater than or equal to the acceptable cancer limit of 1E-06 and noncancer limit of 0.1 are shaded.
The single-chemical cancer risks incorporate the one hit equations for cancer risks > 0.01, per RAGs Part A Chapter 8: Risk = 1 - exp(-Dose x SF).
RAGS Part E does not provide dermal soil absorption fraction values (ABSd) for most VOCs and inorganics; therefore a dermally absorbed dose is not calculated.

Abbreviations:
COPC -- Constituent of potential concern
CSF -- Oral cancer slope factor
EPC -- Exposure point concentration
IUR - Inhalation unit risk
RfC -- Inhalation reference concentration
RfD -- Oral reference dose

TABLE F.6
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RESIDENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

HDR

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	Mutagenic	EPC			Cancer Risk Calculations					Non-Cancer Hazard Calculations									
								Adult	Child	Units	Adult and Child Age-Adjusted					Adult					Child (0-6 years)				
								Value	Value		Exposure Intake		CSF/Unit Risk		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient	Exposure Intake		RfD/RfC		Hazard Quotient
											Value	Units	Value	Units		Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	Surface Soil (0-2 ft)	Ingestion																						
				SVOC	Benzo(a)anthracene	56-55-3	Y	1.6E-01	1.6E-01	mg/kg	1.5E-06	mg/kg-day	1.0E-01	(mg/kg-day)-1	1.5E-07	1.9E-07	mg/kg-day	3.0E-05	mg/kg-day	6.4E-03	2.0E-06	mg/kg-day	3.0E-05	mg/kg-day	6.8E-02
				SVOC	Benzo(a)pyrene	50-32-8	Y	1.4E-01	1.4E-01	mg/kg	1.3E-06	mg/kg-day	1.0E+00	(mg/kg-day)-1	1.3E-06	1.7E-07	mg/kg-day	3.0E-04	mg/kg-day	5.6E-04	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	6.0E-03
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	N	1.4E+01	1.4E+01	mg/kg	2.4E-05	mg/kg-day	1.4E-02	(mg/kg-day)-1	3.4E-07	1.6E-05	mg/kg-day	2.0E-02	mg/kg-day	8.2E-04	1.8E-04	mg/kg-day	2.0E-02	mg/kg-day	8.8E-03
				SVOC	Naphthalene	91-20-3	N	2.8E+00	2.8E+00	mg/kg	5.0E-06	mg/kg-day				3.4E-06	mg/kg-day	2.0E-02	mg/kg-day	1.7E-04	3.6E-05	mg/kg-day	2.0E-02	mg/kg-day	1.8E-03
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	N	1.1E+00	1.1E+00	mg/kg	1.9E-06	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.7E-06	1.3E-06	mg/kg-day	2.0E-05	mg/kg-day	6.4E-02	1.4E-05	mg/kg-day	2.0E-05	mg/kg-day	6.8E-01
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	N	5.1E-02	5.1E-02	mg/kg	8.9E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-07	6.1E-08	mg/kg-day	2.0E-05	mg/kg-day	3.0E-03	6.5E-07	mg/kg-day	2.0E-05	mg/kg-day	3.2E-02
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	N	7.5E-02	7.5E-02	mg/kg	1.3E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.6E-07	9.0E-08	mg/kg-day	2.0E-05	mg/kg-day	4.5E-03	9.6E-07	mg/kg-day	2.0E-05	mg/kg-day	4.8E-02
				INORGANIC	Arsenic	7440-38-2	N	2.7E+00	2.7E+00	mg/kg	2.8E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.3E-06	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	6.4E-03	2.1E-05	mg/kg-day	3.0E-04	mg/kg-day	6.9E-02
				INORGANIC	Chromium (Total)	7440-47-3	Y	1.4E+01	1.4E+01	mg/kg	1.3E-04	mg/kg-day	5.0E-01	(mg/kg-day)-1	6.3E-05	1.6E-05	mg/kg-day	3.0E-03	mg/kg-day	5.5E-03	1.8E-04	mg/kg-day	3.0E-03	mg/kg-day	5.8E-02
				INORGANIC	Cobalt	7440-48-4	N	3.3E+00	3.3E+00	mg/kg	5.9E-06	mg/kg-day				4.0E-06	mg/kg-day	3.0E-04	mg/kg-day	1.3E-02	4.3E-05	mg/kg-day	3.0E-04	mg/kg-day	1.4E-01
			Ingestion Total												**7.3E-05**					**1.0E-01**					**1.1E+00**
Soil	Soil	Surface Soil (0-2 ft)	Dermal																						
				SVOC	Benzo(a)anthracene	56-55-3	Y	1.6E-01	1.6E-01	mg/kg	5.0E-07	mg/kg-day	1.0E-01	(mg/kg-day)-1	5.0E-08	1.1E-07	mg/kg-day	3.0E-05	mg/kg-day	3.5E-03	6.3E-07	mg/kg-day	3.0E-05	mg/kg-day	2.1E-02
				SVOC	Benzo(a)pyrene	50-32-8	Y	1.4E-01	1.4E-01	mg/kg	4.4E-07	mg/kg-day	1.0E+00	(mg/kg-day)-1	4.4E-07	9.2E-08	mg/kg-day	3.0E-04	mg/kg-day	3.1E-04	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	1.8E-03
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	N	1.4E+01	1.4E+01	mg/kg	7.1E-06	mg/kg-day	1.4E-02	(mg/kg-day)-1	9.9E-08	6.9E-06	mg/kg-day	2.0E-02	mg/kg-day	3.5E-04	4.2E-05	mg/kg-day	2.0E-02	mg/kg-day	2.1E-03
				SVOC	Naphthalene	91-20-3	N	2.8E+00	2.8E+00	mg/kg	1.9E-06	mg/kg-day				1.9E-06	mg/kg-day	2.0E-02	mg/kg-day	9.4E-05	1.1E-05	mg/kg-day	2.0E-02	mg/kg-day	5.6E-04
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	N	1.1E+00	1.1E+00	mg/kg	7.6E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.5E-06	7.5E-07	mg/kg-day	2.0E-05	mg/kg-day	3.8E-02	4.5E-06	mg/kg-day	2.0E-05	mg/kg-day	2.3E-01
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	N	5.1E-02	5.1E-02	mg/kg	3.6E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	7.3E-08	3.6E-08	mg/kg-day	2.0E-05	mg/kg-day	1.8E-03	2.1E-07	mg/kg-day	2.0E-05	mg/kg-day	1.1E-02
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	N	7.5E-02	7.5E-02	mg/kg	5.4E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.1E-07	5.3E-08	mg/kg-day	2.0E-05	mg/kg-day	2.6E-03	3.2E-07	mg/kg-day	2.0E-05	mg/kg-day	1.6E-02
				INORGANIC	Arsenic	7440-38-2	N	2.7E+00	2.7E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.2E-07	4.1E-07	mg/kg-day	3.0E-04	mg/kg-day	1.4E-03	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	8.1E-03
				INORGANIC	Chromium (Total)	7440-47-3	Y	1.4E+01	1.4E+01	mg/kg			2.0E+01	(mg/kg-day)-1				7.5E-05	mg/kg-day				7.5E-05	mg/kg-day	
				INORGANIC	Cobalt	7440-48-4	N	3.3E+00	3.3E+00	mg/kg								3.0E-04	mg/kg-day				3.0E-04	mg/kg-day	
			Dermal Total												**2.9E-06**					**4.8E-02**					**2.9E-01**
Soil	Soil	Surface Soil (0-2 ft)	Outdoor Inhalation																						
				SVOC	Benzo(a)anthracene	56-55-3	Y	1.1E-10	1.1E-10	mg/m3	1.1E-10	mg/m3	6.0E-02	(mg/m3)-1	6.4E-12	1.0E-10	mg/m3	2.0E-07	mg/m3	5.2E-04	1.0E-10	mg/m3	2.0E-07	mg/m3	5.2E-04
				SVOC	Benzo(a)pyrene	50-32-8	Y	9.5E-11	9.5E-11	mg/m3	9.4E-11	mg/m3	6.0E-01	(mg/m3)-1	5.6E-11	9.1E-11	mg/m3	2.0E-06	mg/m3	4.6E-05	9.1E-11	mg/m3	2.0E-06	mg/m3	4.6E-05
				SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	N	9.3E-09	9.3E-09	mg/m3	3.3E-09	mg/m3	2.4E-03	(mg/m3)-1	8.0E-12	9.0E-09	mg/m3				9.0E-09	mg/m3			
				SVOC	Naphthalene	91-20-3	N	1.9E-09	1.9E-09	mg/m3	6.9E-10	mg/m3	3.4E-02	(mg/m3)-1	2.3E-11	1.9E-09	mg/m3	3.0E-03	mg/m3	6.2E-07	1.9E-09	mg/m3	3.0E-03	mg/m3	6.2E-07
				PCB	PCB-1248 (Aroclor 1248)	12672-29-6	N	7.2E-10	7.2E-10	mg/m3	2.6E-10	mg/m3	5.7E-01	(mg/m3)-1	1.5E-10	6.9E-10	mg/m3				6.9E-10	mg/m3			
				PCB	PCB-1254 (Aroclor 1254)	11097-69-1	N	3.4E-11	3.4E-11	mg/m3	1.2E-11	mg/m3	5.7E-01	(mg/m3)-1	7.0E-12	3.3E-11	mg/m3				3.3E-11	mg/m3			
				PCB	PCB-1260 (Aroclor 1260)	11096-82-5	N	5.1E-11	5.1E-11	mg/m3	1.8E-11	mg/m3	5.7E-01	(mg/m3)-1	1.0E-11	4.9E-11	mg/m3				4.9E-11	mg/m3			
				INORGANIC	Arsenic	7440-38-2	N	1.8E-09	1.8E-09	mg/m3	6.5E-10	mg/m3	4.3E+00	(mg/m3)-1	2.8E-09	1.8E-09	mg/m3	1.5E-05	mg/m3	1.2E-04	1.8E-09	mg/m3	1.5E-05	mg/m3	1.2E-04
				INORGANIC	Chromium (Total)	7440-47-3	Y	9.3E-09	9.3E-09	mg/m3	9.2E-09	mg/m3	8.4E+01	(mg/m3)-1	7.7E-07	8.9E-09	mg/m3	1.0E-04	mg/m3	8.9E-05	8.9E-09	mg/m3	1.0E-04	mg/m3	8.9E-05
				INORGANIC	Cobalt	7440-48-4	N	2.3E-09	2.3E-09	mg/m3	8.1E-10	mg/m3	9.0E+00	(mg/m3)-1	7.3E-09	2.2E-09	mg/m3	6.0E-06	mg/m3	3.6E-04	2.2E-09	mg/m3	6.0E-06	mg/m3	3.6E-04
			Outdoor Inhalation Total												**7.8E-07**					**1.1E-03**					**1.1E-03**
Surface Soil Total															**7.7E-05**					**1.5E-01**					**1.4E+00**
Groundwater	Groundwater	Tapwater	Ingestion																						
				VOC	Benzene	71-43-2	N	2.3E+01	2.3E+01	ug/L	3.6E-04	mg/kg-day	5.5E-02	(mg/kg-day)-1	2.0E-05	7.0E-04	mg/kg-day	4.0E-03	mg/kg-day	1.8E-01	1.2E-03	mg/kg-day	4.0E-03	mg/kg-day	2.9E-01
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	2.4E+01	2.4E+01	ug/L	3.7E-04	mg/kg-day				7.2E-04	mg/kg-day	2.0E-03	mg/kg-day	3.6E-01	1.2E-03	mg/kg-day	2.0E-03	mg/kg-day	6.0E-01
				VOC	Ethylbenzene	100-41-4	N	6.2E+02	6.2E+02	ug/L	9.6E-03	mg/kg-day	1.1E-02	(mg/kg-day)-1	1.1E-04	1.9E-02	mg/kg-day	1.0E-01	mg/kg-day	1.9E-01	3.1E-02	mg/kg-day	1.0E-01	mg/kg-day	3.1E-01
				VOC	o-Xylene	95-47-6	N	1.1E+02	1.1E+02	ug/L	1.7E-03	mg/kg-day				3.3E-03	mg/kg-day	2.0E-01	mg/kg-day	1.7E-02	5.5E-03	mg/kg-day	2.0E-01	mg/kg-day	2.8E-02
				VOC	Tetrachloroethylene	127-18-4	N	1.9E+03	1.9E+03	ug/L	2.9E-02	mg/kg-day	2.1E-03	(mg/kg-day)-1	6.1E-05	5.6E-02	mg/kg-day	6.0E-03	mg/kg-day	9.4E+00	9.4E-02	mg/kg-day	6.0E-03	mg/kg-day	1.6E+01
				VOC	Trichloroethylene	79-01-6	Y	1.1E+02	1.1E+02	ug/L	2.6E-03	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.2E-04	3.3E-03	mg/kg-day	5.0E-04	mg/kg-day	6.5E+00	5.4E-03	mg/kg-day	5.0E-04	mg/kg-day	1.1E+01
				SVOC	4-Chloroaniline	106-47-8	N	6.9E+03	6.9E+03	ug/L	1.1E-01	mg/kg-day	2.0E-01	(mg/kg-day)-1	2.1E-02	2.1E-01	mg/kg-day	4.0E-03	mg/kg-day	5.2E+01	3.4E-01	mg/kg-day	4.0E-03	mg/kg-day	8.6E+01
			Ingestion Total												**2.1E-02**					**6.8E+01**					**1.1E+02**

TABLE F.6
CALCULATION OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RESIDENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Exposure Route	COPC Group	COPC	CASRN	Mutagenic	EPC			Cancer Risk Calculations					Non-Cancer Hazard Calculations									
								Adult	Child	Units	Adult and Child Age-Adjusted					Adult					Child (0-6 years)				
								Value	Value		Exposure Intake		CSF/Unit Risk		Cancer Risk	Exposure Intake		RfD/RfC		Hazard Quotient	Exposure Intake		RfD/RfC		Hazard Quotient
											Value	Units	Value	Units		Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Tapwater	Dermal	VOC	Benzene	71-43-2	N	2.3E+01	2.3E+01	ug/L	4.8E-05	mg/kg-day	5.5E-02	(mg/kg-day)-1	2.6E-06	1.1E-04	mg/kg-day	4.0E-03	mg/kg-day	2.6E-02	1.6E-04	mg/kg-day	4.0E-03	mg/kg-day	3.9E-02
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	2.4E+01	2.4E+01	ug/L	4.0E-05	mg/kg-day				8.8E-05	mg/kg-day	2.0E-03	mg/kg-day	4.4E-02	1.3E-04	mg/kg-day	2.0E-03	mg/kg-day	6.6E-02
				VOC	Ethylbenzene	100-41-4	N	6.2E+02	6.2E+02	ug/L	4.9E-03	mg/kg-day	1.1E-02	(mg/kg-day)-1	5.4E-05	1.1E-02	mg/kg-day	1.0E-01	mg/kg-day	1.1E-01	1.6E-02	mg/kg-day	1.0E-01	mg/kg-day	1.6E-01
				VOC	o-Xylene	95-47-6	N	1.1E+02	1.1E+02	ug/L	8.4E-04	mg/kg-day				1.8E-03	mg/kg-day	2.0E-01	mg/kg-day	9.2E-03	2.8E-03	mg/kg-day	2.0E-01	mg/kg-day	1.4E-02
				VOC	Tetrachloroethylene	127-18-4	N	1.9E+03	1.9E+03	ug/L	1.5E-02	mg/kg-day	2.1E-03	(mg/kg-day)-1	3.1E-05	3.3E-02	mg/kg-day	6.0E-03	mg/kg-day	5.4E+00	4.9E-02	mg/kg-day	6.0E-03	mg/kg-day	8.2E+00
				VOC	Trichloroethylene	79-01-6	Y	1.1E+02	1.1E+02	ug/L	3.4E-04	mg/kg-day	4.6E-02	(mg/kg-day)-1	1.6E-05	5.2E-04	mg/kg-day	5.0E-04	mg/kg-day	1.0E+00	7.9E-04	mg/kg-day	5.0E-04	mg/kg-day	1.6E+00
				SVOC	4-Chloroaniline	106-47-8	N	6.9E+03	6.9E+03	ug/L	6.3E-03	mg/kg-day	2.0E-01	(mg/kg-day)-1	1.3E-03	1.4E-02	mg/kg-day	4.0E-03	mg/kg-day	3.5E+00	2.1E-02	mg/kg-day	4.0E-03	mg/kg-day	5.2E+00
			Dermal Total												**1.4E-03**					**1.0E+01**					**1.5E+01**
Groundwater	Groundwater	Water Vapors in Bathroom	Inhalation	VOC	Benzene	71-43-2	N	7.3E-01	8.1E-01	mg/m3	7.4E-03	mg/m3	7.8E-03	(mg/m3)-1	5.8E-05	2.1E-02	mg/m3	3.0E-02	mg/m3	6.9E-01	1.7E-02	mg/m3	3.0E-02	mg/m3	5.8E-01
				VOC	cis-1,2-Dichloroethylene	156-59-2	N	7.4E-01	8.2E-01	mg/m3	7.5E-03	mg/m3				2.1E-02	mg/m3				1.8E-02	mg/m3			
				VOC	Ethylbenzene	100-41-4	N	1.9E+01	2.1E+01	mg/m3	2.0E-01	mg/m3	2.5E-03	(mg/m3)-1	4.9E-04	5.4E-01	mg/m3	1.0E+00	mg/m3	5.4E-01	4.6E-01	mg/m3	1.0E+00	mg/m3	4.6E-01
				VOC	o-Xylene	95-47-6	N	3.4E+00	3.8E+00	mg/m3	3.5E-02	mg/m3				9.8E-02	mg/m3	1.0E-01	mg/m3	9.8E-01	8.3E-02	mg/m3	1.0E-01	mg/m3	8.3E-01
				VOC	Tetrachloroethylene	127-18-4	N	5.8E+01	6.5E+01	mg/m3	5.9E-01	mg/m3	2.6E-04	(mg/m3)-1	1.5E-04	1.6E+00	mg/m3	4.0E-02	mg/m3	4.1E+01	1.4E+00	mg/m3	4.0E-02	mg/m3	3.5E+01
				VOC	Trichloroethylene	79-01-6	Y	3.4E+00	3.7E+00	mg/m3	9.4E-02	mg/m3	4.1E-03	(mg/m3)-1	3.8E-04	9.6E-02	mg/m3	2.0E-03	mg/m3	4.8E+01	8.1E-02	mg/m3	2.0E-03	mg/m3	4.0E+01
				SVOC	4-Chloroaniline	106-47-8	N																		
			Water Vapor Inhalation Total												**1.1E-03**					**9.1E+01**					**7.7E+01**
Groundwater Total															**2.4E-02**					**1.7E+02**					**2.1E+02**
Receptor Total															**2.4E-02**					**1.7E+02**					**2.1E+02**

Notes:
The exposure point concentration (EPC) is the 95% upper confidence limit (UCL), except when the UCL was greater than the maximum detected concentration or ProUCL did not calculate an UCL.
The constituent of potential concern (COPC) list is based on exceedances from screening of maximum detected concentrations against the May 2016 USEPA Regional Screening Levels at a target risk of 1E-06 and target hazard quotient of 0.1.
Cumulative risk estimates that are greater than or equal to the acceptable cancer limit of 1E-06 and noncancer limit of 0.1 are shaded.
The single-chemical cancer risks incorporate the one hit equations for cancer risks > 0.01, per RAGs Part A Chapter 8: Risk = 1 - exp(-Dose x SF).
RAGS Part E does not provide dermal soil absorption fraction values (ABSd) for most VOCs and inorganics; therefore a dermally absorbed dose is not calculated.
The age-adjustments for a resident's cancer risk are calculated in Table 4.Supp.1.
The exposure intakes for MMOA chemicals (e.g., chromium) are adjusted for age are calculated in Tables 4.Supp.2.
The DAevent values for dermal exposure to groundwater are calculated in Table 4.Supp.3A and B.
The inhalation pathway uses groundwater-derived shower vapors (Ca) as the EPC, which are calculated using the Andelman model modified by Schaum et al, in Table 4.Supp.4A and B.
The risk estimates for chromium total are calculated using hexavalent chromium toxicity values and dermal parameters since no values have been identified for chromium total. A sensitivity analysis is performed in the Uncertainty Section by evaluating chromium total using trivalent chromium toxicity and dermal values.
For a resident's exposure to vinyl chloride in soil for a cancer endpoint, the CA is calculated using only the volatilization pathway (as opposed to also including the particulate pathway) as presented in the USEPA RSL equations.

Abbreviations:
COPC -- Constituent of potential concern
CSF -- Oral cancer slope factor
EPC -- Exposure point concentration
IUR - Inhalation unit risk
RfC -- Inhalation reference concentration
RfD -- Oral or dermal reference dose
UCL -- Upper confidence limit

TABLE F.7
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A CONSTRUCTION WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary					
						Ingestion	Dermal	Inhalation	Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
Soil	Soil	Soil (0-10 ft)	VOC	Benzene	71-43-2	1.0E-09		3.1E-13	1.0E-09	Lymphatic	3.2E-04		Lymphatic	9.2E-08	3.2E-04
			VOC	Ethylbenzene	100-41-4	9.6E-10		4.7E-13	9.6E-10	Hepatic, Renal	6.1E-05		Developmental	1.3E-08	6.1E-05
			VOC	Tetrachloroethylene	127-18-4	4.0E-11		1.1E-14	4.0E-11	Nervous	2.2E-04		Nervous	7.2E-08	2.2E-04
			VOC	Trichloroethylene	79-01-6	6.9E-09		1.3E-12	6.9E-09	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	2.1E-02		Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	1.1E-05	2.1E-02
			SVOC	2-Methylnaphthalene	91-57-6					Respiratory	1.3E-01	9.0E-07	N/A		1.3E-01
			SVOC	Benzo(a)anthracene	56-55-3	6.5E-10	2.7E-10	8.2E-13	9.2E-10	Developmental	1.5E-02	5.7E-12	Developmental	4.8E-03	2.0E-02
			SVOC	Benzo(a)pyrene	50-32-8	5.7E-09	2.4E-09	7.2E-12	8.0E-09	Developmental	1.3E-03	4.9E-11	Developmental	4.2E-04	1.7E-03
			SVOC	Benzyl Butyl Phthalate	85-68-7	2.7E-08	8.7E-09		3.6E-08	Hepatic	5.0E-03	6.4E-05	N/A		5.1E-03
			SVOC	Biphenyl (diphenyl)	92-52-4	3.3E-09			3.3E-09	Renal	5.7E-05		Respiratory, Hepatic, Renal	1.5E-04	2.1E-04
			SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	1.2E-07	3.9E-08	4.4E-11	1.6E-07	Hepatic	3.0E-02	3.9E-06	N/A		3.0E-02
			SVOC	Di-n-octylphthalate	117-84-0					Hepatic	8.4E-03	2.7E-07	N/A		8.4E-03
			SVOC	Naphthalene	91-20-3			3.2E-10	3.2E-10	Developmental	1.5E-02	2.6E-06	Nervous, Respiratory	2.2E-04	1.6E-02
			PEST	Dibenzofuran	132-64-9					Low confidence in principal study for target organ identification	1.7E-02	1.6E-09	N/A		1.7E-02
			PCB	PCB-1248 (Aroclor 1248)	12672-29-6	8.6E-08	3.8E-08	5.2E-11	1.2E-07	Lymphatic, Integumentary, Nervous	1.5E-01	2.7E-11	N/A		1.5E-01
			PCB	PCB-1254 (Aroclor 1254)	11097-69-1	4.1E-09	1.8E-09	2.5E-12	5.9E-09	Lymphatic, Integumentary, Nervous	7.1E-03	1.3E-12	N/A		7.1E-03
			PCB	PCB-1260 (Aroclor 1260)	11096-82-5	6.0E-09	2.7E-09	3.7E-12	8.7E-09	Lymphatic, Integumentary, Nervous	1.1E-02	1.9E-12	N/A		1.1E-02
			INORGANIC	Arsenic	7440-38-2	9.8E-08	1.6E-08	1.0E-09	1.1E-07	Integumentary	1.5E-02	2.2E-10	Developmental, Reproductive, Cardiovascular	1.1E-03	1.6E-02
			INORGANIC	Chromium (Total)	7440-47-3	2.8E-07		9.9E-08	3.8E-07	Low confidence in principal study for target organ identification	1.3E-02		Respiratory	8.3E-04	1.4E-02
			INORGANIC	Cobalt	7440-48-4			2.6E-09	2.6E-09	Endocrine	3.2E-02		Respiratory	3.4E-03	3.5E-02
Soil (0-10ft) Total									**8.5E-07**						**4.9E-01**
Groundwater	Groundwater	Groundwater	VOC	Benzene	71-43-2	3.2E-09	3.7E-08	2.7E-06	2.7E-06	Lymphatic	1.0E-03	1.2E-02	Lymphatic	8.0E-01	8.2E-01
			VOC	cis-1,2-Dichloroethylene	156-59-2					Renal	2.1E-03	1.8E-02	N/A		2.0E-02
			VOC	Ethylbenzene	100-41-4	1.7E-08	6.3E-07	2.0E-05	2.0E-05	Hepatic, Renal	1.1E-03	4.0E-02	Developmental	5.5E-01	5.9E-01
			VOC	o-Xylene	95-47-6					Developmental	9.5E-05	3.4E-03	Nervous	9.8E-01	9.8E-01
			VOC	Tetrachloroethylene	127-18-4	9.7E-09	3.1E-07	5.0E-06	5.3E-06	Nervous	5.4E-02	1.7E+00	Nervous	3.3E+01	3.5E+01
			VOC	Trichloroethylene	79-01-6	1.2E-08	1.3E-07	5.1E-06	5.2E-06	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	3.7E-02	3.8E-01	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	4.3E+01	4.4E+01
			SVOC	4-Chloroaniline	106-47-8	3.4E-06	1.5E-05		1.8E-05	Lymphatic	3.0E-01	1.3E+00	N/A		1.6E+00
Groundwater Total									**5.2E-05**						**8.3E+01**
Receptor Total								**Receptor Risk Total:**	**5.3E-05**					**Receptor Hazard Total:**	**8.4E+01**

Abbreviation:

COPC -- Constituent of potential concern

Total **Cardiovascular** HI across media =	**1.1E-03**
Total **Developmental** HI across media =	**4.4E+01**
Total **Digestive** HI across media =	**N/A**
Total **Endocrine** HI across media =	**3.2E-02**
Total **Hepatic** HI across media =	**4.4E+01**
Total **Integumentary** HI across media =	**1.8E-01**
Total **Lymphatic** HI across media =	**4.6E+01**
Total **Muscoskeletal** HI across media =	**N/A**
Total **Nervous** HI across media =	**8.0E+01**
Total **Renal** HI across media =	**4.4E+01**
Total **Reproductive** HI across media =	**4.4E+01**
Total **Respiratory** HI across media =	**1.4E-01**
Total **No Specified Target Organ/System** HI across media =	**3.0E-02**

TABLE F.8
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A WORKER
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Current/Future
Receptor Population: Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary					
						Ingestion	Dermal	Inhalation	Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
Soil	Soil	Surface Soil (0-2 ft)													
			SVOC	Benzo(a)anthracene	56-55-3	4.9E-09	2.7E-09	5.3E-13	7.6E-09	Developmental	4.6E-03	2.5E-03	Developmental	1.2E-04	7.2E-03
			SVOC	Benzo(a)pyrene	50-32-8	4.3E-08	2.4E-08	4.7E-12	6.6E-08	Developmental	4.0E-04	2.2E-04	Developmental	1.1E-05	6.3E-04
			SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	5.9E-08	2.5E-08	1.8E-12	8.4E-08	Hepatic	5.9E-04	2.5E-04	N/A		8.4E-04
			SVOC	Naphthalene	91-20-3			5.4E-12	5.4E-12	Developmental	1.2E-04	6.7E-05	Nervous, Respiratory	1.5E-07	1.9E-04
			PCB	PCB-1248 (Aroclor 1248)	12672-29-6	6.5E-07	3.8E-07	3.4E-11	1.0E-06	Lymphatic, Integumentary, Nervous	4.5E-02	2.7E-02	N/A		7.2E-02
			PCB	PCB-1254 (Aroclor 1254)	11097-69-1	3.1E-08	1.8E-08	1.6E-12	4.9E-08	Lymphatic, Integumentary, Nervous	2.2E-03	1.3E-03	N/A		3.4E-03
			PCB	PCB-1260 (Aroclor 1260)	11096-82-5	4.6E-08	2.7E-08	2.4E-12	7.3E-08	Lymphatic, Integumentary, Nervous	3.2E-03	1.9E-03	N/A		5.1E-03
			INORGANIC	Arsenic	7440-38-2	7.4E-07	1.6E-07	6.4E-10	9.0E-07	Integumentary	4.6E-03	9.7E-04	Developmental, Reproductive, Cardiovascular	2.8E-05	5.6E-03
			INORGANIC	Chromium (Total)	7440-47-3	2.1E-06		6.4E-08	2.2E-06	Low confidence in principal study for target organ identification	3.9E-03		Respiratory	2.1E-05	3.9E-03
			INORGANIC	Cobalt	7440-48-4			1.7E-09	1.7E-09	Endocrine	9.6E-03		Respiratory	8.7E-05	9.6E-03
Surface Soil Total									**4.4E-06**						**1.1E-01**
Groundwater	Groundwater	Tapwater													
			VOC	Benzene	71-43-2		3.2E-07		3.2E-07	Lymphatic		4.1E-03	N/A		4.1E-03
			VOC	cis-1,2-Dichloroethylene	156-59-2					Renal		6.9E-03	N/A		6.9E-03
			VOC	Ethylbenzene	100-41-4		6.6E-06		6.6E-06	Hepatic, Renal		1.7E-02	N/A		1.7E-02
			VOC	o-Xylene	95-47-6					Developmental		1.4E-03	N/A		1.4E-03
			VOC	Tetrachloroethylene	127-18-4		3.7E-06		3.7E-06	Nervous		8.3E-01	N/A		8.3E-01
			VOC	Trichloroethylene	79-01-6		1.3E-06		1.3E-06	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive		1.6E-01	N/A		1.6E-01
			SVOC	4-Chloroaniline	106-47-8		1.5E-04		1.5E-04	Lymphatic		5.3E-01	N/A		5.3E-01
Groundwater Total									**1.6E-04**						**1.5E+00**
Receptor Total								**Receptor Risk Total:**	**1.7E-04**					**Receptor Hazard Total:**	**1.7E+00**

Abbreviation:
COPC -- Constituent of potential concern

Total **Cardiovascular** HI across media =	**2.8E-05**
Total **Developmental** HI across media =	**1.7E-01**
Total **Digestive** HI across media =	**N/A**
Total **Endocrine** HI across media =	**9.6E-03**
Total **Hepatic** HI across media =	**1.8E-01**
Total **Integumentary** HI across media =	**8.7E-02**
Total **Lymphatic** HI across media =	**7.7E-01**
Total **Muscoskeletal** HI across media =	**N/A**
Total **Nervous** HI across media =	**1.1E+00**
Total **Renal** HI across media =	**1.8E-01**
Total **Reproductive** HI across media =	**1.6E-01**
Total **Respiratory** HI across media =	**1.1E-04**
Total **No Specified Target Organ/System** HI across media =	**3.9E-03**

TABLE F.9
SUMMARY OF COPC CANCER RISKS AND NONCANCER HAZARDS FOR A RESIDENT
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	COPC Group	COPC	CASRN	Cancer Risk Summary				Non-Cancer Hazard Summary											
										Adult						Child					
						Ingestion	Dermal	Inhalation	Exposure RoutesTotal	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total	Target Organ (Ing/Dermal)	Ingestion	Dermal	Target Organ (Inhalation)	Inhalation	Exposure Routes Total
Soil	Soil	Surface Soil (0-2 ft)																			
			SVOC	Benzo(a)anthracene	56-55-3	1.5E-07	5.0E-08	6.4E-12	2.0E-07	Developmental	6.4E-03	3.5E-03	Developmental	5.2E-04	1.0E-02	Developmental	6.8E-02	2.1E-02	Developmental	5.2E-04	9.0E-02
			SVOC	Benzo(a)pyrene	50-32-8	1.3E-06	4.4E-07	5.6E-11	1.7E-06	Developmental	5.6E-04	3.1E-04	Developmental	4.6E-05	9.1E-04	Developmental	6.0E-03	1.8E-03	Developmental	4.6E-05	7.9E-03
			SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	3.4E-07	9.9E-08	8.0E-12	4.4E-07	Hepatic	8.2E-04	3.5E-04	N/A		1.2E-03	Hepatic	8.8E-03	2.1E-03	N/A		1.1E-02
			SVOC	Naphthalene	91-20-3			2.3E-11	2.3E-11	Developmental	1.7E-04	9.4E-05	Nervous, Respiratory	6.2E-07	2.6E-04	Developmental	1.8E-03	5.6E-04	Nervous, Respiratory	6.2E-07	2.4E-03
			PCB	PCB-1248 (Aroclor 1248)	12672-29-6	3.7E-06	1.5E-06	1.5E-10	5.3E-06	Lymphatic, Integumentary, Nervous	6.4E-02	3.8E-02	N/A		1.0E-01	Lymphatic, Integumentary, Nervous	6.8E-01	2.3E-01	N/A		9.0E-01
			PCB	PCB-1254 (Aroclor 1254)	11097-69-1	1.8E-07	7.3E-08	7.0E-12	2.5E-07	Lymphatic, Integumentary, Nervous	3.0E-03	1.8E-03	N/A		4.8E-03	Lymphatic, Integumentary, Nervous	3.2E-02	1.1E-02	N/A		4.3E-02
			PCB	PCB-1260 (Aroclor 1260)	11096-82-5	2.6E-07	1.1E-07	1.0E-11	3.7E-07	Lymphatic, Integumentary, Nervous	4.5E-03	2.6E-03	N/A		7.1E-03	Lymphatic, Integumentary, Nervous	4.8E-02	1.6E-02	N/A		6.4E-02
			INORGANIC	Arsenic	7440-38-2	4.3E-06	6.2E-07	2.8E-09	4.9E-06	Integumentary	6.4E-03	1.4E-03	Developmental, Reproductive, Cardiovascular	1.2E-04	7.9E-03	Integumentary	6.9E-02	8.1E-03	Developmental, Reproductive, Cardiovascular	1.2E-04	7.7E-02
			INORGANIC	Chromium (Total)	7440-47-3	6.3E-05		7.7E-07	6.4E-05	Low confidence in principal study for target organ identification	5.5E-03		Respiratory	8.9E-05	5.6E-03	Low confidence in principal study for target organ identification	5.8E-02		Respiratory	8.9E-05	5.8E-02
			INORGANIC	Cobalt	7440-48-4			7.3E-09	7.3E-09	Endocrine	1.3E-02		Respiratory	3.6E-04	1.4E-02	Endocrine	1.4E-01		Respiratory	3.6E-04	1.4E-01
Surface Soil Total									**7.7E-05**						**1.5E-01**						**1.4E+00**
Groundwater	Groundwater	Tapwater																			
			VOC	Benzene	71-43-2	2.0E-05	2.6E-06	5.8E-05	8.0E-05	Lymphatic	1.8E-01	2.6E-02	Lymphatic	6.9E-01	8.9E-01	Lymphatic	2.9E-01	3.9E-02	Lymphatic	5.8E-01	9.1E-01
			VOC	cis-1,2-Dichloroethylene	156-59-2					Renal	3.6E-01	4.4E-02	N/A		4.0E-01	Renal	6.0E-01	6.6E-02	N/A		6.6E-01
			VOC	Ethylbenzene	100-41-4	1.1E-04	5.4E-05	4.9E-04	6.5E-04	Hepatic, Renal	1.9E-01	1.1E-01	Developmental	5.4E-01	8.4E-01	Hepatic, Renal	3.1E-01	1.6E-01	Developmental	4.6E-01	9.3E-01
			VOC	o-Xylene	95-47-6					Developmental	1.7E-02	9.2E-03	Nervous	9.8E-01	1.0E+00	Developmental	2.8E-02	1.4E-02	Nervous	8.3E-01	8.7E-01
			VOC	Tetrachloroethylene	127-18-4	6.1E-05	3.1E-05	1.5E-04	2.5E-04	Nervous	9.4E+00	5.4E+00	Nervous	4.1E+01	5.6E+01	Nervous	1.6E+01	8.2E+00	Nervous	3.5E+01	5.9E+01
			VOC	Trichloroethylene	79-01-6	1.2E-04	1.6E-05	3.8E-04	5.2E-04	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	6.5E+00	1.0E+00	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	4.8E+01	5.5E+01	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	1.1E+01	1.6E+00	Developmental, Hepatic, Renal, Nervous, Lymphatic, Reproductive	4.0E+01	5.3E+01
			SVOC	4-Chloroaniline	106-47-8	2.1E-02	1.3E-03		2.2E-02	Lymphatic	5.2E+01	3.5E+00	N/A		5.5E+01	Lymphatic	8.6E+01	5.2E+00	N/A		9.1E+01
Groundwater Total									**2.4E-02**						**1.7E+02**						**2.1E+02**
Receptor Total								**Receptor Risk Total:**	**2.4E-02**					**Adult Receptor Hazard Total:**	**1.7E+02**					**Child Receptor Hazard Total:**	**2.1E+02**

Adult	
Total **Cardiovascular** HI across media =	**1.2E-04**
Total **Developmental** HI across media =	**5.6E+01**
Total **Digestive** HI across media =	**N/A**
Total **Endocrine** HI across media =	**1.3E-02**
Total **Hepatic** HI across media =	**5.6E+01**
Total **Integumentary** HI across media =	**1.2E-01**
Total **Lymphatic** HI across media =	**1.1E+02**
Total **Muscoskeletal** HI across media =	**N/A**
Total **Nervous** HI across media =	**1.1E+02**
Total **Renal** HI across media =	**5.6E+01**
Total **Reproductive** HI across media =	**5.5E+01**
Total **Respiratory** HI across media =	**4.5E-04**
Total **No Specified Target Organ/System** HI across media =	**5.5E-03**

Child	
Total **Cardiovascular** HI across media =	**1.2E-04**
Total **Developmental** HI across media =	**5.3E+01**
Total **Digestive** HI across media =	**N/A**
Total **Endocrine** HI across media =	**1.4E-01**
Total **Hepatic** HI across media =	**5.3E+01**
Total **Integumentary** HI across media =	**1.1E+00**
Total **Lymphatic** HI across media =	**1.5E+02**
Total **Muscoskeletal** HI across media =	**N/A**
Total **Nervous** HI across media =	**1.1E+02**
Total **Renal** HI across media =	**5.4E+01**
Total **Reproductive** HI across media =	**5.3E+01**
Total **Respiratory** HI across media =	**4.5E-04**
Total **No Specified Target Organ/System** HI across media =	**5.8E-02**

Abbreviation:
COPC -- Constituent of potential concern

TABLE F.10

PROUCL 5.0.002 RAW INPUT FOR GROUNDWATER CORE OF THE PLUME

MATLACK INC. SUPERFUND SITE

WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Groundwater Core of Plume - 4-Chloroaniline	39	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/13/2016	E625	T	SVOC	106-47-8		11	ug/l
Groundwater Core of Plume - 4-Chloroaniline	6900	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/22/2016	E625	T	SVOC	106-47-8		2000	ug/l
Groundwater Core of Plume - 4-Chloroaniline	740	1	MW-13	HDR-MW-13-R1	N	4/6/2016	10	32	ft	4/13/2016	E625	T	SVOC	106-47-8		110	ug/l
Groundwater Core of Plume - 4-Chloroaniline	10	0	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Groundwater Core of Plume - 4-Chloroaniline	11	0	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E625	T	SVOC	106-47-8	U	11	ug/l
Groundwater Core of Plume - 4-Chloroaniline	10	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Groundwater Core of Plume - 4-Chloroaniline	9.9	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/12/2016	E625	T	SVOC	106-47-8	J	11	ug/l
Groundwater Core of Plume - 4-Chloroaniline	10	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/18/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Groundwater Core of Plume - 4-Chloroaniline	600	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E625	T	SVOC	106-47-8		110	ug/l
Groundwater Core of Plume - 4-Chloroaniline	10	0	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/20/2016	E625	T	SVOC	106-47-8	U	10	ug/l
Groundwater Core of Plume - Benzene	0.83	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	11	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Groundwater Core of Plume - Benzene	18	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	71-43-2	J	50	ug/l
Groundwater Core of Plume - Benzene	19	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	20	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	14	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - Benzene	0.58	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	71-43-2	J	0.5	ug/l
Groundwater Core of Plume - Benzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	71-43-2	U	0.5	ug/l
Groundwater Core of Plume - Benzene	49	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	71-43-2		2.5	ug/l
Groundwater Core of Plume - Benzene	32	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	71-43-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	30	1	MW-06	1645-GW06-20120418	N	4/18/2012	9	29	ft	4/18/2012	VOCS	T	VOC	156-59-2		5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	5.3	1	MW-24	1645-GW24-20120417	N	4/17/2012	22	32	ft	4/17/2012	VOCS	T	VOC	156-59-2		5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	1.1	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	44	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/9/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	156-59-2	U	0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	21	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	156-59-2	J	50	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	14	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	6.1	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	156-59-2		0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	0.5	0	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	156-59-2	UJ	0.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	3.5	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	156-59-2	J	10	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	4.9	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	156-59-2		2.5	ug/l
Groundwater Core of Plume - cis-1,2-Dichloroethylene	0.88	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	156-59-2	J-	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	4	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	6.1	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	310	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	100-41-4		5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	110	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.39	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	100-41-4	J	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.8	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.47	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	100-41-4	J	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	100-41-4	U	0.5	ug/l
Groundwater Core of Plume - Ethylbenzene	920	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E524.2	T	VOC	100-41-4		100	ug/l
Groundwater Core of Plume - Ethylbenzene	590	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	100-41-4		0.5	ug/l
Groundwater Core of Plume - o-Xylene	2.3	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - o-Xylene	4.1	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - o-Xylene	200	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/24/2016	E524.2	T	VOC	95-47-6		50	ug/l
Groundwater Core of Plume - o-Xylene	0.5	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/14/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Groundwater Core of Plume - o-Xylene	79	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - o-Xylene	110	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/8/2016	E524.2	T	VOC	95-47-6		5	ug/l
Groundwater Core of Plume - o-Xylene	34	1	MW-17	HDR-MW-17-R2	N	8/2/2016	20	30	ft	8/11/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - o-Xylene	0.5	0	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	95-47-6	UJ	0.5	ug/l
Groundwater Core of Plume - o-Xylene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	95-47-6	U	0.5	ug/l
Groundwater Core of Plume - o-Xylene	170	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/15/2016	E524.2	T	VOC	95-47-6		100	ug/l
Groundwater Core of Plume - o-Xylene	150	1	MW-25	HDR-MW-25-R2	N	8/2/2016	5	20	ft	8/11/2016	E524.2	T	VOC	95-47-6		0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	5	1	MW-10	1645-GW10-20120416	N	4/16/2012	10	30	ft	4/16/2012	VOCS	T	VOC	127-18-4		5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	5	1	MW-22	1645-GW22-20120417	N	4/17/2012	18.5	28.5	ft	4/17/2012	VOCS	T	VOC	127-18-4		5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	3000	1	MW-24	1645-GW24-20120417	N	4/17/2012	22	32	ft	4/17/2012	VOCS	T	VOC	127-18-4		120	ug/l
Groundwater Core of Plume - Tetrachloroethylene	1.8	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.89	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.5	0	MW-10	HDR-MW-10-R1	N	4/4/2016	10	30	ft	4/7/2016	E524.2	T	VOC	127-18-4	UJ	0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.5	0	MW-10	HDR-MW-10-R2	N	7/26/2016	10	30	ft	8/3/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.5	0	MW-22	HDR-MW-22-R1	N	4/7/2016	18.5	28.5	ft	4/14/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	0.5	0	MW-22	HDR-MW-22-R2	N	7/26/2016	18.5	28.5	ft	8/5/2016	E524.2	T	VOC	127-18-4	U	0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	1800	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/24/2016	E524.2	T	VOC	127-18-4		500	ug/l
Groundwater Core of Plume - Tetrachloroethylene	530	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Groundwater Core of Plume - Tetrachloroethylene	190	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/20/2016	E524.2	T	VOC	127-18-4		25	ug/l
Groundwater Core of Plume - Tetrachloroethylene	150	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	127-18-4		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	160	1	MW-24	1645-GW24-20120417	N	4/17/2012	22	32	ft	4/17/2012	VOCS	T	VOC	79-01-6		120	ug/l
Groundwater Core of Plume - Trichloroethylene	1	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	0.47	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/8/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	0.74	1	MW-18	HDR-MW-18-R1	N	4/5/2016	36.5	46.5	ft	4/7/2016	E524.2	T	VOC	79-01-6	J	0.5	ug/l

TABLE F.10
PROUCL 5.0.002 RAW INPUT FOR GROUNDWATER CORE OF THE PLUME
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

Notes:

The data set provided here are for constituents of potential concern (COPCs) that were determined in the COPC Screening Table 2s, by medium, to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment.

The maximum of the field duplicate and parent sample results was applied. Refer to the Remedial Investigation Report for the complete data set.

ProUCL Group	ProUCL Result	ProUCL Flag	Location	Sample ID	Sample Type	Sample Date	Start Depth	End Depth	Depth Unit	Analysis Date	Analytical Method	T or D	COPC Group	CASRN	Qualifier	Quantitation Limit	Unit
Groundwater Core of Plume - Trichloroethylene	0.5	0	MW-18	HDR-MW-18-R2	N	7/27/2016	36.5	46.5	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	1.2	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	0.5	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/6/2016	E524.2	T	VOC	79-01-6	U	0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	25	1	MW-24	HDR-MW-24-R1	N	4/13/2016	22	32	ft	4/26/2016	E524.2	T	VOC	79-01-6		10	ug/l
Groundwater Core of Plume - Trichloroethylene	10	1	MW-24	HDR-MW-24-R2	N	8/3/2016	22	32	ft	8/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	2.2	1	MW-26	HDR-MW-26-R1	N	4/8/2016	5	17	ft	4/15/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Trichloroethylene	2.5	1	MW-26	HDR-MW-26-R2	N	8/3/2016	5	17	ft	8/14/2016	E524.2	T	VOC	79-01-6		0.5	ug/l
Groundwater Core of Plume - Vinyl chloride	14	1	MW-06	1645-GW06-20120418	N	4/18/2012	9	29	ft	4/18/2012	VOCS	T	VOC	75-01-4		5	ug/l
Groundwater Core of Plume - Vinyl chloride	0.076	1	MW-06	HDR-MW-06-R1	N	4/7/2016	9	29	ft	4/16/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	0.65	1	MW-06	HDR-MW-06-R2	N	7/29/2016	9	29	ft	8/9/2016	E524.2	T	VOC	75-01-4		0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	0.05	0	MW-13	HDR-MW-13-R1	N	4/8/2016	10	32	ft	4/12/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	6	1	MW-13	HDR-MW-13-R1-A	N	4/13/2016	10	32	ft	4/21/2016	E524.2	T	VOC	75-01-4	J+	0.5	ug/l
Groundwater Core of Plume - Vinyl chloride	6	1	MW-13	HDR-MW-13-R2	N	8/2/2016	10	32	ft	8/13/2016	E524.2	T	VOC	75-01-4		0.5	ug/l
Groundwater Core of Plume - Vinyl chloride	5	1	MW-17	HDR-MW-17-R1	N	4/6/2016	20	30	ft	4/12/2016	E524.2	T	VOC	75-01-4	J	0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	1.2	1	MW-23	HDR-MW-23-R1	N	4/8/2016	18	28	ft	4/14/2016	E524.2	T	VOC	75-01-4		0.5	ug/l
Groundwater Core of Plume - Vinyl chloride	0.05	0	MW-23	HDR-MW-23-R2	N	8/1/2016	18	28	ft	8/9/2016	E524.2	T	VOC	75-01-4	U	0.05	ug/l
Groundwater Core of Plume - Vinyl chloride	4.1	1	MW-25	HDR-MW-25-R1	N	4/8/2016	5	20	ft	4/21/2016	E524.2	T	VOC	75-01-4		2.5	ug/l

TABLE F.11
PROUCL 5.1.002 RAW OUTPUT FOR GROUNDWATER CORE OF THE PLUME
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.15/25/2017 10:40:21 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

result (4-chloroaniline_106-47-8)

General Statistics

Total Number of Observations	10	Number of Distinct Observations	7
Number of Detects	5	Number of Non-Detects	5
Number of Distinct Detects	5	Number of Distinct Non-Detects	2
Minimum Detect	9.9	Minimum Non-Detect	10
Maximum Detect	6900	Maximum Non-Detect	11
Variance Detects	8694512	Percent Non-Detects	50%
Mean Detects	1658	SD Detects	2949
Median Detects	600	CV Detects	1.779
Skewness Detects	2.168	s	4.756
Mean of Logged Detects	5.56	SD of Logged Detects	2.59

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.648	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.422	Lilliefors GOF Test
5% Lilliefors Critical Value	0.343	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	833.8	KM Standard Error of Mean	720.8
KM SD	2039	95% KM (BCA) UCL	2223
95% KM (t) UCL	2155	95% KM (Percentile Bootstrap) UCL	2142
95% KM (z) UCL	2019	95% KM Bootstrap t UCL	7602
90% KM Chebyshev UCL	2996	95% KM Chebyshev UCL	3976
97.5% KM Chebyshev UCL	5335	99% KM Chebyshev UCL	8006

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.313	Anderson-Darling GOF Test
5% A-D Critical Value	0.731	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.242	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.377	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.361	k star (bias corrected MLE)	0.278
Theta hat (MLE)	4592	Theta star (bias corrected MLE)	5969
nu hat (MLE)	3.61	nu star (bias corrected)	2.777
Mean (detects)	1658		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	828.9
Maximum	6900	Median	4.955
SD	2151	CV	2.595
k hat (MLE)	0.126	k star (bias corrected MLE)	0.155
Theta hat (MLE)	6570	Theta star (bias corrected MLE)	5348
nu hat (MLE)	2.523	nu star (bias corrected)	3.1
Adjusted Level of Significance (β)	0.0267		
Approximate Chi Square Value (3.10, α)	0.403	Adjusted Chi Square Value (3.10, β)	0.277
95% Gamma Approximate UCL (use when n>=50)	6383	95% Gamma Adjusted UCL (use when n<50)	9284

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	833.8	SD (KM)	2039
Variance (KM)	4156682	SE of Mean (KM)	720.8
k hat (KM)	0.167	k star (KM)	0.184

nu hat (KM)	3.345	nu star (KM)	3.675
theta hat (KM)	4985	theta star (KM)	4538
80% gamma percentile (KM)	1048	90% gamma percentile (KM)	2517
95% gamma percentile (KM)	4389	99% gamma percentile (KM)	9617

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (3.68, α)	0.598	Adjusted Chi Square Value (3.68, β)	0.422
95% Gamma Approximate KM-UCL (use when n>=50)	5127	95% Gamma Adjusted KM-UCL (use when n<50)	7258

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.955	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.227	Lilliefors GOF Test
5% Lilliefors Critical Value	0.343	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	833.6	Mean in Log Scale	3.583
SD in Original Scale	2149	SD in Log Scale	2.865
95% t UCL (assumes normality of ROS data)	2079	95% Percentile Bootstrap UCL	2159
95% BCA Bootstrap UCL	2826	95% Bootstrap t UCL	9633
95% H-UCL (Log ROS)	2879876		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	3.926	KM Geo Mean	50.71
KM SD (logged)	2.313	95% Critical H Value (KM-Log)	6.16
KM Standard Error of Mean (logged)	0.818	95% H-UCL (KM -Log)	85076
KM SD (logged)	2.313	95% Critical H Value (KM-Log)	6.16
KM Standard Error of Mean (logged)	0.818		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	831.4	Mean in Log Scale	3.594
SD in Original Scale	2150	SD in Log Scale	2.697
95% t UCL (Assumes normality)	2078	95% H-Stat UCL	824164

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM Bootstrap t UCL	7602	iamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	7258

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (benzene_71-43-2)

General Statistics

Total Number of Observations	11	Number of Distinct Observations	10
Number of Detects	9	Number of Non-Detects	2
Number of Distinct Detects	9	Number of Distinct Non-Detects	1
Minimum Detect	0.58	Minimum Non-Detect	0.5
Maximum Detect	49	Maximum Non-Detect	0.5
Variance Detects	228.1	Percent Non-Detects	18.18%
Mean Detects	18.27	SD Detects	15.1
Median Detects	18	CV Detects	0.827
Skewness Detects	0.948	Kurtosis Detects	1.201
Mean of Logged Detects	2.277	SD of Logged Detects	1.563

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.916	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.232	Lilliefors GOF Test
5% Lilliefors Critical Value	0.274	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	15.04	KM Standard Error of Mean	4.666

KM SD	14.59	95% KM (BCA) UCL	22.72
95% KM (t) UCL	23.49	95% KM (Percentile Bootstrap) UCL	22.71
95% KM (z) UCL	22.71	95% KM Bootstrap t UCL	26.01
90% KM Chebyshev UCL	29.03	95% KM Chebyshev UCL	35.37
97.5% KM Chebyshev UCL	44.17	99% KM Chebyshev UCL	61.46

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.598	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.746	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.242	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.288	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.927	k star (bias corrected MLE)	0.692
Theta hat (MLE)	19.7	Theta star (bias corrected MLE)	26.38
nu hat (MLE)	16.69	nu star (bias corrected)	12.46
Mean (detects)	18.27		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	14.95
Maximum	49	Median	14
SD	15.4	CV	1.03
k hat (MLE)	0.393	k star (bias corrected MLE)	0.346
Theta hat (MLE)	38.03	Theta star (bias corrected MLE)	43.14
nu hat (MLE)	8.648	nu star (bias corrected)	7.623
Adjusted Level of Significance (β)	0.0278		
Approximate Chi Square Value (7.62, α)	2.518	Adjusted Chi Square Value (7.62, β)	2.067
95% Gamma Approximate UCL (use when n>=50)	45.24	95% Gamma Adjusted UCL (use when n<50)	55.14

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	15.04	SD (KM)	14.59
Variance (KM)	212.8	SE of Mean (KM)	4.666
k hat (KM)	1.062	k star (KM)	0.833
nu hat (KM)	23.37	nu star (KM)	18.33
theta hat (KM)	14.15	theta star (KM)	18.05
80% gamma percentile (KM)	24.52	90% gamma percentile (KM)	36.21
95% gamma percentile (KM)	48.07	99% gamma percentile (KM)	76

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (18.33, α)	9.631	Adjusted Chi Square Value (18.33, β)	8.621
95% Gamma Approximate KM-UCL (use when n>=50)	28.62	95% Gamma Adjusted KM-UCL (use when n<50)	31.98

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.796	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.829	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.309	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.274	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	15.01	Mean in Log Scale	1.671
SD in Original Scale	15.33	SD in Log Scale	1.95
95% t UCL (assumes normality of ROS data)	23.39	95% Percentile Bootstrap UCL	22.31
95% BCA Bootstrap UCL	24.04	95% Bootstrap t UCL	26.64
95% H-UCL (Log ROS)	794.9		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	1.737	KM Geo Mean	5.681
KM SD (logged)	1.757	95% Critical H Value (KM-Log)	4.604
KM Standard Error of Mean (logged)	0.562	95% H-UCL (KM -Log)	343.6
KM SD (logged)	1.757	95% Critical H Value (KM-Log)	4.604
KM Standard Error of Mean (logged)	0.562		

DL/2 Statistics

DL/2 Normal **DL/2 Log-Transformed**

Mean in Original Scale	14.99	Mean in Log Scale	1.611
SD in Original Scale	15.35	SD in Log Scale	2.037
95% t UCL (Assumes normality)	23.38	95% H-Stat UCL	1165

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL 23.49

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (cis-1,2-dichloroethylene_156-59-2)

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
Number of Detects	10	Number of Non-Detects	2
Number of Distinct Detects	10	Number of Distinct Non-Detects	1
Minimum Detect	0.88	Minimum Non-Detect	0.5
Maximum Detect	44	Maximum Non-Detect	0.5
Variance Detects	207.4	Percent Non-Detects	16.67%
Mean Detects	13.08	SD Detects	14.4
Median Detects	5.7	CV Detects	1.101
Skewness Detects	1.355	Kurtosis Detects	1.051
Mean of Logged Detects	1.915	SD of Logged Detects	1.317

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.821	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.286	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	10.98	KM Standard Error of Mean	4.054
KM SD	13.32	95% KM (BCA) UCL	17.52
95% KM (t) UCL	18.26	95% KM (Percentile Bootstrap) UCL	17.88
95% KM (z) UCL	17.65	95% KM Bootstrap t UCL	23.99
90% KM Chebyshev UCL	23.14	95% KM Chebyshev UCL	28.65
97.5% KM Chebyshev UCL	36.3	99% KM Chebyshev UCL	51.32

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.287	Anderson-Darling GOF Test
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.205	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.275	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.893	k star (bias corrected MLE)	0.692
Theta hat (MLE)	14.65	Theta star (bias corrected MLE)	18.91
nu hat (MLE)	17.86	nu star (bias corrected)	13.83
Mean (detects)	13.08		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	10.9
Maximum	44	Median	5.1
SD	13.98	CV	1.283
k hat (MLE)	0.419	k star (bias corrected MLE)	0.37
Theta hat (MLE)	26.03	Theta star (bias corrected MLE)	29.49
nu hat (MLE)	10.05	nu star (bias corrected)	8.87
Adjusted Level of Significance (β)	0.029		

Approximate Chi Square Value (8.87, α)	3.249	Adjusted Chi Square Value (8.87, β)	2.751
95% Gamma Approximate UCL (use when n>=50)	29.76	95% Gamma Adjusted UCL (use when n<50)	35.15

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	10.98	SD (KM)	13.32
Variance (KM)	177.5	SE of Mean (KM)	4.054
k hat (KM)	0.679	k star (KM)	0.565
nu hat (KM)	16.31	nu star (KM)	13.56
theta hat (KM)	16.16	theta star (KM)	19.43
80% gamma percentile (KM)	18.1	90% gamma percentile (KM)	28.94
95% gamma percentile (KM)	40.38	99% gamma percentile (KM)	68.17

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (13.56, α)	6.274	Adjusted Chi Square Value (13.56, β)	5.534
95% Gamma Approximate KM-UCL (use when n>=50)	23.74	95% Gamma Adjusted KM-UCL (use when n<50)	26.91

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.95	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.132	Lilliefors GOF Test
5% Lilliefors Critical Value	0.262	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	10.95	Mean in Log Scale	1.388
SD in Original Scale	13.94	SD in Log Scale	1.72
95% t UCL (assumes normality of ROS data)	18.18	95% Percentile Bootstrap UCL	17.68
95% BCA Bootstrap UCL	19.7	95% Bootstrap t UCL	23.09
95% H-UCL (Log ROS)	168.6		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	1.481	KM Geo Mean	4.396
KM SD (logged)	1.498	95% Critical H Value (KM-Log)	3.893
KM Standard Error of Mean (logged)	0.456	95% H-UCL (KM -Log)	78.43
KM SD (logged)	1.498	95% Critical H Value (KM-Log)	3.893
KM Standard Error of Mean (logged)	0.456		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	10.94	Mean in Log Scale	1.365
SD in Original Scale	13.95	SD in Log Scale	1.752
95% t UCL (Assumes normality)	18.17	95% H-Stat UCL	188.5

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM Bootstrap t UCL	23.99	ıamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	26.91

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (ethylbenzene_100-41-4)

General Statistics

Total Number of Observations	11	Number of Distinct Observations	10
Number of Detects	9	Number of Non-Detects	2
Number of Distinct Detects	9	Number of Distinct Non-Detects	1
Minimum Detect	0.39	Minimum Non-Detect	0.5
Maximum Detect	920	Maximum Non-Detect	0.5
Variance Detects	110477	Percent Non-Detects	18.18%
Mean Detects	215.8	SD Detects	332.4
Median Detects	6.1	CV Detects	1.541
Skewness Detects	1.544	Kurtosis Detects	1.49
Mean of Logged Detects	2.768	SD of Logged Detects	3.162

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.731	Shapiro Wilk GOF Test

5% Shapiro Wilk Critical Value	0.829	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.291	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.274	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	176.6	KM Standard Error of Mean	94.46
KM SD	295.4	95% KM (BCA) UCL	355.3
95% KM (t) UCL	347.8	95% KM (Percentile Bootstrap) UCL	331.2
95% KM (z) UCL	332	95% KM Bootstrap t UCL	621.6
90% KM Chebyshev UCL	460	95% KM Chebyshev UCL	588.3
97.5% KM Chebyshev UCL	766.5	99% KM Chebyshev UCL	1116
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.541	Anderson-Darling GOF Test	
5% A-D Critical Value	0.82	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.258	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.304	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.269	k star (bias corrected MLE)	0.254
Theta hat (MLE)	801.1	Theta star (bias corrected MLE)	850.7
nu hat (MLE)	4.848	nu star (bias corrected)	4.565
Mean (detects)	215.8		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	176.5
Maximum	920	Median	4
SD	309.8	CV	1.755
k hat (MLE)	0.197	k star (bias corrected MLE)	0.204
Theta hat (MLE)	896.3	Theta star (bias corrected MLE)	866
nu hat (MLE)	4.333	nu star (bias corrected)	4.484
Adjusted Level of Significance (β)	0.0278		
Approximate Chi Square Value (4.48, α)	0.922	Adjusted Chi Square Value (4.48, β)	0.692
95% Gamma Approximate UCL (use when n>=50)	858.7	95% Gamma Adjusted UCL (use when n<50)	1144
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	176.6	SD (KM)	295.4
Variance (KM)	87244	SE of Mean (KM)	94.46
k hat (KM)	0.357	k star (KM)	0.321
nu hat (KM)	7.865	nu star (KM)	7.053
theta hat (KM)	494	theta star (KM)	550.9
80% gamma percentile (KM)	275	90% gamma percentile (KM)	516.5
95% gamma percentile (KM)	790.6	99% gamma percentile (KM)	1497
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (7.05, α)	2.2	Adjusted Chi Square Value (7.05, β)	1.785
95% Gamma Approximate KM-UCL (use when n>=50)	566.2	95% Gamma Adjusted KM-UCL (use when n<50)	697.7
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.878	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.175	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.274	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	176.6	Mean in Log Scale	2.007
SD in Original Scale	309.8	SD in Log Scale	3.32
95% t UCL (assumes normality of ROS data)	345.9	95% Percentile Bootstrap UCL	331.4
95% BCA Bootstrap UCL	387.1	95% Bootstrap t UCL	621.3
95% H-UCL (Log ROS)	10535809		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	2.111	KM Geo Mean	8.256

KM SD (logged)	3.036	95% Critical H Value (KM-Log)	7.575
KM Standard Error of Mean (logged)	0.971	95% H-UCL (KM -Log)	1195982
KM SD (logged)	3.036	95% Critical H Value (KM-Log)	7.575
KM Standard Error of Mean (logged)	0.971		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	176.6	Mean in Log Scale	2.013
SD in Original Scale	309.8	SD in Log Scale	3.29
95% t UCL (Assumes normality)	345.9	95% H-Stat UCL	8267954

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM Bootstrap t UCL	621.6	›amma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	697.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (o-xylene_95-47-6)

General Statistics

Total Number of Observations	11	Number of Distinct Observations	9
Number of Detects	8	Number of Non-Detects	3
Number of Distinct Detects	8	Number of Distinct Non-Detects	1
Minimum Detect	2.3	Minimum Non-Detect	0.5
Maximum Detect	200	Maximum Non-Detect	0.5
Variance Detects	5817	Percent Non-Detects	27.27%
Mean Detects	93.68	SD Detects	76.27
Median Detects	94.5	CV Detects	0.814
Skewness Detects	0.0568	Kurtosis Detects	-1.671
Mean of Logged Detects	3.786	SD of Logged Detects	1.741

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.925	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.158	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	68.26	KM Standard Error of Mean	23.74
KM SD	73.65	95% KM (BCA) UCL	105.1
95% KM (t) UCL	111.3	95% KM (Percentile Bootstrap) UCL	106.2
95% KM (z) UCL	107.3	95% KM Bootstrap t UCL	118.8
90% KM Chebyshev UCL	139.5	95% KM Chebyshev UCL	171.7
97.5% KM Chebyshev UCL	216.5	99% KM Chebyshev UCL	304.5

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.532	Anderson-Darling GOF Test
5% A-D Critical Value	0.744	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.219	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.304	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.788	k star (bias corrected MLE)	0.576
Theta hat (MLE)	118.8	Theta star (bias corrected MLE)	162.6
nu hat (MLE)	12.61	nu star (bias corrected)	9.218
Mean (detects)	93.68		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	68.23
Maximum	200	Median	34
SD	77.28	CV	1.133
k hat (MLE)	0.3	k star (bias corrected MLE)	0.279
Theta hat (MLE)	227.7	Theta star (bias corrected MLE)	244.9
nu hat (MLE)	6.593	nu star (bias corrected)	6.128
Adjusted Level of Significance (β)	0.0278		
Approximate Chi Square Value (6.13, α)	1.706	Adjusted Chi Square Value (6.13, β)	1.354
95% Gamma Approximate UCL (use when n>=50)	245.1	95% Gamma Adjusted UCL (use when n<50)	308.7

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	68.26	SD (KM)	73.65
Variance (KM)	5424	SE of Mean (KM)	23.74
k hat (KM)	0.859	k star (KM)	0.685
nu hat (KM)	18.9	nu star (KM)	15.08
theta hat (KM)	79.45	theta star (KM)	99.59
80% gamma percentile (KM)	112.3	90% gamma percentile (KM)	172.2
95% gamma percentile (KM)	234.1	99% gamma percentile (KM)	382.2

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (15.08, α)	7.317	Adjusted Chi Square Value (15.08, β)	6.455
95% Gamma Approximate KM-UCL (use when n>=50)	140.7	95% Gamma Adjusted KM-UCL (use when n<50)	159.5

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.815	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.818	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.256	Lilliefors GOF Test
5% Lilliefors Critical Value	0.283	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	68.42	Mean in Log Scale	2.717
SD in Original Scale	77.09	SD in Log Scale	2.369
95% t UCL (assumes normality of ROS data)	110.6	95% Percentile Bootstrap UCL	106.6
95% BCA Bootstrap UCL	106	95% Bootstrap t UCL	116.2
95% H-UCL (Log ROS)	22489		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	2.564	KM Geo Mean	12.99
KM SD (logged)	2.43	95% Critical H Value (KM-Log)	6.149
KM Standard Error of Mean (logged)	0.783	95% H-UCL (KM -Log)	28111
KM SD (logged)	2.43	95% Critical H Value (KM-Log)	6.149
KM Standard Error of Mean (logged)	0.783		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	68.2	Mean in Log Scale	2.375
SD in Original Scale	77.31	SD in Log Scale	2.821
95% t UCL (Assumes normality)	110.4	95% H-Stat UCL	313757

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	111.3

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (tetrachloroethylene_127-18-4)

General Statistics

Total Number of Observations	13	Number of Distinct Observations	9
Number of Detects	9	Number of Non-Detects	4
Number of Distinct Detects	8	Number of Distinct Non-Detects	1
Minimum Detect	0.89	Minimum Non-Detect	0.5
Maximum Detect	3000	Maximum Non-Detect	0.5
Variance Detects	1123931	Percent Non-Detects	30.77%

Mean Detects	631.4	SD Detects	1060
Median Detects	150	CV Detects	1.679
Skewness Detects	1.847	Kurtosis Detects	2.65
Mean of Logged Detects	3.969	SD of Logged Detects	3.083

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.679	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.829	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.328	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.274	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	437.3	KM Standard Error of Mean	259.2
KM SD	881.2	95% KM (BCA) UCL	825.9
95% KM (t) UCL	899.3	95% KM (Percentile Bootstrap) UCL	872.7
95% KM (z) UCL	863.7	95% KM Bootstrap t UCL	2594
90% KM Chebyshev UCL	1215	95% KM Chebyshev UCL	1567
97.5% KM Chebyshev UCL	2056	99% KM Chebyshev UCL	3016

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.418	Anderson-Darling GOF Test	
5% A-D Critical Value	0.815	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.245	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.303	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.281	k star (bias corrected MLE)	0.262
Theta hat (MLE)	2246	Theta star (bias corrected MLE)	2415
nu hat (MLE)	5.061	nu star (bias corrected)	4.707
Mean (detects)	631.4		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	437.1
Maximum	3000	Median	5
SD	917.2	CV	2.098
k hat (MLE)	0.16	k star (bias corrected MLE)	0.175
Theta hat (MLE)	2728	Theta star (bias corrected MLE)	2504
nu hat (MLE)	4.167	nu star (bias corrected)	4.539
Adjusted Level of Significance (β)	0.0301		
Approximate Chi Square Value (4.54, α)	0.945	Adjusted Chi Square Value (4.54, β)	0.738
95% Gamma Approximate UCL (use when n>=50)	2099	95% Gamma Adjusted UCL (use when n<50)	2688

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	437.3	SD (KM)	881.2
Variance (KM)	776441	SE of Mean (KM)	259.2
k hat (KM)	0.246	k star (KM)	0.241
nu hat (KM)	6.403	nu star (KM)	6.259
theta hat (KM)	1776	theta star (KM)	1817
80% gamma percentile (KM)	626.3	90% gamma percentile (KM)	1316
95% gamma percentile (KM)	2140	99% gamma percentile (KM)	4347

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (6.26, α)	1.774	Adjusted Chi Square Value (6.26, β)	1.456
95% Gamma Approximate KM-UCL (use when n>=50)	1543	95% Gamma Adjusted KM-UCL (use when n<50)	1880

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.904	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.222	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.274	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	437.1	Mean in Log Scale	1.585

TABLE F.11
PROUCL 5.1.002 RAW OUTPUT FOR GROUNDWATER CORE OF THE PLUME
MATLACK INC. SUPERFUND SITE
WOOLWICH TOWNSHIP, NJ

SD in Original Scale	917.2	SD in Log Scale	4.588
95% t UCL (assumes normality of ROS data)	890.5	95% Percentile Bootstrap UCL	872.1
95% BCA Bootstrap UCL	1034	95% Bootstrap t UCL	2656
95% H-UCL (Log ROS)	1.829E+11		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	2.535	KM Geo Mean	12.61
KM SD (logged)	3.237	95% Critical H Value (KM-Log)	7.463
KM Standard Error of Mean (logged)	0.952	95% H-UCL (KM -Log)	2540301
KM SD (logged)	3.237	95% Critical H Value (KM-Log)	7.463
KM Standard Error of Mean (logged)	0.952		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	437.2	Mean in Log Scale	2.321
SD in Original Scale	917.2	SD in Log Scale	3.599
95% t UCL (Assumes normality)	890.6	95% H-Stat UCL	35208318

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM Bootstrap t UCL	2594	ıamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)	1880

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (trichloroethylene_79-01-6)

General Statistics

Total Number of Observations	11	Number of Distinct Observations	10
Number of Detects	9	Number of Non-Detects	2
Number of Distinct Detects	9	Number of Distinct Non-Detects	1
Minimum Detect	0.47	Minimum Non-Detect	0.5
Maximum Detect	160	Maximum Non-Detect	0.5
Variance Detects	2719	Percent Non-Detects	18.18%
Mean Detects	22.57	SD Detects	52.15
Median Detects	2.2	CV Detects	2.311
Skewness Detects	2.874	Kurtosis Detects	8.395
Mean of Logged Detects	1.27	SD of Logged Detects	1.906

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.494	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.829	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.373	Lilliefors GOF Test
5% Lilliefors Critical Value	0.274	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	18.55	KM Standard Error of Mean	14.48
KM SD	45.28	95% KM (BCA) UCL	46.36
95% KM (t) UCL	44.8	95% KM (Percentile Bootstrap) UCL	46.03
95% KM (z) UCL	42.37	95% KM Bootstrap t UCL	300.4
90% KM Chebyshev UCL	61.99	95% KM Chebyshev UCL	81.67
97.5% KM Chebyshev UCL	109	99% KM Chebyshev UCL	162.6

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.989	Anderson-Darling GOF Test
5% A-D Critical Value	0.796	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.32	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.299	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.362	k star (bias corrected MLE)	0.315
Theta hat (MLE)	62.32	Theta star (bias corrected MLE)	71.54
nu hat (MLE)	6.518	nu star (bias corrected)	5.679
Mean (detects)	22.57		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	18.47
Maximum	160	Median	1.2
SD	47.53	CV	2.574
k hat (MLE)	0.26	k star (bias corrected MLE)	0.25
Theta hat (MLE)	71.02	Theta star (bias corrected MLE)	73.95
nu hat (MLE)	5.72	nu star (bias corrected)	5.494
Adjusted Level of Significance (β)	0.0278		
Approximate Chi Square Value (5.49, α)	1.387	Adjusted Chi Square Value (5.49, β)	1.081
95% Gamma Approximate UCL (use when n>=50)	73.15	95% Gamma Adjusted UCL (use when n<50)	93.86

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	18.55	SD (KM)	45.28
Variance (KM)	2050	SE of Mean (KM)	14.48
k hat (KM)	0.168	k star (KM)	0.183
nu hat (KM)	3.692	nu star (KM)	4.018
theta hat (KM)	110.5	theta star (KM)	101.6
80% gamma percentile (KM)	23.22	90% gamma percentile (KM)	55.98
95% gamma percentile (KM)	97.79	99% gamma percentile (KM)	214.7

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (4.02, α)	0.729	Adjusted Chi Square Value (4.02, β)	0.536
95% Gamma Approximate KM-UCL (use when n>=50)	102.3	95% Gamma Adjusted KM-UCL (use when n<50)	139.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.895	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.829	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.24	Lilliefors GOF Test
5% Lilliefors Critical Value	0.274	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	18.49	Mean in Log Scale	0.685
SD in Original Scale	47.52	SD in Log Scale	2.156
95% t UCL (assumes normality of ROS data)	44.46	95% Percentile Bootstrap UCL	45.09
95% BCA Bootstrap UCL	61.78	95% Bootstrap t UCL	297.5
95% H-UCL (Log ROS)	867.7		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.902	KM Geo Mean	2.464
KM SD (logged)	1.803	95% Critical H Value (KM-Log)	4.707
KM Standard Error of Mean (logged)	0.577	95% H-UCL (KM -Log)	183.5
KM SD (logged)	1.803	95% Critical H Value (KM-Log)	4.707
KM Standard Error of Mean (logged)	0.577		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	18.51	Mean in Log Scale	0.787
SD in Original Scale	47.51	SD in Log Scale	2.015
95% t UCL (Assumes normality)	44.47	95% H-Stat UCL	456.6

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	109	99% KM (Chebyshev) UCL	162.6

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

result (vinyl chloride_75-01-4)

General Statistics

Total Number of Observations	10	Number of Distinct Observations	8
Number of Detects	8	Number of Non-Detects	2
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	0.076	Minimum Non-Detect	0.05
Maximum Detect	14	Maximum Non-Detect	0.05
Variance Detects	20.04	Percent Non-Detects	20%
Mean Detects	4.628	SD Detects	4.477
Median Detects	4.55	CV Detects	0.967
Skewness Detects	1.338	Kurtosis Detects	2.387
Mean of Logged Detects	0.802	SD of Logged Detects	1.677

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.863	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.255	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.283	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	3.713	KM Standard Error of Mean	1.41
KM SD	4.17	95% KM (BCA) UCL	5.845
95% KM (t) UCL	6.296	95% KM (Percentile Bootstrap) UCL	6.005
95% KM (z) UCL	6.031	95% KM Bootstrap t UCL	7.579
90% KM Chebyshev UCL	7.941	95% KM Chebyshev UCL	9.857
97.5% KM Chebyshev UCL	12.52	99% KM Chebyshev UCL	17.74

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.337	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.232	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.303	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.811	k star (bias corrected MLE)	0.591
Theta hat (MLE)	5.703	Theta star (bias corrected MLE)	7.838
nu hat (MLE)	12.98	nu star (bias corrected)	9.448
Mean (detects)	4.628		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	3.705
Maximum	14	Median	2.65
SD	4.402	CV	1.188
k hat (MLE)	0.412	k star (bias corrected MLE)	0.355
Theta hat (MLE)	8.988	Theta star (bias corrected MLE)	10.43
nu hat (MLE)	8.243	nu star (bias corrected)	7.104
Adjusted Level of Significance (β)	0.0267		
Approximate Chi Square Value (7.10, α)	2.228	Adjusted Chi Square Value (7.10, β)	1.784
95% Gamma Approximate UCL (use when n>=50)	11.81	95% Gamma Adjusted UCL (use when n<50)	14.75

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	3.713	SD (KM)	4.17
Variance (KM)	17.38	SE of Mean (KM)	1.41
k hat (KM)	0.793	k star (KM)	0.622
nu hat (KM)	15.86	nu star (KM)	12.43
theta hat (KM)	4.683	theta star (KM)	5.972
80% gamma percentile (KM)	6.118	90% gamma percentile (KM)	9.579
95% gamma percentile (KM)	13.19	99% gamma percentile (KM)	21.9

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (12.43, α)	5.514	Adjusted Chi Square Value (12.43, β)	4.737
95% Gamma Approximate KM-UCL (use when n>=50)	8.372	95% Gamma Adjusted KM-UCL (use when n<50)	9.743

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.876	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.267	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	3.714	Mean in Log Scale	0.0501
SD in Original Scale	4.394	SD in Log Scale	2.179
95% t UCL (assumes normality of ROS data)	6.261	95% Percentile Bootstrap UCL	5.989
95% BCA Bootstrap UCL	6.546	95% Bootstrap t UCL	7.427
95% H-UCL (Log ROS)	778.3		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.0426	KM Geo Mean	1.044
KM SD (logged)	2.068	95% Critical H Value (KM-Log)	5.56
KM Standard Error of Mean (logged)	0.699	95% H-UCL (KM -Log)	408.7
KM SD (logged)	2.068	95% Critical H Value (KM-Log)	5.56
KM Standard Error of Mean (logged)	0.699		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	3.708	Mean in Log Scale	-0.096
SD in Original Scale	4.4	SD in Log Scale	2.403
95% t UCL (Assumes normality)	6.258	95% H-Stat UCL	2696

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	6.296

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.