Background Sediment Study

Stratford Army Engine Plant
Stratford, Connecticut

July 2009

Table of Contents

Tables

Figures

Appendices

1.0 Introduction

This report presents the results of the background sediment investigation conducted at the Stratford Army Engine Plant (SAEP). The purpose was to collect a sufficient number of samples to determine the concentrations of chemicals of concern (COCs) in background sediment and to calculate background threshold values (BTVs).

Background chemicals in sediment are derived from natural and anthropogenic sources. The background sediment concentrations are inherently a distribution or range of concentrations. A BTV is a concentration that is statistically derived from the upper-end of the concentration distribution. BTVs are used in point-by-point site versus background comparison evaluations. The purpose is for distinguishing between sediments that has been impacted by a site-related chemical release and background. BTVs will be used for comparison to existing site data for the Tidal Flats and Outfall 008 to develop a final list of COCs.

The background sediment data collected previously in 1998 was limited to three samples from the Housatonic River. This data set was insufficient to develop BTVs since at least 10 samples are required. The original background samples were not combined with the current data since they did not meet criteria listed below.

1.1 Approach

The background sediment investigation was developed in accordance with United States Environmental Protection Agency (USEPA) guidance for determining background concentrations of contaminants in sediment (USEPA, 1995). The USEPA considers the following criteria to determine if a background sediment data set is comparable to the site data set (data from the Tidal Flats and Outfall 008).

- *The particle size and total organic carbon (TOC) content from both sites are similar*: The levels of contaminants in sediment are directly related to the particle size and TOC content. The finer the particle size and higher the TOC content the greater the potential for accumulating metals. If these physical characteristics differ significantly it is not appropriate to directly compare the data sets.

- *Samples from both data sets are from the same depth*: The majority of impacted sediment at the Tidal Flats was identified within the upper 6 inches of the surface. Background sediment samples were collected from the same depth and approximate elevation within the river for comparison to the site data.

- *The background area is representative of the levels immediately upcurrent of the site*: Background samples could not be collected from sediment immediately upcurrent of the Tidal Flats since this area has been impacted by the Raymark Industries Superfund site. The western shore of Housatonic River along Nells Island was identified by the Connecticut Department of Environmental Protection (CTDEP) as an area representitive of ambient conditions suitable for background sediment sampling.

- *Comparable analytical methods are used for both site and background samples*: The same analytical methods were used for both the background and the site samples.

- *Background data is collected at the same time as site data*: Although background sediment samples were not collected at the same time as site samples they are considered comparable to site data. The concentrations of contaminants at the site are not expected to have changed significantly since the time of collection based on the results of a PCB investigation conducted to determine current site conditions (AMAI, 2008).

1.2 Sample Collection

Fieldwork consisted of collecting sediment samples from the east side of the Housatonic River at Nells Island. Three sediment areas were identified (see Figure 1). The approach consisted of an initial survey of the areas to identify sediment with similar characteristics to the Tidal Flats. Sediment in the Tidal Flats has a high percentage of fine-grained particles and has high TOC content.

A visual survey was conducted at low tide to identify areas of similar particle size and TOC content. The three areas surveyed (Areas A through C) are shown on Figure 1. Sediment in A and in the northern part of B was sand and not comparable to the Tidal Flats. Finer grained sediment was located in the southern part of B and in C where ten surface sediment samples (0-6 inches) were collected. Two samples were collected from the 12-24 inch interval to determine the concentrations in deeper sediment. Samples locations are shown on Figure 2.

Pre-cleaned dedicated, disposable sampling equipment was used to collect surface sediment samples. The two deeper sediment samples were collected using a stainless steel core barrel with disposable plastic liners. The sediment was homogenized prior to placement in sample containers.

Sediment samples were preserved by immediately placing on ice and cooled to 4 degrees Celsius. Samples were transported by courier to the analytical laboratory. Sediment samples were analyzed for base neutral compounds by SW-846 method 8270C, metals by 6010A,

mercury by 7471B, hexavalent chromium by method 7196A, cyanide by SW-846 method 9012 and PCBs by method 8082. Sediment samples were also analyzed for TOC by SW846 method 9060 and particle sizing by ASTM D422-63.

QA/QC samples included a duplicate sample and equipment blank. The equipment blank was collected by running laboratory-supplied water through the plastic core liner and over a plastic disposable scoop.

Laboratory analysis was performed by Test America located in Shelton, Connecticut. Test America is a certified laboratory in the state of Connecticut. Samples were analyzed on a standard 15-day turnaround time. Test America provided the reasonable confidence protocol (RCP). All data was determined to be valid as reported and usable for decision-making purposes.

2.0 Background Sediment Results

Sediment analytical results are presented in Table 1 through Table 3. Laboratory and data validation reports are in Appendix A. The following is a summary of the results.

2.1 Sediment Analytical Results

Sample from 0-0.5 feet

PAHs: Eighteen PAHs were detected in background sediment samples. PAHs were detected in all ten samples from 0-0.5 feet. PAHs identified as COCs at the Tidal Flats and Outfall 008 were also detected in background sediment.

PCBs: Aroclor 1254 and Aroclor 1260 were detected in nine of the ten background sediment samples. Aroclor 1248 was not detected in background.

Metals: Twenty-one metals were detected in background sediment. Metals identified as COCs at the Tidal Flats and Outfall 008 were detected in background sediment.

Samples from 1-2 feet

PAHs: PAHs were detected at low concentrations in one of the deeper background sediment samples.

PCBs: PCBs were not detected in deeper background sediment samples.

Metals: Nineteen metals were detected in deeper background sediment.

2.2 Sediment Characteristics

Background sediment results for particle size and TOC content are provided in Table 4. The following is a summary of the results.

TOC: TOC content in background sediment (0-0.5) varies and range from 8,170 mg/kg to 61,500 mg/kg. TOC concentrations at the Tidal Flats are significantly higher and range from 19,900 mg/kg to 145,000 mg/kg. Two of the ten background samples (SD-02 and SD-08) have TOC content similar to the Tidal Flats. Results of the TOC analysis are presented in Figure 3.

Selected organic compounds were plotted against the TOC to determine if a relationship exists between contaminant concentrations and TOC content. For many PAHs and two PCB Aroclors the concentrations increase with increasing TOC content. The concentration plots are included in Attachment B.

Particle Size: Percent fines in background sediment range from 9.2 to 85.9. Two of the ten samples are classified as silt. The remaining eight samples are fine sand. Sediment at the Tidal Flats is finer grained and classified as silt and clay. Two of the ten samples (SD-02 and SD-08) have similar particle size to the Tidal Flats. Results of the percent fines analysis are presented in Figure 3.

In sediment, an inverse relationship exists between metals concentrations and particle size. Metals concentrations were plotted against particle size. The plots are included in Attachment B.

3.0 Background Threshold Values

Preliminary BTVs determined for COCs in sediment are presented in **Table 5.** The BTVs were determined using an upper-end statistic, the 95% upper tolerance limit (UTL95). The UTL95 represents a value for which 95% of the values comprising the background distribution are expected to fall below with 95% confidence. The statistical calculations were performed using EPA's ProUCL (version 4.00.04) software (EPA, 2009a, 2009b). Details of the statistical approach used for calculation of the BTVs are presented in **Appendix C**.

4.0 Findings

The following is a summary of the findings.

- PAHs, PCBs, and metals were detected in background sediment samples.

- With the exception of two sample locations the particle size and TOC content of the background differs significantly from site data. No similar depositional environment could be located at Nells Island, except on a small scale at certain areas.

- BTVs were calculated for COCs. The BTVs are preliminary and have not been compared to site data. The particle size (for metals) and TOC content (for organics) of background samples should be used to normalize concentrations in order to make relevant and appropriate site-to-background comparisons of contaminant concentrations. USEPA does not consider it appropriate to directly compare contaminant concentrations without normalizing the data (USEPA 1995).

- Organics data will be normalized by dividing the COC concentration by the fraction of organic carbon. Metals data will be normalized by dividing by the percent fines.

- Normalized BTVs will be included in the Final Background Sediment Study. A direct comparison of normalized site data to normalized BTVs will then be made.

5.0 References

AMAI, 2008, Tidal Flats Sediment Investigation, Stratford Army Engine Plant, Stratford, Connecticut.

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U.S. Environmental Protection Agency (EPA), 2002. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. EPA/540-R-01-003.

U.S. Environmental Protection Agency (EPA), 2009a. ProUCL Version 4.00.04 Technical Guide (Draft). EPA/600/R-07/041. February. http://www.epa.gov/esd/tsc/TSC_form.htm

U.S. Environmental Protection Agency (EPA), 2009b. ProUCL Version 4.00.04 User Guide (Draft). EPA/600/R-07/038. February. http://www.epa.gov/esd/tsc/TSC_form.htm

Tables

Table 1
Base Neutral Concentrations
in Background Sediment
Stratford Army Engine Plant, Stratford, Connecticut

Sample Location	SD-01	SD-02	SD-02D	SD-03	SD-04	SD-04	SD-05	SD-06	SD-07	SD-08	SD-08	SD-09	SD-10
Sample Depth (inches)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(12- 24)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(12- 24)	(0- 6)	(0- 6)
Lab ID	220-9073-1	220-9073-2	220-9073-3	220-9073-4	220-9073-5	220-9073-6	220-9073-7	220-9073-8	220-9073-9	220-9073-10	220-9073-11	220-9073-12	220-9073-13
Sample Date	5/13/2009	5/13/2009	5/13/2009	5/13/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009
			duplicate										
(Concentrations are in ug/kg)													
1,2,4-Trichlorobenzene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
1,2-Dichlorobenzene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
1,3-Dichlorobenzene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
1,4-Dichlorobenzene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
2,2'-oxybis[1-chloropropane]	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
2,4-Dinitrotoluene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
2,6-Dinitrotoluene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
2-Chloronaphthalene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
2-Methylnaphthalene	400 U	330 J	480 J	29 J	420 U	370 U	87 J	35 J	370 U	32 J	32 J	130 J	53 J
2-Nitroaniline	2500 U	3300 U	3200 U	3100 U	2600 U	2300 U	2600 U	3000 U	2300 U	2300 U	2300 U	2600 U	3300 U
3,3'-Dichlorobenzidine	990 U	1300 U	1300 U	1200 U	1000 U	920 U	1000 U	1200 U	910 U	900 U	900 U	1000 U	1300 U
3-Nitroaniline	2500 U	3300 U	3200 U	3100 U	2600 U	2300 U	2600 U	3000 U	2300 U	2300 U	2300 U	2600 U	3300 U
4-Bromophenyl phenyl ether	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
4-Chloroaniline	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
4-Chlorophenyl phenyl ether	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
4-Nitroaniline	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Acenaphthene	400 U	130 J	140 J	480 U	420 U	370 U	92 J	470 U	370 U	41 J	41 J	65 J	56 J
Acenaphthylene	67 J	1400	1400	140 J	88 J	370 U	210 J	250 J	70 J	190 J	190 J	500	420 J
Anthracene	53 J	880	860	95 J	55 J	370 U	150 J	180 J	39 J	120 J	120 J	400 J	240 J
Benzo[a]anthracene	180 J	2100	2100	290 J	190 J	370 U	400 J	590	130 J	490	490	1300	1100
Benzo[a]pyrene	250 J	3100	3000	390 J	250 J	370 U	530	790	200 J	540	540	1500	1100
Benzo[b]fluoranthene	260 J	2900	2700	380 J	220 J	370 U	470	650	170 J	390	390	1200	1000
Benzo[g,h,i]perylene	180 J	3200	2900	340 J	190 J	370 U	390 J	590	110 J	290 J	290 J	860	670
Benzo[k]fluoranthene	110 J	1100	1100	140 J	78 J	370 U	160 J	230 J	59 J	160 J	160 J	490	390 J
Benzyl alcohol	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Bis(2-chloroethoxy)methane	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Bis(2-chloroethyl)ether	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Bis(2-ethylhexyl) phthalate	44 J	330 J	240 J	73 J	74 J	370 U	100 J	160 J	88 J	50 J	50 J	410 U	520 U
Butyl benzyl phthalate	400 U	520 U	510 U	480 U	420 U	370 U	420 U	32 J	370 U	360 U	360 U	410 U	520 U
Carbazole	400 U	230 J	210 J	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	71 J	47 J
Chrysene	240 J	2700	2800	350 J	230 J	370 U	470	690	150 J	580	580	1100	820
Dibenz(a,h)anthracene	400 U	820	750	54 J	420 U	370 U	70 J	120 J	370 U	79 J	79 J	230 J	160 J
Dibenzofuran	400 U	99 J	120 J	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	55 J	520 U
Diethyl phthalate	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Dimethyl phthalate	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Di-n-butyl phthalate	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Di-n-octyl phthalate	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Fluoranthene	300 J	4300	3400	500	250 J	370 U	510	690	200 J	520	520	1900	730
Fluorene	400 U	250 J	260 J	480 U	420 U	370 U	81 J	47 J	370 U	45 J	45 J	100 J	70 J
Hexachlorobenzene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U

Table 1
Base Neutral Concentrations
in Background Sediment
Stratford Army Engine Plant, Stratford, Connecticut

Sample Location	SD-01	SD-02	SD-02D	SD-03	SD-04	SD-04	SD-05	SD-06	SD-07	SD-08	SD-08	SD-09	SD-10
Sample Depth (inches)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(12- 24)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(12- 24)	(0- 6)	(0- 6)
Lab ID	220-9073-1	220-9073-2	220-9073-3	220-9073-4	220-9073-5	220-9073-6	220-9073-7	220-9073-8	220-9073-9	220-9073-10	220-9073-11	220-9073-12	220-9073-13
Sample Date	5/13/2009	5/13/2009	5/13/2009	5/13/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009
			duplicate										
(Concentrations are in ug/kg)													
1,2,4-Trichlorobenzene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Hexachlorobutadiene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Hexachlorocyclopentadiene	990 U	1300 U	1300 U	1200 U	1000 U	920 U	1000 U	1200 U	910 U	900 U	900 U	1000 U	1300 U
Hexachloroethane	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Indeno[1,2,3-cd]pyrene	200 J	3000	2800	380 J	210 J	370 U	410 J	620	160 J	340 J	340 J	950	760
Isophorone	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
Naphthalene	400 U	260 J	340 J	480 U	420 U	370 U	62 J	470 U	370 U	360 U	360 U	130 J	62 J
Nitrobenzene	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
N-Nitrosodi-n-propylamine	400 U	520 U	510 U	480 U	420 U	370 U	420 U	470 U	370 U	360 U	360 U	410 U	520 U
N-Nitrosodiphenylamine	400 U	2900	2700	480 U	420 U	370 U	330 J	99 J	370 U	120 J	120 J	210 J	520 U
Phenanthrene	170 J	1300	1300	220 J	110 J	370 U	340 J	280 J	72 J	130 J	130 J	570	270 J
Pyrene	340 J	6700	6700	550	300 J	370 U	770	1000	230 J	770	770	2500	1800

J - estimated value
U - compound was analyzed for but not detected at or above the reporting limits shown

Table 2
Metals Concentrations
in Background Sediment
Stratford Army Engine Plant, Stratford, Connecticut

Sample ID	SD-01	SD-02	SD-02D	SD-03	SD-04	SD-04	SD-05	SD-06	SD-07	SD-08	SD-08	SD-09	SD-10
Sample Depth (in)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(12-24)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(12-24)	(0- 6)	(0- 6)
Lab ID	220-9073-1	220-9073-2	220-9073-3	220-9073-4	220-9073-5	220-9073-6	220-9073-7	220-9073-8	220-9073-9	220-9073-10	220-9073-11	220-9073-12	220-9073-13
Sample Date	5/13/2009	5/13/2009	5/13/2009	5/13/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009
Reporting units are in mg/kg			duplicate										
Aluminum	6460	20200	19500	8270	7130	10700	6500	8890	5090	5140	10500	6990	8700
Antimony	6 U	8.1 U	7.9 U	7.3 U	6.5 U	5.6 U	6.4 U	7.1 U	5.6 U	5.5 U	6.1 U	6.2 U	7.9 U
Arsenic	7.6 U	11.1	11.2	3.1 J	3 J	2.6 J	8.2 U	3.6 J	7.1 U	2.3 J	3.7 J	3.4 J	6.3 J
Barium	21	104	110	26.9	20.6	25.7	19.6	26.5	13.9	14.9	23.9	28.3	30.7
Beryllium	0.27 J	1 J	1 J	0.36 J	0.45 J	0.61 J	0.41 J	0.59 J	0.29 J	0.3 J	0.6 J	0.47 J	0.55 J
Cadmium	1.8 U	8.5	9	2.2 U	2 U	1.7 U	1.9 U	2.2 U	1.7 U	1.7 U	1.9 U	3.7	0.62 J
Calcium	2680	3070	2530	1970	2390	1840	2490	3100	2200	2480	4360	2060	2880
Chromium	31.9	663	718	58.9	33.8	16.9	37.6	63.7	20.9	25.9	19.6	277	81.3
Chromium (CVI)	1.5 U	1.9 U	2 U	1.8 U	1.5 U	1.4 U	1.5 U	1.7 U	1.4 U	1.3 U	1.5 U	1.6 U	1.9 U
Cobalt	4.4	14	13.1	5.4	4.7	7.5	4.2	6.2	3.4	3.4	6.6	4.7	5.9
Copper	97.9	2410	2540	245	93.9	18.2	137	201	74.1	102	21.3	1150	969
Cyanide	0.738 U	0.947 U	0.954 U	0.898 U	0.749 U	0.665 U	0.752 U	0.862 U	0.690 U	0.666 U	0.720 U	0.746 U	0.972 U
Iron	11100	32000	30900	13900	12000	18800	11000	15800	8590	8820	12400	12400	16800
Lead	19	337	329	41.4	25.2	4.8 J	20.7	36.1	13.7	13.9	205	205	126
Magnesium	4330	8370	7960	5220	4590	7220	4430	6070	3310	3480	4450	4450	5750
Manganese	286	392	374	178	175	283	174	242	126	127	214	214	259
Mercury	0.093	1.4	1.6	0.24	0.11	0.11	0.13	0.17	0.07	0.065	1.2	1.2	0.87
Nickel	10.3	94.8	97.8	14.9	11.3	12.9	12	18.2	7.7	8.6	27.8	27.8	20.4
Potassium	1680	3860	3700	2200	1650	2760	1600	2320	1110	1120	1540	1540	2210
Selenium	13.6 U	18.3 U	18 U	16.6 U	14.7 U	12.7 U	14.6 U	16.2 U	12.6 U	12.5 U	14 U	14 U	17.9 U
Silver	0.22 J	2.8	2.9	0.36 J	0.17 J	1.7 U	0.45 J	0.44 J	1.7 U	0.12 J	0.77 J	0.77 J	0.43 J
Sodium	3320	7710	8090	7040	4000	3500	4150	5830	2970	2450	5210	5210	7720
Thallium	1.5 J	2.3 J	7.2 U	6.6 U	5.9 U	5.1 U	5.8 U	6.5 U	5 U	5 U	5.6 U	5.6 U	7.1 U
Vanadium	15.8	46.8	46.5	19.7	15.4	22	15.1	22	10.4	10.5	15	15	21
Zinc	81.7	1630	1720	141	82.1	79	93	135	57.3	70.8	652	652	409

U - compound was analyzed for but not detected at or above the concentration shown
J - estimated value

Table 3
PCB Concentrations
in Background Sediment
Stratford Army Engine Plant
Stratford, Connecticut

Sample ID	SD-01	SD-02	SD-02D	SD-03	SD-04	SD-04	SD-05	SD-06	SD-07	SD-08	SD-08	SD-09	SD-10
Sample Depth (inche	(0-6)	(0-6)	(0-6)	(0-6)	(0-6)	(12-24)	(0-6)	(0-6)	(0-6)	(0-6)	(12-24)	(0-6)	(0-6)
Lab ID	220-9073-1	220-9073-2	220-9073-3	220-9073-4	220-9073-5	220-9073-6	220-9073-7	220-9073-8	220-9073-9	220-9073-10	220-9073-11	220-9073-12	220-9073-13
Sample Date	5/13/2009	5/13/2009	5/13/2009	5/13/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009
(Reporting units are in ug/kg)			duplicate										
Aroclor 1016	25 U	65 U	65 U	30 U	26 U	23 U	26 U	30 U	23 U	22 U	26 U	26 U	33 U
Aroclor 1221	25 U	65 U	65 U	30 U	26 U	23 U	26 U	30 U	23 U	22 U	26 U	26 U	33 U
Aroclor 1232	25 U	65 U	65 U	30 U	26 U	23 U	26 U	30 U	23 U	22 U	26 U	26 U	33 U
Aroclor 1242	25 U	65 U	65 U	30 U	26 U	23 U	26 U	30 U	23 U	22 U	26 U	26 U	33 U
Aroclor 1248	25 U	65 U	65 U	30 U	26 U	23 U	26 U	30 U	23 U	22 U	26 U	26 U	33 U
Aroclor 1254	19 J	420	350	36	31	23 U	49	130	21 J	25	26 U	26 U	33 U
Aroclor 1260	10 J	300	220	24 J	28	23 U	23 J	170	12 J	15 J	26 U	13 J	33 U
Aroclor 1262	25 U	65 U	65 U	30 U	26 U	23 U	26 U	30 U	23 U	22 U	26 U	26 U	33 U
Aroclor 1268	25 U	65 U	65 U	30 U	26 U	23 U	26 U	30 U	23 U	22 U	26 U	26 U	33 U

U - compound was analyzed for, but not detected at or above the concentration shown
J - estimated value

Table 4
Total Organic Carbon and Percent Fines
in Background Sediment
Stratford Army Engine Plant, Stratford Connecticut

Sample Location	SD-01	SD-02	SD-02D	SD-03	SD-04	SD-04	SD-05	SD-06	SD-07	SD-08	SD-08	SD-09	SD-10
Sample Depth (inches)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(12-24)	(0- 6)	(0- 6)	(0- 6)	(0- 6)	(12-24)	(0- 6)	(0- 6)
Lab ID	220-9073-1	220-9073-2	220-9073-3	220-9073-4	220-9073-5	220-9073-6	220-9073-7	220-9073-8	220-9073-9	220-9073-10	220-9073-11	220-9073-12	220-9073-13
Sample Date	5/13/2009	5/13/2009	5/13/2009	5/13/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009	5/14/2009
			duplicate										
Total Organic Carbon (mg/kg)	9,060	61,500	57,800	19,100	12,500	6130	12,000	19,400	8,170	5,620	13600	24,800	30,500
Percent Fines (<0.075 mm)	31.5	84.5	85.9	40.2	27.5	7.8	27.2	26.4	19.3	9.2	55.2	20.5	35.6

Table 5
Dry Weight Background Threshold Values for Sediment
Stratford Army Engine Plant, Stratford, Connecticut

Constituent	Units	Dry Weight BTV
Metals		
Antimony	mg/kg	8.1
Cadmium	mg/kg	11.2
Chromium	mg/kg	718
Copper	mg/kg	2540
Lead	mg/kg	337
Mercury	mg/kg	1.6
Nickel	mg/kg	98
Silver	mg/kg	3.6
Vanadium	mg/kg	68
Zinc	mg/kg	1720
BNs		
Acenaphthene	ug/kg	192
Acenaphthylene	ug/kg	1400
Anthracene	ug/kg	880
Benzo(a)anthracene	ug/kg	2100
Benzo(a)pyrene	ug/kg	3100
Benzo(b)fluoranthene	ug/kg	2900
Benzo(ghi)perylene	ug/kg	3200
Benzo[k]fluoranthene	ug/kg	1100
Chrysene	ug/kg	2800
Dibenz(a,h)anthracene	ug/kg	981
Flouranthene	ug/kg	4300
Fluorene	ug/kg	364
Indeno(1,2,3-cd)pyrene	ug/kg	3000
2-Methylnaphthalene	ug/kg	543
N-Nitrosodiphenylamine	ug/kg	3510
Phenanthrene	ug/kg	1300
Pyrene	ug/kg	6700
PCBs		
Arochlor_1248	ug/kg	65
Arochlor_1254	ug/kg	489
Arochlor_1260	ug/kg	354
Total PCBs	ug/kg	908

Notes:

1. Total PCBs is the sum of the Aroclors

Figures

Legend

Stratford Army Engine Plant Boundary Line

Proposed background sediment areas

1000′ 0 2000′

Scale: 1″ = 2000′ (approx.)

Figure 1

Background Sediment Areas

Stratford Army Engine Plant
Stratford, Connecticut

Prepared by: Anderson-Mulholland & Assoc.

Legend

Stratford Army Engine Plant Boundary Line

SD-1 Sediment Sampling Location

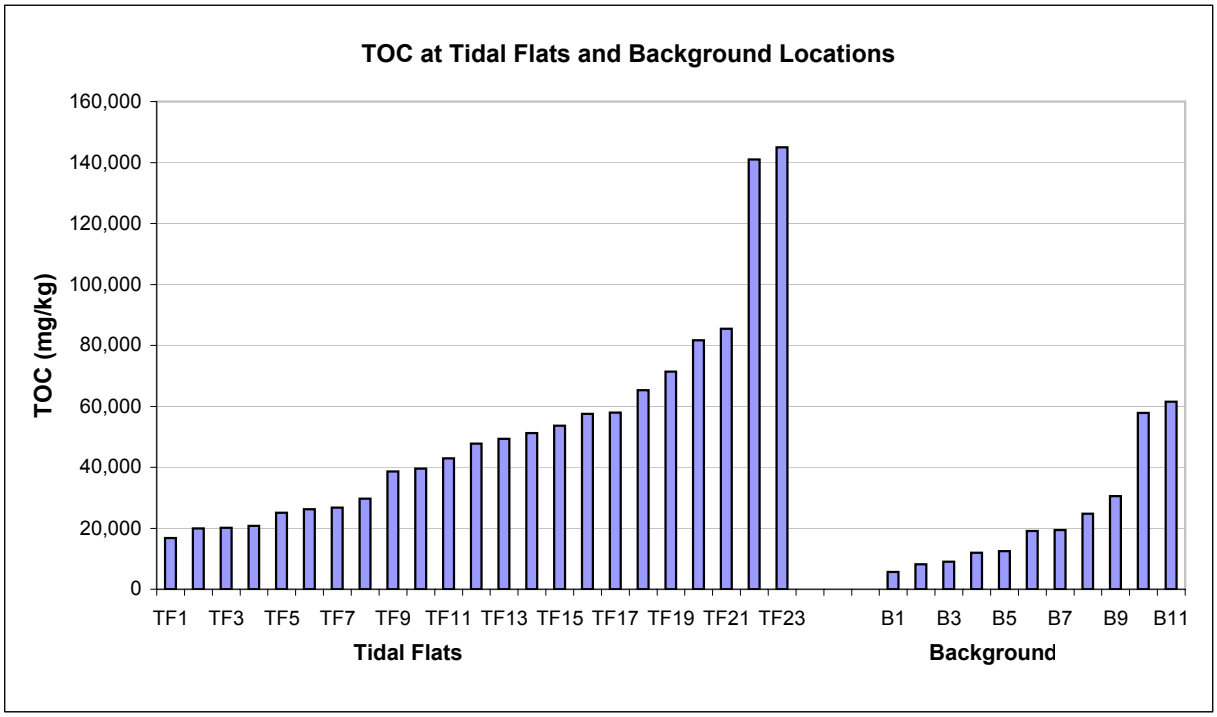
300′ 0 600′

Figure 2

Background Sediment Sample Locations

Stratford Army Engine Plant
Stratford, Connecticut

Prepared by: Anderson-Mulholland & Assoc.



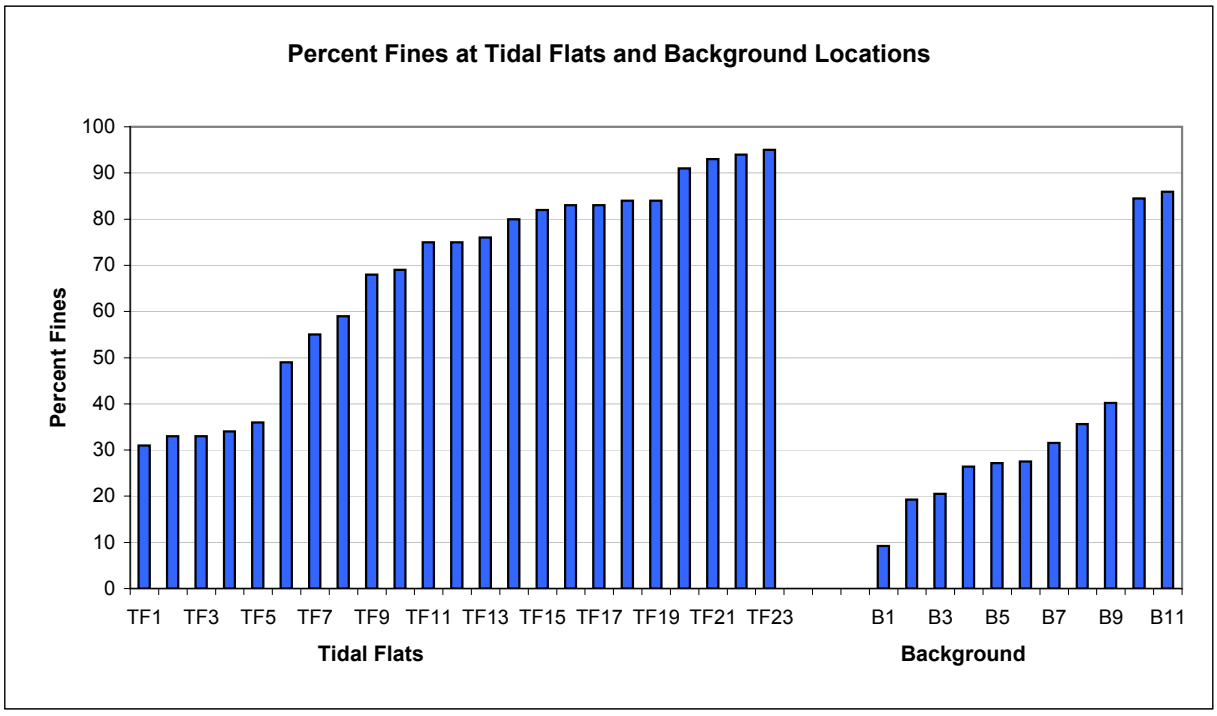


Figure 3 Total organic carbon and grain size in sediments at the Stratford Army Engine Plant

Appendix A

Analytical Laboratory and Data Validation Reports (on CD ROM)

DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORD ARMY ENGINE PALNT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

1.0 INTRODUCTION

Thirteen sediment samples and one equipment blank were collected from May 13, 2009, through May 14, 2009, as part of the background sediment investigation at SAEP – Stratford, Connecticut. Samples were analyzed for the following parameters: semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), metals, hexavalent chromium ($Cr^{+}6$), total cyanide (CN), total organic carbon (TOC), and grain size. Analytical results are reported in TestAmerica sample delivery group (SDG) 220-9073. All sample analyses were performed by TestAmerica Inc., in Shelton, Connecticut (TAL-CT) with the following exceptions:

- Hexavalent Chromium – TestAmerica Westfield, Massachusetts (TAL-WFD)
- Grain Size – TestAmerica Burlington, Vermont (TAL-BUR)

Samples were analyzed by the following methods:

- SVOCs by USEPA Method 8270C
- PCBs by USEPA Method 8082
- Metals by USEPA Methods 6010B/7471A
- CN by USEPA Method 9012B
- TOC by USEPA Method 9060
- $Cr^{+}6$ by USEPA Method 3060A/7196A
- Grain Size by ASTM Method D422

A Tier III data validation was completed by the MACTEC project chemist on data package 220-9073 using the Connecticut Department of Environmental Protection Reasonable Confidence Protocols (RCP) [CTDEP, 2007]. Data quality evaluations were completed using quality control limits specified by the CTDEP RCPs and the subcontract laboratory. If data quality issues were identified during the review, results were qualified in the final data set and interpretations on data biases provided. Data qualifications were completed using the professional judgment of the validation chemist and general procedures specified in Region I EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses (USEPA, 1996).

A summary of final results is presented in Table 1.

The following samples collected May 2009 are included in the data evaluation:

Field Sample ID	TAL ID	Sample Date	Comment
SD-01	220-9073-1	5/13/09	
SD-02	220-9073-2	5/13/09	
SD-02D	220-9073-3	5/13/09	
SD-03	220-9073-4	5/13/09	
SD-04	220-9073-5	5/14/09	
SD-04 (12-24)	220-9073-6	5/14/09	
SD-05	220-9073-7	5/14/09	
SD-06	220-9073-8	5/14/09	
SD-07	220-9073-9	5/14/09	
SD-08	220-9073-10	5/14/09	
SD-08 (12-24)	220-9073-11	5/14/09	
SD-09	220-9073-12	5/14/09	
SD-10	220-9073-13	5/14/09	
EB051409	220-9073-14	5/14/09	

2.0 SVOCs

Data were evaluated for the following parameters:
* Data Completeness
* Holding Times and Preservation
* Instrument Performance Check (Tune)
* Initial Calibration
* Continuing Calibration
* Internal Standards
* Blank Contamination
* Surrogate Recoveries
* Laboratory Control Samples (LCS)
* Field Duplicates
* Target Compound Quantitation
* Miscellaneous

* - all criteria were met for this parameter

No data quality issues were identified and results are interpreted to be usable as reported by the lab.

3.0 PCBs

Data were evaluated for the following parameters:
* Data Completeness
* Holding Times and Preservation
* Initial Calibration
* Continuing Calibration
* Blank Contamination
  Surrogate Recoveries
* LCS
* Field Duplicates
  Target Compound Quantitation
  Miscellaneous

* - all criteria were met for this parameter

Surrogate Recoveries

The percent recovery for surrogate decachlorobiphenyl (DCB) was above the QC limits (30%-150%) in samples SD-02 (248) and its field duplicate SD-02D (232). The detections of PCB-1254 and PCB-1260 in samples SD-02 and SD-02D were qualified as estimated (J).

Target Compound Quantitation

The percent difference between the two dissimilar columns was greater than 25 for PCB-1254 in samples SD-02 (63), SD-02D (62), SD-06 (154), and SD-08 (82), and for PCB-1260 in sample SD-04 (33). The detections of PCB-1254 in samples SD-02, SD-02D, SD-06, and SD-08, and PCB-1260 in sample SD-04 were qualified as estimated (J).

Miscellaneous

220-6777 – Due to high PCB concentrations, dilutions were performed on samples SD-02 (2X) and its field duplicate SD-02D (2X). Reporting limits for PCBs are elevated in samples SD-02 and SD-02D.

4.0 Metals

Data were evaluated for the following parameters:
* Data Completeness
* Holding Times and Preservation

* Initial Calibration
* Continuing Calibration
* Blank Contamination
* LCS
* Field Duplicates
* Interference Check Sample
* Target Compound Quantitation
* Miscellaneous

* - all criteria were met for this parameter

No data quality issues were identified and results are interpreted to be usable as reported by the lab.

5.0 $Cr^{+}6$

Data were evaluated for the following parameters:
* Data Completeness
* Holding Times and Preservation
* Initial Calibration
* Continuing Calibration
* Blank Contamination
* LCS
* Laboratory Duplicates
* Field Duplicates
* Target Compound Quantitation
* Miscellaneous

* - all criteria were met for this parameter

No data quality issues were identified and results are interpreted to be usable as reported by the lab.

6.0 TOC

Data were evaluated for the following parameters:
* Data Completeness
* Holding Times and Preservation
* Initial Calibration
* Continuing Calibration
* Blank Contamination
* LCS
* Field Duplicates
* Target Compound Quantitation
* Miscellaneous

* - all criteria were met for this parameter

No data quality issues were identified and results are interpreted to be usable as reported by the lab.

7.0 CN

Data were evaluated for the following parameters:
* Data Completeness
* Holding Times and Preservation
* Initial Calibration
* Continuing Calibration
* Blank Contamination
  Matrix Spike (MS)
* LCS
* Field Duplicates
* Target Compound Quantitation
* Miscellaneous

* - all criteria were met for this parameter

Matrix Spike

The MS associated with sample SD-04 (12-24) had a percent recovery below the QC limits (75%-125%) for CN (1). A post digestion spike recovered with the QC limits (98%). Based on the information available in the data package, it is uncertain as to whether the cyanide is being destroyed or chemically bound by the sample matrix. CN was reported as non-detect (U) in all associated samples in SDG 220-9073, and based on professional judgment, was qualified as rejected (R).

8.0 Grain Size

Data were evaluated for the following parameters:
* Data Completeness
* Field Duplicates
* - all criteria were met for this parameter

No data quality issues were identified and results are interpreted to be usable as reported by the lab.

Reference:

U.S. Environmental Protection Agency (USEPA), 1996a. "Test Methods for Evaluating Solid Waste"; Laboratory Manual Physical/Chemical Methods; Office of Solid Waste and Emergency Response; Washington, DC; SW-846; November 1986; Revision 4 -December 1996.

U.S. Environmental Protection Agency (USEPA), 1996. "Region 1 EPA-NE Data Validation Guidelines For Evaluating Environmental Analyses"; Quality Assurance Unit Staff; Office of Environmental Measurement and Evaluation; December 1996.

State of Connecticut Department of Environmental Protection, 2007. "Laboratory Quality Assurance and Quality Control Guidance Reasonable Confidence Protocols Guidance Document" November, 2007.

State of Connecticut Department of Environmental Protection, 2009. "Laboratory Quality Assurance and Quality Control Data Quality Assessment and Data Usability Evaluation Guidance Document" May, 2009.

Date Validator: Bradley B. LaForest, NRCC-EAC

Bradley B. LaF

July 8, 2009

Senior Review: Christian Ricardi, NRCC-EAC

Chr Ricardi

July 27, 2009

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-1		220-9073-1		220-9073-1		220-9073-10		220-9073-10		220-9073-10		220-9073-11	
		Location	SD-01		SD-01		SD-01		SD-08		SD-08		SD-08		SD-08	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-01		SD-01		SD-01		SD-08		SD-08		SD-08		SD-08 (12-24)	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum	6,500						5,100						11,000	
6010B	T	Antimony	6	U					5.5	U					6.1	U
6010B	T	Arsenic	7.6	U					7	U					7.8	U
6010B	T	Barium	21						15						24	
6010B	T	Beryllium	1.8	U					1.7	U					1.9	U
6010B	T	Cadmium	1.8	U					1.7	U					1.9	U
6010B	T	Calcium	2,700						2,500						4,400	
6010B	T	Chromium	32						26						20	
6010B	T	Cobalt	4.4						3.4						6.6	
6010B	T	Copper	98						100						21	
6010B	T	Iron	11,000						8,800						17,000	
6010B	T	Lead	19						14						6.9	
6010B	T	Magnesium	4,300						3,500						7,400	
6010B	T	Manganese	290						130						200	
6010B	T	Nickel	10						8.6						13	
6010B	T	Potassium	1,700						1,100						2,300	
6010B	T	Selenium	14	U					12	U					14	U
6010B	T	Silver	1.8	U					1.7	U					1.9	U
6010B	T	Sodium	3,300						2,500						4,500	
6010B	T	Thallium	5.4	U					5	U					5.6	U
6010B	T	Vanadium	16						10						22	
6010B	T	Zinc	82						71						51	
7470A	T	Mercury														
7196A	N	Chromium, Hexavalent	1.5	U					1.3	U					1.5	U
7471A	T	Mercury	0.093						0.067	U					0.076	U
8082	N	Aroclor-1016					25	U					22	U		
8082	N	Aroclor-1221					25	U					22	U		
8082	N	Aroclor-1232					25	U					22	U		
8082	N	Aroclor-1242					25	U					22	U		
8082	N	Aroclor-1248					25	U					22	U		
8082	N	Aroclor-1254					25	U					25	J		
8082	N	Aroclor-1260					25	U					22	U		
8082	N	Aroclor-1262					25	U					22	U		
8082	N	Aroclor-1268					25	U					22	U		
8270C	N	1,2,4-Trichlorobenzene					400	U					360	U		
8270C	N	1,2-Dichlorobenzene					400	U					360	U		
8270C	N	1,3-Dichlorobenzene					400	U					360	U		
8270C	N	1,4-Dichlorobenzene					400	U					360	U		

Prepared by:BJS
Date:7/17/09
Checked by:BBL
Date:7/20/09

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-1		220-9073-1		220-9073-1		220-9073-10		220-9073-10		220-9073-11	
		Location	SD-01		SD-01		SD-01		SD-08		SD-08		SD-08	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-01		SD-01		SD-01		SD-08		SD-08		SD-08 (12-24)	
		Qc Code	FS		FS		FS		FS		FS		FS	
		Units	mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene					400	U					360	U		
8270C	N	2,6-Dinitrotoluene					400	U					360	U		
8270C	N	2-Chloronaphthalene					400	U					360	U		
8270C	N	2-Methylnaphthalene					400	U					360	U		
8270C	N	2-Nitroaniline					2500	U					2300	U		
8270C	N	3,3`-Dichlorobenzidine					990	U					900	U		
8270C	N	3-Nitroaniline					2500	U					2300	U		
8270C	N	4-Bromophenyl phenyl ether					400	U					360	U		
8270C	N	4-Chloroaniline					400	U					360	U		
8270C	N	4-Chlorophenyl phenyl ether					400	U					360	U		
8270C	N	4-Nitroaniline					400	U					360	U		
8270C	N	Acenaphthene					400	U					360	U		
8270C	N	Acenaphthylene					400	U					360	U		
8270C	N	Anthracene					400	U					360	U		
8270C	N	Benzo(a)anthracene					400	U					490			
8270C	N	Benzo(a)pyrene					400	U					540			
8270C	N	Benzo(b)fluoranthene					400	U					390			
8270C	N	Benzo(ghi)perylene					400	U					360	U		
8270C	N	Benzo(k)fluoranthene					400	U					360	U		
8270C	N	Benzyl alcohol					400	U					360	U		
8270C	N	Bis(2-Chloroethoxy)methane					400	U					360	U		
8270C	N	Bis(2-Chloroethyl)ether					400	U					360	U		
8270C	N	Bis(2-Chloroisopropyl)ether					400	U					360	U		
8270C	N	Bis(2-Ethylhexyl)phthalate					400	U					360	U		
8270C	N	Butylbenzylphthalate					400	U					360	U		
8270C	N	Carbazole					400	U					360	U		
8270C	N	Chrysene					400	U					580			
8270C	N	Di-n-butylphthalate					400	U					360	U		
8270C	N	Di-n-octylphthalate					400	U					360	U		
8270C	N	Dibenz(a,h)anthracene					400	U					360	U		
8270C	N	Dibenzofuran					400	U					360	U		
8270C	N	Diethylphthalate					400	U					360	U		
8270C	N	Dimethylphthalate					400	U					360	U		
8270C	N	Fluoranthene					400	U					520			
8270C	N	Fluorene					400	U					360	U		
8270C	N	Hexachlorobenzene					400	U					360	U		
8270C	N	Hexachlorobutadiene					400	U					360	U		
8270C	N	Hexachlorocyclopentadiene					990	U					900	U		

Prepared by:BJS
Date:7/17/09
Checked by:BBL
Date:7/20/09

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-1		220-9073-1		220-9073-1		220-9073-10		220-9073-10		220-9073-11	
		Location	SD-01		SD-01		SD-01		SD-08		SD-08		SD-08	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-01		SD-01		SD-01		SD-08		SD-08		SD-08 (12-24)	
		Qc Code	FS		FS		FS		FS		FS		FS	
		Units	mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane					400	U					360	U
8270C	N	Indeno(1,2,3-cd)pyrene					400	U					360	U
8270C	N	Isophorone					400	U					360	U
8270C	N	N-Nitrosodi-n-propylamine					400	U					360	U
8270C	N	N-Nitrosodiphenylamine					400	U					360	U
8270C	N	Naphthalene					400	U					360	U
8270C	N	Nitrobenzene					400	U					360	U
8270C	N	Phenanthrene					400	U					360	U
8270C	N	Pyrene					400	U					770	
9012B	N	Cyanide, Total						R						R
9060	T	Total Organic Carbon	9,100						5,600						14,000
ASTM D422	N	1.4 sieve												
ASTM D422	N	12.8 sieve												
ASTM D422	N	12.9 sieve												
ASTM D422	N	150 sieve												
ASTM D422	N	180 sieve												
ASTM D422	N	19000 sieve												
ASTM D422	N	2000 sieve												
ASTM D422	N	22 sieve												
ASTM D422	N	250 sieve												
ASTM D422	N	25000 sieve												
ASTM D422	N	3.2 sieve												
ASTM D422	N	35 sieve												
ASTM D422	N	37500 sieve												
ASTM D422	N	425 sieve												
ASTM D422	N	4750 sieve												
ASTM D422	N	50000 sieve												
ASTM D422	N	6.4 sieve												
ASTM D422	N	6.6 sieve												
ASTM D422	N	75 sieve												
ASTM D422	N	75000 sieve												
ASTM D422	N	850 sieve												
ASTM D422	N	9.1 sieve												
ASTM D422	N	9.2 sieve												
ASTM D422	N	9500 sieve												
ASTM D422	N	Clay												
ASTM D422	N	Coarse Sand												
ASTM D422	N	Fine Sand												

Prepared by:BJS
Date:7/17/09
Checked by:BBL
Date:7/20/09

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-1		220-9073-1		220-9073-1		220-9073-10		220-9073-10		220-9073-11	
		Location	SD-01		SD-01		SD-01		SD-08		SD-08		SD-08	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-01		SD-01		SD-01		SD-08		SD-08		SD-08 (12-24)	
		Qc Code	FS		FS		FS		FS		FS		FS	
		Units	mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel														
ASTM D422	N	Medium Sand														
ASTM D422	N	Silt														
Moisture	N	Percent Moisture			34.2						26.4					
Moisture	N	Percent Solids			65.8						73.6					

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Date:7/20/09

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-11		220-9073-11		220-9073-12		220-9073-12		220-9073-12		220-9073-13		220-9073-13	
		Location	SD-08		SD-08		SD-09		SD-09		SD-09		SD-10		SD-10	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-08 (12-24)		SD-08 (12-24)		SD-09		SD-09		SD-09		SD-10		SD-10	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum					7,000						8,700			
6010B	T	Antimony					6.2	U					7.9	U		
6010B	T	Arsenic					7.8	U					10	U		
6010B	T	Barium					28						31			
6010B	T	Beryllium					1.9	U					2.4	U		
6010B	T	Cadmium					3.7						2.4	U		
6010B	T	Calcium					2,100						2,900			
6010B	T	Chromium					280						81			
6010B	T	Cobalt					4.7						5.9			
6010B	T	Copper					1100						970			
6010B	T	Iron					12,000						17,000			
6010B	T	Lead					200						130			
6010B	T	Magnesium					4,500						5,700			
6010B	T	Manganese					210						260			
6010B	T	Nickel					28						20			
6010B	T	Potassium					1,500						2,200			
6010B	T	Selenium					14	U					18	U		
6010B	T	Silver					1.9	U					2.4	U		
6010B	T	Sodium					5,200						7,700			
6010B	T	Thallium					5.6	U					7.1	U		
6010B	T	Vanadium					15						21			
6010B	T	Zinc					650						410			
7470A	T	Mercury														
7196A	N	Chromium, Hexavalent					1.6	U					1.9	U		
7471A	T	Mercury					1.2						0.87			
8082	N	Aroclor-1016			26	U					26	U				
8082	N	Aroclor-1221			26	U					26	U				
8082	N	Aroclor-1232			26	U					26	U				
8082	N	Aroclor-1242			26	U					26	U				
8082	N	Aroclor-1248			26	U					26	U				
8082	N	Aroclor-1254			26	U					26	U				
8082	N	Aroclor-1260			26	U					26	U				
8082	N	Aroclor-1262			26	U					26	U				
8082	N	Aroclor-1268			26	U					26	U				
8270C	N	1,2,4-Trichlorobenzene			400	U					410	U				
8270C	N	1,2-Dichlorobenzene			400	U					410	U				
8270C	N	1,3-Dichlorobenzene			400	U					410	U				
8270C	N	1,4-Dichlorobenzene			400	U					410	U				

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-11		220-9073-11		220-9073-12		220-9073-12		220-9073-12		220-9073-13		220-9073-13	
		Location	SD-08		SD-08		SD-09		SD-09		SD-09		SD-10		SD-10	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-08 (12-24)		SD-08 (12-24)		SD-09		SD-09		SD-09		SD-10		SD-10	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene			400	U					410	U				
8270C	N	2,6-Dinitrotoluene			400	U					410	U				
8270C	N	2-Chloronaphthalene			400	U					410	U				
8270C	N	2-Methylnaphthalene			400	U					410	U				
8270C	N	2-Nitroaniline			2500	U					2600	U				
8270C	N	3,3`-Dichlorobenzidine			1000	U					1000	U				
8270C	N	3-Nitroaniline			2500	U					2600	U				
8270C	N	4-Bromophenyl phenyl ether			400	U					410	U				
8270C	N	4-Chloroaniline			400	U					410	U				
8270C	N	4-Chlorophenyl phenyl ether			400	U					410	U				
8270C	N	4-Nitroaniline			400	U					410	U				
8270C	N	Acenaphthene			400	U					410	U				
8270C	N	Acenaphthylene			400	U					500					
8270C	N	Anthracene			400	U					410	U				
8270C	N	Benzo(a)anthracene			400	U					1300					
8270C	N	Benzo(a)pyrene			400	U					1500					
8270C	N	Benzo(b)fluoranthene			400	U					1200					
8270C	N	Benzo(ghi)perylene			400	U					860					
8270C	N	Benzo(k)fluoranthene			400	U					490					
8270C	N	Benzyl alcohol			400	U					410	U				
8270C	N	Bis(2-Chloroethoxy)methane			400	U					410	U				
8270C	N	Bis(2-Chloroethyl)ether			400	U					410	U				
8270C	N	Bis(2-Chloroisopropyl)ether			400	U					410	U				
8270C	N	Bis(2-Ethylhexyl)phthalate			400	U					410	U				
8270C	N	Butylbenzylphthalate			400	U					410	U				
8270C	N	Carbazole			400	U					410	U				
8270C	N	Chrysene			400	U					1100					
8270C	N	Di-n-butylphthalate			400	U					410	U				
8270C	N	Di-n-octylphthalate			400	U					410	U				
8270C	N	Dibenz(a,h)anthracene			400	U					410	U				
8270C	N	Dibenzofuran			400	U					410	U				
8270C	N	Diethylphthalate			400	U					410	U				
8270C	N	Dimethylphthalate			400	U					410	U				
8270C	N	Fluoranthene			400	U					1900					
8270C	N	Fluorene			400	U					410	U				
8270C	N	Hexachlorobenzene			400	U					410	U				
8270C	N	Hexachlorobutadiene			400	U					410	U				
8270C	N	Hexachlorocyclopentadiene			1000	U					1000	U				

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-11		220-9073-11		220-9073-12		220-9073-12		220-9073-12		220-9073-13		220-9073-13	
		Location	SD-08		SD-08		SD-09		SD-09		SD-09		SD-10		SD-10	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-08 (12-24)		SD-08 (12-24)		SD-09		SD-09		SD-09		SD-10		SD-10	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane			400	U					410	U				
8270C	N	Indeno(1,2,3-cd)pyrene			400	U					950					
8270C	N	Isophorone			400	U					410	U				
8270C	N	N-Nitrosodi-n-propylamine			400	U					410	U				
8270C	N	N-Nitrosodiphenylamine			400	U					410	U				
8270C	N	Naphthalene			400	U					410	U				
8270C	N	Nitrobenzene			400	U					410	U				
8270C	N	Phenanthrene			400	U					570					
8270C	N	Pyrene			400	U					2500					
9012B	N	Cyanide, Total				R						R				
9060	T	Total Organic Carbon					25,000						31,000			
ASTM D422	N	1.4 sieve														
ASTM D422	N	12.8 sieve														
ASTM D422	N	12.9 sieve														
ASTM D422	N	150 sieve														
ASTM D422	N	180 sieve														
ASTM D422	N	19000 sieve														
ASTM D422	N	2000 sieve														
ASTM D422	N	22 sieve														
ASTM D422	N	250 sieve														
ASTM D422	N	25000 sieve														
ASTM D422	N	3.2 sieve														
ASTM D422	N	35 sieve														
ASTM D422	N	37500 sieve														
ASTM D422	N	425 sieve														
ASTM D422	N	4750 sieve														
ASTM D422	N	50000 sieve														
ASTM D422	N	6.4 sieve														
ASTM D422	N	6.6 sieve														
ASTM D422	N	75 sieve														
ASTM D422	N	75000 sieve														
ASTM D422	N	850 sieve														
ASTM D422	N	9.1 sieve														
ASTM D422	N	9.2 sieve														
ASTM D422	N	9500 sieve														
ASTM D422	N	Clay														
ASTM D422	N	Coarse Sand														
ASTM D422	N	Fine Sand														

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DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-11		220-9073-11		220-9073-12		220-9073-12		220-9073-12		220-9073-13		220-9073-13	
		Location	SD-08		SD-08		SD-09		SD-09		SD-09		SD-10		SD-10	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-08 (12-24)		SD-08 (12-24)		SD-09		SD-09		SD-09		SD-10		SD-10	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel														
ASTM D422	N	Medium Sand														
ASTM D422	N	Silt														
Moisture	N	Percent Moisture	33.9						36.2						50	
Moisture	N	Percent Solids	66.1						63.8						50	

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-13		220-9073-14		220-9073-14		220-9073-2		220-9073-2		220-9073-3	
		Location	SD-10		QC		QC		SD-02		SD-02		SD-02	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/13/2009		5/13/2009		5/13/2009	
		Sample ID	SD-10		EB 051409		EB 051409		SD-02		SD-02		SD-02D	
		Qc Code	FS		EB		EB		FS		FS		FD	
		Units	ug/Kg		mg/L		ug/L		mg/Kg		PERCENT		ug/Kg		mg/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum					250	U	20,000						20,000	
6010B	T	Antimony					15	U	8.1	U					7.9	U
6010B	T	Arsenic					15	U	11						11	
6010B	T	Barium					5	U	100						110	
6010B	T	Beryllium					5	U	2.4	U					2.4	U
6010B	T	Cadmium					5	U	8.5						9	
6010B	T	Calcium					250	U	3,100						2,500	
6010B	T	Chromium					5	U	660						720	
6010B	T	Cobalt					5	U	14						13	
6010B	T	Copper					10	U	2400						2500	
6010B	T	Iron					120	U	32,000						31,000	
6010B	T	Lead					15	U	340						330	
6010B	T	Magnesium					250	U	8,400						8,000	
6010B	T	Manganese					8	U	390						370	
6010B	T	Nickel					5	U	95						98	
6010B	T	Potassium					250	U	3,900						3,700	
6010B	T	Selenium					38	U	18	U					18	U
6010B	T	Silver					5	U	2.8						2.9	
6010B	T	Sodium					250	U	7,700						8,100	
6010B	T	Thallium					15	U	7.3	U					7.2	U
6010B	T	Vanadium					5	U	47						46	
6010B	T	Zinc					25	U	1600						1700	
7470A	T	Mercury					0.2	U								
7196A	N	Chromium, Hexavalent			0.01	U			1.9	U					2	U
7471A	T	Mercury							1.4						1.6	
8082	N	Aroclor-1016	33	U			0.53	U					65	U		
8082	N	Aroclor-1221	33	U			0.53	U					65	U		
8082	N	Aroclor-1232	33	U			0.53	U					65	U		
8082	N	Aroclor-1242	33	U			0.53	U					65	U		
8082	N	Aroclor-1248	33	U			0.53	U					65	U		
8082	N	Aroclor-1254	33	U			0.53	U					420	J		
8082	N	Aroclor-1260	33	U			0.53	U					300	J		
8082	N	Aroclor-1262	33	U			0.53	U					65	U		
8082	N	Aroclor-1268	33	U			0.53	U					65	U		
8270C	N	1,2,4-Trichlorobenzene	520	U			4	U					520	U		
8270C	N	1,2-Dichlorobenzene	520	U			4	U					520	U		
8270C	N	1,3-Dichlorobenzene	520	U			4	U					520	U		
8270C	N	1,4-Dichlorobenzene	520	U			4	U					520	U		

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Checked by:BBL
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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-13		220-9073-14		220-9073-14		220-9073-2		220-9073-2		220-9073-2		220-9073-3	
		Location	SD-10		QC		QC		SD-02		SD-02		SD-02		SD-02	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009	
		Sample ID	SD-10		EB 051409		EB 051409		SD-02		SD-02		SD-02		SD-02D	
		Qc Code	FS		EB		EB		FS		FS		FS		FD	
		Units	ug/Kg		mg/L		ug/L		mg/Kg		PERCENT		ug/Kg		mg/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene	520	U			4	U					520	U		
8270C	N	2,6-Dinitrotoluene	520	U			4	U					520	U		
8270C	N	2-Chloronaphthalene	520	U			4	U					520	U		
8270C	N	2-Methylnaphthalene	520	U			4	U					520	U		
8270C	N	2-Nitroaniline	3300	U			4	U					3300	U		
8270C	N	3,3`-Dichlorobenzidine	1300	U			4	U					1300	U		
8270C	N	3-Nitroaniline	3300	U			4	U					3300	U		
8270C	N	4-Bromophenyl phenyl ether	520	U			4	U					520	U		
8270C	N	4-Chloroaniline	520	U			4	U					520	U		
8270C	N	4-Chlorophenyl phenyl ether	520	U			4	U					520	U		
8270C	N	4-Nitroaniline	520	U			4	U					520	U		
8270C	N	Acenaphthene	520	U			4	U					520	U		
8270C	N	Acenaphthylene	520	U			4	U					1400			
8270C	N	Anthracene	520	U			4	U					880			
8270C	N	Benzo(a)anthracene	1100				4	U					2100			
8270C	N	Benzo(a)pyrene	1100				4	U					3100			
8270C	N	Benzo(b)fluoranthene	1000				4	U					2900			
8270C	N	Benzo(ghi)perylene	670				4	U					3200			
8270C	N	Benzo(k)fluoranthene	520	U			4	U					1100			
8270C	N	Benzyl alcohol	520	U			4	U					520	U		
8270C	N	Bis(2-Chloroethoxy)methane	520	U			4	U					520	U		
8270C	N	Bis(2-Chloroethyl)ether	520	U			4	U					520	U		
8270C	N	Bis(2-Chloroisopropyl)ether	520	U			4	U					520	U		
8270C	N	Bis(2-Ethylhexyl)phthalate	520	U			4	U					520	U		
8270C	N	Butylbenzylphthalate	520	U			4	U					520	U		
8270C	N	Carbazole	520	U			4	U					520	U		
8270C	N	Chrysene	820				4	U					2700			
8270C	N	Di-n-butylphthalate	520	U			4	U					520	U		
8270C	N	Di-n-octylphthalate	520	U			4	U					520	U		
8270C	N	Dibenz(a,h)anthracene	520	U			4	U					820			
8270C	N	Dibenzofuran	520	U			4	U					520	U		
8270C	N	Diethylphthalate	520	U			4	U					520	U		
8270C	N	Dimethylphthalate	520	U			4	U					520	U		
8270C	N	Fluoranthene	730				4	U					4300			
8270C	N	Fluorene	520	U			4	U					520	U		
8270C	N	Hexachlorobenzene	520	U			4	U					520	U		
8270C	N	Hexachlorobutadiene	520	U			4	U					520	U		
8270C	N	Hexachlorocyclopentadiene	1300	U			4	U					1300	U		

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Checked by:BBL
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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-13		220-9073-14		220-9073-14		220-9073-2		220-9073-2		220-9073-2		220-9073-3	
		Location	SD-10		QC		QC		SD-02		SD-02		SD-02		SD-02	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009	
		Sample ID	SD-10		EB 051409		EB 051409		SD-02		SD-02		SD-02		SD-02D	
		Qc Code	FS		EB		EB		FS		FS		FS		FD	
		Units	ug/Kg		mg/L		ug/L		mg/Kg		PERCENT		ug/Kg		mg/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane	520	U			4	U					520	U		
8270C	N	Indeno(1,2,3-cd)pyrene	760				4	U					3000			
8270C	N	Isophorone	520	U			4	U					520	U		
8270C	N	N-Nitrosodi-n-propylamine	520	U			4	U					520	U		
8270C	N	N-Nitrosodiphenylamine	520	U			4	U					2900			
8270C	N	Naphthalene	520	U			4	U					520	U		
8270C	N	Nitrobenzene	520	U			4	U					520	U		
8270C	N	Phenanthrene	520	U			4	U					1300			
8270C	N	Pyrene	1800				4	U					6700			
9012B	N	Cyanide, Total		R										R		
9060	T	Total Organic Carbon			1	U			62,000						58,000	
ASTM D422	N	1.4 sieve														
ASTM D422	N	12.8 sieve														
ASTM D422	N	12.9 sieve														
ASTM D422	N	150 sieve														
ASTM D422	N	180 sieve														
ASTM D422	N	19000 sieve														
ASTM D422	N	2000 sieve														
ASTM D422	N	22 sieve														
ASTM D422	N	250 sieve														
ASTM D422	N	25000 sieve														
ASTM D422	N	3.2 sieve														
ASTM D422	N	35 sieve														
ASTM D422	N	37500 sieve														
ASTM D422	N	425 sieve														
ASTM D422	N	4750 sieve														
ASTM D422	N	50000 sieve														
ASTM D422	N	6.4 sieve														
ASTM D422	N	6.6 sieve														
ASTM D422	N	75 sieve														
ASTM D422	N	75000 sieve														
ASTM D422	N	850 sieve														
ASTM D422	N	9.1 sieve														
ASTM D422	N	9.2 sieve														
ASTM D422	N	9500 sieve														
ASTM D422	N	Clay														
ASTM D422	N	Coarse Sand														
ASTM D422	N	Fine Sand														

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Date:7/17/09
Checked by:BBL
Date:7/20/09

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-13		220-9073-14		220-9073-14		220-9073-2		220-9073-2		220-9073-3	
		Location	SD-10		QC		QC		SD-02		SD-02		SD-02	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/13/2009		5/13/2009		5/13/2009	
		Sample ID	SD-10		EB 051409		EB 051409		SD-02		SD-02		SD-02D	
		Qc Code	FS		EB		EB		FS		FS		FD	
		Units	ug/Kg		mg/L		ug/L		mg/Kg		PERCENT		ug/Kg		mg/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel														
ASTM D422	N	Medium Sand														
ASTM D422	N	Silt														
Moisture	N	Percent Moisture									48.8					
Moisture	N	Percent Solids									51.2					

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TABLE 1
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BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-3		220-9073-3		220-9073-4		220-9073-4		220-9073-4		220-9073-5		220-9073-5	
		Location	SD-02		SD-02		SD-03		SD-03		SD-03		SD-04		SD-04	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/14/2009		5/14/2009	
		Sample ID	SD-02D		SD-02D		SD-03		SD-03		SD-03		SD-04		SD-04	
		Qc Code	FD		FD		FS		FS		FS		FS		FS	
		Units	PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum					8,300						7,100			
6010B	T	Antimony					7.3	U					6.5	U		
6010B	T	Arsenic					9.3	U					8.2	U		
6010B	T	Barium					27						21			
6010B	T	Beryllium					2.2	U					2	U		
6010B	T	Cadmium					2.2	U					2	U		
6010B	T	Calcium					2,000						2,400			
6010B	T	Chromium					59						34			
6010B	T	Cobalt					5.4						4.7			
6010B	T	Copper					240						94			
6010B	T	Iron					14,000						12,000			
6010B	T	Lead					41						25			
6010B	T	Magnesium					5,200						4,600			
6010B	T	Manganese					180						180			
6010B	T	Nickel					15						11			
6010B	T	Potassium					2,200						1,600			
6010B	T	Selenium					17	U					15	U		
6010B	T	Silver					2.2	U					2	U		
6010B	T	Sodium					7,000						4,000			
6010B	T	Thallium					6.6	U					5.9	U		
6010B	T	Vanadium					20						15			
6010B	T	Zinc					140						82			
7470A	T	Mercury														
7196A	N	Chromium, Hexavalent					1.8	U					1.5	U		
7471A	T	Mercury					0.24						0.11			
8082	N	Aroclor-1016			65	U					30	U				
8082	N	Aroclor-1221			65	U					30	U				
8082	N	Aroclor-1232			65	U					30	U				
8082	N	Aroclor-1242			65	U					30	U				
8082	N	Aroclor-1248			65	U					30	U				
8082	N	Aroclor-1254			350	J					36					
8082	N	Aroclor-1260			220	J					30	U				
8082	N	Aroclor-1262			65	U					30	U				
8082	N	Aroclor-1268			65	U					30	U				
8270C	N	1,2,4-Trichlorobenzene			510	U					480	U				
8270C	N	1,2-Dichlorobenzene			510	U					480	U				
8270C	N	1,3-Dichlorobenzene			510	U					480	U				
8270C	N	1,4-Dichlorobenzene			510	U					480	U				

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-3		220-9073-3		220-9073-4		220-9073-4		220-9073-4		220-9073-5		220-9073-5	
		Location	SD-02		SD-02		SD-03		SD-03		SD-03		SD-04		SD-04	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/14/2009		5/14/2009	
		Sample ID	SD-02D		SD-02D		SD-03		SD-03		SD-03		SD-04		SD-04	
		Qc Code	FD		FD		FS		FS		FS		FS		FS	
		Units	PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene			510	U					480	U				
8270C	N	2,6-Dinitrotoluene			510	U					480	U				
8270C	N	2-Chloronaphthalene			510	U					480	U				
8270C	N	2-Methylnaphthalene			510	U					480	U				
8270C	N	2-Nitroaniline			3200	U					3100	U				
8270C	N	3,3`-Dichlorobenzidine			1300	U					1200	U				
8270C	N	3-Nitroaniline			3200	U					3100	U				
8270C	N	4-Bromophenyl phenyl ether			510	U					480	U				
8270C	N	4-Chloroaniline			510	U					480	U				
8270C	N	4-Chlorophenyl phenyl ether			510	U					480	U				
8270C	N	4-Nitroaniline			510	U					480	U				
8270C	N	Acenaphthene			510	U					480	U				
8270C	N	Acenaphthylene			1400						480	U				
8270C	N	Anthracene			860						480	U				
8270C	N	Benzo(a)anthracene			2100						480	U				
8270C	N	Benzo(a)pyrene			3000						480	U				
8270C	N	Benzo(b)fluoranthene			2700						480	U				
8270C	N	Benzo(ghi)perylene			2900						480	U				
8270C	N	Benzo(k)fluoranthene			1100						480	U				
8270C	N	Benzyl alcohol			510	U					480	U				
8270C	N	Bis(2-Chloroethoxy)methane			510	U					480	U				
8270C	N	Bis(2-Chloroethyl)ether			510	U					480	U				
8270C	N	Bis(2-Chloroisopropyl)ether			510	U					480	U				
8270C	N	Bis(2-Ethylhexyl)phthalate			510	U					480	U				
8270C	N	Butylbenzylphthalate			510	U					480	U				
8270C	N	Carbazole			510	U					480	U				
8270C	N	Chrysene			2800						480	U				
8270C	N	Di-n-butylphthalate			510	U					480	U				
8270C	N	Di-n-octylphthalate			510	U					480	U				
8270C	N	Dibenz(a,h)anthracene			750						480	U				
8270C	N	Dibenzofuran			510	U					480	U				
8270C	N	Diethylphthalate			510	U					480	U				
8270C	N	Dimethylphthalate			510	U					480	U				
8270C	N	Fluoranthene			3400						500					
8270C	N	Fluorene			510	U					480	U				
8270C	N	Hexachlorobenzene			510	U					480	U				
8270C	N	Hexachlorobutadiene			510	U					480	U				
8270C	N	Hexachlorocyclopentadiene			1300	U					1200	U				

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TABLE 1
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BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-3		220-9073-3		220-9073-4		220-9073-4		220-9073-4		220-9073-5		220-9073-5	
		Location	SD-02		SD-02		SD-03		SD-03		SD-03		SD-04		SD-04	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/14/2009		5/14/2009	
		Sample ID	SD-02D		SD-02D		SD-03		SD-03		SD-03		SD-04		SD-04	
		Qc Code	FD		FD		FS		FS		FS		FS		FS	
		Units	PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane			510	U					480	U				
8270C	N	Indeno(1,2,3-cd)pyrene			2800						480	U				
8270C	N	Isophorone			510	U					480	U				
8270C	N	N-Nitrosodi-n-propylamine			510	U					480	U				
8270C	N	N-Nitrosodiphenylamine			2700						480	U				
8270C	N	Naphthalene			510	U					480	U				
8270C	N	Nitrobenzene			510	U					480	U				
8270C	N	Phenanthrene			1300						480	U				
8270C	N	Pyrene			6700						550					
9012B	N	Cyanide, Total				R						R				
9060	T	Total Organic Carbon					19,000						12,000			
ASTM D422	N	1.4 sieve														
ASTM D422	N	12.8 sieve														
ASTM D422	N	12.9 sieve														
ASTM D422	N	150 sieve														
ASTM D422	N	180 sieve														
ASTM D422	N	19000 sieve														
ASTM D422	N	2000 sieve														
ASTM D422	N	22 sieve														
ASTM D422	N	250 sieve														
ASTM D422	N	25000 sieve														
ASTM D422	N	3.2 sieve														
ASTM D422	N	35 sieve														
ASTM D422	N	37500 sieve														
ASTM D422	N	425 sieve														
ASTM D422	N	4750 sieve														
ASTM D422	N	50000 sieve														
ASTM D422	N	6.4 sieve														
ASTM D422	N	6.6 sieve														
ASTM D422	N	75 sieve														
ASTM D422	N	75000 sieve														
ASTM D422	N	850 sieve														
ASTM D422	N	9.1 sieve														
ASTM D422	N	9.2 sieve														
ASTM D422	N	9500 sieve														
ASTM D422	N	Clay														
ASTM D422	N	Coarse Sand														
ASTM D422	N	Fine Sand														

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-3		220-9073-3		220-9073-4		220-9073-4		220-9073-4		220-9073-5		220-9073-5	
		Location	SD-02		SD-02		SD-03		SD-03		SD-03		SD-04		SD-04	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/14/2009		5/14/2009	
		Sample ID	SD-02D		SD-02D		SD-03		SD-03		SD-03		SD-04		SD-04	
		Qc Code	FD		FD		FS		FS		FS		FS		FS	
		Units	PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel														
ASTM D422	N	Medium Sand														
ASTM D422	N	Silt														
Moisture	N	Percent Moisture	49.1						44.9						36.5	
Moisture	N	Percent Solids	50.9						55.1						63.5	

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-5		220-9073-6		220-9073-6		220-9073-6		220-9073-7		220-9073-7		220-9073-7	
		Location	SD-04		SD-04		SD-04		SD-04		SD-05		SD-05		SD-05	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-04		SD-04 (12-24)		SD-04 (12-24)		SD-04 (12-24)		SD-05		SD-05		SD-05	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum			11,000						6,500					
6010B	T	Antimony			5.6	U					6.4	U				
6010B	T	Arsenic			7.1	U					8.2	U				
6010B	T	Barium			26						20					
6010B	T	Beryllium			1.7	U					1.9	U				
6010B	T	Cadmium			1.7	U					1.9	U				
6010B	T	Calcium			1,800						2,500					
6010B	T	Chromium			17						38					
6010B	T	Cobalt			7.5						4.2					
6010B	T	Copper			18						140					
6010B	T	Iron			19,000						11,000					
6010B	T	Lead			5.1	U					21					
6010B	T	Magnesium			7,200						4,400					
6010B	T	Manganese			280						170					
6010B	T	Nickel			13						12					
6010B	T	Potassium			2,800						1,600					
6010B	T	Selenium			13	U					15	U				
6010B	T	Silver			1.7	U					1.9	U				
6010B	T	Sodium			3,500						4,200					
6010B	T	Thallium			5.1	U					5.8	U				
6010B	T	Vanadium			22						15					
6010B	T	Zinc			79						93					
7470A	T	Mercury														
7196A	N	Chromium, Hexavalent			1.4	U					1.5	U				
7471A	T	Mercury			0.11						0.13					
8082	N	Aroclor-1016	26	U					23	U					26	U
8082	N	Aroclor-1221	26	U					23	U					26	U
8082	N	Aroclor-1232	26	U					23	U					26	U
8082	N	Aroclor-1242	26	U					23	U					26	U
8082	N	Aroclor-1248	26	U					23	U					26	U
8082	N	Aroclor-1254	31						23	U					49	
8082	N	Aroclor-1260	28	J					23	U					26	U
8082	N	Aroclor-1262	26	U					23	U					26	U
8082	N	Aroclor-1268	26	U					23	U					26	U
8270C	N	1,2,4-Trichlorobenzene	420	U					370	U					420	U
8270C	N	1,2-Dichlorobenzene	420	U					370	U					420	U
8270C	N	1,3-Dichlorobenzene	420	U					370	U					420	U
8270C	N	1,4-Dichlorobenzene	420	U					370	U					420	U

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Checked by:BBL
Date:7/20/09

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-5		220-9073-6		220-9073-6		220-9073-6		220-9073-7		220-9073-7		220-9073-7	
		Location	SD-04		SD-04		SD-04		SD-04		SD-05		SD-05		SD-05	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-04		SD-04 (12-24)		SD-04 (12-24)		SD-04 (12-24)		SD-05		SD-05		SD-05	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene	420	U					370	U					420	U
8270C	N	2,6-Dinitrotoluene	420	U					370	U					420	U
8270C	N	2-Chloronaphthalene	420	U					370	U					420	U
8270C	N	2-Methylnaphthalene	420	U					370	U					420	U
8270C	N	2-Nitroaniline	2600	U					2300	U					2600	U
8270C	N	3,3`-Dichlorobenzidine	1000	U					920	U					1000	U
8270C	N	3-Nitroaniline	2600	U					2300	U					2600	U
8270C	N	4-Bromophenyl phenyl ether	420	U					370	U					420	U
8270C	N	4-Chloroaniline	420	U					370	U					420	U
8270C	N	4-Chlorophenyl phenyl ether	420	U					370	U					420	U
8270C	N	4-Nitroaniline	420	U					370	U					420	U
8270C	N	Acenaphthene	420	U					370	U					420	U
8270C	N	Acenaphthylene	420	U					370	U					420	U
8270C	N	Anthracene	420	U					370	U					420	U
8270C	N	Benzo(a)anthracene	420	U					370	U					420	U
8270C	N	Benzo(a)pyrene	420	U					370	U					530	
8270C	N	Benzo(b)fluoranthene	420	U					370	U					470	
8270C	N	Benzo(ghi)perylene	420	U					370	U					420	U
8270C	N	Benzo(k)fluoranthene	420	U					370	U					420	U
8270C	N	Benzyl alcohol	420	U					370	U					420	U
8270C	N	Bis(2-Chloroethoxy)methane	420	U					370	U					420	U
8270C	N	Bis(2-Chloroethyl)ether	420	U					370	U					420	U
8270C	N	Bis(2-Chloroisopropyl)ether	420	U					370	U					420	U
8270C	N	Bis(2-Ethylhexyl)phthalate	420	U					370	U					420	U
8270C	N	Butylbenzylphthalate	420	U					370	U					420	U
8270C	N	Carbazole	420	U					370	U					420	U
8270C	N	Chrysene	420	U					370	U					470	
8270C	N	Di-n-butylphthalate	420	U					370	U					420	U
8270C	N	Di-n-octylphthalate	420	U					370	U					420	U
8270C	N	Dibenz(a,h)anthracene	420	U					370	U					420	U
8270C	N	Dibenzofuran	420	U					370	U					420	U
8270C	N	Diethylphthalate	420	U					370	U					420	U
8270C	N	Dimethylphthalate	420	U					370	U					420	U
8270C	N	Fluoranthene	420	U					370	U					510	
8270C	N	Fluorene	420	U					370	U					420	U
8270C	N	Hexachlorobenzene	420	U					370	U					420	U
8270C	N	Hexachlorobutadiene	420	U					370	U					420	U
8270C	N	Hexachlorocyclopentadiene	1000	U					920	U					1000	U

Prepared by:BJS
Date:7/17/09
Checked by:BBL
Date:7/20/09

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-5		220-9073-6		220-9073-6		220-9073-6		220-9073-7		220-9073-7		220-9073-7	
		Location	SD-04		SD-04		SD-04		SD-04		SD-05		SD-05		SD-05	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-04		SD-04 (12-24)		SD-04 (12-24)		SD-04 (12-24)		SD-05		SD-05		SD-05	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane	420	U					370	U					420	U
8270C	N	Indeno(1,2,3-cd)pyrene	420	U					370	U					420	U
8270C	N	Isophorone	420	U					370	U					420	U
8270C	N	N-Nitrosodi-n-propylamine	420	U					370	U					420	U
8270C	N	N-Nitrosodiphenylamine	420	U					370	U					420	U
8270C	N	Naphthalene	420	U					370	U					420	U
8270C	N	Nitrobenzene	420	U					370	U					420	U
8270C	N	Phenanthrene	420	U					370	U					420	U
8270C	N	Pyrene	420	U					370	U					770	
9012B	N	Cyanide, Total		R						R						R
9060	T	Total Organic Carbon			6,100						12,000					
ASTM D422	N	1.4 sieve														
ASTM D422	N	12.8 sieve														
ASTM D422	N	12.9 sieve														
ASTM D422	N	150 sieve														
ASTM D422	N	180 sieve														
ASTM D422	N	19000 sieve														
ASTM D422	N	2000 sieve														
ASTM D422	N	22 sieve														
ASTM D422	N	250 sieve														
ASTM D422	N	25000 sieve														
ASTM D422	N	3.2 sieve														
ASTM D422	N	35 sieve														
ASTM D422	N	37500 sieve														
ASTM D422	N	425 sieve														
ASTM D422	N	4750 sieve														
ASTM D422	N	50000 sieve														
ASTM D422	N	6.4 sieve														
ASTM D422	N	6.6 sieve														
ASTM D422	N	75 sieve														
ASTM D422	N	75000 sieve														
ASTM D422	N	850 sieve														
ASTM D422	N	9.1 sieve														
ASTM D422	N	9.2 sieve														
ASTM D422	N	9500 sieve														
ASTM D422	N	Clay														
ASTM D422	N	Coarse Sand														
ASTM D422	N	Fine Sand														

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-5		220-9073-6		220-9073-6		220-9073-6		220-9073-7		220-9073-7		220-9073-7	
		Location	SD-04		SD-04		SD-04		SD-04		SD-05		SD-05		SD-05	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-04		SD-04 (12-24)		SD-04 (12-24)		SD-04 (12-24)		SD-05		SD-05		SD-05	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	ug/Kg		mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel														
ASTM D422	N	Medium Sand														
ASTM D422	N	Silt														
Moisture	N	Percent Moisture					27.8						36.1			
Moisture	N	Percent Solids					72.2						63.9			

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-8		220-9073-8		220-9073-8		220-9073-9		220-9073-9		795783	
		Location	SD-06		SD-06		SD-06		SD-07		SD-07		SD-01	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/13/2009	
		Sample ID	SD-06		SD-06		SD-06		SD-07		SD-07		SD-01	
		Qc Code	FS		FS		FS		FS		FS		FS	
		Units	mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum	8,900						5,100							
6010B	T	Antimony	7.1	U					5.6	U						
6010B	T	Arsenic	9.1	U					7.1	U						
6010B	T	Barium	26						14							
6010B	T	Beryllium	2.2	U					1.7	U						
6010B	T	Cadmium	2.2	U					1.7	U						
6010B	T	Calcium	3,100						2,200							
6010B	T	Chromium	64						21							
6010B	T	Cobalt	6.2						3.4							
6010B	T	Copper	200						74							
6010B	T	Iron	16,000						8,600							
6010B	T	Lead	36						14							
6010B	T	Magnesium	6,100						3,300							
6010B	T	Manganese	240						130							
6010B	T	Nickel	18						7.7							
6010B	T	Potassium	2,300						1,100							
6010B	T	Selenium	16	U					13	U						
6010B	T	Silver	2.2	U					1.7	U						
6010B	T	Sodium	5,800						3,000							
6010B	T	Thallium	6.5	U					5	U						
6010B	T	Vanadium	22						10							
6010B	T	Zinc	140						57							
7470A	T	Mercury														
7196A	N	Chromium, Hexavalent	1.7	U					1.4	U						
7471A	T	Mercury	0.17						0.07							
8082	N	Aroclor-1016					30	U					23	U		
8082	N	Aroclor-1221					30	U					23	U		
8082	N	Aroclor-1232					30	U					23	U		
8082	N	Aroclor-1242					30	U					23	U		
8082	N	Aroclor-1248					30	U					23	U		
8082	N	Aroclor-1254					130	J					23	U		
8082	N	Aroclor-1260					170						23	U		
8082	N	Aroclor-1262					30	U					23	U		
8082	N	Aroclor-1268					30	U					23	U		
8270C	N	1,2,4-Trichlorobenzene					470	U					370	U		
8270C	N	1,2-Dichlorobenzene					470	U					370	U		
8270C	N	1,3-Dichlorobenzene					470	U					370	U		
8270C	N	1,4-Dichlorobenzene					470	U					370	U		

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-8		220-9073-8		220-9073-8		220-9073-9		220-9073-9		795783	
		Location	SD-06		SD-06		SD-06		SD-07		SD-07		SD-01	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/13/2009	
		Sample ID	SD-06		SD-06		SD-06		SD-07		SD-07		SD-01	
		Qc Code	FS		FS		FS		FS		FS		FS	
		Units	mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene					470	U					370	U		
8270C	N	2,6-Dinitrotoluene					470	U					370	U		
8270C	N	2-Chloronaphthalene					470	U					370	U		
8270C	N	2-Methylnaphthalene					470	U					370	U		
8270C	N	2-Nitroaniline					3000	U					2300	U		
8270C	N	3,3`-Dichlorobenzidine					1200	U					910	U		
8270C	N	3-Nitroaniline					3000	U					2300	U		
8270C	N	4-Bromophenyl phenyl ether					470	U					370	U		
8270C	N	4-Chloroaniline					470	U					370	U		
8270C	N	4-Chlorophenyl phenyl ether					470	U					370	U		
8270C	N	4-Nitroaniline					470	U					370	U		
8270C	N	Acenaphthene					470	U					370	U		
8270C	N	Acenaphthylene					470	U					370	U		
8270C	N	Anthracene					470	U					370	U		
8270C	N	Benzo(a)anthracene					590						370	U		
8270C	N	Benzo(a)pyrene					790						370	U		
8270C	N	Benzo(b)fluoranthene					650						370	U		
8270C	N	Benzo(ghi)perylene					590						370	U		
8270C	N	Benzo(k)fluoranthene					470	U					370	U		
8270C	N	Benzyl alcohol					470	U					370	U		
8270C	N	Bis(2-Chloroethoxy)methane					470	U					370	U		
8270C	N	Bis(2-Chloroethyl)ether					470	U					370	U		
8270C	N	Bis(2-Chloroisopropyl)ether					470	U					370	U		
8270C	N	Bis(2-Ethylhexyl)phthalate					470	U					370	U		
8270C	N	Butylbenzylphthalate					470	U					370	U		
8270C	N	Carbazole					470	U					370	U		
8270C	N	Chrysene					690						370	U		
8270C	N	Di-n-butylphthalate					470	U					370	U		
8270C	N	Di-n-octylphthalate					470	U					370	U		
8270C	N	Dibenz(a,h)anthracene					470	U					370	U		
8270C	N	Dibenzofuran					470	U					370	U		
8270C	N	Diethylphthalate					470	U					370	U		
8270C	N	Dimethylphthalate					470	U					370	U		
8270C	N	Fluoranthene					690						370	U		
8270C	N	Fluorene					470	U					370	U		
8270C	N	Hexachlorobenzene					470	U					370	U		
8270C	N	Hexachlorobutadiene					470	U					370	U		
8270C	N	Hexachlorocyclopentadiene					1200	U					910	U		

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Checked by:BBL
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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-8		220-9073-8		220-9073-8		220-9073-9		220-9073-9		795783	
		Location	SD-06		SD-06		SD-06		SD-07		SD-07		SD-01	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/13/2009	
		Sample ID	SD-06		SD-06		SD-06		SD-07		SD-07		SD-01	
		Qc Code	FS		FS		FS		FS		FS		FS	
		Units	mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane					470	U					370	U		
8270C	N	Indeno(1,2,3-cd)pyrene					620						370	U		
8270C	N	Isophorone					470	U					370	U		
8270C	N	N-Nitrosodi-n-propylamine					470	U					370	U		
8270C	N	N-Nitrosodiphenylamine					470	U					370	U		
8270C	N	Naphthalene					470	U					370	U		
8270C	N	Nitrobenzene					470	U					370	U		
8270C	N	Phenanthrene					470	U					370	U		
8270C	N	Pyrene					1000						370	U		
9012B	N	Cyanide, Total						R						R		
9060	T	Total Organic Carbon	19,000						8,200							
ASTM D422	N	1.4 sieve													3.6	
ASTM D422	N	12.8 sieve														
ASTM D422	N	12.9 sieve													8	
ASTM D422	N	150 sieve													82.6	
ASTM D422	N	180 sieve													89.3	
ASTM D422	N	19000 sieve													100	
ASTM D422	N	2000 sieve													99.3	
ASTM D422	N	22 sieve													9.8	
ASTM D422	N	250 sieve													95.8	
ASTM D422	N	25000 sieve													100	
ASTM D422	N	3.2 sieve														
ASTM D422	N	35 sieve														
ASTM D422	N	37500 sieve													100	
ASTM D422	N	425 sieve													98.7	
ASTM D422	N	4750 sieve													99.6	
ASTM D422	N	50000 sieve													100	
ASTM D422	N	6.4 sieve													6.1	
ASTM D422	N	6.6 sieve														
ASTM D422	N	75 sieve													31.4	
ASTM D422	N	75000 sieve													100	
ASTM D422	N	850 sieve													99.2	
ASTM D422	N	9.1 sieve														
ASTM D422	N	9.2 sieve													6.8	
ASTM D422	N	9500 sieve													100	
ASTM D422	N	Clay														
ASTM D422	N	Coarse Sand														
ASTM D422	N	Fine Sand														

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Checked by:BBL
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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	220-9073-8		220-9073-8		220-9073-8		220-9073-9		220-9073-9		795783	
		Location	SD-06		SD-06		SD-06		SD-07		SD-07		SD-01	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/13/2009	
		Sample ID	SD-06		SD-06		SD-06		SD-07		SD-07		SD-01	
		Qc Code	FS		FS		FS		FS		FS		FS	
		Units	mg/Kg		PERCENT		ug/Kg		mg/Kg		PERCENT		ug/Kg		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel														
ASTM D422	N	Medium Sand														
ASTM D422	N	Silt														
Moisture	N	Percent Moisture			43.7						28.9					
Moisture	N	Percent Solids			56.3						71.1					

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795783		795784		795784		795785		795785		795786	
		Location	SD-01		SD-02		SD-02		SD-03		SD-03		SD-04	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/14/2009	
		Sample ID	SD-01		SD-02D		SD-02D		SD-03		SD-03		SD-04	
		Qc Code	FS		FD		FD		FS		FS		FS	
		Units	PERCENT		% passing		PERCENT		% passing		PERCENT		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum												
6010B	T	Antimony												
6010B	T	Arsenic												
6010B	T	Barium												
6010B	T	Beryllium												
6010B	T	Cadmium												
6010B	T	Calcium												
6010B	T	Chromium												
6010B	T	Cobalt												
6010B	T	Copper												
6010B	T	Iron												
6010B	T	Lead												
6010B	T	Magnesium												
6010B	T	Manganese												
6010B	T	Nickel												
6010B	T	Potassium												
6010B	T	Selenium												
6010B	T	Silver												
6010B	T	Sodium												
6010B	T	Thallium												
6010B	T	Vanadium												
6010B	T	Zinc												
7470A	T	Mercury												
7196A	N	Chromium, Hexavalent												
7471A	T	Mercury												
8082	N	Aroclor-1016												
8082	N	Aroclor-1221												
8082	N	Aroclor-1232												
8082	N	Aroclor-1242												
8082	N	Aroclor-1248												
8082	N	Aroclor-1254												
8082	N	Aroclor-1260												
8082	N	Aroclor-1262												
8082	N	Aroclor-1268												
8270C	N	1,2,4-Trichlorobenzene												
8270C	N	1,2-Dichlorobenzene												
8270C	N	1,3-Dichlorobenzene												
8270C	N	1,4-Dichlorobenzene												

Prepared by:BJS
Date:7/17/09
Checked by:BBL
Date:7/20/09

TABLE 1
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BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795783		795784		795784		795785		795785		795786	
		Location	SD-01		SD-02		SD-02		SD-03		SD-03		SD-04	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/14/2009	
		Sample ID	SD-01		SD-02D		SD-02D		SD-03		SD-03		SD-04	
		Qc Code	FS		FD		FD		FS		FS		FS	
		Units	PERCENT		% passing		PERCENT		% passing		PERCENT		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene												
8270C	N	2,6-Dinitrotoluene												
8270C	N	2-Chloronaphthalene												
8270C	N	2-Methylnaphthalene												
8270C	N	2-Nitroaniline												
8270C	N	3,3`-Dichlorobenzidine												
8270C	N	3-Nitroaniline												
8270C	N	4-Bromophenyl phenyl ether												
8270C	N	4-Chloroaniline												
8270C	N	4-Chlorophenyl phenyl ether												
8270C	N	4-Nitroaniline												
8270C	N	Acenaphthene												
8270C	N	Acenaphthylene												
8270C	N	Anthracene												
8270C	N	Benzo(a)anthracene												
8270C	N	Benzo(a)pyrene												
8270C	N	Benzo(b)fluoranthene												
8270C	N	Benzo(ghi)perylene												
8270C	N	Benzo(k)fluoranthene												
8270C	N	Benzyl alcohol												
8270C	N	Bis(2-Chloroethoxy)methane												
8270C	N	Bis(2-Chloroethyl)ether												
8270C	N	Bis(2-Chloroisopropyl)ether												
8270C	N	Bis(2-Ethylhexyl)phthalate												
8270C	N	Butylbenzylphthalate												
8270C	N	Carbazole												
8270C	N	Chrysene												
8270C	N	Di-n-butylphthalate												
8270C	N	Di-n-octylphthalate												
8270C	N	Dibenz(a,h)anthracene												
8270C	N	Dibenzofuran												
8270C	N	Diethylphthalate												
8270C	N	Dimethylphthalate												
8270C	N	Fluoranthene												
8270C	N	Fluorene												
8270C	N	Hexachlorobenzene												
8270C	N	Hexachlorobutadiene												
8270C	N	Hexachlorocyclopentadiene												

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Date:7/17/09
Checked by:BBL
Date:7/20/09

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795783		795784		795784		795785		795785		795786	
		Location	SD-01		SD-02		SD-02		SD-03		SD-03		SD-04	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/14/2009	
		Sample ID	SD-01		SD-02D		SD-02D		SD-03		SD-03		SD-04	
		Qc Code	FS		FD		FD		FS		FS		FS	
		Units	PERCENT		% passing		PERCENT		% passing		PERCENT		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane												
8270C	N	Indeno(1,2,3-cd)pyrene												
8270C	N	Isophorone												
8270C	N	N-Nitrosodi-n-propylamine												
8270C	N	N-Nitrosodiphenylamine												
8270C	N	Naphthalene												
8270C	N	Nitrobenzene												
8270C	N	Phenanthrene												
8270C	N	Pyrene												
9012B	N	Cyanide, Total												
9060	T	Total Organic Carbon												
ASTM D422	N	1.4 sieve			6.2				6.2				3.9	
ASTM D422	N	12.8 sieve												
ASTM D422	N	12.9 sieve							17					
ASTM D422	N	150 sieve			96				78.9				76.7	
ASTM D422	N	180 sieve			97.6				85.6				86	
ASTM D422	N	19000 sieve			100				100				100	
ASTM D422	N	2000 sieve			100				100				100	
ASTM D422	N	22 sieve							24.2				11.3	
ASTM D422	N	250 sieve			98.9				97.3				96.8	
ASTM D422	N	25000 sieve			100				100				100	
ASTM D422	N	3.2 sieve							8.6				4.6	
ASTM D422	N	35 sieve											12.8	
ASTM D422	N	37500 sieve			100				100				100	
ASTM D422	N	425 sieve			99.6				99				98.9	
ASTM D422	N	4750 sieve			100				100				100	
ASTM D422	N	50000 sieve			100				100				100	
ASTM D422	N	6.4 sieve												
ASTM D422	N	6.6 sieve												
ASTM D422	N	75 sieve			85.9				40.2				27.4	
ASTM D422	N	75000 sieve			100				100				100	
ASTM D422	N	850 sieve			99.9				99.5				99.8	
ASTM D422	N	9.1 sieve												
ASTM D422	N	9.2 sieve							14.6				8.3	
ASTM D422	N	9500 sieve			100				100				100	
ASTM D422	N	Clay	6.1				14.3				11			6.9
ASTM D422	N	Coarse Sand	0.3				0				0			0
ASTM D422	N	Fine Sand	67.2				13.7				58.8			71.5

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BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795783		795784		795784		795785		795785		795786	
		Location	SD-01		SD-02		SD-02		SD-03		SD-03		SD-04	
		Sample Date	5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/13/2009		5/14/2009	
		Sample ID	SD-01		SD-02D		SD-02D		SD-03		SD-03		SD-04	
		Qc Code	FS		FD		FD		FS		FS		FS	
		Units	PERCENT		% passing		PERCENT		% passing		PERCENT		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel	0.4				0				0			
ASTM D422	N	Medium Sand	0.6				0.4				1			
ASTM D422	N	Silt	25.4				71.6				29.2			
Moisture	N	Percent Moisture												
Moisture	N	Percent Solids												

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795787		795787		795788		795788		795789		795789		795790	
		Location	SD-04		SD-04		SD-05		SD-05		SD-06		SD-06		SD-07	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-04 (12-24)		SD-04 (12-24)		SD-05		SD-05		SD-06		SD-06		SD-07	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	% passing		PERCENT		% passing		PERCENT		% passing		PERCENT		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum														
6010B	T	Antimony														
6010B	T	Arsenic														
6010B	T	Barium														
6010B	T	Beryllium														
6010B	T	Cadmium														
6010B	T	Calcium														
6010B	T	Chromium														
6010B	T	Cobalt														
6010B	T	Copper														
6010B	T	Iron														
6010B	T	Lead														
6010B	T	Magnesium														
6010B	T	Manganese														
6010B	T	Nickel														
6010B	T	Potassium														
6010B	T	Selenium														
6010B	T	Silver														
6010B	T	Sodium														
6010B	T	Thallium														
6010B	T	Vanadium														
6010B	T	Zinc														
7470A	T	Mercury														
7196A	N	Chromium, Hexavalent														
7471A	T	Mercury														
8082	N	Aroclor-1016														
8082	N	Aroclor-1221														
8082	N	Aroclor-1232														
8082	N	Aroclor-1242														
8082	N	Aroclor-1248														
8082	N	Aroclor-1254														
8082	N	Aroclor-1260														
8082	N	Aroclor-1262														
8082	N	Aroclor-1268														
8270C	N	1,2,4-Trichlorobenzene														
8270C	N	1,2-Dichlorobenzene														
8270C	N	1,3-Dichlorobenzene														
8270C	N	1,4-Dichlorobenzene														

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DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795787		795787		795788		795788		795789		795789		795790	
		Location	SD-04		SD-04		SD-05		SD-05		SD-06		SD-06		SD-07	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-04 (12-24)		SD-04 (12-24)		SD-05		SD-05		SD-06		SD-06		SD-07	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	% passing		PERCENT		% passing		PERCENT		% passing		PERCENT		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene														
8270C	N	2,6-Dinitrotoluene														
8270C	N	2-Chloronaphthalene														
8270C	N	2-Methylnaphthalene														
8270C	N	2-Nitroaniline														
8270C	N	3,3`-Dichlorobenzidine														
8270C	N	3-Nitroaniline														
8270C	N	4-Bromophenyl phenyl ether														
8270C	N	4-Chloroaniline														
8270C	N	4-Chlorophenyl phenyl ether														
8270C	N	4-Nitroaniline														
8270C	N	Acenaphthene														
8270C	N	Acenaphthylene														
8270C	N	Anthracene														
8270C	N	Benzo(a)anthracene														
8270C	N	Benzo(a)pyrene														
8270C	N	Benzo(b)fluoranthene														
8270C	N	Benzo(ghi)perylene														
8270C	N	Benzo(k)fluoranthene														
8270C	N	Benzyl alcohol														
8270C	N	Bis(2-Chloroethoxy)methane														
8270C	N	Bis(2-Chloroethyl)ether														
8270C	N	Bis(2-Chloroisopropyl)ether														
8270C	N	Bis(2-Ethylhexyl)phthalate														
8270C	N	Butylbenzylphthalate														
8270C	N	Carbazole														
8270C	N	Chrysene														
8270C	N	Di-n-butylphthalate														
8270C	N	Di-n-octylphthalate														
8270C	N	Dibenz(a,h)anthracene														
8270C	N	Dibenzofuran														
8270C	N	Diethylphthalate														
8270C	N	Dimethylphthalate														
8270C	N	Fluoranthene														
8270C	N	Fluorene														
8270C	N	Hexachlorobenzene														
8270C	N	Hexachlorobutadiene														
8270C	N	Hexachlorocyclopentadiene														

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BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795787		795787		795788		795788		795789		795789		795790	
		Location	SD-04		SD-04		SD-05		SD-05		SD-06		SD-06		SD-07	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-04 (12-24)		SD-04 (12-24)		SD-05		SD-05		SD-06		SD-06		SD-07	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	% passing		PERCENT		% passing		PERCENT		% passing		PERCENT		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane														
8270C	N	Indeno(1,2,3-cd)pyrene														
8270C	N	Isophorone														
8270C	N	N-Nitrosodi-n-propylamine														
8270C	N	N-Nitrosodiphenylamine														
8270C	N	Naphthalene														
8270C	N	Nitrobenzene														
8270C	N	Phenanthrene														
8270C	N	Pyrene														
9012B	N	Cyanide, Total														
9060	T	Total Organic Carbon														
ASTM D422	N	1.4 sieve	0.9				2.3				5.2				1.4	
ASTM D422	N	12.8 sieve														
ASTM D422	N	12.9 sieve									14.6					
ASTM D422	N	150 sieve	42.4				80.8				75.6				71.3	
ASTM D422	N	180 sieve	60.1				88.1				83.1				80.9	
ASTM D422	N	19000 sieve	100				100				100				100	
ASTM D422	N	2000 sieve	99.9				100				100				100	
ASTM D422	N	22 sieve									16.7					
ASTM D422	N	250 sieve	86.4				96.6				93.7				93.3	
ASTM D422	N	25000 sieve	100				100				100				100	
ASTM D422	N	3.2 sieve														
ASTM D422	N	35 sieve									18.8					
ASTM D422	N	37500 sieve	100				100				100				100	
ASTM D422	N	425 sieve	95.7				98.7				98				97.6	
ASTM D422	N	4750 sieve	100				100				100				100	
ASTM D422	N	50000 sieve	100				100				100				100	
ASTM D422	N	6.4 sieve														
ASTM D422	N	6.6 sieve									10.5					
ASTM D422	N	75 sieve	7.8				27.2				26.4				19.3	
ASTM D422	N	75000 sieve	100				100				100				100	
ASTM D422	N	850 sieve	99.5				99.8				99.7				99.4	
ASTM D422	N	9.1 sieve														
ASTM D422	N	9.2 sieve														
ASTM D422	N	9500 sieve	100				100				100				100	
ASTM D422	N	Clay			3.8				4.7				10.5			
ASTM D422	N	Coarse Sand			0.1				0				0			
ASTM D422	N	Fine Sand			88				71.5				71.7			

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795787		795787		795788		795788		795789		795789		795790	
		Location	SD-04		SD-04		SD-05		SD-05		SD-06		SD-06		SD-07	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-04 (12-24)		SD-04 (12-24)		SD-05		SD-05		SD-06		SD-06		SD-07	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	% passing		PERCENT		% passing		PERCENT		% passing		PERCENT		% passing	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel			0				0				0			
ASTM D422	N	Medium Sand			4.1				1.3				2			
ASTM D422	N	Silt			4				22.5				15.9			
Moisture	N	Percent Moisture														
Moisture	N	Percent Solids														

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DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795790		795791		795791		795792		795792		795793		795793	
		Location	SD-07		SD-08		SD-08		SD-08		SD-08		SD-09		SD-09	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-07		SD-08		SD-08		SD-08 (12-24)		SD-08 (12-24)		SD-09		SD-09	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	PERCENT		% passing		PERCENT		% passing		PERCENT		% passing		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum														
6010B	T	Antimony														
6010B	T	Arsenic														
6010B	T	Barium														
6010B	T	Beryllium														
6010B	T	Cadmium														
6010B	T	Calcium														
6010B	T	Chromium														
6010B	T	Cobalt														
6010B	T	Copper														
6010B	T	Iron														
6010B	T	Lead														
6010B	T	Magnesium														
6010B	T	Manganese														
6010B	T	Nickel														
6010B	T	Potassium														
6010B	T	Selenium														
6010B	T	Silver														
6010B	T	Sodium														
6010B	T	Thallium														
6010B	T	Vanadium														
6010B	T	Zinc														
7470A	T	Mercury														
7196A	N	Chromium, Hexavalent														
7471A	T	Mercury														
8082	N	Aroclor-1016														
8082	N	Aroclor-1221														
8082	N	Aroclor-1232														
8082	N	Aroclor-1242														
8082	N	Aroclor-1248														
8082	N	Aroclor-1254														
8082	N	Aroclor-1260														
8082	N	Aroclor-1262														
8082	N	Aroclor-1268														
8270C	N	1,2,4-Trichlorobenzene														
8270C	N	1,2-Dichlorobenzene														
8270C	N	1,3-Dichlorobenzene														
8270C	N	1,4-Dichlorobenzene														

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DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795790		795791		795791		795792		795792		795793		795793	
		Location	SD-07		SD-08		SD-08		SD-08		SD-08		SD-09		SD-09	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-07		SD-08		SD-08		SD-08 (12-24)		SD-08 (12-24)		SD-09		SD-09	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	PERCENT		% passing		PERCENT		% passing		PERCENT		% passing		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene														
8270C	N	2,6-Dinitrotoluene														
8270C	N	2-Chloronaphthalene														
8270C	N	2-Methylnaphthalene														
8270C	N	2-Nitroaniline														
8270C	N	3,3`-Dichlorobenzidine														
8270C	N	3-Nitroaniline														
8270C	N	4-Bromophenyl phenyl ether														
8270C	N	4-Chloroaniline														
8270C	N	4-Chlorophenyl phenyl ether														
8270C	N	4-Nitroaniline														
8270C	N	Acenaphthene														
8270C	N	Acenaphthylene														
8270C	N	Anthracene														
8270C	N	Benzo(a)anthracene														
8270C	N	Benzo(a)pyrene														
8270C	N	Benzo(b)fluoranthene														
8270C	N	Benzo(ghi)perylene														
8270C	N	Benzo(k)fluoranthene														
8270C	N	Benzyl alcohol														
8270C	N	Bis(2-Chloroethoxy)methane														
8270C	N	Bis(2-Chloroethyl)ether														
8270C	N	Bis(2-Chloroisopropyl)ether														
8270C	N	Bis(2-Ethylhexyl)phthalate														
8270C	N	Butylbenzylphthalate														
8270C	N	Carbazole														
8270C	N	Chrysene														
8270C	N	Di-n-butylphthalate														
8270C	N	Di-n-octylphthalate														
8270C	N	Dibenz(a,h)anthracene														
8270C	N	Dibenzofuran														
8270C	N	Diethylphthalate														
8270C	N	Dimethylphthalate														
8270C	N	Fluoranthene														
8270C	N	Fluorene														
8270C	N	Hexachlorobenzene														
8270C	N	Hexachlorobutadiene														
8270C	N	Hexachlorocyclopentadiene														

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Checked by:BBL
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DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795790		795791		795791		795792		795792		795793		795793	
		Location	SD-07		SD-08		SD-08		SD-08		SD-08		SD-09		SD-09	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-07		SD-08		SD-08		SD-08 (12-24)		SD-08 (12-24)		SD-09		SD-09	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	PERCENT		% passing		PERCENT		% passing		PERCENT		% passing		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane														
8270C	N	Indeno(1,2,3-cd)pyrene														
8270C	N	Isophorone														
8270C	N	N-Nitrosodi-n-propylamine														
8270C	N	N-Nitrosodiphenylamine														
8270C	N	Naphthalene														
8270C	N	Nitrobenzene														
8270C	N	Phenanthrene														
8270C	N	Pyrene														
9012B	N	Cyanide, Total														
9060	T	Total Organic Carbon														
ASTM D422	N	1.4 sieve			1.2				3.6				2.3			
ASTM D422	N	12.8 sieve														
ASTM D422	N	12.9 sieve														
ASTM D422	N	150 sieve			69.7				94.6				50.8			
ASTM D422	N	180 sieve			80.8				96.5				60.8			
ASTM D422	N	19000 sieve			100				100				100			
ASTM D422	N	2000 sieve			98.6				100				99.2			
ASTM D422	N	22 sieve							15.7							
ASTM D422	N	250 sieve			92.5				98.8				84.6			
ASTM D422	N	25000 sieve			100				100				100			
ASTM D422	N	3.2 sieve			1.9											
ASTM D422	N	35 sieve							20.4				11			
ASTM D422	N	37500 sieve			100				100				100			
ASTM D422	N	425 sieve			96.8				99.4				94			
ASTM D422	N	4750 sieve			98.7				100				99.5			
ASTM D422	N	50000 sieve			100				100				100			
ASTM D422	N	6.4 sieve														
ASTM D422	N	6.6 sieve														
ASTM D422	N	75 sieve			9.2				55.2				20.5			
ASTM D422	N	75000 sieve			100				100				100			
ASTM D422	N	850 sieve			98.3				99.8				97.9			
ASTM D422	N	9.1 sieve														
ASTM D422	N	9.2 sieve														
ASTM D422	N	9500 sieve			98.8				100				100			
ASTM D422	N	Clay	2.8				1.9				8.3				5.4	
ASTM D422	N	Coarse Sand	0				0.1				0				0.4	
ASTM D422	N	Fine Sand	78.3				87.6				44.2				73.5	

Prepared by:BJS
Date:7/17/09
Checked by:BBL
Date:7/20/09

TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795790		795791		795791		795792		795792		795793		795793	
		Location	SD-07		SD-08		SD-08		SD-08		SD-08		SD-09		SD-09	
		Sample Date	5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009		5/14/2009	
		Sample ID	SD-07		SD-08		SD-08		SD-08 (12-24)		SD-08 (12-24)		SD-09		SD-09	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
		Units	PERCENT		% passing		PERCENT		% passing		PERCENT		% passing		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel	0				1.3				0				0.5	
ASTM D422	N	Medium Sand	2.4				1.9				0.6				5.2	
ASTM D422	N	Silt	16.5				7.3				46.9				15.1	
Moisture	N	Percent Moisture														
Moisture	N	Percent Solids														

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795794		795794		795795		795795	
		Location	SD-10		SD-10		SD-02		SD-02	
		Sample Date	5/14/2009		5/14/2009		5/13/2009		5/13/2009	
		Sample ID	SD-10		SD-10		SD-02		SD-02	
		Qc Code	FS		FS		FS		FS	
		Units	% passing		PERCENT		% passing		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
6010B	T	Aluminum								
6010B	T	Antimony								
6010B	T	Arsenic								
6010B	T	Barium								
6010B	T	Beryllium								
6010B	T	Cadmium								
6010B	T	Calcium								
6010B	T	Chromium								
6010B	T	Cobalt								
6010B	T	Copper								
6010B	T	Iron								
6010B	T	Lead								
6010B	T	Magnesium								
6010B	T	Manganese								
6010B	T	Nickel								
6010B	T	Potassium								
6010B	T	Selenium								
6010B	T	Silver								
6010B	T	Sodium								
6010B	T	Thallium								
6010B	T	Vanadium								
6010B	T	Zinc								
7470A	T	Mercury								
7196A	N	Chromium, Hexavalent								
7471A	T	Mercury								
8082	N	Aroclor-1016								
8082	N	Aroclor-1221								
8082	N	Aroclor-1232								
8082	N	Aroclor-1242								
8082	N	Aroclor-1248								
8082	N	Aroclor-1254								
8082	N	Aroclor-1260								
8082	N	Aroclor-1262								
8082	N	Aroclor-1268								
8270C	N	1,2,4-Trichlorobenzene								
8270C	N	1,2-Dichlorobenzene								
8270C	N	1,3-Dichlorobenzene								
8270C	N	1,4-Dichlorobenzene								

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795794		795794		795795		795795	
		Location	SD-10		SD-10		SD-02		SD-02	
		Sample Date	5/14/2009		5/14/2009		5/13/2009		5/13/2009	
		Sample ID	SD-10		SD-10		SD-02		SD-02	
		Qc Code	FS		FS		FS		FS	
		Units	% passing		PERCENT		% passing		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	2,4-Dinitrotoluene								
8270C	N	2,6-Dinitrotoluene								
8270C	N	2-Chloronaphthalene								
8270C	N	2-Methylnaphthalene								
8270C	N	2-Nitroaniline								
8270C	N	3,3`-Dichlorobenzidine								
8270C	N	3-Nitroaniline								
8270C	N	4-Bromophenyl phenyl ether								
8270C	N	4-Chloroaniline								
8270C	N	4-Chlorophenyl phenyl ether								
8270C	N	4-Nitroaniline								
8270C	N	Acenaphthene								
8270C	N	Acenaphthylene								
8270C	N	Anthracene								
8270C	N	Benzo(a)anthracene								
8270C	N	Benzo(a)pyrene								
8270C	N	Benzo(b)fluoranthene								
8270C	N	Benzo(ghi)perylene								
8270C	N	Benzo(k)fluoranthene								
8270C	N	Benzyl alcohol								
8270C	N	Bis(2-Chloroethoxy)methane								
8270C	N	Bis(2-Chloroethyl)ether								
8270C	N	Bis(2-Chloroisopropyl)ether								
8270C	N	Bis(2-Ethylhexyl)phthalate								
8270C	N	Butylbenzylphthalate								
8270C	N	Carbazole								
8270C	N	Chrysene								
8270C	N	Di-n-butylphthalate								
8270C	N	Di-n-octylphthalate								
8270C	N	Dibenz(a,h)anthracene								
8270C	N	Dibenzofuran								
8270C	N	Diethylphthalate								
8270C	N	Dimethylphthalate								
8270C	N	Fluoranthene								
8270C	N	Fluorene								
8270C	N	Hexachlorobenzene								
8270C	N	Hexachlorobutadiene								
8270C	N	Hexachlorocyclopentadiene								

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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795794		795794		795795		795795	
		Location	SD-10		SD-10		SD-02		SD-02	
		Sample Date	5/14/2009		5/14/2009		5/13/2009		5/13/2009	
		Sample ID	SD-10		SD-10		SD-02		SD-02	
		Qc Code	FS		FS		FS		FS	
		Units	% passing		PERCENT		% passing		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
8270C	N	Hexachloroethane								
8270C	N	Indeno(1,2,3-cd)pyrene								
8270C	N	Isophorone								
8270C	N	N-Nitrosodi-n-propylamine								
8270C	N	N-Nitrosodiphenylamine								
8270C	N	Naphthalene								
8270C	N	Nitrobenzene								
8270C	N	Phenanthrene								
8270C	N	Pyrene								
9012B	N	Cyanide, Total								
9060	T	Total Organic Carbon								
ASTM D422	N	1.4 sieve	6.3				6.9			
ASTM D422	N	12.8 sieve					29.2			
ASTM D422	N	12.9 sieve								
ASTM D422	N	150 sieve	63.9				95.8			
ASTM D422	N	180 sieve	71.5				96.9			
ASTM D422	N	19000 sieve	100				100			
ASTM D422	N	2000 sieve	98.8				100			
ASTM D422	N	22 sieve	20							
ASTM D422	N	250 sieve	89.7				98.8			
ASTM D422	N	25000 sieve	100				100			
ASTM D422	N	3.2 sieve								
ASTM D422	N	35 sieve								
ASTM D422	N	37500 sieve	100				100			
ASTM D422	N	425 sieve	95.7				99.5			
ASTM D422	N	4750 sieve	99.3				100			
ASTM D422	N	50000 sieve	100				100			
ASTM D422	N	6.4 sieve								
ASTM D422	N	6.6 sieve								
ASTM D422	N	75 sieve	35.6				84.4			
ASTM D422	N	75000 sieve	100				100			
ASTM D422	N	850 sieve	98.4				100			
ASTM D422	N	9.1 sieve	15.8							
ASTM D422	N	9.2 sieve					22.3			
ASTM D422	N	9500 sieve	100				100			
ASTM D422	N	Clay			12.7				15.5	
ASTM D422	N	Coarse Sand			0.5				0	
ASTM D422	N	Fine Sand			60.1				15.1	

Prepared by:BJS
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TABLE 1
DATA VALIDATION SUMMARY REPORT
BACKGROUND SEDIMENT INVESTIGATION
STRATFORND ARMY ENGINE PLANT (SAEP)
STRATFORD, CONNECTICUT
SDG 220-9073

		Sample Delivery Group	220-9073		220-9073		220-9073		220-9073	
		Lab Sample Id	795794		795794		795795		795795	
		Location	SD-10		SD-10		SD-02		SD-02	
		Sample Date	5/14/2009		5/14/2009		5/13/2009		5/13/2009	
		Sample ID	SD-10		SD-10		SD-02		SD-02	
		Qc Code	FS		FS		FS		FS	
		Units	% passing		PERCENT		% passing		PERCENT	
Analysis	**Fraction**	**Param Name**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
ASTM D422	N	Gravel			0.7				0	
ASTM D422	N	Medium Sand			3.1				0.5	
ASTM D422	N	Silt			22.9				69	
Moisture	N	Percent Moisture								
Moisture	N	Percent Solids								

Prepared by:BJS
Date:7/17/09
Checked by:BBL
Date:7/20/09

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-01

Lab Sample ID: 220-9073-1
Client Matrix: Solid
% Moisture: 34.2

Date Sampled: 05/13/2009 0950
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1559
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11272.D
Initial Weight/Volume: 15.50 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		400
1,3-Dichlorobenzene	ND		400
1,4-Dichlorobenzene	ND		400
Bis(2-chloroethyl)ether	ND		400
Benzyl alcohol	ND		400
2,2'-oxybis[1-chloropropane]	ND		400
Hexachloroethane	ND		400
Hexachlorobutadiene	ND		400
Hexachlorocyclopentadiene	ND		990
Hexachlorobenzene	ND		400
1,2,4-Trichlorobenzene	ND		400
Bis(2-chloroethoxy)methane	ND		400
Butyl benzyl phthalate	ND		400
N-Nitrosodi-n-propylamine	ND		400
Nitrobenzene	ND		400
Isophorone	ND		400
Naphthalene	ND		400
4-Chloroaniline	ND		400
2-Methylnaphthalene	ND		400
2-Chloronaphthalene	ND		400
2-Nitroaniline	ND		2500
Acenaphthylene	ND		400
Dimethyl phthalate	ND		400
2,6-Dinitrotoluene	ND		400
Acenaphthene	ND		400
3-Nitroaniline	ND		2500
Dibenzofuran	ND		400
2,4-Dinitrotoluene	ND		400
Fluorene	ND		400
4-Chlorophenyl phenyl ether	ND		400
Diethyl phthalate	ND		400
4-Nitroaniline	ND		400
N-Nitrosodiphenylamine	ND		400
4-Bromophenyl phenyl ether	ND		400
Phenanthrene	ND		400
Carbazole	ND		400
Anthracene	ND		400
Di-n-butyl phthalate	ND		400
Fluoranthene	ND		400
Pyrene	ND		400
3,3'-Dichlorobenzidine	ND		990
Benzo[a]anthracene	ND		400
Chrysene	ND		400
Bis(2-ethylhexyl) phthalate	ND		400

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-01

Lab Sample ID: 220-9073-1
Client Matrix: Solid
% Moisture: 34.2

Date Sampled: 05/13/2009 0950
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1559
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11272.D
Initial Weight/Volume: 15.50 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate	ND		400
Benzo[b]fluoranthene	ND		400
Benzo[k]fluoranthene	ND		400
Benzo[a]pyrene	ND		400
Indeno[1,2,3-cd]pyrene	ND		400
Dibenz(a,h)anthracene	ND		400
Benzo[g,h,i]perylene	ND		400

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	57	38 - 120
2-Fluorobiphenyl	62	41 - 120
Terphenyl-d14	80	32 - 125

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-02

Lab Sample ID: 220-9073-2
Client Matrix: Solid
% Moisture: 48.8

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1625
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11273.D
Initial Weight/Volume: 15.16 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene		ND		520
1,3-Dichlorobenzene		ND		520
1,4-Dichlorobenzene		ND		520
Bis(2-chloroethyl)ether		ND		520
Benzyl alcohol		ND		520
2,2'-oxybis[1-chloropropane]		ND		520
Hexachloroethane		ND		520
Hexachlorobutadiene		ND		520
Hexachlorocyclopentadiene		ND		1300
Hexachlorobenzene		ND		520
1,2,4-Trichlorobenzene		ND		520
Bis(2-chloroethoxy)methane		ND		520
Butyl benzyl phthalate		ND		520
N-Nitrosodi-n-propylamine		ND		520
Nitrobenzene		ND		520
Isophorone		ND		520
Naphthalene		ND		520
4-Chloroaniline		ND		520
2-Methylnaphthalene		ND		520
2-Chloronaphthalene		ND		520
2-Nitroaniline		ND		3300
Acenaphthylene		1400		520
Dimethyl phthalate		ND		520
2,6-Dinitrotoluene		ND		520
Acenaphthene		ND		520
3-Nitroaniline		ND		3300
Dibenzofuran		ND		520
2,4-Dinitrotoluene		ND		520
Fluorene		ND		520
4-Chlorophenyl phenyl ether		ND		520
Diethyl phthalate		ND		520
4-Nitroaniline		ND		520
N-Nitrosodiphenylamine		2900		520
4-Bromophenyl phenyl ether		ND		520
Phenanthrene		1300		520
Carbazole		ND		520
Anthracene		880		520
Di-n-butyl phthalate		ND		520
Fluoranthene		4300		520
Pyrene		6700		520
3,3'-Dichlorobenzidine		ND		1300
Benzo[a]anthracene		2100		520
Chrysene		2700		520
Bis(2-ethylhexyl) phthalate		ND		520

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-02

Lab Sample ID: 220-9073-2
Client Matrix: Solid
% Moisture: 48.8

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1625
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11273.D
Initial Weight/Volume: 15.16 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate	ND		520
Benzo[b]fluoranthene	2900		520
Benzo[k]fluoranthene	1100		520
Benzo[a]pyrene	3100		520
Indeno[1,2,3-cd]pyrene	3000		520
Dibenz(a,h)anthracene	820		520
Benzo[g,h,i]perylene	3200		520

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	65	38 - 120
2-Fluorobiphenyl	75	41 - 120
Terphenyl-d14	82	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: **SD-02D**

Lab Sample ID: 220-9073-3
Client Matrix: Solid
% Moisture: 49.1

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1653
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11274.D
Initial Weight/Volume: 15.51 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		510
1,3-Dichlorobenzene	ND		510
1,4-Dichlorobenzene	ND		510
Bis(2-chloroethyl)ether	ND		510
Benzyl alcohol	ND		510
2,2'-oxybis[1-chloropropane]	ND		510
Hexachloroethane	ND		510
Hexachlorobutadiene	ND		510
Hexachlorocyclopentadiene	ND		1300
Hexachlorobenzene	ND		510
1,2,4-Trichlorobenzene	ND		510
Bis(2-chloroethoxy)methane	ND		510
Butyl benzyl phthalate	ND		510
N-Nitrosodi-n-propylamine	ND		510
Nitrobenzene	ND		510
Isophorone	ND		510
Naphthalene	ND		510
4-Chloroaniline	ND		510
2-Methylnaphthalene	ND		510
2-Chloronaphthalene	ND		510
2-Nitroaniline	ND		3200
Acenaphthylene	1400		510
Dimethyl phthalate	ND		510
2,6-Dinitrotoluene	ND		510
Acenaphthene	ND		510
3-Nitroaniline	ND		3200
Dibenzofuran	ND		510
2,4-Dinitrotoluene	ND		510
Fluorene	ND		510
4-Chlorophenyl phenyl ether	ND		510
Diethyl phthalate	ND		510
4-Nitroaniline	ND		510
N-Nitrosodiphenylamine	2700		510
4-Bromophenyl phenyl ether	ND		510
Phenanthrene	1300		510
Carbazole	ND		510
Anthracene	860		510
Di-n-butyl phthalate	ND		510
Fluoranthene	3400		510
Pyrene	6700		510
3,3'-Dichlorobenzidine	ND		1300
Benzo[a]anthracene	2100		510
Chrysene	2800		510
Bis(2-ethylhexyl) phthalate	ND		510

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-02D

Lab Sample ID: 220-9073-3
Client Matrix: Solid

% Moisture: 49.1

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1653
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11274.D
Initial Weight/Volume: 15.51 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate		ND		510
Benzo[b]fluoranthene		2700		510
Benzo[k]fluoranthene		1100		510
Benzo[a]pyrene		3000		510
Indeno[1,2,3-cd]pyrene		2800		510
Dibenz(a,h)anthracene		750		510
Benzo[g,h,i]perylene		2900		510

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	64	38 - 120
2-Fluorobiphenyl	74	41 - 120
Terphenyl-d14	80	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: **SD-03**

Lab Sample ID: 220-9073-4
Client Matrix: Solid
% Moisture: 44.9

Date Sampled: 05/13/2009 1030
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1719
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11275.D
Initial Weight/Volume: 15.16 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		480
1,3-Dichlorobenzene	ND		480
1,4-Dichlorobenzene	ND		480
Bis(2-chloroethyl)ether	ND		480
Benzyl alcohol	ND		480
2,2'-oxybis[1-chloropropane]	ND		480
Hexachloroethane	ND		480
Hexachlorobutadiene	ND		480
Hexachlorocyclopentadiene	ND		1200
Hexachlorobenzene	ND		480
1,2,4-Trichlorobenzene	ND		480
Bis(2-chloroethoxy)methane	ND		480
Butyl benzyl phthalate	ND		480
N-Nitrosodi-n-propylamine	ND		480
Nitrobenzene	ND		480
Isophorone	ND		480
Naphthalene	ND		480
4-Chloroaniline	ND		480
2-Methylnaphthalene	ND		480
2-Chloronaphthalene	ND		480
2-Nitroaniline	ND		3100
Acenaphthylene	ND		480
Dimethyl phthalate	ND		480
2,6-Dinitrotoluene	ND		480
Acenaphthene	ND		480
3-Nitroaniline	ND		3100
Dibenzofuran	ND		480
2,4-Dinitrotoluene	ND		480
Fluorene	ND		480
4-Chlorophenyl phenyl ether	ND		480
Diethyl phthalate	ND		480
4-Nitroaniline	ND		480
N-Nitrosodiphenylamine	ND		480
4-Bromophenyl phenyl ether	ND		480
Phenanthrene	ND		480
Carbazole	ND		480
Anthracene	ND		480
Di-n-butyl phthalate	ND		480
Fluoranthene	500		480
Pyrene	550		480
3,3'-Dichlorobenzidine	ND		1200
Benzo[a]anthracene	ND		480
Chrysene	ND		480
Bis(2-ethylhexyl) phthalate	ND		480

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-03

Lab Sample ID: 220-9073-4
Client Matrix: Solid
% Moisture: 44.9

Date Sampled: 05/13/2009 1030
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1719
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11275.D
Initial Weight/Volume: 15.16 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate	ND		480
Benzo[b]fluoranthene	ND		480
Benzo[k]fluoranthene	ND		480
Benzo[a]pyrene	ND		480
Indeno[1,2,3-cd]pyrene	ND		480
Dibenz(a,h)anthracene	ND		480
Benzo[g,h,i]perylene	ND		480

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	63	38 - 120
2-Fluorobiphenyl	67	41 - 120
Terphenyl-d14	80	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-04

Lab Sample ID: 220-9073-5
Client Matrix: Solid

% Moisture: 36.5

Date Sampled: 05/14/2009 0920
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1746
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11276.D
Initial Weight/Volume: 15.30 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		420
1,3-Dichlorobenzene	ND		420
1,4-Dichlorobenzene	ND		420
Bis(2-chloroethyl)ether	ND		420
Benzyl alcohol	ND		420
2,2'-oxybis[1-chloropropane]	ND		420
Hexachloroethane	ND		420
Hexachlorobutadiene	ND		420
Hexachlorocyclopentadiene	ND		1000
Hexachlorobenzene	ND		420
1,2,4-Trichlorobenzene	ND		420
Bis(2-chloroethoxy)methane	ND		420
Butyl benzyl phthalate	ND		420
N-Nitrosodi-n-propylamine	ND		420
Nitrobenzene	ND		420
Isophorone	ND		420
Naphthalene	ND		420
4-Chloroaniline	ND		420
2-Methylnaphthalene	ND		420
2-Chloronaphthalene	ND		420
2-Nitroaniline	ND		2600
Acenaphthylene	ND		420
Dimethyl phthalate	ND		420
2,6-Dinitrotoluene	ND		420
Acenaphthene	ND		420
3-Nitroaniline	ND		2600
Dibenzofuran	ND		420
2,4-Dinitrotoluene	ND		420
Fluorene	ND		420
4-Chlorophenyl phenyl ether	ND		420
Diethyl phthalate	ND		420
4-Nitroaniline	ND		420
N-Nitrosodiphenylamine	ND		420
4-Bromophenyl phenyl ether	ND		420
Phenanthrene	ND		420
Carbazole	ND		420
Anthracene	ND		420
Di-n-butyl phthalate	ND		420
Fluoranthene	ND		420
Pyrene	ND		420
3,3'-Dichlorobenzidine	ND		1000
Benzo[a]anthracene	ND		420
Chrysene	ND		420
Bis(2-ethylhexyl) phthalate	ND		420

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-04

Lab Sample ID: 220-9073-5
Client Matrix: Solid % Moisture: 36.5

Date Sampled: 05/14/2009 0920
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1746
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11276.D
Initial Weight/Volume: 15.30 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate		ND		420
Benzo[b]fluoranthene		ND		420
Benzo[k]fluoranthene		ND		420
Benzo[a]pyrene		ND		420
Indeno[1,2,3-cd]pyrene		ND		420
Dibenz(a,h)anthracene		ND		420
Benzo[g,h,i]perylene		ND		420

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	56	38 - 120
2-Fluorobiphenyl	61	41 - 120
Terphenyl-d14	67	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-04 (12-24)

Lab Sample ID: 220-9073-6
Client Matrix: Solid % Moisture: 27.8

Date Sampled: 05/14/2009 0945
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1532
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11271.D
Initial Weight/Volume: 15.16 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		370
1,3-Dichlorobenzene	ND		370
1,4-Dichlorobenzene	ND		370
Bis(2-chloroethyl)ether	ND		370
Benzyl alcohol	ND		370
2,2'-oxybis[1-chloropropane]	ND		370
Hexachloroethane	ND		370
Hexachlorobutadiene	ND		370
Hexachlorocyclopentadiene	ND		920
Hexachlorobenzene	ND		370
1,2,4-Trichlorobenzene	ND		370
Bis(2-chloroethoxy)methane	ND		370
Butyl benzyl phthalate	ND		370
N-Nitrosodi-n-propylamine	ND		370
Nitrobenzene	ND		370
Isophorone	ND		370
Naphthalene	ND		370
4-Chloroaniline	ND		370
2-Methylnaphthalene	ND		370
2-Chloronaphthalene	ND		370
2-Nitroaniline	ND		2300
Acenaphthylene	ND		370
Dimethyl phthalate	ND		370
2,6-Dinitrotoluene	ND		370
Acenaphthene	ND		370
3-Nitroaniline	ND		2300
Dibenzofuran	ND		370
2,4-Dinitrotoluene	ND		370
Fluorene	ND		370
4-Chlorophenyl phenyl ether	ND		370
Diethyl phthalate	ND		370
4-Nitroaniline	ND		370
N-Nitrosodiphenylamine	ND		370
4-Bromophenyl phenyl ether	ND		370
Phenanthrene	ND		370
Carbazole	ND		370
Anthracene	ND		370
Di-n-butyl phthalate	ND		370
Fluoranthene	ND		370
Pyrene	ND		370
3,3'-Dichlorobenzidine	ND		920
Benzo[a]anthracene	ND		370
Chrysene	ND		370
Bis(2-ethylhexyl) phthalate	ND		370

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-04 (12-24)

Lab Sample ID: 220-9073-6
Client Matrix: Solid
% Moisture: 27.8

Date Sampled: 05/14/2009 0945
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1532
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11271.D
Initial Weight/Volume: 15.16 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate	ND		370
Benzo[b]fluoranthene	ND		370
Benzo[k]fluoranthene	ND		370
Benzo[a]pyrene	ND		370
Indeno[1,2,3-cd]pyrene	ND		370
Dibenz(a,h)anthracene	ND		370
Benzo[g,h,i]perylene	ND		370

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	59	38 - 120
2-Fluorobiphenyl	64	41 - 120
Terphenyl-d14	76	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-05

Lab Sample ID: 220-9073-7
Client Matrix: Solid
% Moisture: 36.1

Date Sampled: 05/14/2009 0930
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1814
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11277.D
Initial Weight/Volume: 15.12 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		420
1,3-Dichlorobenzene	ND		420
1,4-Dichlorobenzene	ND		420
Bis(2-chloroethyl)ether	ND		420
Benzyl alcohol	ND		420
2,2'-oxybis[1-chloropropane]	ND		420
Hexachloroethane	ND		420
Hexachlorobutadiene	ND		420
Hexachlorocyclopentadiene	ND		1000
Hexachlorobenzene	ND		420
1,2,4-Trichlorobenzene	ND		420
Bis(2-chloroethoxy)methane	ND		420
Butyl benzyl phthalate	ND		420
N-Nitrosodi-n-propylamine	ND		420
Nitrobenzene	ND		420
Isophorone	ND		420
Naphthalene	ND		420
4-Chloroaniline	ND		420
2-Methylnaphthalene	ND		420
2-Chloronaphthalene	ND		420
2-Nitroaniline	ND		2600
Acenaphthylene	ND		420
Dimethyl phthalate	ND		420
2,6-Dinitrotoluene	ND		420
Acenaphthene	ND		420
3-Nitroaniline	ND		2600
Dibenzofuran	ND		420
2,4-Dinitrotoluene	ND		420
Fluorene	ND		420
4-Chlorophenyl phenyl ether	ND		420
Diethyl phthalate	ND		420
4-Nitroaniline	ND		420
N-Nitrosodiphenylamine	ND		420
4-Bromophenyl phenyl ether	ND		420
Phenanthrene	ND		420
Carbazole	ND		420
Anthracene	ND		420
Di-n-butyl phthalate	ND		420
Fluoranthene	510		420
Pyrene	770		420
3,3'-Dichlorobenzidine	ND		1000
Benzo[a]anthracene	ND		420
Chrysene	470		420
Bis(2-ethylhexyl) phthalate	ND		420

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-05

Lab Sample ID: 220-9073-7
Client Matrix: Solid
% Moisture: 36.1

Date Sampled: 05/14/2009 0930
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1814
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11277.D
Initial Weight/Volume: 15.12 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate		ND		420
Benzo[b]fluoranthene		470		420
Benzo[k]fluoranthene		ND		420
Benzo[a]pyrene		530		420
Indeno[1,2,3-cd]pyrene		ND		420
Dibenz(a,h)anthracene		ND		420
Benzo[g,h,i]perylene		ND		420

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	64	38 - 120
2-Fluorobiphenyl	70	41 - 120
Terphenyl-d14	75	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-06

Lab Sample ID: 220-9073-8
Client Matrix: Solid
% Moisture: 43.7

Date Sampled: 05/14/2009 0950
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1840
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11278.D
Initial Weight/Volume: 15.26 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene		ND		470
1,3-Dichlorobenzene		ND		470
1,4-Dichlorobenzene		ND		470
Bis(2-chloroethyl)ether		ND		470
Benzyl alcohol		ND		470
2,2'-oxybis[1-chloropropane]		ND		470
Hexachloroethane		ND		470
Hexachlorobutadiene		ND		470
Hexachlorocyclopentadiene		ND		1200
Hexachlorobenzene		ND		470
1,2,4-Trichlorobenzene		ND		470
Bis(2-chloroethoxy)methane		ND		470
Butyl benzyl phthalate		ND		470
N-Nitrosodi-n-propylamine		ND		470
Nitrobenzene		ND		470
Isophorone		ND		470
Naphthalene		ND		470
4-Chloroaniline		ND		470
2-Methylnaphthalene		ND		470
2-Chloronaphthalene		ND		470
2-Nitroaniline		ND		3000
Acenaphthylene		ND		470
Dimethyl phthalate		ND		470
2,6-Dinitrotoluene		ND		470
Acenaphthene		ND		470
3-Nitroaniline		ND		3000
Dibenzofuran		ND		470
2,4-Dinitrotoluene		ND		470
Fluorene		ND		470
4-Chlorophenyl phenyl ether		ND		470
Diethyl phthalate		ND		470
4-Nitroaniline		ND		470
N-Nitrosodiphenylamine		ND		470
4-Bromophenyl phenyl ether		ND		470
Phenanthrene		ND		470
Carbazole		ND		470
Anthracene		ND		470
Di-n-butyl phthalate		ND		470
Fluoranthene		690		470
Pyrene		1000		470
3,3'-Dichlorobenzidine		ND		1200
Benzo[a]anthracene		590		470
Chrysene		690		470
Bis(2-ethylhexyl) phthalate		ND		470

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-06

Lab Sample ID: 220-9073-8
Client Matrix: Solid
% Moisture: 43.7

Date Sampled: 05/14/2009 0950
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1840
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11278.D
Initial Weight/Volume: 15.26 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate		ND		470
Benzo[b]fluoranthene		650		470
Benzo[k]fluoranthene		ND		470
Benzo[a]pyrene		790		470
Indeno[1,2,3-cd]pyrene		620		470
Dibenz(a,h)anthracene		ND		470
Benzo[g,h,i]perylene		590		470

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	57	38 - 120
2-Fluorobiphenyl	64	41 - 120
Terphenyl-d14	70	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-07

Lab Sample ID: 220-9073-9
Client Matrix: Solid
% Moisture: 28.9

Date Sampled: 05/14/2009 1000
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1907
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11279.D
Initial Weight/Volume: 15.45 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		370
1,3-Dichlorobenzene	ND		370
1,4-Dichlorobenzene	ND		370
Bis(2-chloroethyl)ether	ND		370
Benzyl alcohol	ND		370
2,2'-oxybis[1-chloropropane]	ND		370
Hexachloroethane	ND		370
Hexachlorobutadiene	ND		370
Hexachlorocyclopentadiene	ND		910
Hexachlorobenzene	ND		370
1,2,4-Trichlorobenzene	ND		370
Bis(2-chloroethoxy)methane	ND		370
Butyl benzyl phthalate	ND		370
N-Nitrosodi-n-propylamine	ND		370
Nitrobenzene	ND		370
Isophorone	ND		370
Naphthalene	ND		370
4-Chloroaniline	ND		370
2-Methylnaphthalene	ND		370
2-Chloronaphthalene	ND		370
2-Nitroaniline	ND		2300
Acenaphthylene	ND		370
Dimethyl phthalate	ND		370
2,6-Dinitrotoluene	ND		370
Acenaphthene	ND		370
3-Nitroaniline	ND		2300
Dibenzofuran	ND		370
2,4-Dinitrotoluene	ND		370
Fluorene	ND		370
4-Chlorophenyl phenyl ether	ND		370
Diethyl phthalate	ND		370
4-Nitroaniline	ND		370
N-Nitrosodiphenylamine	ND		370
4-Bromophenyl phenyl ether	ND		370
Phenanthrene	ND		370
Carbazole	ND		370
Anthracene	ND		370
Di-n-butyl phthalate	ND		370
Fluoranthene	ND		370
Pyrene	ND		370
3,3'-Dichlorobenzidine	ND		910
Benzo[a]anthracene	ND		370
Chrysene	ND		370
Bis(2-ethylhexyl) phthalate	ND		370

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-07

Lab Sample ID: 220-9073-9
Client Matrix: Solid
% Moisture: 28.9

Date Sampled: 05/14/2009 1000
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1907
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11279.D
Initial Weight/Volume: 15.45 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate	ND		370
Benzo[b]fluoranthene	ND		370
Benzo[k]fluoranthene	ND		370
Benzo[a]pyrene	ND		370
Indeno[1,2,3-cd]pyrene	ND		370
Dibenz(a,h)anthracene	ND		370
Benzo[g,h,i]perylene	ND		370

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	56	38 - 120
2-Fluorobiphenyl	62	41 - 120
Terphenyl-d14	67	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-08

Lab Sample ID: 220-9073-10
Client Matrix: Solid
% Moisture: 26.4

Date Sampled: 05/14/2009 1030
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1934
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11280.D
Initial Weight/Volume: 15.11 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		360
1,3-Dichlorobenzene	ND		360
1,4-Dichlorobenzene	ND		360
Bis(2-chloroethyl)ether	ND		360
Benzyl alcohol	ND		360
2,2'-oxybis[1-chloropropane]	ND		360
Hexachloroethane	ND		360
Hexachlorobutadiene	ND		360
Hexachlorocyclopentadiene	ND		900
Hexachlorobenzene	ND		360
1,2,4-Trichlorobenzene	ND		360
Bis(2-chloroethoxy)methane	ND		360
Butyl benzyl phthalate	ND		360
N-Nitrosodi-n-propylamine	ND		360
Nitrobenzene	ND		360
Isophorone	ND		360
Naphthalene	ND		360
4-Chloroaniline	ND		360
2-Methylnaphthalene	ND		360
2-Chloronaphthalene	ND		360
2-Nitroaniline	ND		2300
Acenaphthylene	ND		360
Dimethyl phthalate	ND		360
2,6-Dinitrotoluene	ND		360
Acenaphthene	ND		360
3-Nitroaniline	ND		2300
Dibenzofuran	ND		360
2,4-Dinitrotoluene	ND		360
Fluorene	ND		360
4-Chlorophenyl phenyl ether	ND		360
Diethyl phthalate	ND		360
4-Nitroaniline	ND		360
N-Nitrosodiphenylamine	ND		360
4-Bromophenyl phenyl ether	ND		360
Phenanthrene	ND		360
Carbazole	ND		360
Anthracene	ND		360
Di-n-butyl phthalate	ND		360
Fluoranthene	520		360
Pyrene	770		360
3,3'-Dichlorobenzidine	ND		900
Benzo[a]anthracene	490		360
Chrysene	580		360
Bis(2-ethylhexyl) phthalate	ND		360

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: **SD-08**

Lab Sample ID: 220-9073-10
Client Matrix: Solid
% Moisture: 26.4

Date Sampled: 05/14/2009 1030
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 1934
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11280.D
Initial Weight/Volume: 15.11 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate		ND		360
Benzo[b]fluoranthene		390		360
Benzo[k]fluoranthene		ND		360
Benzo[a]pyrene		540		360
Indeno[1,2,3-cd]pyrene		ND		360
Dibenz(a,h)anthracene		ND		360
Benzo[g,h,i]perylene		ND		360

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	58	38 - 120
2-Fluorobiphenyl	63	41 - 120
Terphenyl-d14	69	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: **SD-08 (12-24)**

Lab Sample ID: 220-9073-11
Client Matrix: Solid
% Moisture: 33.9

Date Sampled: 05/14/2009 1040
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 2001
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11281.D
Initial Weight/Volume: 15.20 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene		ND		400
1,3-Dichlorobenzene		ND		400
1,4-Dichlorobenzene		ND		400
Bis(2-chloroethyl)ether		ND		400
Benzyl alcohol		ND		400
2,2'-oxybis[1-chloropropane]		ND		400
Hexachloroethane		ND		400
Hexachlorobutadiene		ND		400
Hexachlorocyclopentadiene		ND		1000
Hexachlorobenzene		ND		400
1,2,4-Trichlorobenzene		ND		400
Bis(2-chloroethoxy)methane		ND		400
Butyl benzyl phthalate		ND		400
N-Nitrosodi-n-propylamine		ND		400
Nitrobenzene		ND		400
Isophorone		ND		400
Naphthalene		ND		400
4-Chloroaniline		ND		400
2-Methylnaphthalene		ND		400
2-Chloronaphthalene		ND		400
2-Nitroaniline		ND		2500
Acenaphthylene		ND		400
Dimethyl phthalate		ND		400
2,6-Dinitrotoluene		ND		400
Acenaphthene		ND		400
3-Nitroaniline		ND		2500
Dibenzofuran		ND		400
2,4-Dinitrotoluene		ND		400
Fluorene		ND		400
4-Chlorophenyl phenyl ether		ND		400
Diethyl phthalate		ND		400
4-Nitroaniline		ND		400
N-Nitrosodiphenylamine		ND		400
4-Bromophenyl phenyl ether		ND		400
Phenanthrene		ND		400
Carbazole		ND		400
Anthracene		ND		400
Di-n-butyl phthalate		ND		400
Fluoranthene		ND		400
Pyrene		ND		400
3,3'-Dichlorobenzidine		ND		1000
Benzo[a]anthracene		ND		400
Chrysene		ND		400
Bis(2-ethylhexyl) phthalate		ND		400

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-08 (12-24)

Lab Sample ID: 220-9073-11
Client Matrix: Solid
% Moisture: 33.9

Date Sampled: 05/14/2009 1040
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 2001
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11281.D
Initial Weight/Volume: 15.20 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate	ND		400
Benzo[b]fluoranthene	ND		400
Benzo[k]fluoranthene	ND		400
Benzo[a]pyrene	ND		400
Indeno[1,2,3-cd]pyrene	ND		400
Dibenz(a,h)anthracene	ND		400
Benzo[g,h,i]perylene	ND		400

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	57	38 - 120
2-Fluorobiphenyl	63	41 - 120
Terphenyl-d14	71	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-09

Lab Sample ID: 220-9073-12
Client Matrix: Solid
% Moisture: 36.2

Date Sampled: 05/14/2009 1105
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 2027
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11282.D
Initial Weight/Volume: 15.35 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		410
1,3-Dichlorobenzene	ND		410
1,4-Dichlorobenzene	ND		410
Bis(2-chloroethyl)ether	ND		410
Benzyl alcohol	ND		410
2,2'-oxybis[1-chloropropane]	ND		410
Hexachloroethane	ND		410
Hexachlorobutadiene	ND		410
Hexachlorocyclopentadiene	ND		1000
Hexachlorobenzene	ND		410
1,2,4-Trichlorobenzene	ND		410
Bis(2-chloroethoxy)methane	ND		410
Butyl benzyl phthalate	ND		410
N-Nitrosodi-n-propylamine	ND		410
Nitrobenzene	ND		410
Isophorone	ND		410
Naphthalene	ND		410
4-Chloroaniline	ND		410
2-Methylnaphthalene	ND		410
2-Chloronaphthalene	ND		410
2-Nitroaniline	ND		2600
Acenaphthylene	500		410
Dimethyl phthalate	ND		410
2,6-Dinitrotoluene	ND		410
Acenaphthene	ND		410
3-Nitroaniline	ND		2600
Dibenzofuran	ND		410
2,4-Dinitrotoluene	ND		410
Fluorene	ND		410
4-Chlorophenyl phenyl ether	ND		410
Diethyl phthalate	ND		410
4-Nitroaniline	ND		410
N-Nitrosodiphenylamine	ND		410
4-Bromophenyl phenyl ether	ND		410
Phenanthrene	570		410
Carbazole	ND		410
Anthracene	ND		410
Di-n-butyl phthalate	ND		410
Fluoranthene	1900		410
Pyrene	2500		410
3,3'-Dichlorobenzidine	ND		1000
Benzo[a]anthracene	1300		410
Chrysene	1100		410
Bis(2-ethylhexyl) phthalate	ND		410

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-09

Lab Sample ID: 220-9073-12
Client Matrix: Solid
% Moisture: 36.2

Date Sampled: 05/14/2009 1105
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 2027
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11282.D
Initial Weight/Volume: 15.35 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate	ND		410
Benzo[b]fluoranthene	1200		410
Benzo[k]fluoranthene	490		410
Benzo[a]pyrene	1500		410
Indeno[1,2,3-cd]pyrene	950		410
Dibenz(a,h)anthracene	ND		410
Benzo[g,h,i]perylene	860		410

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	63	38 - 120
2-Fluorobiphenyl	71	41 - 120
Terphenyl-d14	66	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-10

Lab Sample ID: 220-9073-13
Client Matrix: Solid
% Moisture: 50.0

Date Sampled: 05/14/2009 1120
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 2054
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11283.D
Initial Weight/Volume: 15.50 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
1,2-Dichlorobenzene	ND		520
1,3-Dichlorobenzene	ND		520
1,4-Dichlorobenzene	ND		520
Bis(2-chloroethyl)ether	ND		520
Benzyl alcohol	ND		520
2,2'-oxybis[1-chloropropane]	ND		520
Hexachloroethane	ND		520
Hexachlorobutadiene	ND		520
Hexachlorocyclopentadiene	ND		1300
Hexachlorobenzene	ND		520
1,2,4-Trichlorobenzene	ND		520
Bis(2-chloroethoxy)methane	ND		520
Butyl benzyl phthalate	ND		520
N-Nitrosodi-n-propylamine	ND		520
Nitrobenzene	ND		520
Isophorone	ND		520
Naphthalene	ND		520
4-Chloroaniline	ND		520
2-Methylnaphthalene	ND		520
2-Chloronaphthalene	ND		520
2-Nitroaniline	ND		3300
Acenaphthylene	ND		520
Dimethyl phthalate	ND		520
2,6-Dinitrotoluene	ND		520
Acenaphthene	ND		520
3-Nitroaniline	ND		3300
Dibenzofuran	ND		520
2,4-Dinitrotoluene	ND		520
Fluorene	ND		520
4-Chlorophenyl phenyl ether	ND		520
Diethyl phthalate	ND		520
4-Nitroaniline	ND		520
N-Nitrosodiphenylamine	ND		520
4-Bromophenyl phenyl ether	ND		520
Phenanthrene	ND		520
Carbazole	ND		520
Anthracene	ND		520
Di-n-butyl phthalate	ND		520
Fluoranthene	730		520
Pyrene	1800		520
3,3'-Dichlorobenzidine	ND		1300
Benzo[a]anthracene	1100		520
Chrysene	820		520
Bis(2-ethylhexyl) phthalate	ND		520

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-10

Lab Sample ID: 220-9073-13
Client Matrix: Solid
% Moisture: 50.0

Date Sampled: 05/14/2009 1120
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/18/2009 2054
Date Prepared: 05/15/2009 0812

Analysis Batch: 220-27245
Prep Batch: 220-27178

Instrument ID: HP 6890/5975
Lab File ID: C11283.D
Initial Weight/Volume: 15.50 g
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
Di-n-octyl phthalate	ND		520
Benzo[b]fluoranthene	1000		520
Benzo[k]fluoranthene	ND		520
Benzo[a]pyrene	1100		520
Indeno[1,2,3-cd]pyrene	760		520
Dibenz(a,h)anthracene	ND		520
Benzo[g,h,i]perylene	670		520

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	56	38 - 120
2-Fluorobiphenyl	65	41 - 120
Terphenyl-d14	65	32 - 125

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: EB 051409

Lab Sample ID: 220-9073-14
Client Matrix: Water

Date Sampled: 05/14/2009 1455
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 05/18/2009 1505
Date Prepared: 05/15/2009 0857

Analysis Batch: 220-27245
Prep Batch: 220-27180

Instrument ID: HP 6890/5975
Lab File ID: C11270.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	Result (ug/L)	Qualifier	RL
1,2-Dichlorobenzene	ND		4.0
1,3-Dichlorobenzene	ND		4.0
1,4-Dichlorobenzene	ND		4.0
Bis(2-chloroethyl)ether	ND		4.0
Benzyl alcohol	ND		4.0
2,2'-oxybis[1-chloropropane]	ND		4.0
Hexachloroethane	ND		4.0
Hexachlorobutadiene	ND		4.0
Hexachlorocyclopentadiene	ND		4.0
Hexachlorobenzene	ND		4.0
1,2,4-Trichlorobenzene	ND		4.0
Bis(2-chloroethoxy)methane	ND		4.0
Butyl benzyl phthalate	ND		4.0
N-Nitrosodi-n-propylamine	ND		4.0
Nitrobenzene	ND		4.0
Isophorone	ND		4.0
Naphthalene	ND		4.0
4-Chloroaniline	ND		4.0
2-Methylnaphthalene	ND		4.0
2-Chloronaphthalene	ND		4.0
2-Nitroaniline	ND		4.0
Acenaphthylene	ND		4.0
Dimethyl phthalate	ND		4.0
2,6-Dinitrotoluene	ND		4.0
Acenaphthene	ND		4.0
3-Nitroaniline	ND		4.0
Dibenzofuran	ND		4.0
2,4-Dinitrotoluene	ND		4.0
Fluorene	ND		4.0
4-Chlorophenyl phenyl ether	ND		4.0
Diethyl phthalate	ND		4.0
4-Nitroaniline	ND		4.0
N-Nitrosodiphenylamine	ND		4.0
4-Bromophenyl phenyl ether	ND		4.0
Phenanthrene	ND		4.0
Carbazole	ND		4.0
Anthracene	ND		4.0
Di-n-butyl phthalate	ND		4.0
Fluoranthene	ND		4.0
Pyrene	ND		4.0
3,3'-Dichlorobenzidine	ND		4.0
Benzo[a]anthracene	ND		4.0
Chrysene	ND		4.0
Bis(2-ethylhexyl) phthalate	ND		4.0

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: EB 051409

Lab Sample ID: 220-9073-14
Client Matrix: Water

Date Sampled: 05/14/2009 1455
Date Received: 05/14/2009 1607

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Method: 8270C
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 05/18/2009 1505
Date Prepared: 05/15/2009 0857

Analysis Batch: 220-27245
Prep Batch: 220-27180

Instrument ID: HP 6890/5975
Lab File ID: C11270.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1.0 uL

Analyte	Result (ug/L)	Qualifier	RL
Di-n-octyl phthalate	ND		4.0
Benzo[b]fluoranthene	ND		4.0
Benzo[k]fluoranthene	ND		4.0
Benzo[a]pyrene	ND		4.0
Indeno[1,2,3-cd]pyrene	ND		4.0
Dibenz(a,h)anthracene	ND		4.0
Benzo[g,h,i]perylene	ND		4.0

Surrogate	%Rec	Acceptance Limits
Nitrobenzene-d5	57	40 - 120
2-Fluorobiphenyl	59	39 - 120
Terphenyl-d14	71	10 - 120

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-01

Lab Sample ID: 220-9073-1
Client Matrix: Solid
% Moisture: 34.2

Date Sampled: 05/13/2009 0950
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1358
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043129.D
Initial Weight/Volume: 15.62 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		25
PCB-1221	ND		25
PCB-1232	ND		25
PCB-1242	ND		25
PCB-1248	ND		25
PCB-1254	ND		25
PCB-1260	ND		25
PCB-1262	ND		25
PCB-1268	ND		25

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	85	24 - 150
Tetrachloro-m-xylene	90	24 - 150

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1358
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043129.D
Initial Weight/Volume: 15.62 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	79	24 - 150
Tetrachloro-m-xylene	83	24 - 150

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-02

Lab Sample ID: 220-9073-2
Client Matrix: Solid
% Moisture: 48.8

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 2.0
Date Analyzed: 05/22/2009 1145
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27398
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043208.D
Initial Weight/Volume: 15.32 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		65
PCB-1221	ND		65
PCB-1232	ND		65
PCB-1242	ND		65
PCB-1248	ND		65
PCB-1254	420	J	65
PCB-1260	300	J	65
PCB-1262	ND		65
PCB-1268	ND		65

Surrogate	%Rec		Acceptance Limits
DCB Decachlorobiphenyl	248	X	24 - 150
Tetrachloro-m-xylene	72		24 - 150

Method: 8082
Preparation: 3541
Dilution: 2.0
Date Analyzed: 05/22/2009 1145
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27398
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043208.D
Initial Weight/Volume: 15.32 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec		Acceptance Limits
DCB Decachlorobiphenyl	225	X	24 - 150
Tetrachloro-m-xylene	68		24 - 150

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-02

Lab Sample ID: 220-9073-2
Client Matrix: Solid
% Moisture: 48.8

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 2.0
Date Analyzed: 05/27/2009 1102
Date Prepared: 05/21/2009 1144

Analysis Batch: 220-27467
Prep Batch: 220-27322

Run Type: RE

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043250.D
Initial Weight/Volume: 15.27 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		65
PCB-1221	ND		65
PCB-1232	ND		65
PCB-1242	ND		65
PCB-1248	ND		65
PCB-1254	490		65
PCB-1260	320		65
PCB-1262	ND		65
PCB-1268	ND		65

Surrogate	%Rec		Acceptance Limits
DCB Decachlorobiphenyl	248	X	24 - 150
DCB Decachlorobiphenyl	230	X	24 - 150
Tetrachloro-m-xylene	86		24 - 150
Tetrachloro-m-xylene	82		24 - 150

7/7/09 AGG

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-02D

Lab Sample ID: 220-9073-3
Client Matrix: Solid
% Moisture: 49.1

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 2.0
Date Analyzed: 05/22/2009 1203
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27398
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043209.D
Initial Weight/Volume: 15.47 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
PCB-1016		ND		65
PCB-1221		ND		65
PCB-1232		ND		65
PCB-1242		ND		65
PCB-1248		ND		65
PCB-1254		350	J	65
PCB-1260		220	J	65
PCB-1262		ND		65
PCB-1268		ND		65

Surrogate	%Rec		Acceptance Limits
DCB Decachlorobiphenyl	232	X	24 - 150
Tetrachloro-m-xylene	78		24 - 150

Method: 8082
Preparation: 3541
Dilution: 2.0
Date Analyzed: 05/22/2009 1203
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27398
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043209.D
Initial Weight/Volume: 15.47 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec		Acceptance Limits
DCB Decachlorobiphenyl	206	X	24 - 150
Tetrachloro-m-xylene	75		24 - 150

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: **SD-02D**

Lab Sample ID: 220-9073-3
Client Matrix: Solid
% Moisture: 49.1

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 2.0
Date Analyzed: 05/27/2009 1121
Date Prepared: 05/21/2009 1144

Analysis Batch: 220-27467
Prep Batch: 220-27322
Run Type: RE

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043251.D
Initial Weight/Volume: 15.10 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
PCB-1016		ND		66
PCB-1221		ND		66
PCB-1232		ND		66
PCB-1242		ND		66
PCB-1248		ND		66
PCB-1254		910		66
PCB-1260		430		66
PCB-1262		ND		66
PCB-1268		ND		66

Surrogate	%Rec		Acceptance Limits
DCB Decachlorobiphenyl	243	X	24 - 150
DCB Decachlorobiphenyl	231	X	24 - 150
Tetrachloro-m-xylene	78		24 - 150
Tetrachloro-m-xylene	66		24 - 150

7/7/09 BGG

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-03

Lab Sample ID: 220-9073-4
Client Matrix: Solid
% Moisture: 44.9

Date Sampled: 05/13/2009 1030
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1455
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043132.D
Initial Weight/Volume: 15.50 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		30
PCB-1221	ND		30
PCB-1232	ND		30
PCB-1242	ND		30
PCB-1248	ND		30
PCB-1254	36		30
PCB-1260	ND		30
PCB-1262	ND		30
PCB-1268	ND		30

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	103	24 - 150
Tetrachloro-m-xylene	84	24 - 150

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1455
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043132.D
Initial Weight/Volume: 15.50 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	87	24 - 150
Tetrachloro-m-xylene	81	24 - 150

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-04

Lab Sample ID: 220-9073-5
Client Matrix: Solid
% Moisture: 36.5

Date Sampled: 05/14/2009 0920
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1514
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043133.D
Initial Weight/Volume: 15.16 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		26
PCB-1221	ND		26
PCB-1232	ND		26
PCB-1242	ND		26
PCB-1248	ND		26
PCB-1254	31		26
PCB-1260	28	J	26
PCB-1262	ND		26
PCB-1268	ND		26

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	91	24 - 150
Tetrachloro-m-xylene	81	24 - 150

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1514
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043133.D
Initial Weight/Volume: 15.16 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	84	24 - 150
Tetrachloro-m-xylene	78	24 - 150

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: **SD-04 (12-24)**

Lab Sample ID: 220-9073-6
Client Matrix: Solid
% Moisture: 27.8

Date Sampled: 05/14/2009 0945
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1533
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043134.D
Initial Weight/Volume: 15.38 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		23
PCB-1221	ND		23
PCB-1232	ND		23
PCB-1242	ND		23
PCB-1248	ND		23
PCB-1254	ND		23
PCB-1260	ND		23
PCB-1262	ND		23
PCB-1268	ND		23

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	72	24 - 150
Tetrachloro-m-xylene	83	24 - 150

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-05

Lab Sample ID: 220-9073-7
Client Matrix: Solid
% Moisture: 36.1

Date Sampled: 05/14/2009 0930
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1552
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043135.D
Initial Weight/Volume: 15.28 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		26
PCB-1221	ND		26
PCB-1232	ND		26
PCB-1242	ND		26
PCB-1248	ND		26
PCB-1254	49		26
PCB-1260	ND		26
PCB-1262	ND		26
PCB-1268	ND		26

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	105	24 - 150
Tetrachloro-m-xylene	82	24 - 150

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1552
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043135.D
Initial Weight/Volume: 15.28 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	96	24 - 150
Tetrachloro-m-xylene	77	24 - 150

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-06

Lab Sample ID: 220-9073-8
Client Matrix: Solid

% Moisture: 43.7

Date Sampled: 05/14/2009 0950
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1611
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043136.D
Initial Weight/Volume: 15.31 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		30
PCB-1221	ND		30
PCB-1232	ND		30
PCB-1242	ND		30
PCB-1248	ND		30
PCB-1254	130	J	30
PCB-1260	170		30
PCB-1262	ND		30
PCB-1268	ND		30

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	102	24 - 150
Tetrachloro-m-xylene	82	24 - 150

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1611
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043136.D
Initial Weight/Volume: 15.31 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	95	24 - 150
Tetrachloro-m-xylene	80	24 - 150

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-07

Lab Sample ID: 220-9073-9
Client Matrix: Solid
% Moisture: 28.9

Date Sampled: 05/14/2009 1000
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1630
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043137.D
Initial Weight/Volume: 15.37 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		23
PCB-1221	ND		23
PCB-1232	ND		23
PCB-1242	ND		23
PCB-1248	ND		23
PCB-1254	ND		23
PCB-1260	ND		23
PCB-1262	ND		23
PCB-1268	ND		23

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	90	24 - 150
Tetrachloro-m-xylene	81	24 - 150

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1630
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043137.D
Initial Weight/Volume: 15.37 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	82	24 - 150
Tetrachloro-m-xylene	80	24 - 150

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-08

Lab Sample ID: 220-9073-10
Client Matrix: Solid
% Moisture: 26.4

Date Sampled: 05/14/2009 1030
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1649
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043138.D
Initial Weight/Volume: 15.51 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		22
PCB-1221	ND		22
PCB-1232	ND		22
PCB-1242	ND		22
PCB-1248	ND		22
PCB-1254	25	J	22
PCB-1260	ND		22
PCB-1262	ND		22
PCB-1268	ND		22

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	86	24 - 150
Tetrachloro-m-xylene	81	24 - 150

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1649
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043138.D
Initial Weight/Volume: 15.51 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	85	24 - 150
Tetrachloro-m-xylene	78	24 - 150

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-08 (12-24)

Lab Sample ID: 220-9073-11
Client Matrix: Solid
% Moisture: 33.9

Date Sampled: 05/14/2009 1040
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1708
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043139.D
Initial Weight/Volume: 15.05 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		26
PCB-1221	ND		26
PCB-1232	ND		26
PCB-1242	ND		26
PCB-1248	ND		26
PCB-1254	ND		26
PCB-1260	ND		26
PCB-1262	ND		26
PCB-1268	ND		26

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	83	24 - 150
Tetrachloro-m-xylene	81	24 - 150

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-09

Lab Sample ID: 220-9073-12
Client Matrix: Solid
% Moisture: 36.2

Date Sampled: 05/14/2009 1105
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1727
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: C9043140.D
Initial Weight/Volume: 15.19 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		26
PCB-1221	ND		26
PCB-1232	ND		26
PCB-1242	ND		26
PCB-1248	ND		26
PCB-1254	ND		26
PCB-1260	ND		26
PCB-1262	ND		26
PCB-1268	ND		26

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	117	24 - 150
Tetrachloro-m-xylene	64	24 - 150

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1727
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043140.D
Initial Weight/Volume: 15.19 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: SECONDARY

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	103	24 - 150
Tetrachloro-m-xylene	62	24 - 150

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-10

Lab Sample ID: 220-9073-13
Client Matrix: Solid
% Moisture: 50.0

Date Sampled: 05/14/2009 1120
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3541
Dilution: 1.0
Date Analyzed: 05/19/2009 1746
Date Prepared: 05/15/2009 0806

Analysis Batch: 220-27286
Prep Batch: 220-27177

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043141.D
Initial Weight/Volume: 15.46 g
Final Weight/Volume: 5 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	DryWt Corrected: Y Result (ug/Kg)	Qualifier	RL
PCB-1016	ND		33
PCB-1221	ND		33
PCB-1232	ND		33
PCB-1242	ND		33
PCB-1248	ND		33
PCB-1254	ND		33
PCB-1260	ND		33
PCB-1262	ND		33
PCB-1268	ND		33

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	96	24 - 150
Tetrachloro-m-xylene	78	24 - 150

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: EB 051409

Lab Sample ID: 220-9073-14
Client Matrix: Water

Date Sampled: 05/14/2009 1455
Date Received: 05/14/2009 1607

8082 PCBs

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 05/18/2009 1815
Date Prepared: 05/15/2009 0859

Analysis Batch: 220-27253
Prep Batch: 220-27181

Instrument ID: HP 6890 dual ECD
Lab File ID: D9043115.D
Initial Weight/Volume: 940 mL
Final Weight/Volume: 10 mL
Injection Volume: 1.0 uL
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
PCB-1016	ND		0.53
PCB-1221	ND		0.53
PCB-1232	ND		0.53
PCB-1242	ND		0.53
PCB-1248	ND		0.53
PCB-1254	ND		0.53
PCB-1260	ND		0.53
PCB-1262	ND		0.53
PCB-1268	ND		0.53

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	70	29 - 135
Tetrachloro-m-xylene	75	22 - 145

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-01

Lab Sample ID: 220-9073-1
Client Matrix: Solid
% Moisture: 34.2
Date Sampled: 05/13/2009 0950
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/26/2009 1530
Date Prepared: 05/22/2009 1036
Analysis Batch: 220-27432
Prep Batch: 220-27348
Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.10 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		1.8
Aluminum		6500		91
Arsenic		ND		7.6
Barium		21		1.8
Beryllium		ND		1.8
Calcium		2700		91
Cadmium		ND		1.8
Cobalt		4.4		1.8
Chromium		32		1.8
Copper		98		2.2
Iron		11000		45
Potassium		1700		91
Magnesium		4300		91
Manganese		290		2.7
Sodium		3300		91
Nickel		10		1.8
Lead		19		5.4
Antimony		ND		6.0
Selenium		ND		14
Thallium		ND		5.4
Vanadium		16		1.8
Zinc		82		9.1

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1317
Date Prepared: 05/27/2009 1231
Analysis Batch: 220-27495
Prep Batch: 220-27447
Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.65 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.093		0.070

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-02

Lab Sample ID: 220-9073-2
Client Matrix: Solid
% Moisture: 48.8

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/26/2009 1533
Date Prepared: 05/22/2009 1036

Analysis Batch: 220-27432
Prep Batch: 220-27348

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.00 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		2.8		2.4
Aluminum		20000		120
Arsenic		11		10
Barium		100		2.4
Beryllium		ND		2.4
Calcium		3100		120
Cadmium		8.5		2.4
Cobalt		14		2.4
Chromium		660		2.4
Copper		2400		2.9
Iron		32000		61
Potassium		3900		120
Magnesium		8400		120
Manganese		390		3.7
Sodium		7700		120
Nickel		95		2.4
Lead		340		7.3
Antimony		ND		8.1
Selenium		ND		18
Thallium		ND		7.3
Vanadium		47		2.4
Zinc		1600		12

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 5.0
Date Analyzed: 05/28/2009 1418
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.61 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		1.4		0.48

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-02D

Lab Sample ID: 220-9073-3
Client Matrix: Solid

% Moisture: 49.1

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/26/2009 1536
Date Prepared: 05/22/2009 1036

Analysis Batch: 220-27432
Prep Batch: 220-27348

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.05 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		2.9		2.4
Aluminum		20000		120
Arsenic		11		10
Barium		110		2.4
Beryllium		ND		2.4
Calcium		2500		120
Cadmium		9.0		2.4
Cobalt		13		2.4
Chromium		720		2.4
Copper		2500		2.9
Iron		31000		60
Potassium		3700		120
Magnesium		8000		120
Manganese		370		3.6
Sodium		8100		120
Nickel		98		2.4
Lead		330		7.2
Antimony		ND		7.9
Selenium		ND		18
Thallium		ND		7.2
Vanadium		46		2.4
Zinc		1700		12

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1320
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.61 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		1.6		0.097

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-03

Lab Sample ID: 220-9073-4
Client Matrix: Solid
% Moisture: 44.9

Date Sampled: 05/13/2009 1030
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/26/2009 1540
Date Prepared: 05/22/2009 1036

Analysis Batch: 220-27432
Prep Batch: 220-27348

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.05 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		2.2
Aluminum		8300		110
Arsenic		ND		9.3
Barium		27		2.2
Beryllium		ND		2.2
Calcium		2000		110
Cadmium		ND		2.2
Cobalt		5.4		2.2
Chromium		59		2.2
Copper		240		2.7
Iron		14000		55
Potassium		2200		110
Magnesium		5200		110
Manganese		180		3.3
Sodium		7000		110
Nickel		15		2.2
Lead		41		6.6
Antimony		ND		7.3
Selenium		ND		17
Thallium		ND		6.6
Vanadium		20		2.2
Zinc		140		11

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1323
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.65 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.24		0.084

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-04

Lab Sample ID: 220-9073-5
Client Matrix: Solid

% Moisture: 36.5

Date Sampled: 05/14/2009 0920
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/28/2009 1214
Date Prepared: 05/26/2009 1050

Analysis Batch: 220-27501
Prep Batch: 220-27393

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.01 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		2.0
Aluminum		7100		98
Arsenic		ND		8.2
Barium		21		2.0
Beryllium		ND		2.0
Calcium		2400		98
Cadmium		ND		2.0
Cobalt		4.7		2.0
Chromium		34		2.0
Copper		94		2.3
Iron		12000		49
Potassium		1600		98
Magnesium		4600		98
Manganese		180		2.9
Sodium		4000		98
Nickel		11		2.0
Lead		25		5.9
Antimony		ND		6.5
Selenium		ND		15
Thallium		ND		5.9
Vanadium		15		2.0
Zinc		82		9.8

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1325
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.62 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.11		0.076

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-04 (12-24)

Lab Sample ID: 220-9073-6
Client Matrix: Solid
% Moisture: 27.8

Date Sampled: 05/14/2009 0945
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/28/2009 1217
Date Prepared: 05/26/2009 1050

Analysis Batch: 220-27501
Prep Batch: 220-27393

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.05 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		1.7
Aluminum		11000		84
Arsenic		ND		7.1
Barium		26		1.7
Beryllium		ND		1.7
Calcium		1800		84
Cadmium		ND		1.7
Cobalt		7.5		1.7
Chromium		17		1.7
Copper		18		2.0
Iron		19000		42
Potassium		2800		84
Magnesium		7200		84
Manganese		280		2.5
Sodium		3500		84
Nickel		13		1.7
Lead		ND		5.1
Antimony		ND		5.6
Selenium		ND		13
Thallium		ND		5.1
Vanadium		22		1.7
Zinc		79		8.4

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1326
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.60 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.11		0.069

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-05

Lab Sample ID: 220-9073-7
Client Matrix: Solid
% Moisture: 36.1

Date Sampled: 05/14/2009 0930
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/28/2009 1221
Date Prepared: 05/26/2009 1050

Analysis Batch: 220-27501
Prep Batch: 220-27393

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.01 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		1.9
Aluminum		6500		97
Arsenic		ND		8.2
Barium		20		1.9
Beryllium		ND		1.9
Calcium		2500		97
Cadmium		ND		1.9
Cobalt		4.2		1.9
Chromium		38		1.9
Copper		140		2.3
Iron		11000		49
Potassium		1600		97
Magnesium		4400		97
Manganese		170		2.9
Sodium		4200		97
Nickel		12		1.9
Lead		21		5.8
Antimony		ND		6.4
Selenium		ND		15
Thallium		ND		5.8
Vanadium		15		1.9
Zinc		93		9.7

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1327
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.60 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.13		0.078

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-06

Lab Sample ID: 220-9073-8
Client Matrix: Solid

% Moisture: 43.7

Date Sampled: 05/14/2009 0950
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/28/2009 1224
Date Prepared: 05/26/2009 1050

Analysis Batch: 220-27501
Prep Batch: 220-27393

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.06 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		2.2
Aluminum		8900		110
Arsenic		ND		9.1
Barium		26		2.2
Beryllium		ND		2.2
Calcium		3100		110
Cadmium		ND		2.2
Cobalt		6.2		2.2
Chromium		64		2.2
Copper		200		2.6
Iron		16000		54
Potassium		2300		110
Magnesium		6100		110
Manganese		240		3.2
Sodium		5800		110
Nickel		18		2.2
Lead		36		6.5
Antimony		ND		7.1
Selenium		ND		16
Thallium		ND		6.5
Vanadium		22		2.2
Zinc		140		11

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1328
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.65 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.17		0.082

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-07

Lab Sample ID: 220-9073-9
Client Matrix: Solid
% Moisture: 28.9

Date Sampled: 05/14/2009 1000
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/28/2009 1233
Date Prepared: 05/26/2009 1050

Analysis Batch: 220-27501
Prep Batch: 220-27393

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.09 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		1.7
Aluminum		5100		84
Arsenic		ND		7.1
Barium		14		1.7
Beryllium		ND		1.7
Calcium		2200		84
Cadmium		ND		1.7
Cobalt		3.4		1.7
Chromium		21		1.7
Copper		74		2.0
Iron		8600		42
Potassium		1100		84
Magnesium		3300		84
Manganese		130		2.5
Sodium		3000		84
Nickel		7.7		1.7
Lead		14		5.0
Antimony		ND		5.6
Selenium		ND		13
Thallium		ND		5.0
Vanadium		10		1.7
Zinc		57		8.4

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1330
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.63 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.070		0.067

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-08

Lab Sample ID: 220-9073-10
Client Matrix: Solid
% Moisture: 26.4

Date Sampled: 05/14/2009 1030
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/28/2009 1236
Date Prepared: 05/26/2009 1050

Analysis Batch: 220-27501
Prep Batch: 220-27393

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.04 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		1.7
Aluminum		5100		83
Arsenic		ND		7.0
Barium		15		1.7
Beryllium		ND		1.7
Calcium		2500		83
Cadmium		ND		1.7
Cobalt		3.4		1.7
Chromium		26		1.7
Copper		100		2.0
Iron		8800		42
Potassium		1100		83
Magnesium		3500		83
Manganese		130		2.5
Sodium		2500		83
Nickel		8.6		1.7
Lead		14		5.0
Antimony		ND		5.5
Selenium		ND		12
Thallium		ND		5.0
Vanadium		10		1.7
Zinc		71		8.3

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1331
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.61 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.067

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-08 (12-24)

Lab Sample ID: 220-9073-11
Client Matrix: Solid
% Moisture: 33.9

Date Sampled: 05/14/2009 1040
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/28/2009 1240
Date Prepared: 05/26/2009 1050

Analysis Batch: 220-27501
Prep Batch: 220-27393

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.03 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		1.9
Aluminum		11000		93
Arsenic		ND		7.8
Barium		24		1.9
Beryllium		ND		1.9
Calcium		4400		93
Cadmium		ND		1.9
Cobalt		6.6		1.9
Chromium		20		1.9
Copper		21		2.2
Iron		17000		47
Potassium		2300		93
Magnesium		7400		93
Manganese		200		2.8
Sodium		4500		93
Nickel		13		1.9
Lead		6.9		5.6
Antimony		ND		6.1
Selenium		ND		14
Thallium		ND		5.6
Vanadium		22		1.9
Zinc		51		9.3

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1332
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.60 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		ND		0.076

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-09

Lab Sample ID: 220-9073-12
Client Matrix: Solid

% Moisture: 36.2

Date Sampled: 05/14/2009 1105
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/28/2009 1243
Date Prepared: 05/26/2009 1050

Analysis Batch: 220-27501
Prep Batch: 220-27393

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.10 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		1.9
Aluminum		7000		93
Arsenic		ND		7.8
Barium		28		1.9
Beryllium		ND		1.9
Calcium		2100		93
Cadmium		3.7		1.9
Cobalt		4.7		1.9
Chromium		280		1.9
Copper		1100		2.2
Iron		12000		47
Potassium		1500		93
Magnesium		4500		93
Manganese		210		2.8
Sodium		5200		93
Nickel		28		1.9
Lead		200		5.6
Antimony		ND		6.2
Selenium		ND		14
Thallium		ND		5.6
Vanadium		15		1.9
Zinc		650		9.3

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1333
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.62 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		1.2		0.076

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: SD-10

Lab Sample ID: 220-9073-13
Client Matrix: Solid

% Moisture: 50.0

Date Sampled: 05/14/2009 1120
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 05/28/2009 1246
Date Prepared: 05/26/2009 1050

Analysis Batch: 220-27501
Prep Batch: 220-27393

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 2.10 g
Final Weight/Volume: 250 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Silver		ND		2.4
Aluminum		8700		120
Arsenic		ND		10
Barium		31		2.4
Beryllium		ND		2.4
Calcium		2900		120
Cadmium		ND		2.4
Cobalt		5.9		2.4
Chromium		81		2.4
Copper		970		2.9
Iron		17000		60
Potassium		2200		120
Magnesium		5700		120
Manganese		260		3.6
Sodium		7700		120
Nickel		20		2.4
Lead		130		7.1
Antimony		ND		7.9
Selenium		ND		18
Thallium		ND		7.1
Vanadium		21		2.4
Zinc		410		12

7471A Mercury (CVAA)

Method: 7471A
Preparation: 7471A
Dilution: 1.0
Date Analyzed: 05/28/2009 1334
Date Prepared: 05/27/2009 1231

Analysis Batch: 220-27495
Prep Batch: 220-27447

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 0.64 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	RL
Mercury		0.87		0.094

Analytical Data

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

Client Sample ID: EB 051409

Lab Sample ID: 220-9073-14
Client Matrix: Water

Date Sampled: 05/14/2009 1455
Date Received: 05/14/2009 1607

6010B Metals (ICP)

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 05/28/2009 1348
Date Prepared: 05/27/2009 1036

Analysis Batch: 220-27501
Prep Batch: 220-27442

Instrument ID: Perkin Elmer ICP
Lab File ID: N/A
Initial Weight/Volume: 100 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	RL
Silver	ND		5.0
Aluminum	ND		250
Arsenic	ND		15
Barium	ND		5.0
Beryllium	ND		5.0
Calcium	ND		250
Cadmium	ND		5.0
Cobalt	ND		5.0
Chromium	ND		5.0
Copper	ND		10
Iron	ND		120
Potassium	ND		250
Magnesium	ND		250
Manganese	ND		8.0
Sodium	ND		250
Nickel	ND		5.0
Lead	ND		15
Antimony	ND		15
Selenium	ND		38
Thallium	ND		15
Vanadium	ND		5.0
Zinc	ND		25

7470A Mercury (CVAA)

Method: 7470A
Preparation: 7470A
Dilution: 1.0
Date Analyzed: 05/22/2009 1656
Date Prepared: 05/22/2009 1042

Analysis Batch: 220-27372
Prep Batch: 220-27350

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 25 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	RL
Mercury	ND		0.20

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

General Chemistry

Client Sample ID: SD-01

Lab Sample ID: 220-9073-1
Client Matrix: Solid
% Moisture: 34.2
Date Sampled: 05/13/2009 0950
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		740	1.0	9012B
Anly Batch: 220-27305		Date Analyzed		05/20/2009 1515			DryWt Corrected: Y
Prep Batch: 220-27271		Date Prepared:		05/19/2009 1100			
Total Organic Carbon - Duplicates	9100		mg/Kg		100	1.0	9060
Anly Batch: 220-27490		Date Analyzed		05/27/2009 1902			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.5	1.0	7196A
Anly Batch: 360-44561		Date Analyzed		05/18/2009 1539			DryWt Corrected: Y
Prep Batch: 360-44531		Date Prepared:		05/18/2009 1015			
Percent Moisture	34.2		%	0.10	0.10	1.0	Moisture
Anly Batch: 220-27243		Date Analyzed		05/18/2009 1621			
Percent Solids	65.8		%	0.10	0.10	1.0	Moisture
Anly Batch: 220-27243		Date Analyzed		05/18/2009 1621			

Client Sample ID: SD-02

Lab Sample ID: 220-9073-2
Client Matrix: Solid
% Moisture: 48.8
Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		950	1.0	9012B
Anly Batch: 220-27305		Date Analyzed		05/20/2009 1516			DryWt Corrected: Y
Prep Batch: 220-27271		Date Prepared:		05/19/2009 1100			
Total Organic Carbon - Duplicates	62000		mg/Kg		100	1.0	9060
Anly Batch: 220-27490		Date Analyzed		05/27/2009 1923			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.9	1.0	7196A
Anly Batch: 360-44561		Date Analyzed		05/18/2009 1539			DryWt Corrected: Y
Prep Batch: 360-44531		Date Prepared:		05/18/2009 1015			
Percent Moisture	48.8		%	0.10	0.10	1.0	Moisture
Anly Batch: 220-27243		Date Analyzed		05/18/2009 1621			
Percent Solids	51.2		%	0.10	0.10	1.0	Moisture
Anly Batch: 220-27243		Date Analyzed		05/18/2009 1621			

7/8/09 BBG

General Chemistry

Client Sample ID: SD-02D

Lab Sample ID: 220-9073-3
Client Matrix: Solid

% Moisture: 49.1

Date Sampled: 05/13/2009 1010
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		950	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed	05/20/2009 1518			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared:	05/19/2009 1100			
Total Organic Carbon - Duplicates	58000		mg/Kg		100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed	05/27/2009 1958			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		2.0	1.0	7196A
	Anly Batch: 360-44561		Date Analyzed	05/18/2009 1539			DryWt Corrected: Y
	Prep Batch: 360-44531		Date Prepared:	05/18/2009 1015			
Percent Moisture	49.1		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			
Percent Solids	50.9		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			

Client Sample ID: SD-03

Lab Sample ID: 220-9073-4
Client Matrix: Solid

% Moisture: 44.9

Date Sampled: 05/13/2009 1030
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		900	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed	05/20/2009 1519			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared:	05/19/2009 1100			
Total Organic Carbon - Duplicates	19000		mg/Kg		100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed	05/27/2009 2019			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.8	1.0	7196A
	Anly Batch: 360-44561		Date Analyzed	05/18/2009 1539			DryWt Corrected: Y
	Prep Batch: 360-44531		Date Prepared:	05/18/2009 1015			
Percent Moisture	44.9		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			
Percent Solids	55.1		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			

7/8/09 BBK

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

General Chemistry

Client Sample ID: SD-04

Lab Sample ID: 220-9073-5
Client Matrix: Solid

% Moisture: 36.5

Date Sampled: 05/14/2009 0920
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		750	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed	05/20/2009 1520			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared:	05/19/2009 1415			
Total Organic Carbon - Duplicates	12000		mg/Kg		100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed	05/27/2009 2032			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.5	1.0	7196A
	Anly Batch: 360-44561		Date Analyzed	05/18/2009 1539			DryWt Corrected: Y
	Prep Batch: 360-44531		Date Prepared:	05/18/2009 1015			
Percent Moisture	36.5		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			
Percent Solids	63.5		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			

Client Sample ID: SD-04 (12-24)

Lab Sample ID: 220-9073-6
Client Matrix: Solid

% Moisture: 27.8

Date Sampled: 05/14/2009 0945
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		670	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed	05/20/2009 1523			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared:	05/19/2009 1415			
Total Organic Carbon - Duplicates	6100		mg/Kg		100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed	05/27/2009 2045			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.4	1.0	7196A
	Anly Batch: 360-44561		Date Analyzed	05/18/2009 1539			DryWt Corrected: Y
	Prep Batch: 360-44531		Date Prepared:	05/18/2009 1015			
Percent Moisture	27.8		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			
Percent Solids	72.2		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			

7/8/09 BBM

General Chemistry

Client Sample ID: SD-05

Lab Sample ID: 220-9073-7
Client Matrix: Solid

% Moisture: 36.1

Date Sampled: 05/14/2009 0930
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		750	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed	05/20/2009 1526			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared:	05/19/2009 1415			
Total Organic Carbon - Duplicates	12000		mg/Kg		100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed	05/27/2009 2059			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.5	1.0	7196A
	Anly Batch: 360-44561		Date Analyzed	05/18/2009 1539			DryWt Corrected: Y
	Prep Batch: 360-44531		Date Prepared:	05/18/2009 1015			
Percent Moisture	36.1		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			
Percent Solids	63.9		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			

Client Sample ID: SD-06

Lab Sample ID: 220-9073-8
Client Matrix: Solid

% Moisture: 43.7

Date Sampled: 05/14/2009 0950
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		860	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed	05/20/2009 1527			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared:	05/19/2009 1415			
Total Organic Carbon - Duplicates	19000		mg/Kg		100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed	05/27/2009 2127			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.7	1.0	7196A
	Anly Batch: 360-45049		Date Analyzed	06/01/2009 1540			DryWt Corrected: Y
	Prep Batch: 360-45022		Date Prepared:	06/01/2009 0845			
Percent Moisture	43.7		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			
Percent Solids	56.3		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			

7/9/09

General Chemistry

Client Sample ID: SD-07

Lab Sample ID: 220-9073-9
Client Matrix: Solid

% Moisture: 28.9

Date Sampled: 05/14/2009 1000
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		690	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed	05/20/2009 1528			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared:	05/19/2009 1415			
Total Organic Carbon - Duplicates	8200		mg/Kg		100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed	05/27/2009 2140			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.4	1.0	7196A
	Anly Batch: 360-45049		Date Analyzed	06/01/2009 1540			DryWt Corrected: Y
	Prep Batch: 360-45022		Date Prepared:	06/01/2009 0845			
Percent Moisture	28.9		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			
Percent Solids	71.1		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			

Client Sample ID: SD-08

Lab Sample ID: 220-9073-10
Client Matrix: Solid

% Moisture: 26.4

Date Sampled: 05/14/2009 1030
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		670	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed	05/20/2009 1529			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared:	05/19/2009 1415			
Total Organic Carbon - Duplicates	5600		mg/Kg		100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed	05/27/2009 2154			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.3	1.0	7196A
	Anly Batch: 360-45049		Date Analyzed	06/01/2009 1540			DryWt Corrected: Y
	Prep Batch: 360-45022		Date Prepared:	06/01/2009 0845			
Percent Moisture	26.4		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			
Percent Solids	73.6		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			

7/8/09 MCV

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

General Chemistry

Client Sample ID: SD-08 (12-24)

Lab Sample ID: 220-9073-11
Client Matrix: Solid
% Moisture: 33.9
Date Sampled: 05/14/2009 1040
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units	RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg	720	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed 05/20/2009 1530			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared: 05/19/2009 1415			
Total Organic Carbon - Duplicates	14000		mg/Kg	100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed 05/27/2009 2207			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg	1.5	1.0	7196A
	Anly Batch: 360-45049		Date Analyzed 06/01/2009 1540			DryWt Corrected: Y
	Prep Batch: 360-45022		Date Prepared: 06/01/2009 0845			
Percent Moisture	33.9		% 0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed 05/18/2009 1621			
Percent Solids	66.1		% 0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed 05/18/2009 1621			

Client Sample ID: SD-09

Lab Sample ID: 220-9073-12
Client Matrix: Solid
% Moisture: 36.2
Date Sampled: 05/14/2009 1105
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units	RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg	750	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed 05/20/2009 1532			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared: 05/19/2009 1415			
Total Organic Carbon - Duplicates	25000		mg/Kg	100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed 05/27/2009 2220			DryWt Corrected: N

Analyte	Result	Qual	Units	RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg	1.6	1.0	7196A
	Anly Batch: 360-45049		Date Analyzed 06/01/2009 1540			DryWt Corrected: Y
	Prep Batch: 360-45022		Date Prepared: 06/01/2009 0845			
Percent Moisture	36.2		% 0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed 05/18/2009 1621			
Percent Solids	63.8		% 0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed 05/18/2009 1621			

7/8/09

Client: MACTEC Engineering and Consulting Inc

Job Number: 220-9073-1
Sdg Number: 220-9073

General Chemistry

Client Sample ID: SD-10

Lab Sample ID: 220-9073-13
Client Matrix: Solid
% Moisture: 50.0
Date Sampled: 05/14/2009 1120
Date Received: 05/14/2009 1607

Analyte	Result	Qual	Units		RL	Dil	Method
Cyanide, Total	~~ND~~ R		ug/Kg		970	1.0	9012B
	Anly Batch: 220-27305		Date Analyzed	05/20/2009 1533			DryWt Corrected: Y
	Prep Batch: 220-27271		Date Prepared:	05/19/2009 1415			
Total Organic Carbon - Duplicates	31000		mg/Kg		100	1.0	9060
	Anly Batch: 220-27490		Date Analyzed	05/27/2009 2250			DryWt Corrected: N

Analyte	Result	Qual	Units		RL	Dil	Method
Chromium (hexavalent)	ND		mg/Kg		1.9	1.0	7196A
	Anly Batch: 360-45049		Date Analyzed	06/01/2009 1540			DryWt Corrected: Y
	Prep Batch: 360-45022		Date Prepared:	06/01/2009 0845			
Percent Moisture	50.0		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			
Percent Solids	50.0		%	0.10	0.10	1.0	Moisture
	Anly Batch: 220-27243		Date Analyzed	05/18/2009 1621			

Client Sample ID: EB 051409

Lab Sample ID: 220-9073-14
Client Matrix: Water
Date Sampled: 05/14/2009 1455
Date Received: 05/14/2009 1607

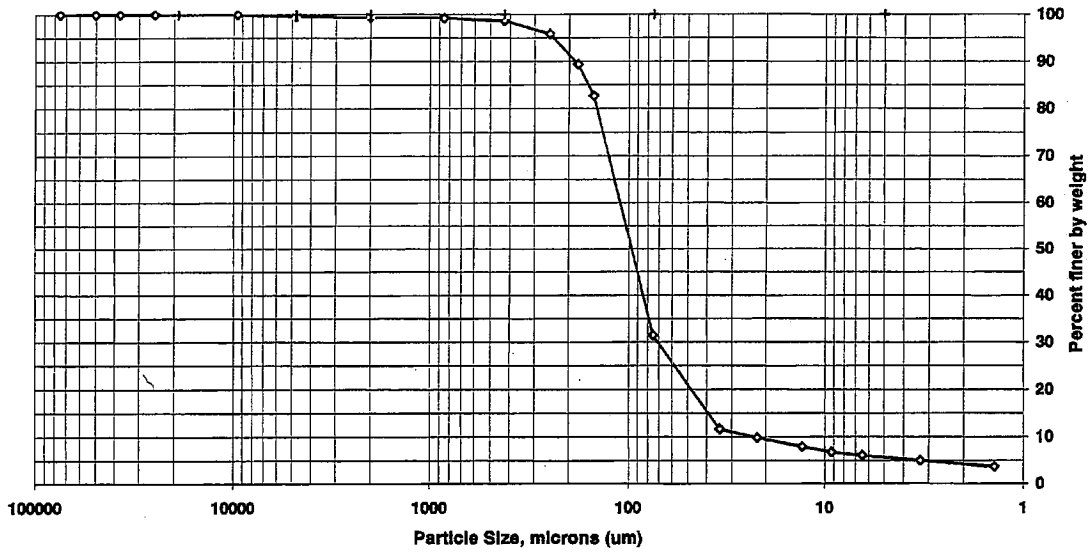
Analyte	Result	Qual	Units		RL	Dil	Method
Cr (VI)	ND		mg/L		0.010	1.0	7196A
	Anly Batch: 220-27183		Date Analyzed	05/14/2009 1825			
Total Organic Carbon - Quad	ND		mg/L		1.0	1.0	9060
	Anly Batch: 220-27356		Date Analyzed	05/20/2009 0121			

7/8/09 DSK

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-01	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795783			**End Date:**	5/28/2009

Percent Solids:	72.4%	**Non-soil material:**	shells
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.6	0.4
#10	2000	99.3	0.3
#20	850	99.2	0.1
#40	425	98.7	0.6
#60	250	95.8	2.9
#80	180	89.3	6.5
#100	150	82.6	6.7
#200	75	31.4	51.2
Hydrometer	34.4	11.6	19.8
|	22.1	9.8	1.8
|	12.9	8.0	1.8
|	9.2	6.8	1.2
|	6.4	6.1	0.7
|	3.3	5.0	1.1
V	1.4	3.6	1.3

Soil Classification	Percent of Total Sample
Gravel	0.4
Sand	68.1
Coarse Sand	0.3
Medium Sand	0.6
Fine Sand	67.2
Silt	25.4
Clay	6.1

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

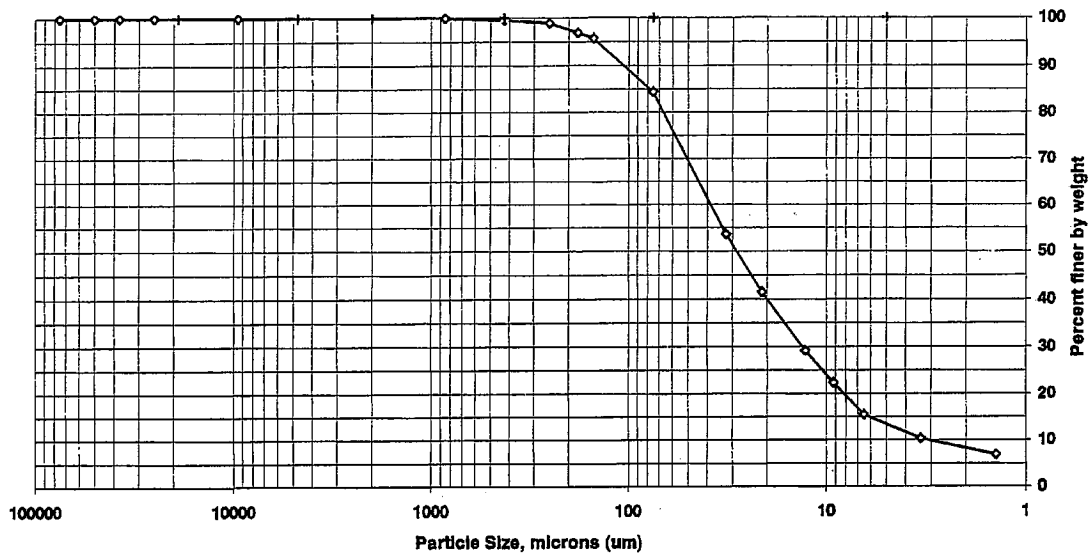
FSL024:07.29.05:0
TestAmerica Burlington

2009073PS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-02	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795795			**End Date:**	5/29/2009

Percent Solids:	49.6%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	100.0	0.0
#40	425	99.5	0.4
#60	250	98.8	0.7
#80	180	96.9	2.0
#100	150	95.8	1.1
#200	75	84.4	11.4
Hydrometer	32.2	53.5	30.9
|	21.2	41.5	12.0
|	12.8	29.2	12.3
|	9.2	22.3	6.9
|	6.5	15.5	6.9
|	3.4	10.3	5.2
V	1.4	6.9	3.4

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	15.6
Coarse Sand	0.0
Medium Sand	0.5
Fine Sand	15.1
Silt	69.0
Clay	15.5

Preparation Method: D2217
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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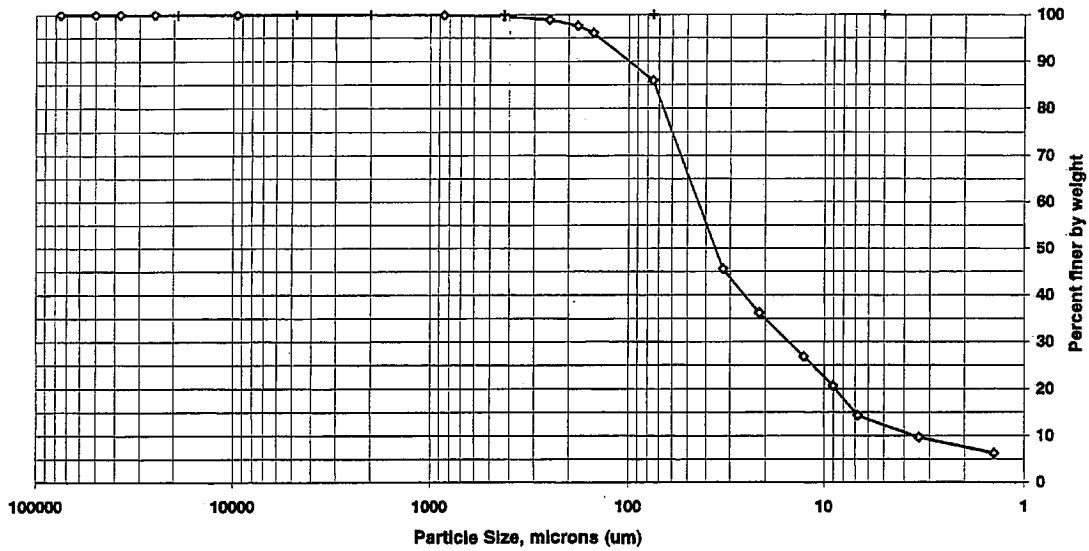
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-02D	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795784			**End Date:**	5/28/2009

Percent Solids:	53.6%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.9	0.1
#40	425	99.6	0.3
#60	250	98.9	0.7
#80	180	97.6	1.3
#100	150	96.0	1.6
#200	75	85.9	10.1
Hydrometer	32.6	45.6	40.3
	21.3	36.2	9.4
	12.7	26.8	9.4
	9.0	20.6	6.2
	6.8	14.3	6.2
	3.4	9.6	4.7
V	1.4	6.2	3.4

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	14.1
Coarse Sand	0.0
Medium Sand	0.4
Fine Sand	13.7
Silt	71.6
Clay	14.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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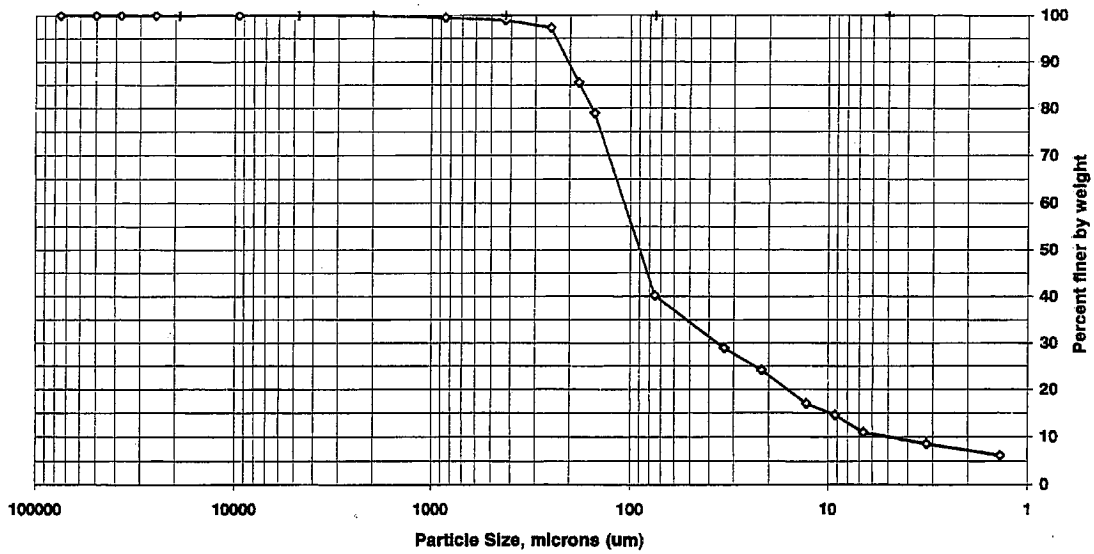
2009073PS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-03	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795785			**End Date:**	5/29/2009

Percent Solids:	52.9%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.5	0.5
#40	425	99.0	0.5
#60	250	97.3	1.7
#80	180	85.6	11.7
#100	150	78.9	6.6
#200	75	40.2	38.7
Hydrometer	33.5	29.0	11.3
|	21.6	24.2	4.8
|	12.9	17.0	7.2
|	9.2	14.6	2.4
|	6.7	11.0	3.6
|	3.2	8.6	2.4
V	1.4	6.2	2.4

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	59.8
Coarse Sand	0.0
Medium Sand	1.0
Fine Sand	58.8
Silt	29.2
Clay	11.0

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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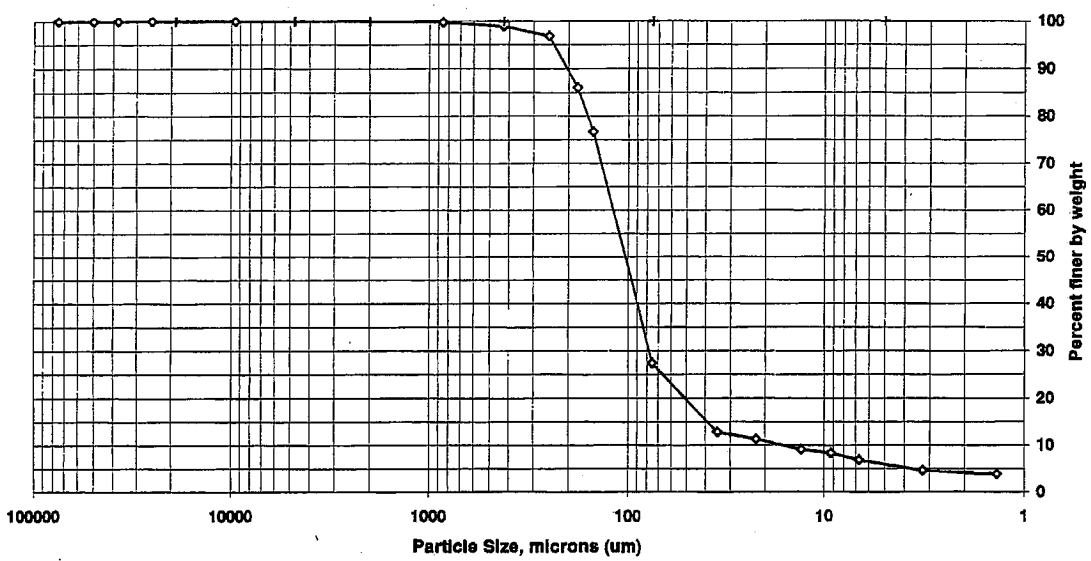
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-04	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795786			**End Date:**	5/29/2009

Percent Solids:	65.7%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.8	0.2
#40	425	98.9	0.9
#60	250	96.8	2.1
#80	180	86.0	10.8
#100	150	76.7	9.3
#200	75	27.4	49.3
Hydrometer	34.8	12.8	14.6
|	22.2	11.3	1.5
|	13.0	9.1	2.2
|	9.2	8.3	0.7
|	6.7	6.9	1.5
|	3.2	4.6	2.2
V	1.4	3.9	0.7

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	72.6
Coarse Sand	0.0
Medium Sand	1.1
Fine Sand	71.5
Silt	20.6
Clay	6.9

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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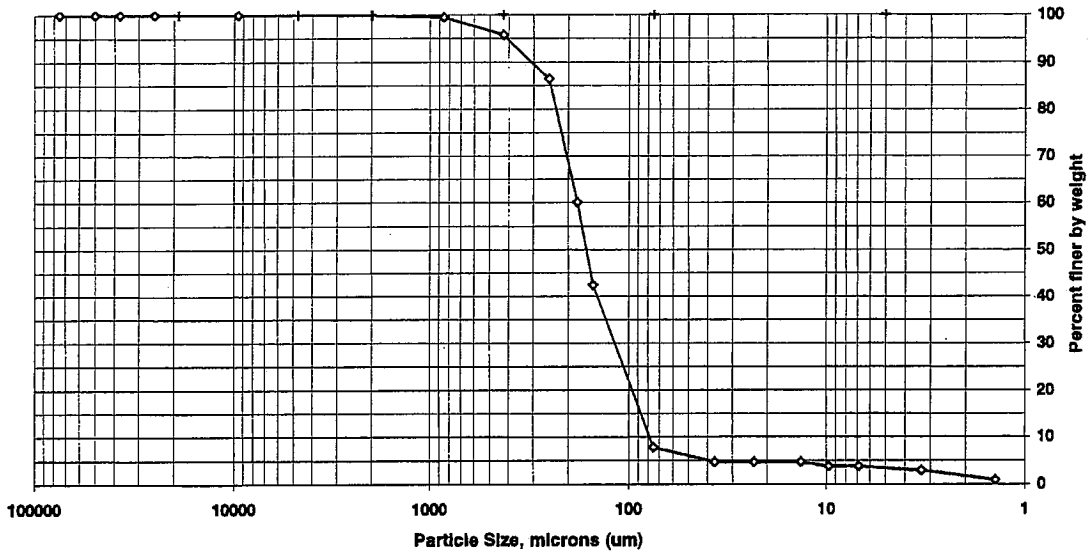
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-04(12-24)	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795787			**End Date:**	5/29/2009

Percent Solids:	70.1%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	Crs sand	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.9	0.1
#20	850	99.5	0.4
#40	425	95.7	3.7
#60	250	86.4	9.4
#80	180	60.1	26.2
#100	150	42.4	17.7
#200	75	7.8	34.6
Hydrometer	36.8	4.7	3.1
|	23.3	4.7	0.0
|	13.4	4.7	0.0
|	9.7	3.8	0.9
|	6.9	3.8	0.0
|	3.3	2.9	0.9
V	1.4	0.9	2.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	92.2
Coarse Sand	0.1
Medium Sand	4.1
Fine Sand	88.0
Silt	4.0
Clay	3.8

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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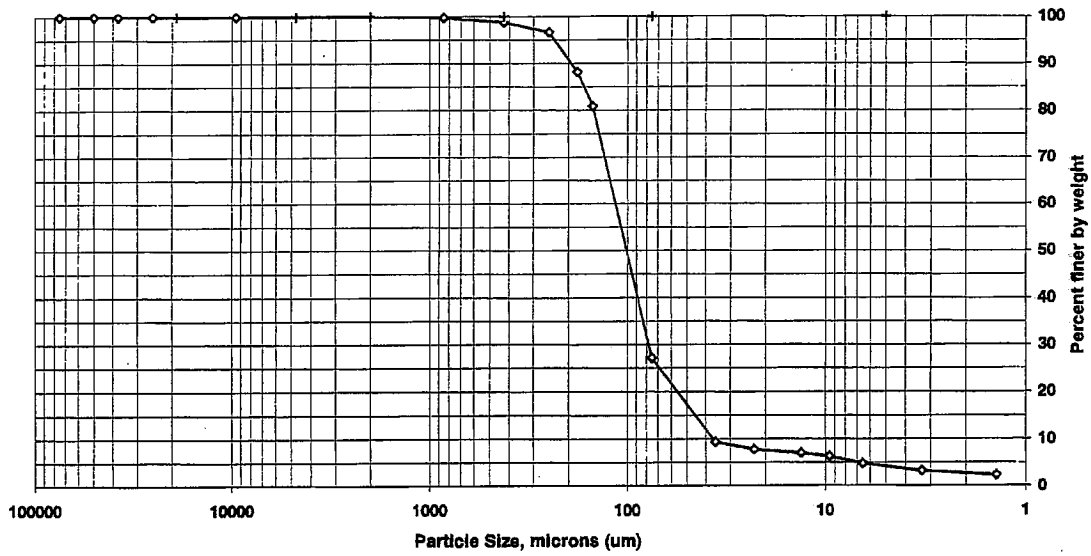
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-05	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795788			**End Date:**	5/29/2009

Percent Solids:	70.4%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.8	0.2
#40	425	98.7	1.0
#60	250	96.6	2.1
#80	180	88.1	8.5
#100	150	80.8	7.4
#200	75	27.2	53.6
Hydrometer	35.6	9.4	17.9
|	22.7	7.8	1.5
|	13.2	7.0	0.8
|	9.5	6.3	0.8
|	6.5	4.7	1.5
|	3.3	3.2	1.5
V	1.4	2.3	0.9

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	72.8
Coarse Sand	0.0
Medium Sand	1.3
Fine Sand	71.5
Silt	22.5
Clay	4.7

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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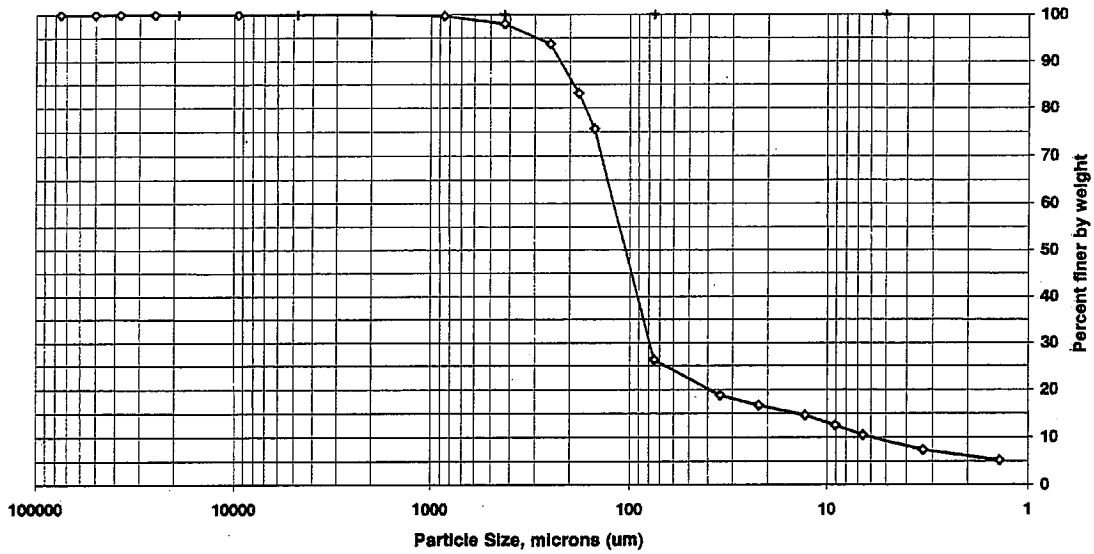
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-06	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795789			**End Date:**	5/29/2009

Percent Solids:	53.5%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.7	0.3
#40	425	98.0	1.7
#60	250	93.7	4.3
#80	180	83.1	10.6
#100	150	75.6	7.6
#200	75	26.4	49.2
Hydrometer	34.6	18.8	7.6
|	22.1	16.7	2.1
|	12.9	14.6	2.1
|	9.0	12.6	2.1
|	6.6	10.5	2.1
|	3.3	7.4	3.1
V	1.4	5.2	2.2

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	73.6
Coarse Sand	0.0
Medium Sand	2.0
Fine Sand	71.7
Silt	15.9
Clay	10.5

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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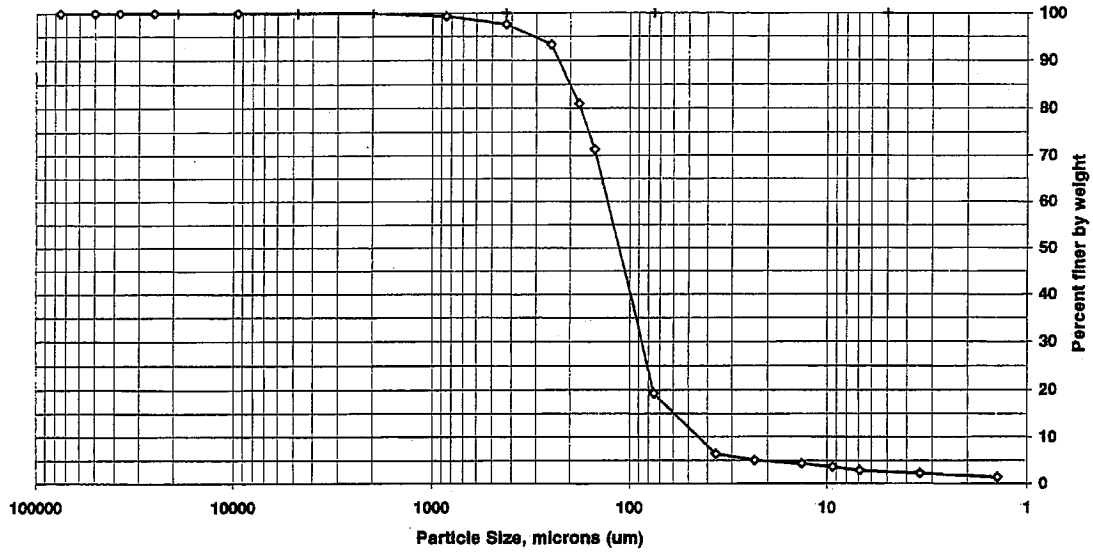
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-07	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795790			**End Date:**	5/29/2009

Percent Solids:	74.0%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.4	0.6
#40	425	97.6	1.7
#60	250	93.3	4.3
#80	180	80.9	12.4
#100	150	71.3	9.6
#200	75	19.3	52.0
Hydrometer	36.1	6.4	12.8
|	23.1	5.0	1.4
|	13.4	4.3	0.7
|	9.3	3.6	0.7
|	6.8	2.8	0.8
|	3.4	2.2	0.6
V	1.4	1.4	0.8

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	80.7
Coarse Sand	0.0
Medium Sand	2.4
Fine Sand	78.3
Silt	16.5
Clay	2.8

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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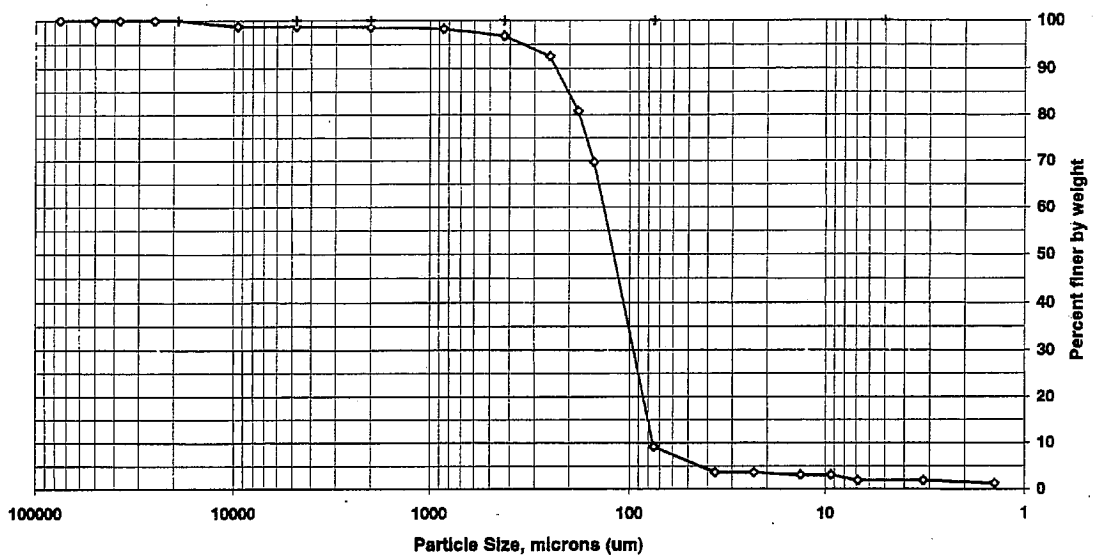
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-08	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795791			**End Date:**	5/29/2009

Percent Solids:	75.6%	**Non-soil material:**	plant,shell
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	19 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	98.8	1.2
#4	4750	98.7	0.1
#10	2000	98.6	0.1
#20	850	98.3	0.4
#40	425	96.8	1.5
#60	250	92.5	4.3
#80	180	80.8	11.7
#100	150	69.7	11.1
#200	75	9.2	60.5
Hydrometer	36.6	3.6	5.6
|	23.2	3.6	0.0
|	13.4	3.0	0.6
|	9.3	3.0	0.0
|	6.8	1.9	1.2
|	3.2	1.9	0.0
V	1.4	1.2	0.7

Soil Classification	Percent of Total Sample
Gravel	1.3
Sand	89.5
Coarse Sand	0.1
Medium Sand	1.9
Fine Sand	87.6
Silt	7.3
Clay	1.9

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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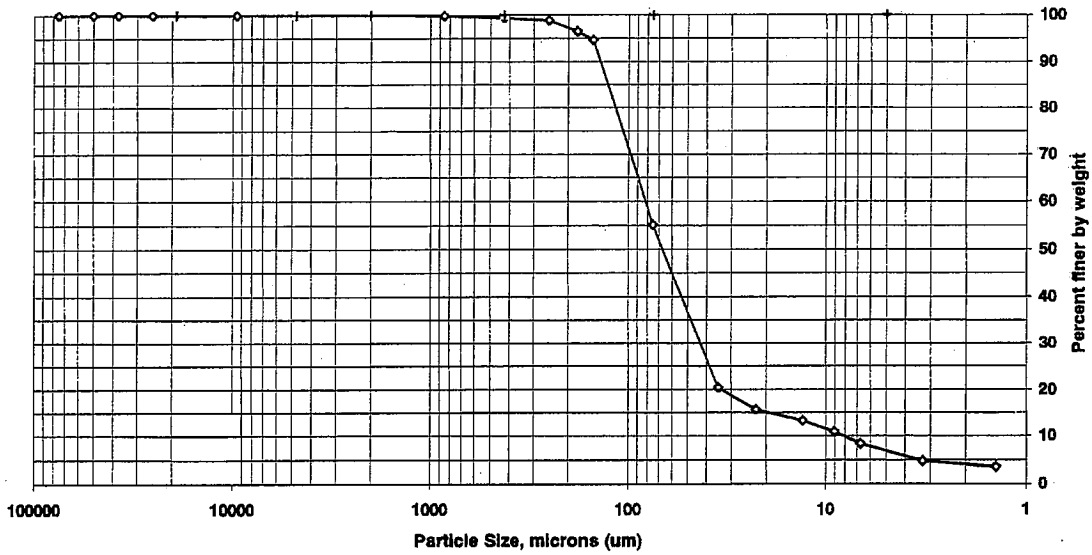
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-08(12-24)	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795792			**End Date:**	5/29/2009

Percent Solids:	67.8%	**Non-soil material:**	na
Specific Gravity:	2.650	**Shape (> #10):**	na
Maximum Particle Size:	Med sand	**Hardness (> #10):**	na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.8	0.2
#40	425	99.4	0.4
#60	250	98.8	0.6
#80	180	96.5	2.3
#100	150	94.6	1.9
#200	75	55.2	39.5
Hydrometer	34.8	20.4	34.8
|	22.4	15.7	4.8
|	13.1	13.3	2.4
|	9.0	10.9	2.4
|	6.7	8.3	2.6
|	3.3	4.8	3.6
V	1.4	3.6	1.2

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	44.8
Coarse Sand	0.0
Medium Sand	0.6
Fine Sand	44.2
Silt	46.9
Clay	8.3

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

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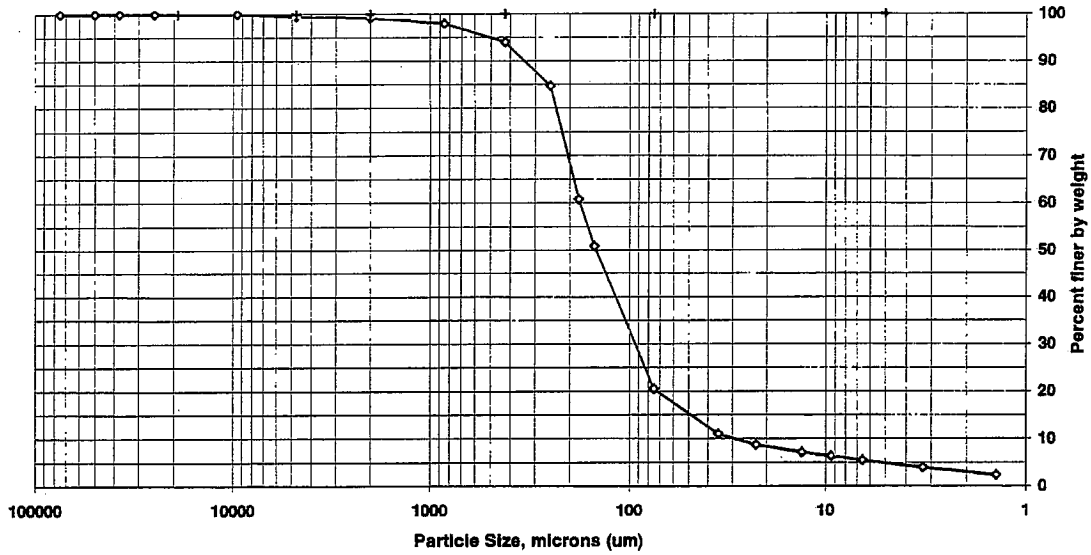
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-09	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795793			**End Date:**	5/29/2009

Percent Solids:	64.2%	**Non-soil material:**	plant
Specific Gravity:	2.650	**Shape (> #10):**	subangular
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.5	0.5
#10	2000	99.2	0.4
#20	850	97.9	1.2
#40	425	94.0	3.9
#60	250	84.6	9.4
#80	180	60.8	23.8
#100	150	50.8	10.0
#200	75	20.5	30.3
Hydrometer	35.3	11.0	9.5
|	22.6	8.7	2.3
|	13.2	7.1	1.6
|	9.4	6.3	0.8
|	6.5	5.4	0.9
|	3.3	3.9	1.6
V	1.4	2.3	1.6

Soil Classification	Percent of Total Sample
Gravel	0.5
Sand	79.0
Coarse Sand	0.4
Medium Sand	5.2
Fine Sand	73.5
Silt	15.1
Clay	5.4

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

FSL024:07.29.05:0
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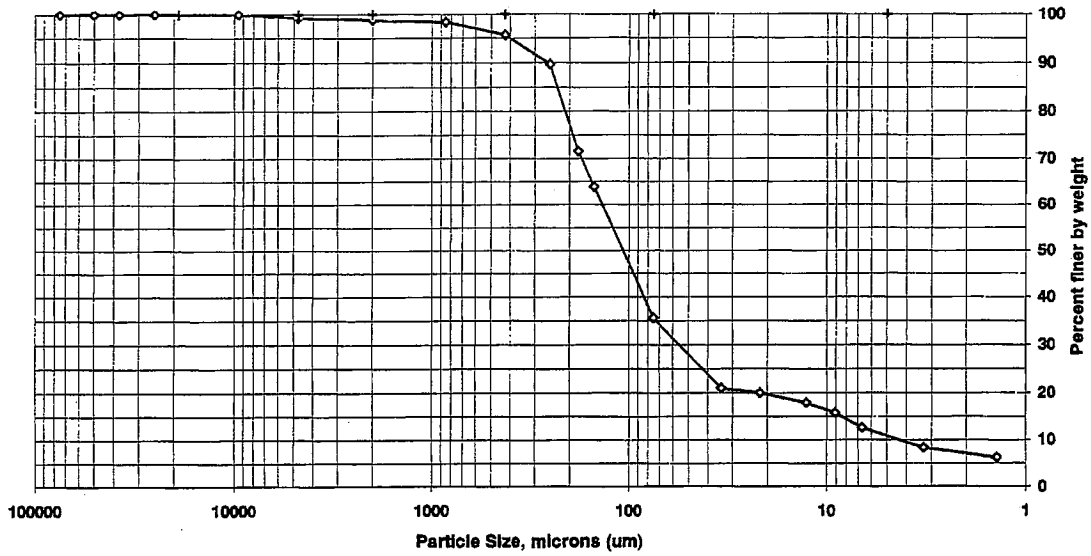
2009073BPS 5/29/2009

Particle Size of Soils by ASTM D422

Client Code:	STLCTS	**SDG:**	2009073	**Date Received:**	5/16/2009
Sample ID:	SD-10	**ETR(s):**	131783	**Start Date:**	5/19/2009
Lab ID:	795794			**End Date:**	5/29/2009

Percent Solids:	53.1%	**Non-soil material:**	plant,shell
Specific Gravity:	2.650	**Shape (> #10):**	subrounded
Maximum Particle Size:	9.5 mm	**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.3	0.7
#10	2000	98.8	0.5
#20	850	98.4	0.4
#40	425	95.7	2.7
#60	250	89.7	6.0
#80	180	71.5	18.1
#100	150	63.9	7.6
#200	75	35.6	28.3
Hydrometer	34.2	21.0	14.6
|	21.8	20.0	1.0
|	12.7	17.9	2.1
|	9.1	15.8	2.1
|	6.7	12.7	3.1
|	3.3	8.3	4.3
V	1.4	6.3	2.1

Soil Classification	Percent of Total Sample
Gravel	0.7
Sand	63.7
Coarse Sand	0.5
Medium Sand	3.1
Fine Sand	60.1
Silt	22.9
Clay	12.7

Preparation Method: **D2217**
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

FSL024:07.29.05:0
TestAmerica Burlington

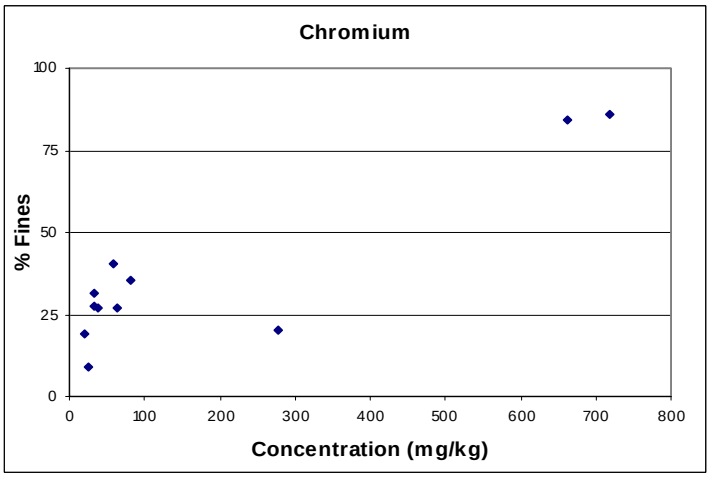
2009073BPS 5/29/2009

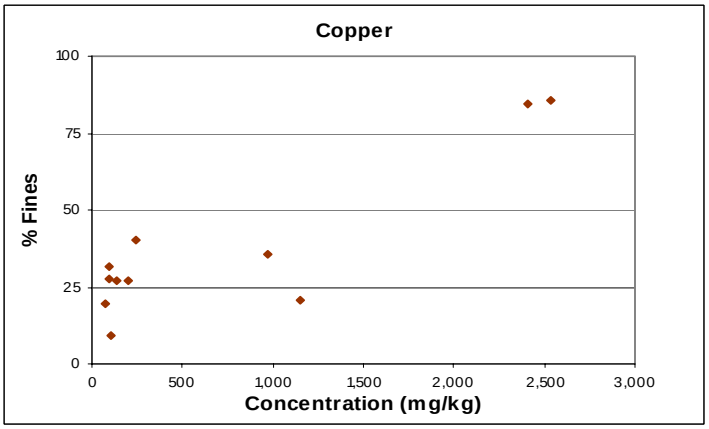
Appendix B

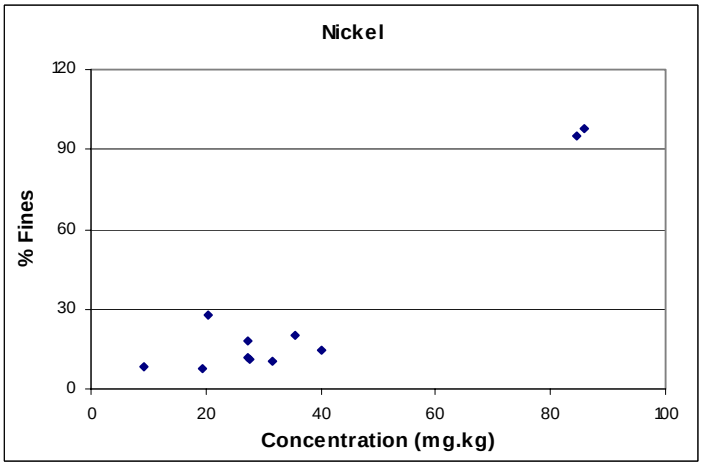
Particle Size and Total Organic Carbon Plots

Appendix B

Concentrations of selected metals plotted against sediment grain size from the Housatonic River background sample locations

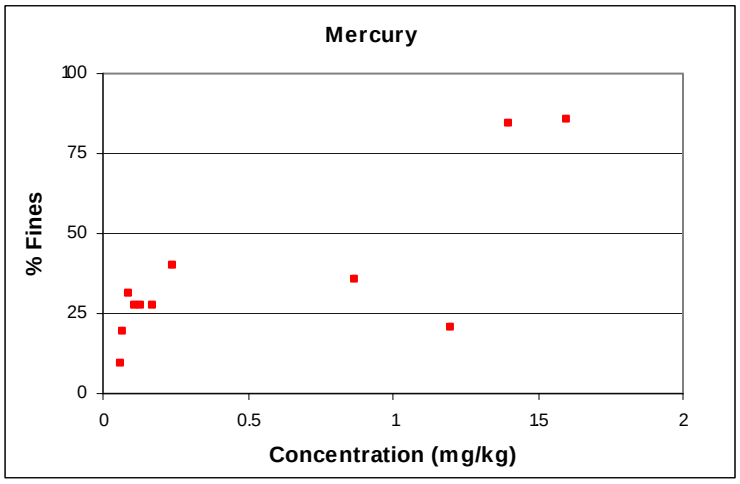


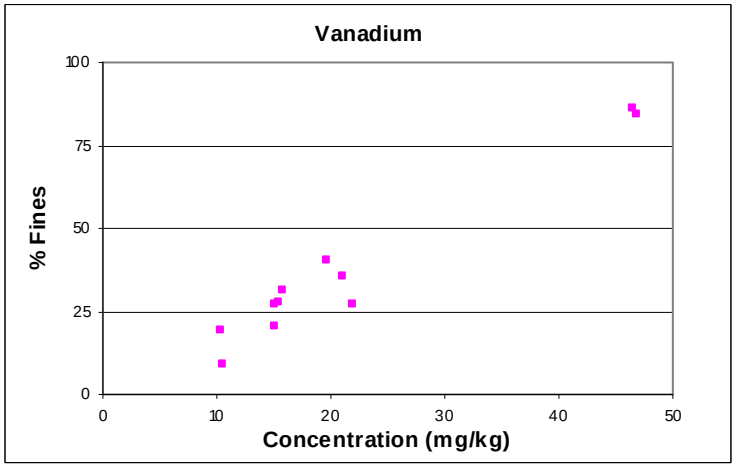


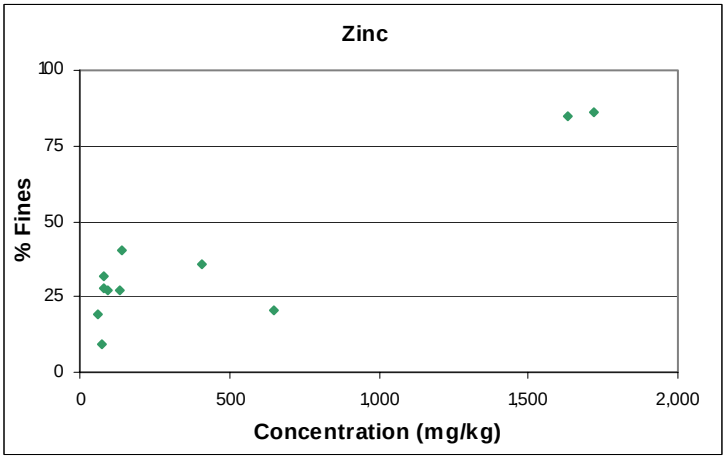


Appendix B

Concentrations of selected metals plotted against sediment grain size from the Housatonic River background sample locations

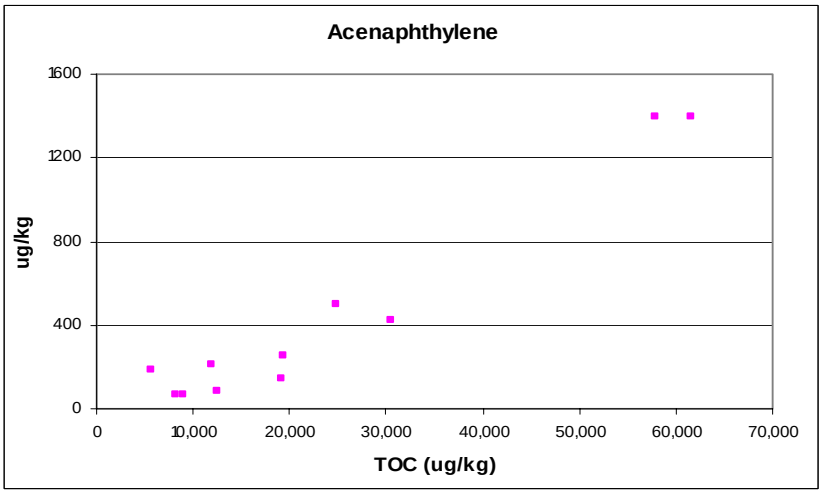


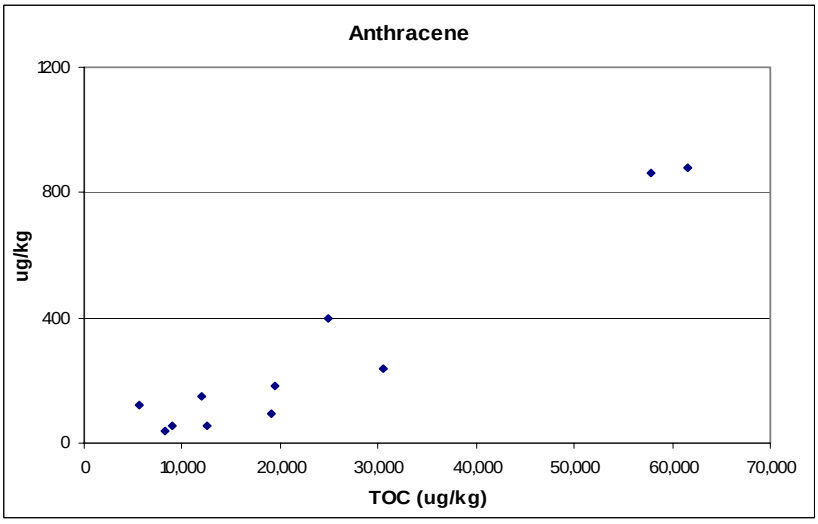


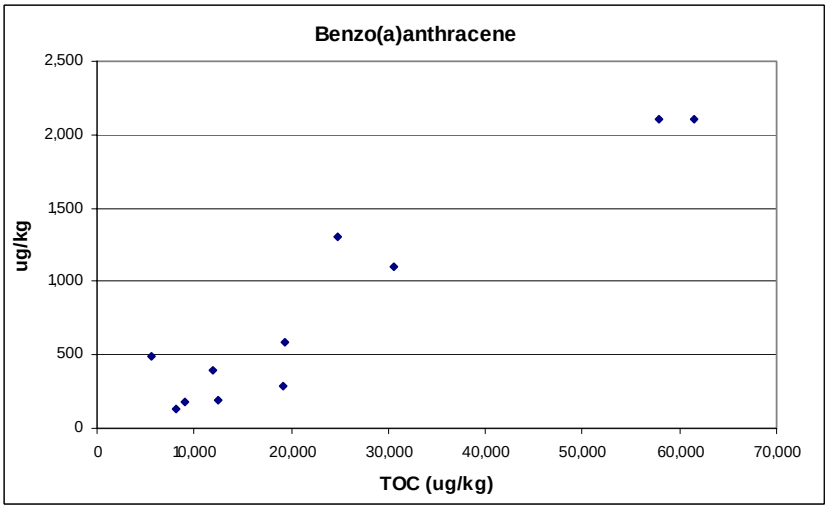


Appendix B

Concentrations of selected semi volatile organic compounds plotted against sediment TOC content from the Housatonic River background sample locations

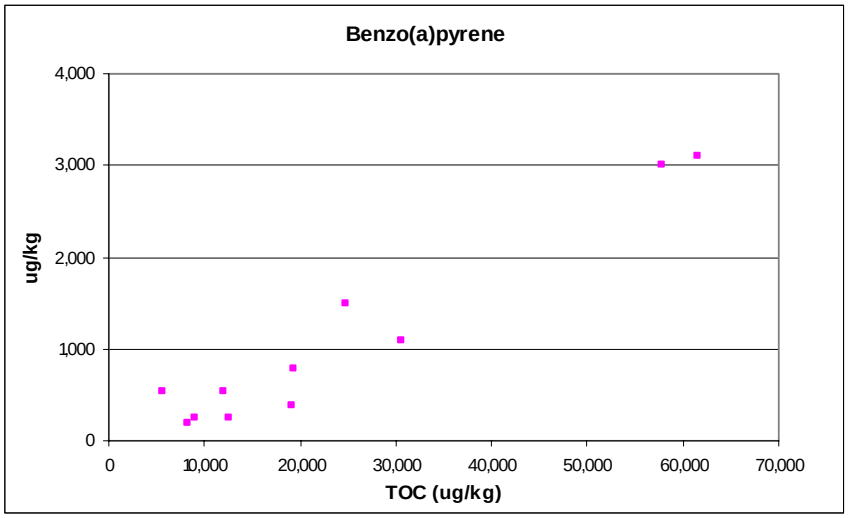


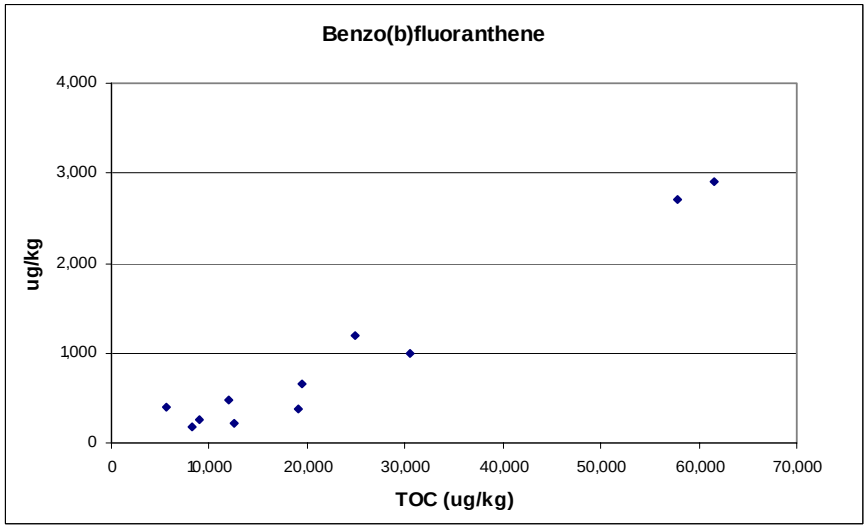


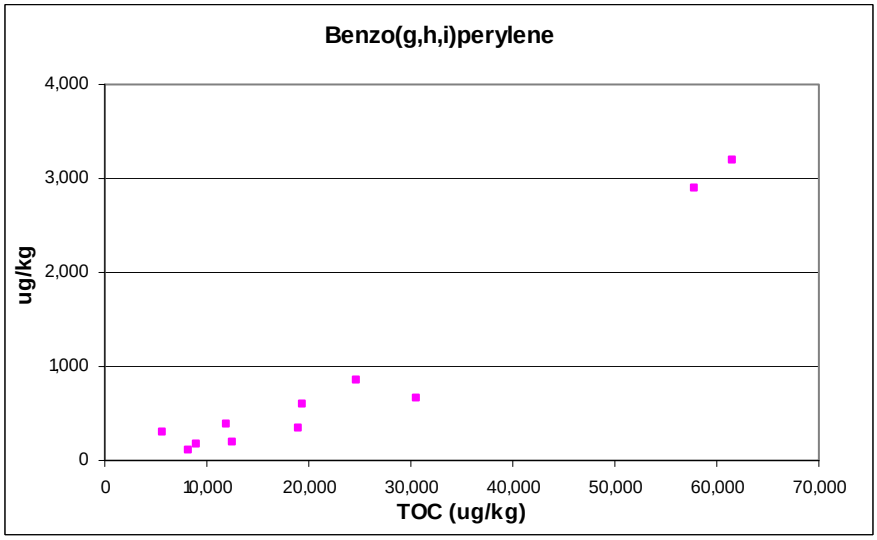


Appendix B

Concentrations of selected semi volatile organic compounds plotted against sediment TOC content from the Housatonic River background sample locations

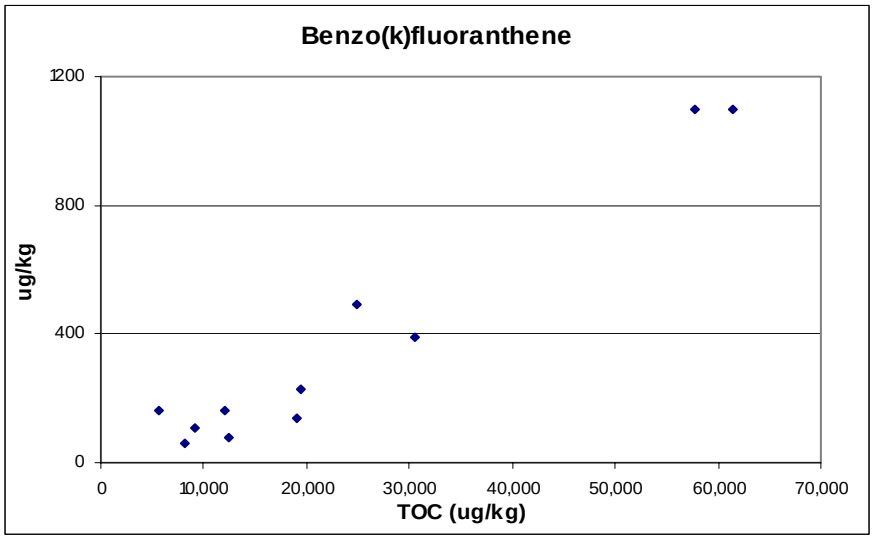


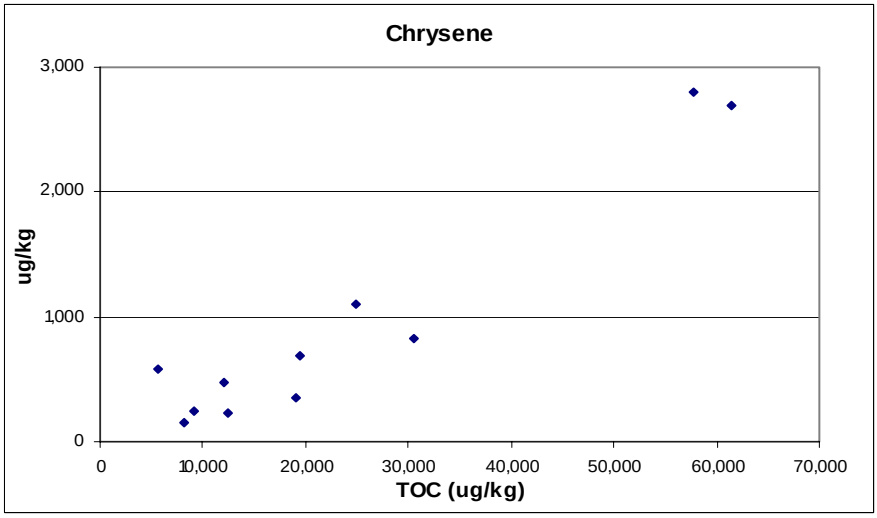


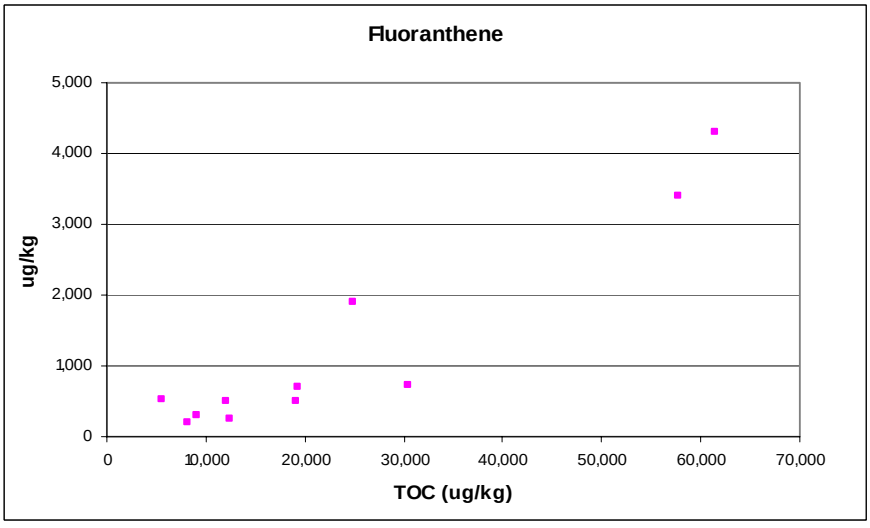


Appendix B

Concentrations of selected semi volatile organic compounds plotted against sediment TOC content from the Housatonic River background sample locations

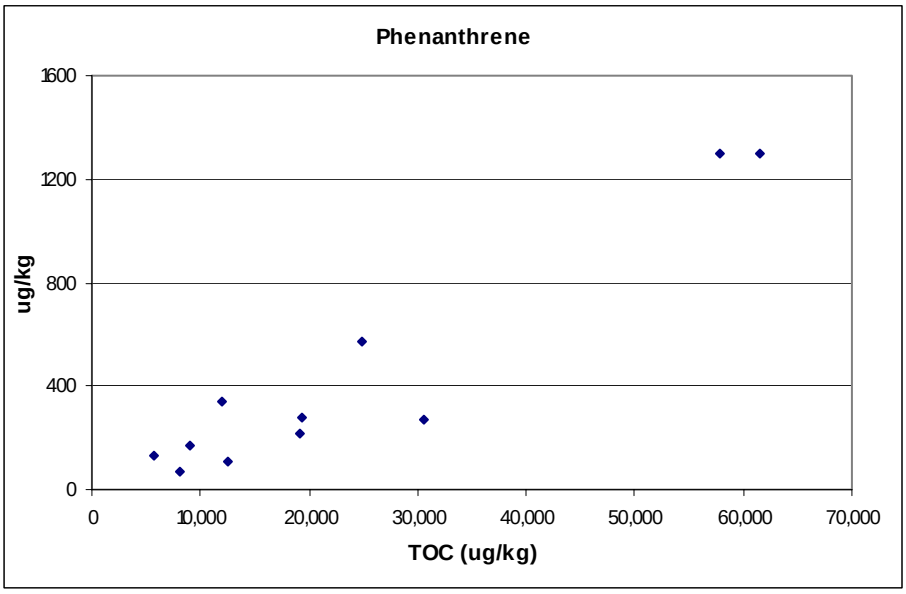


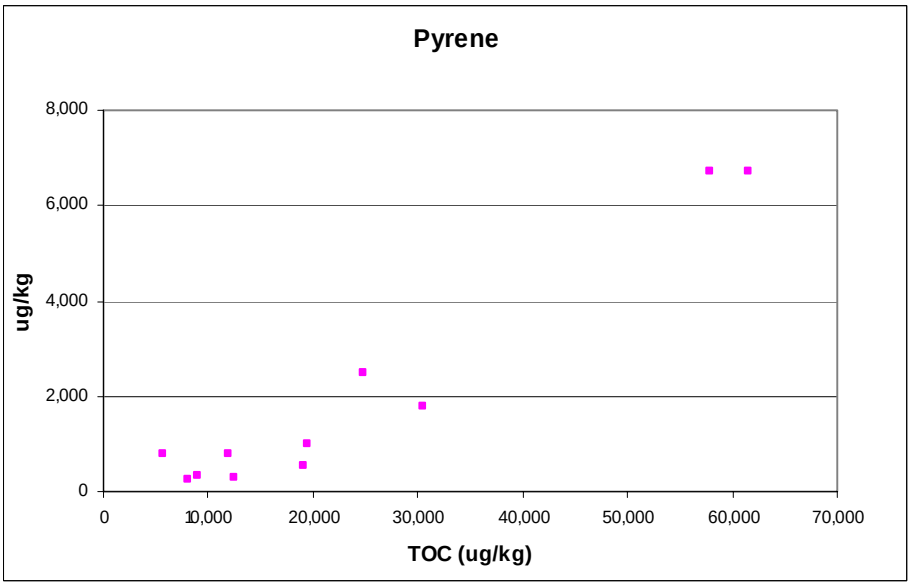




Appendix B

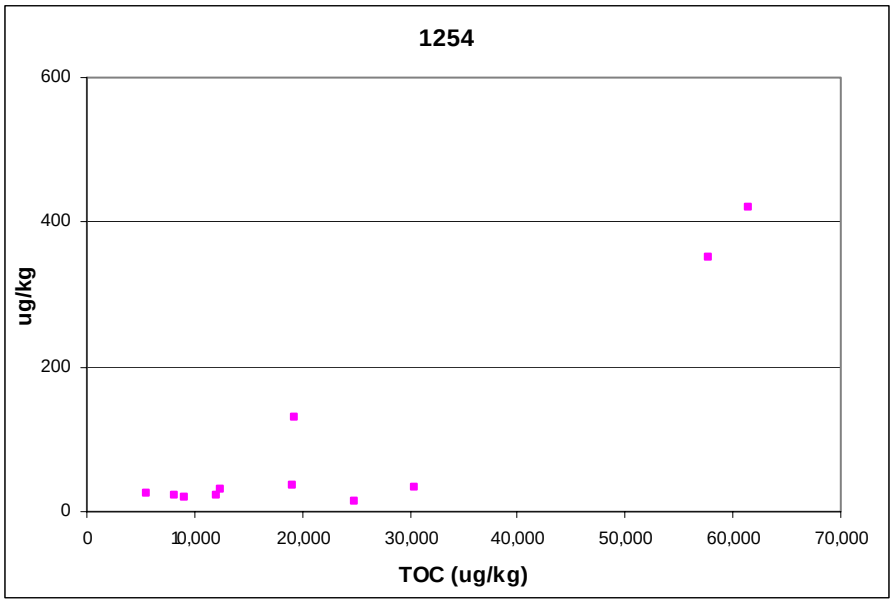
Concentrations of selected semi volatile organic compounds plotted against sediment TOC content from the Housatonic River background sample locations

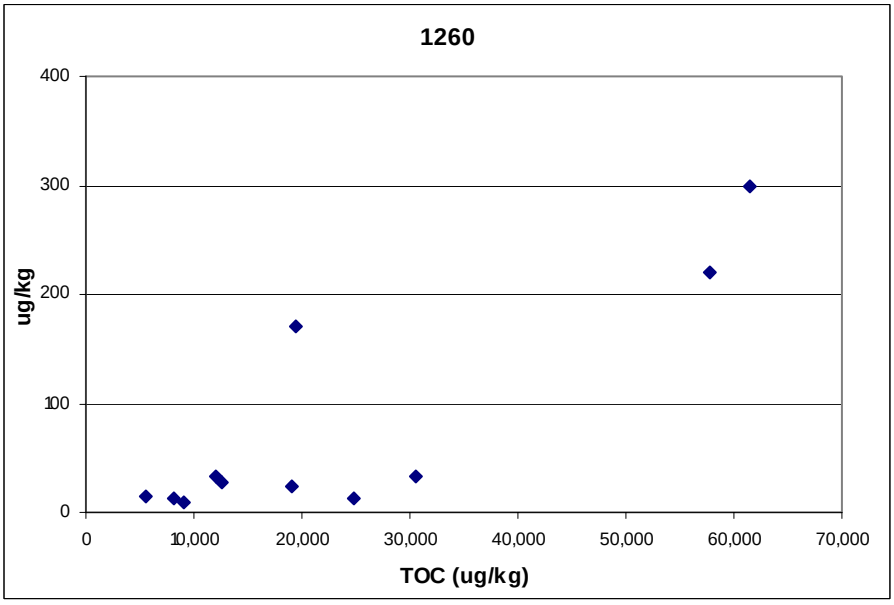




Appendix B

Concentrations of selected semi volatile organic compounds plotted against sediment TOC content from the Housatonic River background sample locations





Appendix C

Calculation of Background Threshold Values for Sediment

Introduction

This appendix provides the method used to determine preliminary sediment background threshold values (BTVs) for the Stratford Army Engine Plant (SAEP) in Stratford, CT.

EPA's ProUCL (Version 4.00.04) computer program (EPA, 2009a, 2009b) was used for calculation of BTVs. ProUCL is statistical software designed for such analysis. The main reference materials used during this evaluation were:

- *ProUCL Version 4.00.02 Technical Guide* (EPA, 2009a)
- *ProUCL Version 4.00.02 User Guide* (EPA, 2009b)
- *Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites* (EPA, 1995)

Normalization of background sediment data with respect to total organic carbon content and sediment particle size was not performed. Normalized BTVs will be determined for the Final Background Sediment Study as discussed in **Section 4** of the main document.

References for technical literature cited in this appendix are provided in **Section 5** of the main document.

Background Sediment Sampling Data

Sediment sampling data used for the background sediment determination are presented in **Section 2** of the main document. As discussed, a total of ten sediment samples and one duplicate were collected from a depth of 0-0.5 ft at locations from the east side of the Housatonic River at Nells Island. The samples were analyzed for base neutral (BN), PCBs, metals, and physiochemical parameters. BN data are presented in **Table 2** of the main document, metals data in **Table 3**, and PCB data in **Table 4**. These data are presented in dry weight basis.

A duplicate sediment sample was also collected. The duplicate sample was considered a separate sample equivalent to the discrete samples collected from the study area. This approach for handling duplicate samples is consistent with that recommended by EPA (2009a).

Method for Determining BTVs

BTVs were determined for the following COCs at the SAEP Tidal Flat and Outfall 008:

Metals:	Antimony, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Silver, Vanadium, and Zinc
SVOCs:	Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo[k]fluoranthene, Chrysene, Dibenz(a,h)anthracene, Flouranthene, Fluorene, Indeno(1,2,3-cd)pyrene, N-Nitrosodiphenylamine, 2-Methylnaphthalene, Phenanthrene, and Pyrene
PCBs:	Aroclor-1248, Aroclor-1254, and Aroclor-1260

An upper-end statistic, the 95% upper tolerance limit (UTL95), was used to represent BTVs. The UTL95 represents a value for which 95% of the values comprising the background distribution are expected to fall below this value with 95% confidence. The UTL95 method is one of EPA's recommended approaches [EPA, 1989, 1992, 2002 (pg. 5-5)] for evaluating for evidence of contamination with respect to background concentrations. The ProUCL computer program was used to calculate the UTL95s. [Note: Although ProUCL indicates a preference, but not a direct recommendation, for using the 95% upper prediction limit (UPL95) for background, the UTL95 was nevertheless selected since it is referenced in the above mentioned EPA guidance documents].

ProUCL contains advanced approaches for calculating UTLs, particularly when data sets are censored (i.e., contain non-detects). These approaches consider a large variety of inputs including the perceived distribution of the detected results (if no perceived distribution is acceptable, nonparametric alternatives are offered), sample size, variability, and skewness. In the past, censored data has simply been substituted with zero or one-half the detection limit.

These substitution schemes often introduce a bias in the resulting statistics because the detection limit does not accurately represent the concentration in the sample. For analyzing data sets containing non-detects, ProUCL uses maximum likelihood estimates for normal distributions and regression on order statistics for lognormal and gamma distributions to attempt to complete the censored left tail of the data using information available from the available detected data. ProUCL's approach can also accommodate multiple detection limits.

The method used to calculate BTVs using ProUCL was as follows:

- ProUCL was used to generate box plots and quantile plots to evaluate for outliers in the datasets. As a rule, results were not deleted as outliers unless there was a very compelling reason (i.e., suspected field or laboratory problems or it is an extreme outlier).

- ProUCL was then used to test the distributional assumptions (normal, lognormal, gamma, or non-normal distribution-free) of the background sediment data sets. ProUCL uses various mathematical statistical tests for evaluating the distributional assumptions. Graphical quantile plots were also used to assist with the distributional evaluation. Normally distributed data will appear as a straight line on a normal quantile plot. Data that are lognormal or gamma distributed will also appear as a straight line on a quantile plot when the data are log or gamma transformed, respectively.

- For data that were assumed normally distributed, the normal UTL95 was calculated parametrically by ProUCL, which was then selected as the BTV for that constituent. (It is possible for certain data sets to satisfy each of the normal, lognormal, and gamma distributional assumptions. In such case, the normal assumption would be selected. This situation did not occur for any of the data sets for the site, however.)

- For data that were assumed both lognormal and gamma distributed (but not normal), the gamma distribution was assumed. EPA (2009a) indicates that in such case, the assumption of the gamma distribution is preferred. The gamma UTL95 determined parametrically by ProUCL was then selected as the BTV for that constituent.

- For data that were assumed only gamma distributed (i.e., not normal or lognormal), the gamma UTL95 (WH approximation) determined by ProUCL was selected as the BTV for that constituent.

- For data that were assumed only lognormal distributed (i.e., not normal or gamma), the lognormal UTL95 determined by ProUCL was then selected as the BTV for that constituent.

- Highly skewed data can result in UTL95s that are an order of magnitude higher than the largest observed concentration (EPA, 2009a). This would result in an unacceptable high UTL95. The standard deviation is a measure of skewness for lognormal distributed data; kstar is a measure of skewness for gamma distributed data. Therefore, if the skewness of a data set was high (i.e., when the standard deviation of the log-transformed data starts to exceed 1, or when the gamma distribution k-star value starts to be less than 1), the UTL95 was calculated non-parametrically and selected as the BTV, which is a more conservative approach.

- For data that exhibited an unknown distribution (i.e., not normal, lognormal, or gamma), the non-parametric UTL95 was selected as the BTV for that constituent.

- For data sets that contained non-detects with multiple detection limits, the non-parametric UTL95 was selected as the BTV for that constituent.

To ensure that the UTL95 represents background conditions, there must be an adequate number of background samples. In consideration of this, ProUCL will not compute UTLs for data sets of size less than 5. It also requires that data sets also contain at least two detected values. If the frequency of detection is less than this, there is little confidence that the background distribution can be adequately characterized using statistical methods. Under these conditions, the sample distribution type cannot be identified and the UTL95 cannot be calculated, so the maximum detected concentration in the background dataset was used as the background criteria for that constituent. For data sets that were all non-detect, the maximum detection limit was selected as the BTV.

Tables C-1 and C-2 provide summary statistics for metal and organic (BNs and PCBs) BTVs. The tables include the number of samples, percent non-detect, assumed distribution type (normal, lognormal, or non-normal), range (maximum and minimum), and p-values for normality and lognormality (p-values are an indication of goodness of fit). The table also includes the mean, median, coefficient of variation, and standard deviation of raw untransformed

data, the standard deviation of log-transformed data, and the gamma kstar value, which is used to evaluate the skewness of gamma distributed data. The table also includes both the UPL95 and UTL95 for comparison. As discussed above, the UTL95 is the preferred BTV for this evaluation. **Attachment 1** presents ProUCL output results from which the summary tables were derived.

Background Threshold Values for Sediment

Sediment BTVs (dry weight basis) for metals and organics are presented in **Tables C-1 and C-2**, respectively. The rationale for their selection, which is according to the method discussed above, is also summarized in the tables. BTVs were rounded to the nearest significant digit, as appropriate.

Tables

Table C-1
Metals - Summary Statistics for Sediment Background Threshold Values
SAEP, Stratford, CT

Parameter	Number Detects	Number Non-Detects	Percent ND	Assumed Data Distribution	Normality p-value	Lognormal p-value	Background Concentration Range (mg/kg) min max	Raw Statistics (Not transformed)				Log-Transformed Standard Deviation	Gamma Kstar	UPL95 (mg/kg)	UTL95 (mg/kg)	BTV (dry weight basis) (mg/kg)	Statistic	Rationale
								Mean (mg/kg)	Median (mg/kg)	Coefficient of Variation	Standard Deviation (mg/kg)							
Antimony	11	11	100%	NA	NA	NA	5.5 U - 8.1 U	NA	NA	NA	NA	NA	NA	NA	NA	8.1	highest DL	(b)
Cadmium	4	7	64%	Non-normal	>0.05	>0.05	1.7 U - 9	5.5	6.1	NA	4.0	1.2	2.1	8.3	11.2	11.2	UTL95	(d)
Chromium	11	0	0%	Non-normal	0.0002	0.06	20.9 - 718	183	59	1.43	261	1.3	0.6	718	718	718	UTL95	(c)
Copper	11	0	0%	Non-normal	0.001	0.07	74.1 - 2540	729	201	1.29	940	1.4	0.6	2540	2540	2540	UTL95	(c)
Lead	11	0	0%	Non-normal	0.002	0.10	13.7 - 337	106	36.1	1.20	127	1.3	0.7	337	337	337	UTL95	(e)
Mercury	11	0	0%	Non-normal	0.006	0.09	0.065 - 1.6	0.54	0.17	1.12	0.60	1.3	0.7	1.6	1.6	1.6	UTL95	(a)
Nickel	11	0	0%	Non-normal	0.0002	0.04	7.7 - 97.8	29	14.9	1.14	33.6	0.9	1.0	97.8	97.8	98	UTL95	(c)
Silver	10	1	9%	Non-normal	<0.05	>0.05	1.7 U - 2.9	0.87	0.44	NA	1.1	1.0	0.9	2.7	3.6	3.6	UTL95	(e)
Vanadium	11	0	0%	Gamma	0.002	0.08	10.4 - 46.8	22	15.8	0.60	12.9	0.5	3.0	47.6	67.5	68	UTL95	(f)
Zinc	11	0	0%	Non-normal	0.0004	0.05	57.3 - 1720	461	135	1.4	628	1.3	0.6	1720	1720	1720	UTL95	(c)

ND = non-detect NA = not applicable DL - detection limit U - not detected at or above the reporting limit shown
UTL95 - 95% Upper tolerance limit

Rationale (see report for detailed discussion):
(a) Data appear gamma and lognormal distributed, but due to high skewness (gamma kstar<=1), the non-parametric UTL was used for the BTV.
(b) Data do not follow a discernable distribution. The non-parametric UTL95 was used for the BTV.
(c) Data contains non-detects with multiple detection limits. The non-parametric UTL95 was used for the BTV.
(d) Data all non-detect. The highest detection limit was used for the BTV.
(e) Data appear lognormal, but due to high skewness (log-transformed standard deviation > 1), the non-parametric UTL95 was used for the BTV.
(f) Data appear gamma and lognormal distributed. Gamma kstar >1, so not highly skewed. The gamma UTL95 (WH approximation) was used for the BTV.

Notes:
1. Mean, median, and standard deviation for data containing non-detects were computed using the detects only.
2. The lognormal standard deviation for data containing non-detects was computed using lognormal ROS estimates
3. The gamma kstar for data containing non-detects was computed using gamma ROS estimates

Table C-2
BNs and PCBs - Summary Statistics for Sediment Background Threshold Values
SAEP, Stratford, CT

Parameter	Number Detects	Number Non-Detects	Percent ND	Assumed Data Distribution	Normality p-value	Lognormal p-value	Background Concentration Range (ug/kg) min	max	Raw Statistics (Not transformed) Mean (ug/kg)	Median (ug/kg)	Coefficient of Variation	Standard Deviation (ug/kg)	Log-Transformed Standard Deviation	Gamma Kstar	UPL95 (ug/kg)	UTL95 (ug/kg)	BTV (dry weight basis) (mg/kg)	Statistic	Rationale
Acenaphthene	6	5	45%	Non-normal	<0.05	>0.05	370 U	140	87	79	NA	40.6	0.3	7.1	158	192	192	UTL95	(c)
Acenaphthylene	11	0	0%	Non-normal	0.001	0.44	67	1400	431	210	1.16	499	1.1	0.8	1400	1400	1400	UTL95	(a)
Anthracene	11	0	0%	Non-normal	0.002	0.64	39	880	279	150	1.11	310	1.1	0.9	880	880	880	UTL95	(a)
Benzo(a)anthracene	11	0	0%	Non-normal	0.03	0.64	130	2100	806	490	0.92	741	1.0	1.0	2100	2100	2100	UTL95	(a)
Benzo(a)pyrene	11	0	0%	Non-normal	0.005	0.54	200	3100	1059	540	1.00	1060	1.0	1.0	3100	3100	3100	UTL95	(a)
Benzo(b)fluoranthene	11	0	0%	Non-normal	0.003	0.58	170	2900	940	470	1.04	975	1.0	1.0	2900	2900	2900	UTL95	(a)
Benzo(ghi)perylene	11	0	0%	Non-normal	0.0004	0.51	110	3200	884	390	1.24	1097	1.1	0.8	3200	3200	3200	UTL95	(a)
Benzo[k]fluoranthene	11	0	0%	Non-normal	0.002	0.53	59	1100	365	160	1.06	386	1.0	1.0	1100	1100	1100	UTL95	(a)
Chrysene	11	0	0%	Non-normal	0.002	0.74	150	2800	921	580	1.03	947	1.0	1.0	2800	2800	2800	UTL95	(a)
Dibenz(a,h)anthracene	8	3	27%	Non-normal	<0.05	>0.05	370 U	820	285	140	NA	314	0.9	1.2	738	981	981	UTL95	(c)
Flouranthene	11	0	0%	Non-normal	0.001	0.27	200	4300	1209	520	1.16	1399	1.0	0.9	4300	4300	4300	UTL95	(a)
Fluorene	7	4	36%	Non-normal	<0.05	>0.05	370 U	260	122	81	NA	93	0.6	2.6	285	364	364	UTL95	(c)
Indeno(1,2,3-cd)pyrene	11	0	0%	Non-normal	0.0007	0.36	160	3000	894	410	1.14	1023	1.0	0.9	3000	3000	3000	UTL95	(a)
2-Methylnaphthalene	8	3	27%	Non-normal	<0.05	>0.05	370 U	480	147	70	NA	168	0.9	1.1	409	543	543	UTL95	(c)
N-Nitrosodiphenylamine	6	5	45%	Non-normal	<0.05	>0.05	370 U	2900	1060	270	NA	1352	1.1	0.9	2578	3510	3510	UTL95	(c)
Phenanthrene	11	0	0%	Non-normal	0.002	0.61	72	1300	433	270	1.04	450	0.9	1.0	1300	1300	1300	UTL95	(a)
Pyrene	11	0	0%	Non-normal	0.0008	0.48	230	6700	1969	770	1.24	2437	1.2	0.7	6700	6700	6700	UTL95	(a)
Arochlor_1248	11	11	100%	NA	NA	NA	22 U	65U	NA	NA	NA	NA	NA	NA	NA	NA	65	highest DL	(d)
Arochlor_1254	9	2	18%	Non-normal	<0.05	>0.05	26 U	420	120.1	36	NA	154.9	1.195	0.604	363	489	489	UTL95	(c)
Arochlor_1260	10	1	9%	Non-normal	<0.05	<0.05	33 U	300	81.5	81.5	NA	107.2	1.302	0.636	263	354	354	UTL95	(b)

ND = non-detect NA = not applicable DL - detection limit U - not detected at or above the reporting limit shown
UTL95 - 95% Upper tolerance limit

Rationale (see report for detailed discussion):
(a) Data appear gamma and lognormal distributed, but due to high skewness (gamma kstar<=1), the non-parametric UTL was used for the BTV.
(b) Data do not follow a discernable distribution. The non-parametric UTL95 was used for the BTV.
(c) Data contains non-detects with multiple detection limits. The non-parametric UTL95 was used for the BTV.
(d) Data all non-detect. The highest detection limit was used for the BTV.

Notes:
1. Mean, median, and standard deviation for data containing non-detects were computed using the detects only.
2. The lognormal standard deviation for data containing non-detects was computed using lognormal ROS estimates
3. The gamma kstar for data containing non-detects was computed using gamma ROS estimates

Attachment 1

ProUCL Output Results

Metals with 100% detections

General Background Statistics for Full Data Sets

User Selected Options	
From File	Y:\Industrial\Stratford\Sediment\2009 Background Sediment\Report\Background Statistics\Metals wo ND
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Values	1
Number of Bootstrap Operations	2000

Chromium

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-Transformed Statistics	
Minimum	20.9	Minimum	3.04
Maximum	718	Maximum	6.576
Second Largest	663	Second Largest	6.497
First Quartile	31.9	First Quartile	3.463
Median	58.9	Median	4.076
Third Quartile	277	Third Quartile	5.624
Mean	182.9	Mean	4.384
SD	261.3	SD	1.273
Coefficient of Variation	1.428		
Skewness	1.659		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.649	Shapiro Wilk Test Statistic	0.848
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	918.4	95% UTL with 95% Coverage	2888
95% UPL (t)	677.5	95% UPL (t)	892.9
90% Percentile (z)	517.7	90% Percentile (z)	409.9
95% Percentile (z)	612.7	95% Percentile (z)	651
99% Percentile (z)	790.7	99% Percentile (z)	1550

Gamma Distribution Test		Data Distribution Test	
k star	0.591	Data do not follow a Discernable Distribution (0.05)	
Theta Star	309.6		
MLE of Mean	182.9		
MLE of Standard Deviation	238		
nu star	13		
A-D Test Statistic	1.136	Nonparametric Statistics	
5% A-D Critical Value	0.764	90% Percentile	707
K-S Test Statistic	0.306	95% Percentile	718
5% K-S Critical Value	0.265	99% Percentile	718
Data not Gamma Distributed at 5% Significance Level			

Assuming Gamma Distribution		95% UTL with 95% Coverage	718
90% Percentile	477.4	95% Percentile Bootstrap UTL with 95% Coverage	718
95% Percentile	661.9	95% BCA Bootstrap UTL with 95% Coverage	718
99% Percentile	1109	95% UPL	718
		95% Chebyshev UPL	1372
95% WH Approx. Gamma UPL	736.8	Upper Threshold Limit Based upon IQR	644.7
95% HW Approx. Gamma UPL	759.3		
95% WH Approx. Gamma UTL with 95% Coverage	1380		
95% HW Approx. Gamma UTL with 95% Coverage	1550		

Note: UPL represents a preferred estimate of BTV

Copper

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-Transformed Statistics	
Minimum	74.1	Minimum	4.305
Maximum	2540	Maximum	7.84
Second Largest	2410	Second Largest	7.787
First Quartile	97.9	First Quartile	4.584
Median	201	Median	5.303
Third Quartile	1150	Third Quartile	7.048
Mean	729.1	Mean	5.757
SD	939.5	SD	1.364
Coefficient of Variation	1.289		
Skewness	1.367		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.718	Shapiro Wilk Test Statistic	0.85
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	3374	95% UTL with 95% Coverage	14702
95% UPL (t)	2508	95% UPL (t)	4182
90% Percentile (z)	1933	90% Percentile (z)	1817
95% Percentile (z)	2274	95% Percentile (z)	2982
99% Percentile (z)	2915	99% Percentile (z)	7551

Gamma Distribution Test		Data Distribution Test	
k star	0.585	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1246		
MLE of Mean	729.1		
MLE of Standard Deviation	953		
nu star	12.87		
A-D Test Statistic	0.927	Nonparametric Statistics	
5% A-D Critical Value	0.765	90% Percentile	2514
K-S Test Statistic	0.279	95% Percentile	2540

5% K-S Critical Value	0.265	99% Percentile	2540
Data not Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	2540
90% Percentile	1907	95% Percentile Bootstrap UTL with 95% Coverage	2540
95% Percentile	2647	95% BCA Bootstrap UTL with 95% Coverage	2540
99% Percentile	4442	95% UPL	2540
		95% Chebyshev UPL	5007
95% WH Approx. Gamma UPL	3000	Upper Threshold Limit Based upon IQR	2728
95% HW Approx. Gamma UPL	3168		
95% WH Approx. Gamma UTL with 95% Coverage	5625		
95% HW Approx. Gamma UTL with 95% Coverage	6521		

Note: UPL represents a preferred estimate of BTV

Lead

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-Transformed Statistics	
Minimum	13.7	Minimum	2.617
Maximum	337	Maximum	5.82
Second Largest	329	Second Largest	5.796
First Quartile	19	First Quartile	2.944
Median	36.1	Median	3.586
Third Quartile	205	Third Quartile	5.323
Mean	106.1	Mean	3.958
SD	126.8	SD	1.251
Coefficient of Variation	1.195		
Skewness	1.222		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.735	Shapiro Wilk Test Statistic	0.862
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	463	95% UTL with 95% Coverage	1772
95% UPL (t)	346.1	95% UPL (t)	559
90% Percentile (z)	268.6	90% Percentile (z)	260.1
95% Percentile (z)	314.6	95% Percentile (z)	409.8
99% Percentile (z)	401	99% Percentile (z)	961.3
Gamma Distribution Test		Data Distribution Test	
k star	0.668	Data appear Lognormal at 5% Significance Level	
Theta Star	158.8		
MLE of Mean	106.1		
MLE of Standard Deviation	129.8		
nu star	14.7		

A-D Test Statistic	0.857	Nonparametric Statistics	
5% A-D Critical Value	0.759	90% Percentile	335.4
K-S Test Statistic	0.276	95% Percentile	337
5% K-S Critical Value	0.264	99% Percentile	337
Data not Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	337
90% Percentile	269.2	95% Percentile Bootstrap UTL with 95% Coverage	337
95% Percentile	367.2	95% BCA Bootstrap UTL with 95% Coverage	337
99% Percentile	602.1	95% UPL	337
		95% Chebyshev UPL	683.3
95% WH Approx. Gamma UPL	414.6	Upper Threshold Limit Based upon IQR	484
95% HW Approx. Gamma UPL	436.2		
95% WH Approx. Gamma UTL with 95% Coverage	756		
95% HW Approx. Gamma UTL with 95% Coverage	865.5		
Note: UPL represents a preferred estimate of BTV			

Mercury

General Statistics			
Total Number of Observations	11	Number of Distinct Observations	11
Raw Statistics		Log-Transformed Statistics	
Minimum	0.065	Minimum	-2.733
Maximum	1.6	Maximum	0.47
Second Largest	1.4	Second Largest	0.336
First Quartile	0.093	First Quartile	-2.375
Median	0.17	Median	-1.772
Third Quartile	1.2	Third Quartile	0.182
Mean	0.541	Mean	-1.306
SD	0.603	SD	1.266
Coefficient of Variation	1.115		
Skewness	0.902		
Background Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.765	Shapiro Wilk Test Statistic	0.856
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	2.238	95% UTL with 95% Coverage	9.558
95% UPL (t)	1.682	95% UPL (t)	2.975
90% Percentile (z)	1.313	90% Percentile (z)	1.372
95% Percentile (z)	1.532	95% Percentile (z)	2.173
99% Percentile (z)	1.943	99% Percentile (z)	5.149
Gamma Distribution Test		Data Distribution Test	
k star	0.68	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	0.795		
MLE of Mean	0.541		

MLE of Standard Deviation	0.656		
nu star	14.96		
A-D Test Statistic	0.89	Nonparametric Statistics	
5% A-D Critical Value	0.758	90% Percentile	1.56
K-S Test Statistic	0.246	95% Percentile	1.6
5% K-S Critical Value	0.264	99% Percentile	1.6
Data follow Appx. Gamma Distribution at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	1.6
90% Percentile	1.367	95% Percentile Bootstrap UTL with 95% Coverage	1.6
95% Percentile	1.86	95% BCA Bootstrap UTL with 95% Coverage	1.6
99% Percentile	3.04	95% UPL	1.6
		95% Chebyshev UPL	3.285
95% WH Approx. Gamma UPL	2.112	Upper Threshold Limit Based upon IQR	2.861
95% HW Approx. Gamma UPL	2.241		
95% WH Approx. Gamma UTL with 95% Coverage	3.836		
95% HW Approx. Gamma UTL with 95% Coverage	4.436		
Note: UPL represents a preferred estimate of BTV			

Nickel

General Statistics			
Total Number of Observations	11	Number of Distinct Observations	11
Raw Statistics		Log-Transformed Statistics	
Minimum	7.7	Minimum	2.041
Maximum	97.8	Maximum	4.583
Second Largest	94.8	Second Largest	4.552
First Quartile	10.3	First Quartile	2.332
Median	14.9	Median	2.701
Third Quartile	27.8	Third Quartile	3.325
Mean	29.44	Mean	2.956
SD	33.58	SD	0.882
Coefficient of Variation	1.141		
Skewness	1.795		

Background Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.637	Shapiro Wilk Test Statistic	0.841
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	124	95% UTL with 95% Coverage	230.1
95% UPL (t)	93	95% UPL (t)	102
90% Percentile (z)	72.47	90% Percentile (z)	59.5
95% Percentile (z)	84.66	95% Percentile (z)	81.97
99% Percentile (z)	107.5	99% Percentile (z)	149.5
Gamma Distribution Test		Data Distribution Test	

k star	1.016	Data do not follow a Discernable Distribution (0.05)	
Theta Star	28.97		
MLE of Mean	29.44		
MLE of Standard Deviation	29.2		
nu star	22.36		
A-D Test Statistic	1.153	Nonparametric Statistics	
5% A-D Critical Value	0.746	90% Percentile	97.2
K-S Test Statistic	0.265	95% Percentile	97.8
5% K-S Critical Value	0.261	99% Percentile	97.8
Data not Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	97.8
90% Percentile	67.51	95% Percentile Bootstrap UTL with 95% Coverage	97.8
95% Percentile	87.68	95% BCA Bootstrap UTL with 95% Coverage	97.8
99% Percentile	134.5	95% UPL	97.8
		95% Chebyshev UPL	182.3
95% WH Approx. Gamma UPL	95.34	Upper Threshold Limit Based upon IQR	54.05
95% HW Approx. Gamma UPL	96.38		
95% WH Approx. Gamma UTL with 95% Coverage	160.3		
95% HW Approx. Gamma UTL with 95% Coverage	170.8		

Note: UPL represents a preferred estimate of BTV

Vanadium

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-Transformed Statistics	
Minimum	10.4	Minimum	2.342
Maximum	46.8	Maximum	3.846
Second Largest	46.5	Second Largest	3.839
First Quartile	15	First Quartile	2.708
Median	15.8	Median	2.76
Third Quartile	22	Third Quartile	3.091
Mean	21.65	Mean	2.947
SD	12.91	SD	0.505
Coefficient of Variation	0.596		
Skewness	1.557		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.737	Shapiro Wilk Test Statistic	0.867
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	57.99	95% UTL with 95% Coverage	78.85
95% UPL (t)	46.09	95% UPL (t)	49.51
90% Percentile (z)	38.19	90% Percentile (z)	36.36
95% Percentile (z)	42.88	95% Percentile (z)	43.68

99% Percentile (z)	51.68	99% Percentile (z)	61.61

Gamma Distribution Test		Data Distribution Test	
k star	3.002	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	7.213		
MLE of Mean	21.65		
MLE of Standard Deviation	12.5		
nu star	66.05		
A-D Test Statistic	0.86	Nonparametric Statistics	
5% A-D Critical Value	0.733	90% Percentile	46.74
K-S Test Statistic	0.24	95% Percentile	46.8
5% K-S Critical Value	0.256	99% Percentile	46.8
Data follow Appx. Gamma Distribution at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	46.8
90% Percentile	38.41	95% Percentile Bootstrap UTL with 95% Coverage	46.8
95% Percentile	45.43	95% BCA Bootstrap UTL with 95% Coverage	46.8
99% Percentile	60.66	95% UPL	46.8
		95% Chebyshev UPL	80.41
95% WH Approx. Gamma UPL	47.59	Upper Threshold Limit Based upon IQR	32.5
95% HW Approx. Gamma UPL	47.96		
95% WH Approx. Gamma UTL with 95% Coverage	67.45		
95% HW Approx. Gamma UTL with 95% Coverage	69.58		

Note: UPL represents a preferred estimate of BTV

Zinc

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-Transformed Statistics	
Minimum	57.3	Minimum	4.048
Maximum	1720	Maximum	7.45
Second Largest	1630	Second Largest	7.396
First Quartile	81.7	First Quartile	4.403
Median	135	Median	4.905
Third Quartile	652	Third Quartile	6.48
Mean	461.1	Mean	5.35
SD	627.5	SD	1.265
Coefficient of Variation	1.361		
Skewness	1.606		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.672	Shapiro Wilk Test Statistic	0.843
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	2228	95% UTL with 95% Coverage	7416

95% UPL (t)	1649	95% UPL (t)	2310
90% Percentile (z)	1265	90% Percentile (z)	1065
95% Percentile (z)	1493	95% Percentile (z)	1687
99% Percentile (z)	1921	99% Percentile (z)	3996

Gamma Distribution Test		Data Distribution Test	
k star	0.615	Data do not follow a Discernable Distribution (0.05)	
Theta Star	750		
MLE of Mean	461.1		
MLE of Standard Deviation	588.1		
nu star	13.53		
A-D Test Statistic	1.048	Nonparametric Statistics	
5% A-D Critical Value	0.762	90% Percentile	1702
K-S Test Statistic	0.312	95% Percentile	1720
5% K-S Critical Value	0.265	99% Percentile	1720
Data not Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	1720
90% Percentile	1193	95% Percentile Bootstrap UTL with 95% Coverage	1720
95% Percentile	1645	95% BCA Bootstrap UTL with 95% Coverage	1720
99% Percentile	2736	95% UPL	1720
		95% Chebyshev UPL	3318
95% WH Approx. Gamma UPL	1840	Upper Threshold Limit Based upon IQR	1507
95% HW Approx. Gamma UPL	1909		
95% WH Approx. Gamma UTL with 95% Coverage	3416		
95% HW Approx. Gamma UTL with 95% Coverage	3860		

Note: UPL represents a preferred estimate of BTV

Metals with non-detects

General Background Statistics for Data Sets with Non-Detects

User Selected Options	
From File	Y:\Industrial\Stratford\Sediment\2009 Background Sediment\Report\Background Statistics\Metals_input t
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Values	1
Number of Bootstrap Operations	2000

Antimony

General Statistics

Number of Valid Data	11	Number of Detected Data	0
Number of Distinct Detected Data	0	Number of Non-Detect Data	11

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!

Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Antimony was not processed!

Cadmium

General Statistics

Number of Valid Data	11	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	7
		Percent Non-Detects	63.64%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.62	Minimum Detected	-0.478
Maximum Detected	9	Maximum Detected	2.197
Mean of Detected	5.455	Mean of Detected	1.292
SD of Detected	4.012	SD of Detected	1.248
Minimum Non-Detect	1.7	Minimum Non-Detect	0.531
Maximum Non-Detect	2.2	Maximum Non-Detect	0.788

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	8
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	72.73%

Warning: There are only 4 Distinct Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

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

Background Statistics

Normal Distribution Test with Detected Values Only	Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.892	Shapiro Wilk Test Statistic	0.837
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.597	Mean (Log Scale)	0.443
SD	3.157	SD (Log Scale)	0.963
95% UTL 95% Coverage	11.49	95% UTL 95% Coverage	23.42
95% UPL (t)	8.575	95% UPL (t)	9.641
90% Percentile (z)	6.644	90% Percentile (z)	5.351
95% Percentile (z)	7.791	95% Percentile (z)	7.592
99% Percentile (z)	9.943	99% Percentile (z)	14.63
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	7.241	Mean in Original Scale	2.42
SD	2.389	SD in Original Scale	3.266
95% UTL with 95% Coverage	13.97	95% UTL with 95% Coverage	31.43
		95% BCA UTL with 95% Coverage	9
		95% Bootstrap (%) UTL with 95% Coverage	9
95% UPL (t)	11.76	95% UPL (t)	10.79
90% Percentile (z)	10.3	90% Percentile (z)	5.308
95% Percentile (z)	11.17	95% Percentile (z)	8.089
99% Percentile (z)	12.8	99% Percentile (z)	17.83
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.511	Data appear Normal at 5% Significance Level	
Theta Star	10.67		
nu star	4.09		
A-D Test Statistic	0.421	**Nonparametric Statistics**	
5% A-D Critical Value	0.663	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.299	Mean	2.378
5% K-S Critical Value	0.4	SD	3.131
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.09
		95% KM UTL with 95% Coverage	11.19
Assuming Gamma Distribution		95% KM Chebyshev UPL	16.63
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	8.304
Mean	5.473	90% Percentile (z)	6.39
Median	5.257	95% Percentile (z)	7.527
SD	2.702	99% Percentile (z)	9.661
k star	2.128		
Theta star	2.572	**Gamma ROS Limits with Extrapolated Data**	
Nu star	46.81	95% Wilson Hilferty (WH) Approx. Gamma UPL	13.54
95% Percentile of Chisquare (2k)	9.899	95% Hawkins Wixley (HW) Approx. Gamma UPL	14.42
		95% WH Approx. Gamma UTL with 95% Coverage	20.05
90% Percentile	10.49	95% HW Approx. Gamma UTL with 95% Coverage	22.41
95% Percentile	12.73		
99% Percentile	17.68		

Note: UPL represents a preferred estimate of BTV

For an Example: KM-UPL may be used when multiple detection limits are present

Note: DL/2 is not a recommended method.

Silver

General Statistics

Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.12	Minimum Detected	-2.12
Maximum Detected	2.9	Maximum Detected	1.065
Mean of Detected	0.866	Mean of Detected	-0.706
SD of Detected	1.062	SD of Detected	1.069
Minimum Non-Detect	1.7	Minimum Non-Detect	0.531
Maximum Non-Detect	1.7	Maximum Non-Detect	0.531

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.661	Shapiro Wilk Test Statistic	0.903
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.865	Mean (Log Scale)	-0.656
SD	1.007	SD (Log Scale)	1.027
95% UTL 95% Coverage	3.7	95% UTL 95% Coverage	9.338
95% UPL (t)	2.771	95% UPL (t)	3.623
90% Percentile (z)	2.155	90% Percentile (z)	1.934
95% Percentile (z)	2.521	95% Percentile (z)	2.808
99% Percentile (z)	3.208	99% Percentile (z)	5.654
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
		Mean in Original Scale	0.82
		SD in Original Scale	1.019
		Mean in Log Scale	-0.735
		SD in Log Scale	1.018
		95% UTL 95% Coverage	8.427
		95% UPL (t)	3.296
		90% Percentile (z)	1.768
		95% Percentile (z)	2.56
		99% Percentile (z)	5.124

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.784	Data appear Lognormal at 5% Significance Level	
Theta Star	1.105		
nu star	15.67		
A-D Test Statistic	0.842	Nonparametric Statistics	
5% A-D Critical Value	0.748	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.299	Mean	0.821

5% K-S Critical Value	0.274	SD	0.973
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.31
		95% KM UTL with 95% Coverage	3.559
Assuming Gamma Distribution		95% KM Chebyshev UPL	5.249
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	2.662
Mean	0.852	90% Percentile (z)	2.067
Median	0.44	95% Percentile (z)	2.421
SD	1.008	99% Percentile (z)	3.084
k star	0.87		
Theta star	0.979	Gamma ROS Limits with Extrapolated Data	
Nu star	19.14	95% Wilson Hilferty (WH) Approx. Gamma UPL	2.949
95% Percentile of Chisquare (2k)	5.477	95% Hawkins Wixley (HW) Approx. Gamma UPL	3.03
		95% WH Approx. Gamma UTL with 95% Coverage	5.098
90% Percentile	2.03	95% HW Approx. Gamma UTL with 95% Coverage	5.586
95% Percentile	2.682		
99% Percentile	4.212		

Note: UPL represents a preferred estimate of BTV

For an Example: KM-UPL may be used when multiple detection limits are present

Note: DL/2 is not a recommended method.

BNs with 100% detections

General Background Statistics for Full Data Sets

User Selected Options	
From File	Y:\Industrial\Stratford\Sediment\2009 Background Sediment\Report\Background Statistics\PAHs wo NDs
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Values	1
Number of Bootstrap Operations	2000

Acenaphthylene

General Statistics

Total Number of Observations	11	Number of Distinct Observations	10

Raw Statistics		Log-Transformed Statistics	
Minimum	67	Minimum	4.205
Maximum	1400	Maximum	7.244
Second Largest	1400	Second Largest	7.244
First Quartile	88	First Quartile	4.477
Median	210	Median	5.347
Third Quartile	500	Third Quartile	6.215
Mean	430.5	Mean	5.521
SD	498.8	SD	1.076
Coefficient of Variation	1.159		
Skewness	1.609		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.706	Shapiro Wilk Test Statistic	0.921
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	1834	95% UTL with 95% Coverage	5162
95% UPL (t)	1375	95% UPL (t)	1915
90% Percentile (z)	1070	90% Percentile (z)	991.9
95% Percentile (z)	1251	95% Percentile (z)	1466
99% Percentile (z)	1591	99% Percentile (z)	3052

Gamma Distribution Test		Data Distribution Test	
k star	0.828	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	520		
MLE of Mean	430.5		
MLE of Standard Deviation	473.1		
nu star	18.21		
A-D Test Statistic	0.602	Nonparametric Statistics	
5% A-D Critical Value	0.751	90% Percentile	1400
K-S Test Statistic	0.205	95% Percentile	1400
5% K-S Critical Value	0.262	99% Percentile	1400
Data appear Gamma Distributed at 5% Significance Level			

Assuming Gamma Distribution			
90% Percentile	1038	95% UTL with 95% Coverage	1400
95% Percentile	1379	95% Percentile Bootstrap UTL with 95% Coverage	1400
99% Percentile	2183	95% BCA Bootstrap UTL with 95% Coverage	1400
		95% UPL	1400
		95% Chebyshev UPL	2701
95% WH Approx. Gamma UPL	1528	Upper Threshold Limit Based upon IQR	1118
95% HW Approx. Gamma UPL	1585		
95% WH Approx. Gamma UTL with 95% Coverage	2668		
95% HW Approx. Gamma UTL with 95% Coverage	2966		

Note: UPL represents a preferred estimate of BTV

Anthracene

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-Transformed Statistics	
Minimum	39	Minimum	3.664
Maximum	880	Maximum	6.78
Second Largest	860	Second Largest	6.757
First Quartile	55	First Quartile	4.007
Median	150	Median	5.011
Third Quartile	400	Third Quartile	5.991
Mean	279.3	Mean	5.109
SD	309.7	SD	1.07
Coefficient of Variation	1.109		
Skewness	1.498		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.738	Shapiro Wilk Test Statistic	0.938
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	1151	95% UTL with 95% Coverage	3365
95% UPL (t)	865.6	95% UPL (t)	1255
90% Percentile (z)	676.2	90% Percentile (z)	652
95% Percentile (z)	788.7	95% Percentile (z)	961.9
99% Percentile (z)	999.8	99% Percentile (z)	1995

Gamma Distribution Test		Data Distribution Test	
k star	0.854	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	326.8		
MLE of Mean	279.3		
MLE of Standard Deviation	302.1		
nu star	18.8		
A-D Test Statistic	0.508	Nonparametric Statistics	
5% A-D Critical Value	0.75	90% Percentile	876
K-S Test Statistic	0.174	95% Percentile	880

5% K-S Critical Value	0.262	99% Percentile	880
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	880
90% Percentile	668.3	95% Percentile Bootstrap UTL with 95% Coverage	880
95% Percentile	884.8	95% BCA Bootstrap UTL with 95% Coverage	880
99% Percentile	1393	95% UPL	880
		95% Chebyshev UPL	1689
95% WH Approx. Gamma UPL	981.7	Upper Threshold Limit Based upon IQR	917.5
95% HW Approx. Gamma UPL	1022		
95% WH Approx. Gamma UTL with 95% Coverage	1703		
95% HW Approx. Gamma UTL with 95% Coverage	1900		
Note: UPL represents a preferred estimate of BTV			

Benzo(a)anthracene

General Statistics			
Total Number of Observations	11	Number of Distinct Observations	10
Raw Statistics		**Log-Transformed Statistics**	
Minimum	130	Minimum	4.868
Maximum	2100	Maximum	7.65
Second Largest	2100	Second Largest	7.65
First Quartile	190	First Quartile	5.247
Median	490	Median	6.194
Third Quartile	1300	Third Quartile	7.17
Mean	806.4	Mean	6.274
SD	740.6	SD	0.989
Coefficient of Variation	0.918		
Skewness	1.035		
Background Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.819	Shapiro Wilk Test Statistic	0.935
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 95% Coverage	2891	95% UTL with 95% Coverage	8592
95% UPL (t)	2208	95% UPL (t)	3452
90% Percentile (z)	1756	90% Percentile (z)	1885
95% Percentile (z)	2025	95% Percentile (z)	2700
99% Percentile (z)	2529	99% Percentile (z)	5299
Gamma Distribution Test		**Data Distribution Test**	
k star	1.033	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	780.5		
MLE of Mean	806.4		
MLE of Standard Deviation	793.3		
nu star	22.73		

A-D Test Statistic	0.402	Nonparametric Statistics	
5% A-D Critical Value	0.745	90% Percentile	2100
K-S Test Statistic	0.155	95% Percentile	2100
5% K-S Critical Value	0.261	99% Percentile	2100
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	2100
90% Percentile	1842	95% Percentile Bootstrap UTL with 95% Coverage	2100
95% Percentile	2388	95% BCA Bootstrap UTL with 95% Coverage	2100
99% Percentile	3653	95% UPL	2100
		95% Chebyshev UPL	4178
95% WH Approx. Gamma UPL	2642	Upper Threshold Limit Based upon IQR	2965
95% HW Approx. Gamma UPL	2770		
95% WH Approx. Gamma UTL with 95% Coverage	4424		
95% HW Approx. Gamma UTL with 95% Coverage	4942		
Note: UPL represents a preferred estimate of BTV			

Benzo(a)pyrene

General Statistics			
Total Number of Observations	11	Number of Distinct Observations	10
Raw Statistics		Log-Transformed Statistics	
Minimum	200	Minimum	5.298
Maximum	3100	Maximum	8.039
Second Largest	3000	Second Largest	8.006
First Quartile	250	First Quartile	5.521
Median	540	Median	6.292
Third Quartile	1500	Third Quartile	7.313
Mean	1059	Mean	6.537
SD	1060	SD	0.965
Coefficient of Variation	1.001		
Skewness	1.394		
Background Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.768	Shapiro Wilk Test Statistic	0.929
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	4044	95% UTL with 95% Coverage	10431
95% UPL (t)	3067	95% UPL (t)	4286
90% Percentile (z)	2418	90% Percentile (z)	2376
95% Percentile (z)	2803	95% Percentile (z)	3373
99% Percentile (z)	3526	99% Percentile (z)	6510
Gamma Distribution Test		Data Distribution Test	
k star	1.013	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1046		
MLE of Mean	1059		

MLE of Standard Deviation	1052		
nu star	22.28		
A-D Test Statistic	0.496	Nonparametric Statistics	
5% A-D Critical Value	0.746	90% Percentile	3080
K-S Test Statistic	0.196	95% Percentile	3100
5% K-S Critical Value	0.261	99% Percentile	3100
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	3100
90% Percentile	2431	95% Percentile Bootstrap UTL with 95% Coverage	3100
95% Percentile	3159	95% BCA Bootstrap UTL with 95% Coverage	3100
99% Percentile	4847	95% UPL	3100
		95% Chebyshev UPL	5887
95% WH Approx. Gamma UPL	3479	Upper Threshold Limit Based upon IQR	3375
95% HW Approx. Gamma UPL	3608		
95% WH Approx. Gamma UTL with 95% Coverage	5848		
95% HW Approx. Gamma UTL with 95% Coverage	6446		
Note: UPL represents a preferred estimate of BTV			

Benzo(b)fluoranthene

General Statistics			
Total Number of Observations	11	Number of Distinct Observations	11
Raw Statistics		Log-Transformed Statistics	
Minimum	170	Minimum	5.136
Maximum	2900	Maximum	7.972
Second Largest	2700	Second Largest	7.901
First Quartile	260	First Quartile	5.561
Median	470	Median	6.153
Third Quartile	1200	Third Quartile	7.09
Mean	940	Mean	6.409
SD	974.9	SD	0.961
Coefficient of Variation	1.037		
Skewness	1.502		
Background Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.75	Shapiro Wilk Test Statistic	0.935
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	3684	95% UTL with 95% Coverage	9090
95% UPL (t)	2786	95% UPL (t)	3747
90% Percentile (z)	2189	90% Percentile (z)	2081
95% Percentile (z)	2544	95% Percentile (z)	2951
99% Percentile (z)	3208	99% Percentile (z)	5683
Gamma Distribution Test		Data Distribution Test	

k star	0.995	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	944.4		
MLE of Mean	940		
MLE of Standard Deviation	942.2		
nu star	21.9		
A-D Test Statistic	0.545	Nonparametric Statistics	
5% A-D Critical Value	0.746	90% Percentile	2860
K-S Test Statistic	0.199	95% Percentile	2900
5% K-S Critical Value	0.261	99% Percentile	2900
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	2900
90% Percentile	2167	95% Percentile Bootstrap UTL with 95% Coverage	2900
95% Percentile	2821	95% BCA Bootstrap UTL with 95% Coverage	2900
99% Percentile	4339	95% UPL	2900
		95% Chebyshev UPL	5379
95% WH Approx. Gamma UPL	3103	Upper Threshold Limit Based upon IQR	2610
95% HW Approx. Gamma UPL	3205		
95% WH Approx. Gamma UTL with 95% Coverage	5232		
95% HW Approx. Gamma UTL with 95% Coverage	5741		

Note: UPL represents a preferred estimate of BTV

Benzo(ghi)perylene

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-Transformed Statistics	
Minimum	110	Minimum	4.7
Maximum	3200	Maximum	8.071
Second Largest	2900	Second Largest	7.972
First Quartile	190	First Quartile	5.247
Median	390	Median	5.966
Third Quartile	860	Third Quartile	6.757
Mean	883.6	Mean	6.208
SD	1097	SD	1.083
Coefficient of Variation	1.241		
Skewness	1.756		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.678	Shapiro Wilk Test Statistic	0.934
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	3971	95% UTL with 95% Coverage	10470
95% UPL (t)	2960	95% UPL (t)	3859
90% Percentile (z)	2289	90% Percentile (z)	1990
95% Percentile (z)	2688	95% Percentile (z)	2949

99% Percentile (z)	3435	99% Percentile (z)	6168

Gamma Distribution Test		Data Distribution Test	
k star	0.79	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1119		
MLE of Mean	883.6		
MLE of Standard Deviation	994.3		
nu star	17.37		
A-D Test Statistic	0.704	Nonparametric Statistics	
5% A-D Critical Value	0.752	90% Percentile	3140
K-S Test Statistic	0.196	95% Percentile	3200
5% K-S Critical Value	0.262	99% Percentile	3200
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	3200
90% Percentile	2155	95% Percentile Bootstrap UTL with 95% Coverage	3200
95% Percentile	2880	95% BCA Bootstrap UTL with 95% Coverage	3200
99% Percentile	4592	95% UPL	3200
		95% Chebyshev UPL	5877
95% WH Approx. Gamma UPL	3180	Upper Threshold Limit Based upon IQR	1865
95% HW Approx. Gamma UPL	3275		
95% WH Approx. Gamma UTL with 95% Coverage	5602		
95% HW Approx. Gamma UTL with 95% Coverage	6185		

Note: UPL represents a preferred estimate of BTV

Benzo[k]fluoranthene

General Statistics

Total Number of Observations	11	Number of Distinct Observations	9

Raw Statistics		Log-Transformed Statistics	
Minimum	59	Minimum	4.078
Maximum	1100	Maximum	7.003
Second Largest	1100	Second Largest	7.003
First Quartile	110	First Quartile	4.7
Median	160	Median	5.075
Third Quartile	490	Third Quartile	6.194
Mean	365.2	Mean	5.439
SD	386.1	SD	0.991
Coefficient of Variation	1.057		
Skewness	1.477		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.737	Shapiro Wilk Test Statistic	0.932
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	

95% UTL with 95% Coverage	1452	95% UTL with 95% Coverage	3749
95% UPL (t)	1096	95% UPL (t)	1503
90% Percentile (z)	860	90% Percentile (z)	820.1
95% Percentile (z)	1000	95% Percentile (z)	1176
99% Percentile (z)	1263	99% Percentile (z)	2310

Gamma Distribution Test		Data Distribution Test	
k star	0.951	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	384.1		
MLE of Mean	365.2		
MLE of Standard Deviation	374.5		
nu star	20.92		
A-D Test Statistic	0.592	Nonparametric Statistics	
5% A-D Critical Value	0.747	90% Percentile	1100
K-S Test Statistic	0.231	95% Percentile	1100
5% K-S Critical Value	0.261	99% Percentile	1100
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	1100
90% Percentile	851.4	95% Percentile Bootstrap UTL with 95% Coverage	1100
95% Percentile	1114	95% BCA Bootstrap UTL with 95% Coverage	1100
99% Percentile	1725	95% UPL	1100
		95% Chebyshev UPL	2123
95% WH Approx. Gamma UPL	1228	Upper Threshold Limit Based upon IQR	1060
95% HW Approx. Gamma UPL	1271		
95% WH Approx. Gamma UTL with 95% Coverage	2089		
95% HW Approx. Gamma UTL with 95% Coverage	2302		

Note: UPL represents a preferred estimate of BTV

Chrysene

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-Transformed Statistics	
Minimum	150	Minimum	5.011
Maximum	2800	Maximum	7.937
Second Largest	2700	Second Largest	7.901
First Quartile	240	First Quartile	5.481
Median	580	Median	6.363
Third Quartile	1100	Third Quartile	7.003
Mean	920.9	Mean	6.399
SD	947.2	SD	0.957
Coefficient of Variation	1.029		
Skewness	1.559		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.742	Shapiro Wilk Test Statistic	0.95
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85

Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 95% Coverage	3587	95% UTL with 95% Coverage	8885
95% UPL (t)	2714	95% UPL (t)	3678
90% Percentile (z)	2135	90% Percentile (z)	2049
95% Percentile (z)	2479	95% Percentile (z)	2901
99% Percentile (z)	3125	99% Percentile (z)	5567
Gamma Distribution Test		**Data Distribution Test**	
k star	1.017	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	905.7		
MLE of Mean	920.9		
MLE of Standard Deviation	913.3		
nu star	22.37		
A-D Test Statistic	0.481	**Nonparametric Statistics**	
5% A-D Critical Value	0.746	90% Percentile	2780
K-S Test Statistic	0.161	95% Percentile	2800
5% K-S Critical Value	0.261	99% Percentile	2800
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	2800
90% Percentile	2112	95% Percentile Bootstrap UTL with 95% Coverage	2800
95% Percentile	2743	95% BCA Bootstrap UTL with 95% Coverage	2800
99% Percentile	4206	95% UPL	2800
		95% Chebyshev UPL	5233
95% WH Approx. Gamma UPL	3012	Upper Threshold Limit Based upon IQR	2390
95% HW Approx. Gamma UPL	3114		
95% WH Approx. Gamma UTL with 95% Coverage	5057		
95% HW Approx. Gamma UTL with 95% Coverage	5551		

Note: UPL represents a preferred estimate of BTV

Flouranthene

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-Transformed Statistics	
Minimum	200	Minimum	5.298
Maximum	4300	Maximum	8.366
Second Largest	3400	Second Largest	8.132
First Quartile	300	First Quartile	5.704
Median	520	Median	6.254
Third Quartile	1900	Third Quartile	7.55
Mean	1209	Mean	6.582
SD	1399	SD	1.021
Coefficient of Variation	1.157		
Skewness	1.628		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.718	Shapiro Wilk Test Statistic	0.907
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 95% Coverage	5146	95% UTL with 95% Coverage	12799
95% UPL (t)	3857	95% UPL (t)	4992
90% Percentile (z)	3001	90% Percentile (z)	2673
95% Percentile (z)	3510	95% Percentile (z)	3874
99% Percentile (z)	4463	99% Percentile (z)	7770
Gamma Distribution Test		Data Distribution Test	
k star	0.866	Data appear Lognormal at 5% Significance Level	
Theta Star	1397		
MLE of Mean	1209		
MLE of Standard Deviation	1300		
nu star	19.04		
A-D Test Statistic	0.801	Nonparametric Statistics	
5% A-D Critical Value	0.75	90% Percentile	4120
K-S Test Statistic	0.29	95% Percentile	4300
5% K-S Critical Value	0.262	99% Percentile	4300
Data not Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	4300
90% Percentile	2884	95% Percentile Bootstrap UTL with 95% Coverage	4300
95% Percentile	3813	95% BCA Bootstrap UTL with 95% Coverage	4300
99% Percentile	5992	95% UPL	4300
		95% Chebyshev UPL	7577
95% WH Approx. Gamma UPL	4207	Upper Threshold Limit Based upon IQR	4300
95% HW Approx. Gamma UPL	4327		
95% WH Approx. Gamma UTL with 95% Coverage	7285		
95% HW Approx. Gamma UTL with 95% Coverage	7998		
Note: UPL represents a preferred estimate of BTV			

Indeno(1,2,3-cd)pyrene

General Statistics			
Total Number of Observations	11	Number of Distinct Observations	11
Raw Statistics		Log-Transformed Statistics	
Minimum	160	Minimum	5.075
Maximum	3000	Maximum	8.006
Second Largest	2800	Second Largest	7.937
First Quartile	210	First Quartile	5.347
Median	410	Median	6.016
Third Quartile	950	Third Quartile	6.856
Mean	893.6	Mean	6.306
SD	1023	SD	0.994
Coefficient of Variation	1.144		

Skewness	1.69		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.695	Shapiro Wilk Test Statistic	0.916
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 95% Coverage	3772	95% UTL with 95% Coverage	8986
95% UPL (t)	2830	95% UPL (t)	3595
90% Percentile (z)	2204	90% Percentile (z)	1958
95% Percentile (z)	2576	95% Percentile (z)	2809
99% Percentile (z)	3273	99% Percentile (z)	5529
Gamma Distribution Test		**Data Distribution Test**	
k star	0.905	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	987.7		
MLE of Mean	893.6		
MLE of Standard Deviation	939.5		
nu star	19.91		
A-D Test Statistic	0.704	**Nonparametric Statistics**	
5% A-D Critical Value	0.749	90% Percentile	2960
K-S Test Statistic	0.207	95% Percentile	3000
5% K-S Critical Value	0.262	99% Percentile	3000
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	3000
90% Percentile	2109	95% Percentile Bootstrap UTL with 95% Coverage	3000
95% Percentile	2774	95% BCA Bootstrap UTL with 95% Coverage	3000
99% Percentile	4330	95% UPL	3000
		95% Chebyshev UPL	5549
95% WH Approx. Gamma UPL	3050	Upper Threshold Limit Based upon IQR	2060
95% HW Approx. Gamma UPL	3133		
95% WH Approx. Gamma UTL with 95% Coverage	5236		
95% HW Approx. Gamma UTL with 95% Coverage	5726		

Note: UPL represents a preferred estimate of BTV

Phenanthrene

General Statistics

Total Number of Observations	11	Number of Distinct Observations	10
Raw Statistics		**Log-Transformed Statistics**	
Minimum	72	Minimum	4.277
Maximum	1300	Maximum	7.17
Second Largest	1300	Second Largest	7.17
First Quartile	130	First Quartile	4.868
Median	270	Median	5.598
Third Quartile	570	Third Quartile	6.346

Mean	432.9	Mean	5.647
SD	449.6	SD	0.942
Coefficient of Variation	1.039		
Skewness	1.561		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.724	Shapiro Wilk Test Statistic	0.941
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 95% Coverage	1699	95% UTL with 95% Coverage	4019
95% UPL (t)	1284	95% UPL (t)	1686
90% Percentile (z)	1009	90% Percentile (z)	948.1
95% Percentile (z)	1173	95% Percentile (z)	1335
99% Percentile (z)	1479	99% Percentile (z)	2536
Gamma Distribution Test		**Data Distribution Test**	
k star	1.023	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	423		
MLE of Mean	432.9		
MLE of Standard Deviation	427.9		
nu star	22.51		
A-D Test Statistic	0.586	**Nonparametric Statistics**	
5% A-D Critical Value	0.745	90% Percentile	1300
K-S Test Statistic	0.215	95% Percentile	1300
5% K-S Critical Value	0.261	99% Percentile	1300
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	1300
90% Percentile	991.2	95% Percentile Bootstrap UTL with 95% Coverage	1300
95% Percentile	1286	95% BCA Bootstrap UTL with 95% Coverage	1300
99% Percentile	1971	95% UPL	1300
		95% Chebyshev UPL	2480
95% WH Approx. Gamma UPL	1410	Upper Threshold Limit Based upon IQR	1230
95% HW Approx. Gamma UPL	1453		
95% WH Approx. Gamma UTL with 95% Coverage	2366		
95% HW Approx. Gamma UTL with 95% Coverage	2585		

Note: UPL represents a preferred estimate of BTV

Pyrene

General Statistics

Total Number of Observations	11	Number of Distinct Observations	9
Raw Statistics		**Log-Transformed Statistics**	
Minimum	230	Minimum	5.438
Maximum	6700	Maximum	8.81
Second Largest	6700	Second Largest	8.81

First Quartile	340	First Quartile	5.829
Median	770	Median	6.646
Third Quartile	2500	Third Quartile	7.824
Mean	1969	Mean	6.947
SD	2437	SD	1.169
Coefficient of Variation	1.237		
Skewness	1.609		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.696	Shapiro Wilk Test Statistic	0.925
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 95% Coverage	8828	95% UTL with 95% Coverage	27966
95% UPL (t)	6582	95% UPL (t)	9516
90% Percentile (z)	5092	90% Percentile (z)	4655
95% Percentile (z)	5977	95% Percentile (z)	7119
99% Percentile (z)	7637	99% Percentile (z)	15794
Gamma Distribution Test		**Data Distribution Test**	
k star	0.726	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	2713		
MLE of Mean	1969		
MLE of Standard Deviation	2311		
nu star	15.97		
A-D Test Statistic	0.638	**Nonparametric Statistics**	
5% A-D Critical Value	0.755	90% Percentile	6700
K-S Test Statistic	0.222	95% Percentile	6700
5% K-S Critical Value	0.263	99% Percentile	6700
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 95% Coverage	6700
90% Percentile	4901	95% Percentile Bootstrap UTL with 95% Coverage	6700
95% Percentile	6616	95% BCA Bootstrap UTL with 95% Coverage	6700
99% Percentile	10697	95% UPL	6700
		95% Chebyshev UPL	13062
95% WH Approx. Gamma UPL	7373	Upper Threshold Limit Based upon IQR	5740
95% HW Approx. Gamma UPL	7675		
95% WH Approx. Gamma UTL with 95% Coverage	13210		
95% HW Approx. Gamma UTL with 95% Coverage	14850		

Note: UPL represents a preferred estimate of BTV

BNs with non-detects

General Background Statistics for Data Sets with Non-Detects

User Selected Options	
From File	Y:\Industrial\Stratford\Sediment\2009 Background Sediment\Report\Background Statistics\PAHs w NDs_
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Values	1
Number of Bootstrap Operations	2000

Acenapthene

General Statistics

Number of Valid Data	11	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	5
		Percent Non-Detects	45.45%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	41	Minimum Detected	3.714
Maximum Detected	140	Maximum Detected	4.942
Mean of Detected	87.33	Mean of Detected	4.374
SD of Detected	40.6	SD of Detected	0.487
Minimum Non-Detect	370	Minimum Non-Detect	5.914
Maximum Non-Detect	480	Maximum Non-Detect	6.174

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

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

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.914	Shapiro Wilk Test Statistic	0.942
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	144.9	Mean (Log Scale)	4.823
SD	73.6	SD (Log Scale)	0.624
95% UTL 95% Coverage	352.1	95% UTL 95% Coverage	719.6
95% UPL (t)	284.2	95% UPL (t)	404.9
90% Percentile (z)	239.2	90% Percentile (z)	276.5
95% Percentile (z)	266	95% Percentile (z)	346.8
99% Percentile (z)	316.1	99% Percentile (z)	530.5

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
		Mean in Original Scale	83.71
		SD in Original Scale	29.01
		Mean in Log Scale	4.374
		SD in Log Scale	0.344
		95% UTL 95% Coverage	209.2
		95% UPL (t)	152.3
		90% Percentile (z)	123.4
		95% Percentile (z)	139.8
		99% Percentile (z)	176.8

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.804	Data appear Normal at 5% Significance Level	
Theta Star	31.14		
nu star	33.65		
A-D Test Statistic	0.286	Nonparametric Statistics	
5% A-D Critical Value	0.698	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.204	Mean	87.33
5% K-S Critical Value	0.333	SD	37.07
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	16.58
		95% KM UTL with 95% Coverage	191.7
Assuming Gamma Distribution		95% KM Chebyshev UPL	256.1
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	157.5
Mean	89.45	90% Percentile (z)	134.8
Median	91.99	95% Percentile (z)	148.3
SD	28.81	99% Percentile (z)	173.6
k star	7.102		
Theta star	12.59	Gamma ROS Limits with Extrapolated Data	
Nu star	156.3	95% Wilson Hilferty (WH) Approx. Gamma UPL	155.1
95% Percentile of Chisquare (2k)	23.95	95% Hawkins Wixley (HW) Approx. Gamma UPL	157.3
		95% WH Approx. Gamma UTL with 95% Coverage	198.8
90% Percentile	134.3	95% HW Approx. Gamma UTL with 95% Coverage	204.7
95% Percentile	150.8		
99% Percentile	185.4		

Note: UPL represents a preferred estimate of BTV

For an Example: KM-UPL may be used when multiple detection limits are present

Note: DL/2 is not a recommended method.

Dibenz(a,h)antrhracene

General Statistics

Number of Valid Data	11	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	3
		Percent Non-Detects	27.27%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	54	Minimum Detected	3.989
Maximum Detected	820	Maximum Detected	6.709
Mean of Detected	285.4	Mean of Detected	5.155
SD of Detected	314	SD of Detected	1.041

Minimum Non-Detect	370	Minimum Non-Detect	5.914
Maximum Non-Detect	420	Maximum Non-Detect	6.04

Data with Multiple Detection Limits		Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect with Single DL	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected with Single DL	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	81.82%

Warning: There are only 8 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

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

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.725	Shapiro Wilk Test Statistic	0.891
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	261.6	Mean (Log Scale)	5.191
SD	265.9	SD (Log Scale)	0.873
95% UTL 95% Coverage	1010	95% UTL 95% Coverage	2101
95% UPL (t)	765.1	95% UPL (t)	938.9
90% Percentile (z)	602.4	90% Percentile (z)	550.4
95% Percentile (z)	699.1	95% Percentile (z)	755.9
99% Percentile (z)	880.3	99% Percentile (z)	1371
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
		Mean in Original Scale	239.2
		SD in Original Scale	274.4
		Mean in Log Scale	5.046
		SD in Log Scale	0.891
		95% UTL 95% Coverage	1906
		95% UPL (t)	838.4
		90% Percentile (z)	486.3
		95% Percentile (z)	672.1
		99% Percentile (z)	1233
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.795	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	358.7		
nu star	12.73		
A-D Test Statistic	0.64	Nonparametric Statistics	
5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.218	Mean	240
5% K-S Critical Value	0.301	SD	263.2
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	85.76
		95% KM UTL with 95% Coverage	980.8

Assuming Gamma Distribution		95% KM Chebyshev UPL	1438
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	738.2
Mean	284.7	90% Percentile (z)	577.2
Median	230	95% Percentile (z)	672.9
SD	262.7	99% Percentile (z)	852.2
k star	1.168		
Theta star	243.8	Gamma ROS Limits with Extrapolated Data	
Nu star	25.69	95% Wilson Hilferty (WH) Approx. Gamma UPL	883.1
95% Percentile of Chisquare (2k)	6.627	95% Hawkins Wixley (HW) Approx. Gamma UPL	915.6
		95% WH Approx. Gamma UTL with 95% Coverage	1446
90% Percentile	630.9	95% HW Approx. Gamma UTL with 95% Coverage	1585
95% Percentile	807.7		
99% Percentile	1214		

Note: UPL represents a preferred estimate of BTV

For an Example: KM-UPL may be used when multiple detection limits are present

Note: DL/2 is not a recommended method.

Fluorene

General Statistics

Number of Valid Data	11	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	4
		Percent Non-Detects	36.36%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	45	Minimum Detected	3.807
Maximum Detected	260	Maximum Detected	5.561
Mean of Detected	121.9	Mean of Detected	4.57
SD of Detected	92.96	SD of Detected	0.721
Minimum Non-Detect	370	Minimum Non-Detect	5.914
Maximum Non-Detect	480	Maximum Non-Detect	6.174

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

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

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.769	Shapiro Wilk Test Statistic	0.872
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	

DL/2 Substitution Method		DL/2 Substitution Method	
Mean	153.5	Mean (Log Scale)	4.848
SD	85.26	SD (Log Scale)	0.682
95% UTL 95% Coverage	393.5	95% UTL 95% Coverage	870.8
95% UPL (t)	314.9	95% UPL (t)	464.2
90% Percentile (z)	262.7	90% Percentile (z)	305.8
95% Percentile (z)	293.7	95% Percentile (z)	391.9
99% Percentile (z)	351.8	99% Percentile (z)	623.9
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
		Mean in Original Scale	112.6
		SD in Original Scale	73.13
		Mean in Log Scale	4.57
		SD in Log Scale	0.559
		95% UTL 95% Coverage	465.3
		95% UPL (t)	278
		90% Percentile (z)	197.5
		95% Percentile (z)	242
		99% Percentile (z)	354.1
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.407	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	86.58		
nu star	19.7		
A-D Test Statistic	0.585	Nonparametric Statistics	
5% A-D Critical Value	0.714	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.24	Mean	121.9
5% K-S Critical Value	0.315	SD	86.07
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	35.14
		95% KM UTL with 95% Coverage	364.1
Assuming Gamma Distribution		95% KM Chebyshev UPL	513.7
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	284.8
Mean	123.5	90% Percentile (z)	232.2
Median	126.2	95% Percentile (z)	263.4
SD	72.04	99% Percentile (z)	322.1
k star	2.623		
Theta star	47.07	Gamma ROS Limits with Extrapolated Data	
Nu star	57.7	95% Wilson Hilferty (WH) Approx. Gamma UPL	284.3
95% Percentile of Chisquare (2k)	11.45	95% Hawkins Wixley (HW) Approx. Gamma UPL	290.2
		95% WH Approx. Gamma UTL with 95% Coverage	410.3
90% Percentile	225.6	95% HW Approx. Gamma UTL with 95% Coverage	431.8
95% Percentile	269.4		
99% Percentile	365.2		

Note: UPL represents a preferred estimate of BTV

For an Example: KM-UPL may be used when multiple detection limits are present

Note: DL/2 is not a recommended method.

2-Methylnapthalene

General Statistics

Number of Valid Data	11	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	3
		Percent Non-Detects	27.27%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	29	Minimum Detected	3.367
Maximum Detected	480	Maximum Detected	6.174
Mean of Detected	147	Mean of Detected	4.458
SD of Detected	167.7	SD of Detected	1.078
Minimum Non-Detect	370	Minimum Non-Detect	5.914
Maximum Non-Detect	420	Maximum Non-Detect	6.04

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	90.91%

Warning: There are only 8 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

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

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.756	Shapiro Wilk Test Statistic	0.891
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	161	Mean (Log Scale)	4.685
SD	142.4	SD (Log Scale)	0.982
95% UTL 95% Coverage	561.9	95% UTL 95% Coverage	1720
95% UPL (t)	430.6	95% UPL (t)	695.2
90% Percentile (z)	343.5	90% Percentile (z)	381.3
95% Percentile (z)	395.3	95% Percentile (z)	544.8
99% Percentile (z)	492.3	99% Percentile (z)	1064
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
		Mean in Original Scale	125.7
		SD in Original Scale	144.9
		Mean in Log Scale	4.397
		SD in Log Scale	0.908
		95% UTL 95% Coverage	1047
		95% UPL (t)	453.1
		90% Percentile (z)	260
		95% Percentile (z)	361.6
		99% Percentile (z)	671.5

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.755	Data appear Gamma Distributed at 5% Significance Level

Theta Star	194.6		
nu star	12.09		
A-D Test Statistic	0.562	Nonparametric Statistics	
5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.213	Mean	134
5% K-S Critical Value	0.301	SD	145.2
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	50.93
		95% KM UTL with 95% Coverage	542.6
Assuming Gamma Distribution		95% KM Chebyshev UPL	794.9
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	408.8
Mean	145.2	90% Percentile (z)	320
Median	130	95% Percentile (z)	372.8
SD	140.3	99% Percentile (z)	471.7
k star	1.104		
Theta star	131.5	Gamma ROS Limits with Extrapolated Data	
Nu star	24.29	95% Wilson Hilferty (WH) Approx. Gamma UPL	460.3
95% Percentile of Chisquare (2k)	6.389	95% Hawkins Wixley (HW) Approx. Gamma UPL	477.9
		95% WH Approx. Gamma UTL with 95% Coverage	761.2
90% Percentile	326.3	95% HW Approx. Gamma UTL with 95% Coverage	837.4
95% Percentile	420.2		
99% Percentile	636.6		

Note: UPL represents a preferred estimate of BTV

For an Example: KM-UPL may be used when multiple detection limits are present

Note: DL/2 is not a recommended method.

N-Nitrosodiphenylamine

General Statistics

Number of Valid Data	11	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	5
		Percent Non-Detects	45.45%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	99	Minimum Detected	4.595
Maximum Detected	2900	Maximum Detected	7.972
Mean of Detected	1060	Mean of Detected	6.067
SD of Detected	1352	SD of Detected	1.509
Minimum Non-Detect	370	Minimum Non-Detect	5.914
Maximum Non-Detect	520	Maximum Non-Detect	6.254

Data with Multiple Detection Limits		Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect with Single DL	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected with Single DL	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	81.82%

Warning: There are only 6 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

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

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.704
5% Shapiro Wilk Critical Value	0.788

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	677.6
SD	1052
95% UTL 95% Coverage	3639
95% UPL (t)	2669
90% Percentile (z)	2026
95% Percentile (z)	2408
99% Percentile (z)	3125
Maximum Likelihood Estimate(MLE) Method	N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.449
Theta Star	2361
nu star	5.388
A-D Test Statistic	0.7
5% A-D Critical Value	0.725
K-S Test Statistic	0.312
5% K-S Critical Value	0.345

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data	
Mean	1071
Median	1084
SD	956
k star	0.903
Theta star	1186
Nu star	19.86
95% Percentile of Chisquare (2k)	5.609
90% Percentile	2528
95% Percentile	3326
99% Percentile	5193

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.836
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean (Log Scale)	5.755
SD (Log Scale)	1.129
95% UTL 95% Coverage	7582
95% UPL (t)	2677
90% Percentile (z)	1342
95% Percentile (z)	2023
99% Percentile (z)	4367
Log ROS Method	
Mean in Original Scale	668.8
SD in Original Scale	1056
Mean in Log Scale	5.717
SD in Log Scale	1.141
95% UTL 95% Coverage	7535
95% UPL (t)	2633
90% Percentile (z)	1311
95% Percentile (z)	1984
99% Percentile (z)	4316

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	664.3
SD	1011
SE of Mean	335.3
95% KM UTL with 95% Coverage	3510
95% KM Chebyshev UPL	5267
95% KM UPL (t)	2578
90% Percentile (z)	1960
95% Percentile (z)	2327
99% Percentile (z)	3016

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL	3729
95% Hawkins Wixley (HW) Approx. Gamma UPL	4032
95% WH Approx. Gamma UTL with 95% Coverage	6378
95% HW Approx. Gamma UTL with 95% Coverage	7454

Note: UPL represents a preferred estimate of BTV											
For an Example: KM-UPL may be used when multiple detection limits are present											
Note: DL/2 is not a recommended method.											

PCBs with non-detects

General Background Statistics for Data Sets with Non-Detects

User Selected Options	
From File	Y:\Industrial\Stratford\Sediment\2009 Background Sediment\Report\Background Statistics\Aroclor.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Values	1
Number of Bootstrap Operations	2000

Aro_1254

General Statistics

Number of Valid Data	11	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	2
		Percent Non-Detects	18.18%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	19	Minimum Detected	2.944
Maximum Detected	420	Maximum Detected	6.04
Mean of Detected	120.1	Mean of Detected	4.098
SD of Detected	154.9	SD of Detected	1.195
Minimum Non-Detect	26	Minimum Non-Detect	3.258
Maximum Non-Detect	33	Maximum Non-Detect	3.497

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	6
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	5
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	54.55%

Warning: There are only 9 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

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

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.695	Shapiro Wilk Test Statistic	0.844
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	101	Mean (Log Scale)	3.841
SD	145	SD (Log Scale)	1.213
95% UTL 95% Coverage	509.1	95% UTL 95% Coverage	1418
95% UPL (t)	375.4	95% UPL (t)	463.1
90% Percentile (z)	286.8	90% Percentile (z)	220.5
95% Percentile (z)	339.4	95% Percentile (z)	342.7
99% Percentile (z)	438.2	99% Percentile (z)	783.5

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	-5.57	Mean in Original Scale	102
SD	241.5	SD in Original Scale	144.3
95% UTL with 95% Coverage	674.2	95% UTL with 95% Coverage	1278
		95% BCA UTL with 95% Coverage	420
		95% Bootstrap (%) UTL with 95% Coverage	420
95% UPL (t)	451.6	95% UPL (t)	440.8
90% Percentile (z)	303.9	90% Percentile (z)	217.6
95% Percentile (z)	391.6	95% Percentile (z)	331
99% Percentile (z)	556.2	99% Percentile (z)	726.9
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.643	Data appear Lognormal at 5% Significance Level	
Theta Star	186.9		
nu star	11.57		
A-D Test Statistic	0.895	Nonparametric Statistics	
5% A-D Critical Value	0.748	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.299	Mean	102.4
5% K-S Critical Value	0.288	SD	137.4
Data not Gamma Distributed at 5% Significance Level		SE of Mean	43.94
		95% KM UTL with 95% Coverage	489.1
Assuming Gamma Distribution		95% KM Chebyshev UPL	727.9
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	362.5
Mean	101.4	90% Percentile (z)	278.5
Median	31	95% Percentile (z)	328.4
SD	144.8	99% Percentile (z)	422
k star	0.604		
Theta star	168	Gamma ROS Limits with Extrapolated Data	
Nu star	13.28	95% Wilson Hilferty (WH) Approx. Gamma UPL	404.3
95% Percentile of Chisquare (2k)	4.335	95% Hawkins Wixley (HW) Approx. Gamma UPL	418.5
		95% WH Approx. Gamma UTL with 95% Coverage	752.5
90% Percentile	263.4	95% HW Approx. Gamma UTL with 95% Coverage	848.5
95% Percentile	364.1		
99% Percentile	607.5		

Note: UPL represents a preferred estimate of BTV

For an Example: KM-UPL may be used when multiple detection limits are present

Note: DL/2 is not a recommended method.

Aro_1260

General Statistics

Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	10	Minimum Detected	2.303
Maximum Detected	300	Maximum Detected	5.704
Mean of Detected	81.5	Mean of Detected	3.594
SD of Detected	107.2	SD of Detected	1.302

Minimum Non-Detect	33	Minimum Non-Detect	3.497
Maximum Non-Detect	33	Maximum Non-Detect	3.497

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.706	Shapiro Wilk Test Statistic	0.82
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	75.59	Mean (Log Scale)	3.522
SD	103.6	SD (Log Scale)	1.258
95% UTL 95% Coverage	367.1	95% UTL 95% Coverage	1169
95% UPL (t)	271.6	95% UPL (t)	366.4
90% Percentile (z)	208.3	90% Percentile (z)	169.8
95% Percentile (z)	245.9	95% Percentile (z)	268.1
99% Percentile (z)	316.5	99% Percentile (z)	632
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	-1.387	Mean in Original Scale	76
SD	220.1	SD in Original Scale	103.3
95% UTL with 95% Coverage	618.2	95% UTL with 95% Coverage	1156
		95% BCA UTL with 95% Coverage	300
		95% Bootstrap (%) UTL with 95% Coverage	300
95% UPL (t)	415.3	95% UPL (t)	366.3
90% Percentile (z)	280.7	90% Percentile (z)	170.9
95% Percentile (z)	360.7	95% Percentile (z)	268.8
99% Percentile (z)	510.7	99% Percentile (z)	628.6
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.587	Data do not follow a Discernable Distribution (0.05)	
Theta Star	138.9		
nu star	11.74		
A-D Test Statistic	1.116	**Nonparametric Statistics**	
5% A-D Critical Value	0.758	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.345	Mean	75.71
5% K-S Critical Value	0.276	SD	98.69
Data not Gamma Distributed at 5% Significance Level		SE of Mean	31.37
		95% KM UTL with 95% Coverage	353.5
Assuming Gamma Distribution		95% KM Chebyshev UPL	525
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	262.5
Mean	77.74	90% Percentile (z)	202.2
Median	24	95% Percentile (z)	238
SD	102.5	99% Percentile (z)	305.3
k star	0.636		
Theta star	122.1	**Gamma ROS Limits with Extrapolated Data**	
Nu star	14	95% Wilson Hilferty (WH) Approx. Gamma UPL	306.5
95% Percentile of Chisquare (2k)	4.484	95% Hawkins Wixley (HW) Approx. Gamma UPL	317.7
		95% WH Approx. Gamma UTL with 95% Coverage	565
90% Percentile	199.5	95% HW Approx. Gamma UTL with 95% Coverage	636.5

95% Percentile	273.8
99% Percentile	452.7

Note: UPL represents a preferred estimate of BTV

For an Example: KM-UPL may be used when multiple detection limits are present

Note: DL/2 is not a recommended method.