

VIBRATORY CORE SAMPLING REPORT

Prepared for
Islander East Pipeline Company, LLC

Branford, Connecticut

Prepared by
TRC Environmental Corporation
Windsor, Connecticut

February 4, 2002

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1.0 INTRODUCTION

A vibratory coring and sampling program was conducted along the proposed Islander East pipeline route between the dates of November 6, 2001 and November 17, 2001. This report documents the methodologies and results of the sampling program with regard to the vibratory cores which were collected for sediment chemistry analysis. The sampling program was designed based on meetings between Islander East and the Connecticut Department of Environmental Protection (CTDEP), New York State Department of Environmental Conservation (NYSDEC), and U.S. Army Corps of Engineers (ACOE). Following the meetings, a sampling plan entitled *Marine Pipeline Survey Requirements – Islander East Pipeline Project* was developed to address the environmental, regulatory, and design tasks associated with the proposed pipeline project. The methodologies and results of the vibratory core sampling and analysis are presented in the following sections.

2.0 SAMPLING AND ANALYSIS METHODS

Vibratory coring was completed by Ocean Surveys, Inc. (OSI) of Old Saybrook, Connecticut between the dates of November 6, 2001 and November 17, 2001. A total of twenty three samples (VC10.a through VC10.w) were collected and analyzed for selected metals, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, total organic carbon (TOC), specific gravity, percent moisture, and total solids. Samples taken within the boundaries of New York State were additionally analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) per the requirements of the NYSDEC *Sediment Sampling to Characterize Proposed Dredge Material* (Attachment VI). The locations of the vibratory core samples collected are shown in Attachment I. Samples VC10.a to VC10.j were collected in Connecticut waters while VC10.j to VC10.w were collected in New York Waters.

The vibratory cores were collected at approximate one-mile intervals along the proposed Islander East Pipeline centerline in Long Island Sound from the horizontal directional drill exit hole in Branford, CT (Station 41+37.48) to the New York State nearshore waters (Station 1158+70). Vibracores were collected off the R/V Parker using a reciprocating pneumatic vibracore device. Stations were located with a digital global positioning system (DGPS) and water depths were obtained with an Innerspace Model 448 digital depth sounder. Each sediment core was collected in a clean Lexan liner with a top valve and a stainless steel core catcher. The cores were advanced to depths of approximately ten feet below the seafloor or to refusal.

On board the sampling vessel, the cores were cut into approximate five foot lengths, sealed at each end with plastic caps, labeled with a unique sample identification number, and stored upright in a cooler with ice. The cores were then transported to TRC's Windsor, Connecticut office on a daily basis for logging and sediment collection. The cores were stored at TRC inside a refrigerator (40°F) until the core liners were cut open for actual sample collection. The sediment samples were generally obtained from the

core the next weekday after the vibratory coring. Prior to daily sample collection, an equipment blank was collected for each chemical analysis. This was conducted by pouring laboratory grade analyte-free deionized water through a clean Lexan liner provided by OSI, and into a clean stainless steel bowl with a stainless steel spoon. The water was then poured into the appropriate sample container.

Each Lexan core liner was opened using electric cutting shears. The top and bottom half of each sediment core was processed at the same time. After opening, the contents of cores were logged for lithology, grain size, and evidence of contamination (odor, staining, etc.) by a TRC field scientist. Photographs of representative cores were taken at that time, and are provided in Attachment V of this report. A composite sediment sample was then collected along the entire length of the core and homogenized in a clean stainless steel bowl. After homogenization, samples were placed into the appropriate sample containers for laboratory analysis. Samples collected for BTEX were not homogenized. These samples were collected and preserved in accordance with EPA Method 5035. The time from vibracoring to delivery to the laboratory did not exceed one week for any sample, and no method-specific holding times were exceeded.

In addition to the sediment samples collected, two matrix spike and matrix spike duplicate (MS/MSD) samples and two blind duplicate samples were collected for QA/QC purposes. A field blank was also collected for BTEX when sampling was conducted within New York waters. Following collection, the sediment and QA/QC samples were transported in a sample cooler with ice via chain-of-custody to Severn-Trent, Inc. of Shelton, Connecticut for laboratory analyses.

3.0 LABORATORY RESULTS

The sediment samples were collected and analyzed for the parameters listed in the following table:

Sediment Sample Analysis Summary

Parameter	EPA Method CLP/RCRA	Required Limits (mg/kg, ppm)	Number of Samples Collected	Total Number of Samples, Including QA/QC
Arsenic	Metals - EPA 6010B	0.5	23	32
Mercury	Metals - EPA 7471	0.02	23	32
Cadmium	Metals - EPA 6010B	0.1	23	32
Lead	Metals - EPA 6010B	1.0	23	32
Copper	Metals - EPA 6010B	1.0	23	32
Chromium	Metals - EPA 6010B	1.0	23	32
Nickel	Metals - EPA 6010B	1.0	23	32
Zinc	Metals - EPA 6010B	1.0	23	32
Pesticides	EPA 8081A	0.02	23	32
PCB Aroclors	EPA 8082	0.01	23	32
PAHs	EPA 8270C	0.02	23	32
BTEX	EPA 8021B	0.002	14	23
TOC	EPA 9060	0.1 ¹	23	23
% Water	ASTM D2216	1.0 ¹	23	23
Total Solids	Std. Mthds. 2540 B.		23	23
Specific Gravity	ASTM D854		23	23

Notes:

¹ Units in %

QA/QC Required	Sample Collection	Total Collected
Duplicates	1 sample per week or 10% of all field samples, whichever is greater	A total of two duplicate samples were collected
Equipment (rinseate) Blank	1 sample per day	A total of five equipment blanks were collected
Field Blank	1 sample per day	A total of three field blanks were collected
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	1 sample per 20 sediment samples	A total of two MS/MSDs were collected.

3.1 Regulatory Criteria

The bucket dredging, plowing and jetting methods proposed for pipeline installation will result in transient effects from water dispersion of disturbed and re-suspended sediment that will vary depending upon the construction method used. The sediment entering the water column will be transported and redeposited adjacent to the work area in a manner depending upon such factors as grain size distribution and currents. Because the water column effects are brief and transient compared to the redeposition of sediments, results of the vibracore sample analyses were compared to the Effects Range-Low (ERL) and the Effects Range-Median (ERM) sediment screening guidelines developed for the National

Status and Trends (NS&T) Program. The NS&T Program was initiated in 1984 by the National Oceanic and Atmospheric Administration (NOAA) to determine the current status of, and to detect changes in, the environmental quality of the Nation's estuarine and coastal waters. These sediment quality guidelines were developed as an informal, interpretive tool to estimate the possible toxicological significance of chemical concentrations in sediments and their effect on ecological receptors.

The ERL and ERM values were developed by compiling the results of several studies into one large database. These studies were performed throughout North America, and involved the evaluation of biological effects associated with different contaminants at different concentrations. The guidelines were developed for as many chemicals as the data would defensibly support.

The data from each study was arranged in order of ascending concentrations. Study endpoints in which adverse effects were reported were identified. From the ascending data tables, the 10th percentile and the 50th percentile of the effects database were identified for each substance. The 10th percentile values were named the ERL, indicative of the concentrations below which adverse effects rarely occur. The 50th percentiles were named the ERM values, representative of concentrations above which effects frequently occur.

ERL and ERM values were calculated for 9 trace metals, 13 individual PAHs, 3 classes of PAHs, and 3 classes of chlorinated organic hydrocarbons. There were insufficient amounts of reliable data available to perform similar calculations for other substances. For trace metals, the percent of studies indicating adverse effects was less than 10% when concentrations were below the ERL values. For most organics, the incidence of effects was less than 25% when concentrations were below the ERLs.

The incidence of effects increased to 20% to 30% for most trace metals and 40% to 60% for most organics when concentrations exceeded the ERL values but were lower than the ERM values. When concentrations exceeded the ERM values, the incidence of adverse effects increased to 60% to 90% for most trace metals and 80% to 100% for most organics.

The ERL and ERM values can be used to compare analytical results of collected sediments as a tool in assessing impacts of projects resulting in sediment disturbance. Measured sediment contaminant concentrations can be used to determine appropriate construction methods, mitigation measures, or other requirements relative to issuance of permits. Analytical results below ERL values suggest levels of low contamination. Results between the ERL and ERM values may indicate levels of moderate contamination. Results above ERM values suggest a high level of contamination.

For constituents where ERL and ERM values were not available, the analytical results were compared to the applicable Apparent Effects Threshold (AET) level. The AET was developed by the Environmental Protection Agency (EPA), and is the contaminant concentration in sediment above which adverse effects are always expected for a

particular biological indicator (*The AET Approach*; Briefing Rpt. to the EPA SAB, Sept. 1988). This approach is based on empirical relationships between laboratory sediment bioassays, in situ biological effects observed in organisms associated with sediments, and chemical concentrations measured in sediments.

The samples collected in New York waters were additionally compared to the New York *Technical Guidance for Screening Contaminated Sediments*. This guidance document also uses the aforementioned ERL and ERM values to screen potentially contaminated sediments. Where ERL and ERM values are not established, the document uses the New York Benthic Aquatic Life Acute Toxicity (BALAT) sediment criteria for salt water for screening purposes. Table 2 in Attachment III provides the applicable BALAT levels for screening purposes. These levels should only be used if the ERL and ERM values are not established.

3.2 Analytical Results

3.2.1 Connecticut Samples

The results of the vibracore samples collected within the jurisdiction of Connecticut are summarized in Table 1 in Attachment II. Copies of the laboratory reports are presented in Attachment III. The applicable ERL and ERM or AET values are also included in the table for screening purposes. Three metals (arsenic, copper, and nickel) were detected at concentrations that exceeded the sediment screening guidelines. The arsenic concentration in samples VC10.c (8.3 mg/Kg) and VC10.d (8.5 mg/Kg) barely exceeded the ERL screening level (8.2 mg/Kg) and were well below the ERM screening level of 70 mg/Kg. The copper concentration in sample VC10.d (48.2 mg/Kg) just exceeds the ERL screening level (34 mg/Kg) and is well below the ERM screening level of 270 mg/Kg. The nickel concentration in samples VC10.c (22.7 mg/Kg), VC10.d (22.6 mg/Kg), VC10.e (21.3 mg/Kg), VC10.f (22.2 mg/Kg) and VC10.g (22.1mg/Kg) all barely exceed the ERL screening level (20.9 mg/Kg) and are well below the ERM screening level of 51.6 mg/Kg. Samples VC10.c, VC10.d, VC10.e, VC10.f and VC10.g were collected at Mileposts 13, 14, 15, 16 and 17, respectively.

No other constituents, including PAHs, PCBs or pesticides, detected in any of the Connecticut vibracore samples exceeded any of the applicable screening levels or laboratory quantitation limits. It should be noted, however, that the reported quantitation limits for Aroclor 1221 and heptachlor exceeded the applicable screening values.

3.2.2 New York Samples

The results of the vibracore samples collected within the jurisdiction of New York are summarized in Table 2 in Attachment II. Copies of the laboratory reports are presented in Attachment III. The applicable ERL, ERM and New York guidance values are also included in the table for screening purposes. Similar to the results of the samples collected within Connecticut, two metals (arsenic and nickel) were detected at concentrations that exceeded the sediment screening guidelines. Arsenic concentrations

in select samples [VC10.o (8.6 mg/Kg), VC10.p (8.4 mg/Kg), VC10.q (9.3 mg/Kg), VC10.s (11.1 mg/Kg), and VC10.t (15.7 mg/Kg)] barely exceeded the ERL screening level (8.2 mg/Kg) and were well below the ERM screening level of 70 mg/Kg. The nickel concentration in samples VC10.n (21.8 mg/Kg), VC10.o (21.6 mg/Kg), VC10.p (23 mg/Kg), VC10.q (24.5 mg/Kg), VC10.s (27.2 mg/Kg), and VC10.t (37.9 mg/Kg) all barely exceed the ERL screening level (20.9 mg/Kg) and are well below the ERM screening level of 51.6 mg/Kg. Samples VC10.n, VC10.o, VC10.p, VC10.q, VC10.s, and VC10.t were collected at Mileposts 24, 25, 26, 27, 29 and 30, respectively.

No other constituents, including PAHs, PCBs, pesticides, or BTEX detected in any of the New York vibrocore samples exceeded any of the applicable screening levels or laboratory quantitation limits. It should be noted, however, that the reported quantitation limits for Aroclor 1221, heptachlor, 4,4' DDT, alpha-chlordane and gamma-chlordane exceeded the applicable screening values.

3.2.3 Data Comparison

The results for metals and select PAHs were also reviewed to determine whether any general trends regarding contaminant levels are present along the proposed route through Connecticut and New York waters. Metals and select PAHs were chosen for comparison due to their high frequency of detection. The results of this screening are displayed in the graphs in Attachment IV.

As a result of the comparison screening, it appears that the concentrations of metals along the proposed route in Connecticut are fairly consistent, with a slight peak at VC10.d (Milepost 14). PAH levels, however, appear to increase with distance from shore, with the highest levels detected at VC10.j, near the New York State border. Again, no PAHs were detected at levels exceeding the applicable screening levels.

The metals results for the samples collected in New York are similarly fairly consistent, with slight peaks at VC10.n and VC10.t. The PAH levels along the route in New York begin at comparatively high concentrations at the Connecticut border, and steadily decrease towards the New York shoreline.

The nearshore water is the zone where benthic communities would be most affected by sediment constituents. Since the nearshore sediments have concentrations below all screening criteria, the impacts from the pipeline installation methods will have minimal impact due to sediment quality. The effect on offshore benthic communities will be low since the detected exceedances of the screening levels were small and the distribution of sediment constituents does not indicate any unusually poor sediment quality area that will impact an area with much lower levels of constituents.

3.3 Data Validation

Data validation was performed to determine if the requirements and specifications of the work plan and the specified analytical methods were met. Field and laboratory records were used to determine if the specified QA/QC samples were collected and analyzed and the effect on data quality when the required limits were not achieved.

Tables 4 through 10 in Attachment II present the criteria evaluated for each of the analytical methods performed. The criteria are split into two categories, field and laboratory QA/QC requirements. Field QA/QC requirements were specified in the work plan as the type of samples to be collected and the frequency at which they were to be performed. Laboratory QA/QC requirements are specified in SW-846.

Data validation found that field QA/QC requirements as listed in the work plan were met and no deficiencies were noted. It was also found that the proper laboratory QA/QC samples were performed at the correct frequency. No major problems were found with the performance of the methods and none of the data was rejected. However, some of the data was flagged as estimated (J or UJ) because of problems with surrogate recoveries or other QA/QC samples. Reanalysis of samples that did not achieve all QA/QC requirements as stated in method specifications indicated that matrix effects were the cause of the problem and that there was not a problem with the performance of the method. These deficiencies and the flags added to the data are presented in Tables 4 through 10 in Attachment II.

ATTACHMENT I
VIBRACORE SAMPLE LOCATIONS

figure 2A

figure
2B

ATTACHMENT II

TABLES

TABLE 1
 VIBRACORE SAMPLE ANALYTICAL RESULTS
 ISLANDER EAST
 LONG ISLAND SOUND - CONNECTICUT

SAMPLE ID	VC10.aB	VC10.b	VC10.c	VC10.d	VC10.e	VC10.f	VC10.g	VC10.h	VC10.i	VC10.j	Effects Range Low	Effects Range Med.	Required Quantitation Limit
METALS (mg/Kg)													
Arsenic	6.9	8.2	3.3	6.3	7.3	6.2	7.5	8.2	7.5	8.2	70	0.5	
Cadmium	<0.19*	<0.33*	<0.18*	<0.25*	<0.26*	<0.26*	<0.14*	<0.17*	<0.14*	<0.26*	1.2	9.6	0.1
Chromium	27.2	34.7	43.6	36.9	35.6	29.5	29.1	81	29.5	29.1	370	1	
Copper	10.9B	18.9B	14.9	23.2	17.7	10.8	10.6	34	17.9	10.6	270	1	
Lead	7.4	11.6	10.5	16.1	11.4	7.6	7.7	46.7	11.5	7.7	218	1	
Mercury	0.0051B	0.030	0.015	0.018	0.028	0.016	0.027	0.044	0.027	0.032	0.15	0.71	0.02
Nickel	17.5	20.3	22.7	21.5	22.2	18.1	18.9	20.9	19.3	19.3	51.8	1	
Zinc	51.1B	68.1B	67.0	114.0	78.4	81.9	72.2	53.0	63.4	55.6	150	410	1
PAHs (ug/Kg)													
Naphthalene	<5.87	<6.73	<6.07	<6.10	<6.43	3.8JB	<5.97	3.0B	2.3J	5.0	160	2100	20
2-Methylnaphthalene	<5.87	<6.73	<6.07	<6.10	<6.43	2.3B	1.7B	2.0B	<5.28	3.3	70	670	20
Acenaphthylene	<5.87	4.8J	<6.07	2.5	2.4	9.9J	9.9	8.0	9.6	15.0	44	640	20
Acenaphthene	<5.87	<6.73	<6.07	<6.10	<6.43	1.3J	<5.97	1.0	<5.28	2.4	16	500	20
Fluorene	<5.87	<6.73	<6.07	<6.10	<6.43	2.1J	<5.97	<5.77	<5.28	2.9	19	540	20
Phenanthrene	<5.87	11.0	3.9J	5.0J	4.2J	25J	11.0	17J	11.0	33J	240	1500	20
Anthracene	<5.87	4.3J	<6.07	2.2J	4.7J	8.6J	4.7	7J	5.4	13J	65.3	1100	20
Fluoranthene	3.1J	21.0	6.1	9J	6.5J	48J	25.0	31J	19.0	56J	600	5100	20
Pyrene	5.0J	45J	18J	24J	17J	100J	40.0	79J	54J	130J	665	2600	20
Benz(a)anthracene	<5.87	13.0	6.8	6.4J	<6.43UJ	43J	23.0	26J	20.0	40J	261	1600	20
Chrysene	<5.87	17.0	7.3	9.6J	<6.43UJ	47J	29.0	31J	22.0	49J	384	2800	20
Benz(b)fluoranthene	<5.87	16.0	<6.07	8.6	8.4	40J	21.0	30.0	18.0	51.0	1800	NE	20
Benz(k)fluoranthene	<5.87	20.0	<6.07	11.0	5.6	35J	21.0	27.0	25.0	56.0	1800	NE	20
Benz(a)pyrene	<5.87	20.0	<6.07	8.4	<6.43	50J	24.0	35.0	19.0	70.0	430	1600	20
Indeno(1,2,3-cd)pyrene	<5.87	16.0	<6.07	<6.10	<6.43	28J	15.0	22.0	19.0	66.0	600	NE	20
Dibenzo(a,h)anthracene	<5.87	<6.73	<6.07	<6.10	<6.43	<5.94UJ	<5.97	<5.77	<5.28	18.0	63.4	260	20
Benz(ghi)perylene	<5.87	20.0	<6.07	<6.10	<6.43	38J	20.0	31.0	26.0	92.0	670	NE	20

NOTES
 UJ - (Organics) Estimated quantitation limit.
 J - (Organics) The concentration listed is an estimated value.
 B - (Organics) Indicates that the analyte was found in the blanks as well as the sample.
 B - (Mercury) Indicates analyzer result between IDL and quantitation limits.
 B - (Inorganics) Analytes detected in an associated blank sample at concentrations greater than the quantitation limit.
 N - (Inorganics) Spike sample recovery not within control limits.
 * - Does not meet required quantitation limit as outlined in work plan.
 Bold - Indicates exceedance of screening level.
 //efics - Refers to Apparent Effects Threshold (AET). ERL and ERM not established.
 NE - Level not established at this time.

TABLE 1
VIBRACORE SAMPLE ANALYTICAL RESULTS
ISLANDER EAST
LONG ISLAND SOUND - CONNECTIUCT

SAMPLE ID	VC10.aB	VC10.b	VC10.c	VC10.d	VC10.e	VC10.f	VC10.g	VC10.h	VC10.J	Effects Range Low	Effects Range Med.	Required Quantitation Limit
PCBs (ug/Kg)												
Aroclor-1016	< 11.71*	< 13.068*	< 12.28*	< 12.01*	< 12.80*	< 11.75*	< 12.01*	< 11.45*	< 11.09*	22.7	180	10
Aroclor-1221	< 23.78 ^{cd}	< 26.53 ^{cd}	< 24.92 ^{cd}	< 24.39 ^{cd}	< 26.0 ^{cd}	< 23.85 ^{cd}	< 24.39 ^{cd}	< 23.25 ^{cd}	< 21.71	22.7	180	10
Aroclor-1232	< 11.71*	< 13.068*	< 12.28*	< 12.01*	< 12.80*	< 11.75*	< 12.01*	< 11.45*	< 11.09*	22.7	180	10
Aroclor-1242	< 11.71*	< 13.068*	< 12.28*	< 12.01*	< 12.80*	< 11.75*	< 12.01*	< 11.45*	< 11.09*	22.7	180	10
Aroclor-1248	< 11.71*	< 13.068*	< 12.28*	< 12.01*	< 12.80*	< 11.75*	< 12.01*	< 11.45*	< 11.09*	22.7	180	10
Aroclor-1254	< 11.71*	3.7J	< 12.28*	< 12.01*	< 12.80*	< 11.75*	< 12.01*	< 11.45*	< 11.09*	22.7	180	10
Aroclor-1260	< 11.71*	3.3J	< 12.28*	1.5J	< 12.80*	2.6J	2.4J	2.9J	2.3J	22.7	180	10
PESTICIDES (ug/Kg)												
alpha-BHC	0.11J	0.20J	0.70B	0.31JB	0.39JB	< 0.62	< 0.61	0.61B	0.67B	NE	NE	20
beta-BHC	< 0.61	< 0.68	< 0.64UJ	< 0.63UJ	< 0.66UJ	< 0.62	< 0.61	< 0.59UJ	< 0.56UJ	NE	NE	20
delta-BHC	< 0.61	< 0.68	< 0.64	< 0.63	< 0.66	< 0.62	< 0.61	< 0.59	< 0.56	NE	NE	20
gamma-BHC (Lindane)	< 0.61	< 0.68	< 0.64UJ	< 0.63UJ	< 0.66UJ	< 0.62	< 0.61	< 0.59UJ	< 0.56UJ	> 4.8	NE	20
Heptachlor	< 0.61 ^{lc}	< 0.68 ^{lc}	< 0.64UJ ^{lc}	< 0.63UJ ^{lc}	0.24J	< 0.62 ^{lc}	< 0.61 ^{lc}	< 0.59UJ ^{lc}	< 0.56UJ ^{lc}	0.3	NE	20
Aldrin	< 0.61	< 0.68	< 0.64	< 0.63	< 0.66	0.95	< 0.61	0.67	< 0.56	9.5	NE	20
Heptachlor Epoxide	< 0.61	< 0.68	< 0.64UJ	< 0.63UJ	< 0.66UJ	< 0.62	< 0.61	< 0.59UJ	< 0.56UJ	NE	NE	20
Endosulfan I	< 0.61	< 0.68	< 0.64	< 0.63	< 0.66	< 0.62	< 0.61	< 0.59	< 0.56	NE	NE	20
Dieldrin	< 1.19	< 1.32	< 1.24	< 1.22	< 1.27	< 1.20	< 1.19	< 1.14	0.16J	NE	NE	20
4,4'-DDE	< 1.19	0.86J	< 1.24	0.53J	0.63J	< 1.20	< 1.19	< 1.14	< 1.08	2.2	27	20
Endrin	< 1.19	< 1.32	< 1.24	< 1.22	< 1.27	< 1.20	< 1.19	< 1.14	< 1.08	NE	NE	20
Endosulfan II	< 1.19	< 1.32	< 1.24	< 1.22	< 1.27	< 1.20	< 1.19	< 1.14	< 1.08	NE	NE	20
4,4'-DDD	< 1.19	< 1.32	< 1.24	< 1.22	< 1.27	< 1.20	< 1.19	< 1.14	< 1.08	NE	NE	20
Endosulfan Sulfate	< 1.19	0.24J	0.16J	< 1.22	< 1.27	0.60J	< 1.19	0.18J	0.21J	NE	NE	20
4,4'-DDT	< 1.19	< 1.32	< 1.24UJ	< 1.22UJ	< 1.27	< 1.20UJ	< 1.19UJ	< 1.14UJ	< 1.08UJ	1.56	46.1	20
Methoxychlor	< 6.15	< 6.82	< 6.37	< 6.29	< 6.66	< 6.19	< 6.15	< 5.90	< 5.61	NE	NE	20
Endrin ketone	< 1.19	< 1.32	< 1.24	< 1.22	< 1.27	< 1.20	< 1.19	< 1.14	0.23J	NE	NE	20
Endrin aldehyde	< 1.41	< 1.56	< 1.46	< 1.44	< 1.50	< 1.42	< 1.41	< 1.35	< 1.29	NE	NE	20
alpha-Chlordane	< 0.61	< 0.68	< 0.64	< 0.63	< 0.66	< 0.62	< 0.61	< 0.59	< 0.56	NE	NE	20
gamma-Chlordane	< 0.61	< 0.68	< 0.64	< 0.63	< 0.66	< 0.62	< 0.61	< 0.59	< 0.56	NE	NE	20
Toxaphene	< 39.82*	< 44.11*	< 41.25*	< 40.7*	< 42.46*	< 40.04*	< 39.82*	< 38.17*	< 38.08*	NE	NE	20
SPECIFIC GRAVITY												
	2.64	2.62	2.66	2.56	2.56	2.64	2.54	2.54	2.59			
TOC												
	14800	14700	12100	13200	14200	14500	13800	11800	11000			
	13900	14500	11800	13500	13800	13500	13000	10500	8930			
	14700	16300	12200	14200	13800	15000	13000	10700	11500			
% MOISTURE												
	45	50.7	45.9	46.1	45.6	43.8	44.5	42.5	39.8			

NOTES
 UJ - (Organics) Estimated Quantitation Limit.
 J - (Organics) The concentration listed is an estimated value.
 B - (Organics) indicates that the analyte was found in the blanks as well as the sample.
 B - (Inorganics) indicates an analyte result between IDL and quantitation limits.
 Bold - Indicates exceedance of screening level.
 * - Does not meet required quantitation limit as outlined in work plan.
 NE - Level not established at this time.
 Italics - Refers to Apparent Effects Threshold (AET). ERL and ERM not established.
 c/ - Quantitation limit exceeds ERL.

TABLE 2
VIBRACORE SAMPLE ANALYTICAL RESULTS
ISLANDER EAST
LONG ISLAND SOUND - NEW YORK

SAMPLE ID	VC10.k	VC16.b ^w	VC10.L	VC10.mB	VC10.n	VC10.oA	VC10.p	VC10.q	VC10.rA	VC10.s	VC10.t	VC10.uB	VC10.v	VC15.a ^b	VC10.w	EFFECTS RANGE LOW	EFFECTS RANGE MED.	NY BALAT	Required Quantitation Limit
METALS (mg/kg)																			
Arsenic	5.3	5.8	6.8	6.8	8.1	3.6	3.6	3.3	2.4B	1.1	1.1	6.1	1.18*	1.6B	<0.89*	8.2	70	NE	0.5
Cadmium	<0.18*	<0.21*	<0.23*	<0.21*	<0.26*	<0.19*	<0.28*	<0.30*	<0.26*	<0.32*	0.51*	<0.24*	<0.18*	<0.16*	<0.16*	1.2	9.6	NE	0.1
Chromium	31.7	30	34.3	30	37.4	33.5	34.8	37.7	28.1	46.5	59.4	29.3	2.6	2.4	1.5B	81	370	NE	1
Copper	29.8	24.3	25	14.9	32.6	17.6	15.9	18.3	10.3	31	28.2	14.9	0.88B	0.97B	1.2B	34	270	NE	1
Lead	16.6	16	16.4	16.6	11.8	11.4	11.8	12.8	10.3	21	20.3	10.3	0.84	0.83	0.9	46.7	218	NE	1
Mercury	0.022	0.021	0.064	0.018	0.025	0.02	0.027	0.08	0.047	0.023	0.022	0.045	<0.0037	<0.0030	<0.0038	0.15	0.71	NE	0.02
Nickel	17.7	18.8	20	19.6	21.3	21.8	23	24.5	17.6	27.2	27.9	18.4	1.4B	1.3B	0.59B	20.9	51.6	NE	1
Zinc	80.9	76.5	79.6	61.4	93.7	68.4	68	74.4	55.7	101	117	57.8	3.0B	2.9B	3.8B	150	410	NE	1
PAHs (ug/kg)																			
Naphthalene	4.5	4.3	2.8	2.6	3.2J	3.0J	<6.30	2.2J	2.6J	3.1J	<7.16	<7.62	<3.83	<3.76	<3.89	160	2100	328	20
2-Methylnaphthalene	3.3	2.8	2.1	1.7	2.1J	2.0J	<6.30	1.7J	2.0J	<7.13	<7.16	<7.62	<3.83	<3.76	<3.89	70	670	348	20
Acenaphthylene	1.1	1.3	5.2	3	8.8	11	<6.30	5.1J	7.8J	9.7	<7.16	<7.62	<3.83	<3.76	<3.89	44	640	NE	20
Acenaphthene	1.9	1.9	0.53	<5.35	<5.74	<5.94	<8.30	0.73J	1.3J	1.2J	<7.16	<7.62	<3.83	<3.76	<3.89	16	500	NE	20
Fluorene	3	2.6	<5.4	0.86	<5.74	<5.94	<8.30	1.1J	1.6J	2.3J	<7.16	<7.62	<3.83	<3.76	<3.89	19	540	348	20
Phenanthrene	26J	23J	11J	7.3J	17	18	6.5	11	15	21	3.8J	4.2J	<3.83	<3.76	<3.89	240	1500	NE	20
Anthracene	9.9J	6.5J	5.4J	2.6J	6.7	8	<6.30	4.1J	5.4J	9.8	<7.16	<7.62	<3.83	<3.76	<3.89	85.3	1100	NE	20
Fluoranthene	40J	36J	18J	9.7J	27	33	10	17	22	28	5.3J	7.4J	<3.83	<3.76	<3.89	600	5100	NE	20
Pyrene	120J	110J	48J	30J	74	86J	24	46J	65J	75J	12	16	<3.83	<3.76	<3.89	665	2600	NE	20
Benzofluoranthene	35J	34J	16J	8.5J	24	32	8	13	19	29	<7.16	4.0J	<3.83	<3.76	<3.89	261	1600	NE	20
Chrysene	38J	39J	16J	9.8J	29	36	10	17	25	39	<7.16	6.0J	<3.83	<3.76	<3.89	384	2600	NE	20
Benzokjluoranthene	40	38	17	8.3	33	36	10	18	29	43	<7.16	7.2J	<3.83	<3.76	<3.89	1600	NE	NE	20
Benzofluoranthene	37	40	17	10	32	49	11	18	29	34	<7.16	8.2	<3.83	<3.76	<3.89	1600	NE	NE	20
Benzofluoranthene	49	46	12	12	39	44	11	19	31	46	<7.16	<7.62	<3.83	<3.76	<3.89	400	1600	NE	20
Indeno(1,2,3-cd)pyrene	51J	53J	22J	12J	32	39	8.2	22	37	43	<7.16	<7.62	<3.83	<3.76	<3.89	400	NE	NE	20
Dibenzofluoranthene	<5.28	<5.48	<5.44	<5.35	<5.74	<5.94	<6.30	<6.47	<5.74	<7.13	<7.16	<7.62	<3.83	<3.76	<3.89	63.4	260	NE	20
Benzofluoranthene	74	72	34	18	46	52	11	27	50	66	<7.16	<7.62	<3.83	<3.76	<3.89	670	NE	NE	20
PCBs (ug/kg)																			
Aroclor-1018	<10.62*	<10.72*	<11.12*	<10.89*	<11.55*	<11.88*	<12.41*	<12.90*	<11.48*	<14.29*	<14.28*	<15.31*	<7.49	<7.56	<7.75	22.7	180	13804	10
Aroclor-1221	<21.57*	<21.77*	<22.58*	<22.11*	<23.45**	<24.12**	<25.19**	<26.20**	<23.32**	<29.01**	<28.94**	<31.09**	<15.21	<15.34	<15.74	22.7	180	13804	10
Aroclor-1232	<10.62*	<10.72*	<11.12*	<10.89*	<11.55*	<11.88*	<12.41*	<12.90*	<11.48*	<14.29*	<14.28*	<15.31*	<7.49	<7.56	<7.75	22.7	180	13804	10
Aroclor-1242	<10.62*	<10.72*	<11.12*	<10.89*	<11.55*	<11.88*	<12.41*	<12.90*	<11.48*	<14.29*	<14.28*	<15.31*	<7.49	<7.56	<7.75	22.7	180	13804	10
Aroclor-1248	<10.62*	<10.72*	<11.12*	<10.89*	<11.55*	<11.88*	<12.41*	<12.90*	<11.48*	<14.29*	<14.28*	<15.31*	<7.49	<7.56	<7.75	22.7	180	13804	10
Aroclor-1254	<10.62*	<10.72*	2.9J	<10.89*	<11.55*	<11.88*	2.1J	4.2J	3.3J	3.0J	<14.28*	<15.31*	<7.49	<7.56	<7.75	22.7	180	13804	10
Aroclor-1260	<10.62*	1.4J	1.7J	<10.89*	2.1J	<11.88*	1.5J	2.6J	2.9J	2.7J	<14.28*	<15.31*	<7.49	<7.56	<7.75	22.7	180	13804	10

NOTES
 J - (Organics) The concentration listed is an estimated value.
 UJ - (Organics) Estimated Quantitation Limit.
 B - (Organics) Indicates that the analyte was found in the blanks as well as the sample.
 B - (Inorganics) Indicates analyte result between IDL and quantitation limits.
 N - (Inorganics) Spike sample recovery not within control limits.
 * - Does not meet required quantitation limit as outlined in work plan.
 BALAT - Benitic Aquatic Life Acta Toxicity recidment criteria for sat water.
 # - Duplicate not within 20%.
 #/ - Duplicate of VC.10k
 #J - Duplicate of VC.10v
 c/ - Quantitation limit exceeds ERL.
 Bold - Indicates exceedence of screening level.
 Italics - Refers to Apparent Effects Threshold (AET). ERL and ERM not established.
 NE - Level not established at this time.

TABLE 2
VIBRACORE SAMPLE ANALYTICAL RESULTS
LONG ISLAND SOUND - NEW YORK

SAMPLE ID	VC10.k	VC15.b ^{w/}	VC10.L	VC10.mB	VC10.n	VC10.oA	VC10.p	VC10.q	VC10.rA	VC10.s	VC10.t	VC10.uB	VC10.v	VC15.a ^{b/}	VC10.w	EFFECTS RANGE LOW	EFFECTS RANGE MED.	NY BALAT	Required Quantitation Limit
PESTICIDES (ug/Kg)																			
alpha-BHC	0.41JB	0.56JB	0.97JB	0.094J	0.59J	0.59J	0.59J	0.59J	0.59J	0.37J	0.51J	0.30J	<0.39	0.094J	<0.40	NE	NE	1	20
beta-BHC	<0.54	<0.57UJ	<1.12UJ	<0.39	<0.64	<0.64	<0.64	<0.68	<0.59	<0.73	<0.73	<0.78	<0.39	<0.39	<0.40	NE	NE	1	20
delta-BHC	<0.54	<0.57	<1.12	<0.39	<0.64	<0.64	<0.64	<0.68	<0.59	<0.73	<0.73	<0.78	<0.39	<0.39	<0.40	NE	NE	1	20
gamma-BHC (Lindane)	<0.54	<0.57UJ	<1.12UJ	<0.39	<0.64	<0.64	<0.64	<0.68	<0.59	<0.73	<0.73	<0.78	<0.39	<0.39	<0.40	>4.8	NE	1	20
Heptachlor	<0.54 ^{c/}	<0.57UJ ^{c/}	<1.12UJ ^{c/}	<0.39 ^{c/}	<0.64 ^{c/}	<0.64 ^{c/}	<0.64 ^{c/}	<0.68 ^{c/}	<0.59 ^{c/}	<0.73 ^{c/}	<0.73 ^{c/}	<0.78 ^{c/}	<0.39 ^{c/}	<0.39 ^{c/}	<0.40 ^{c/}	0.3	NE	1.3	20
Aldrin	0.39 ^{c/}	<0.57	<1.12	<0.39	<0.64	<0.64	<0.64	<0.68	<0.59	<0.73	<0.73	<0.78	<0.39	<0.39	<0.40	9.5	NE	NE	20
Heptachlor Epoxide	<0.54	<0.57UJ	<1.12UJ	<0.39	<0.64	<0.64	<0.64	<0.68	<0.59	<0.73	<0.73	<0.78	<0.39	<0.39	<0.40	NE	NE	1.3	20
Endosulfan I	<0.54	<0.57	<1.12	<0.39	<0.64	<0.64	<0.64	<0.68	<0.59	<0.73	<0.73	<0.78	<0.39	<0.39	<0.40	NE	NE	0.12	20
Dieldrin	0.30JF	<1.11	<2.17	<1.14	<1.14	<1.14	<1.14	<1.28	<1.14	<1.42	<1.41	<1.51	<0.75	<0.76	<0.77	NE	NE	NE	20
4,4'-DDE	<1.05	<1.07	<2.17	<1.14	<1.14	<1.14	<1.14	<1.28	<1.14	<1.42	<1.41	<1.51	<0.75	<0.76	<0.77	2.2	NE	NE	20
Endosulfan II	<1.05	<1.07	<2.17	<1.14	<1.14	<1.14	<1.14	<1.28	<1.14	<1.42	<1.41	<1.51	<0.75	<0.76	<0.77	NE	NE	0.12	20
4,4'-DDD	<1.05	<1.07	<2.17	<1.14	<1.14	<1.14	<1.14	<1.28	<1.14	<1.42	<1.41	<1.51	<0.75	<0.76	<0.77	NE	NE	NE	20
Endosulfan Sulfate	0.17JF	<1.11	<2.17	0.32J	<1.14	0.48J	0.26J	<1.28	<1.14	<1.42	<1.41	<1.51	<0.75	<0.76	<0.77	NE	NE	NE	20
4,4'-DDT	<1.05UJ	<1.10UJ	<2.17UJ ^{d/}	<1.14UJ	<1.14UJ	<1.18UJ	<1.24UJ	<1.28UJ	<1.14UJ	<1.42UJ	<1.41UJ	<1.51UJ	<0.75UJ	<0.76UJ	<0.77UJ	1.58	46.1	NE	130
Methoxychlor	<5.41	<5.54	<11.18	<5.88	<5.88	<5.88	<5.88	<6.56	<5.88	<7.34	<7.28	<7.80	<3.89	<3.94	<3.99	NE	NE	NE	20
Endrin ketone	0.29J	<1.07	<2.17	0.35J	<1.18	<1.18	<1.24	<1.28	<1.14	<1.42	<1.41	<1.51	<0.75	<0.76	<0.77	NE	NE	NE	20
Endrin aldehyde	<1.24	<1.32	<2.57	<1.35	<1.35	<1.47	<1.51	<1.51	<1.35	<1.68	<1.67	<1.79	<0.89	<0.90	<0.91	NE	NE	NE	20
alpha-Chlordane	<0.54	<0.57	<1.12	<0.59	<0.59	<0.64	<0.64	<0.68	<0.59	<0.73	<0.73	<0.78	<0.40	<0.40	<0.40	NE	NE	0.05	20
gamma-Chlordane	<0.54	<0.57	<1.12	<0.59	<0.59	<0.64	<0.64	<0.68	<0.59	<0.73	<0.73	<0.78	<0.40	<0.40	<0.40	NE	NE	0.05	20
Toxaphene	<34.98 ^{e/}	<37.18 ^{e/}	<72.38 ^{e/}	<38.08 ^{e/}	<38.08 ^{e/}	<39.38 ^{e/}	<41.38 ^{e/}	<42.57 ^{e/}	<38.08 ^{e/}	<47.52 ^{e/}	<47.08 ^{e/}	<50.49 ^{e/}	<25.19 ^{e/}	<25.74 ^{e/}	<25.74 ^{e/}	NE	NE	0.14	20
VOLATILE ORGANICS (ug/Kg)																			
Benzene	NT	<1.7	<1.7	<1.8	<1.8	<1.8	<1.9	<2.0	<1.8	<2.2 ^{f/}	<2.2 ^{f/}	<2.3 ^{f/}	<1.2	<1.2	NT	NE	NE	NE	2
Ethylbenzene	NT	<1.7	<1.7	<1.8	<1.8	<1.8	<1.9	<2.0	<1.8	<2.2 ^{f/}	<2.2 ^{f/}	<2.3 ^{f/}	<1.2	<1.2	NT	NE	NE	NE	2
Toluene	NT	<1.7	<1.7	<1.8	<1.8	<1.8	<1.9	<2.0	<1.8	<2.2 ^{f/}	<2.2 ^{f/}	<2.3 ^{f/}	<1.2	<1.2	NT	NE	NE	NE	2
Xylenes (total)	NT	<1.7	<1.7	<1.8	<1.8	<1.8	<1.9	<2.0	<1.8	<2.2 ^{f/}	<2.2 ^{f/}	<2.3 ^{f/}	<1.2	<1.2	NT	NE	NE	NE	2
SPECIFIC GRAVITY																			
	2.59	2.59	2.64	2.32	2.32	2.57	2.82	2.57	2.8	2.46	2.6	2.6	2.64	<1.2	2.84				
TOC (mg/Kg)																			
	10700	11000	9630	12100	12100	11200	12700	13300	11200	15500	15700	17900	405	302	302				
	10900	12200	10100	11600	11600	11300	12600	12800	10500	15600	14700	15800	438	278	278				
	11200	12000	10900	11400	11400	11100	11800	13400	11400	15300	15000	16400	487	333	333				
% MOISTURE																			
	41.8	42.3	40.5	44	44	44.9	46.6	48	40.8	52.1	56	56.5	13.1	<1.2	15.9				

NOTES
 NT - Not tested
 J - (Organics) The concentration listed is an estimated value.
 UJ - (Organics) Estimated Quantitation Limit.
 B - (Organics) Indicates that the analyte was found in the blanks as well as the sample.
 B - (Inorganics) Indicates analyte result between IDL and quantitation limits.
 * - Does not meet required quantitation limit as outlined in work plan.
 BALAT - Benthic Aquatic Life Acute Toxicity sediment criteria for salt water.
 w/ - Duplicate of VC.10k
 b/ - Duplicate of VC.10v
 c/ - Quantitation limit exceeds ERL.
 Bold - Indicates exceedance of screening level.
 /a/f/e/s - Refers to Apparent Effects Threshold (AET). ERL and ERM not established.
 # - Duplicate not within 20%.
 NE - Level not established at this time.

**TABLE 3
EQUIPMENT BLANK AND FIELD BLANK ANALYTICAL RESULTS
ISLANDER EAST
LONG ISLAND SOUND**

SAMPLE ID	EB110601	EB110801	EB111301	EB111701	EB111501	FB110801	FB111301	FB111501
METALS (ug/L)								
Arsenic	< 4.4	< 4.4	< 4.6	< 4.6	< 4.6	NT	NT	NT
Cadmium	< 0.80	< 0.80	< 0.80	< 0.8	< 0.80	NT	NT	NT
Chromium	< 0.90	< 0.90	< 1.0	< 1.0	< 1.0	NT	NT	NT
Copper	24.28	< 1.3	< 1.5	< 1.5	< 1.5	NT	NT	NT
Lead	< 2.0	< 2.0	< 2.3	< 2.3	< 2.3	NT	NT	NT
Mercury	< 0.10	< 0.10	< 0.10	< 0.1	< 0.1	NT	NT	NT
Nickel	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	NT	NT	NT
Zinc	15.18	< 4.6	< 5.0	< 5.2	< 5.0	NT	NT	NT
PAHs (ug/L)								
Naphthalene	< 10.9	< 10.0	< 10.0	1.0J	< 10.0	NT	NT	NT
2-Methylnaphthalene	< 10.9	< 10.0	< 10.0	0.4J	< 10.0	NT	NT	NT
Acenaphthylene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Acenaphthene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Fluorene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Phenanthrene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Anthracene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Fluoranthene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Pyrene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Benzo(a)anthracene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Chrysene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Benzo(b)fluoranthene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Benzo(k)fluoranthene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Benzo(a)pyrene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Indeno(1,2,3-cd)pyrene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Dibenzo(a,h)anthracene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
Benzo(g,h,i)perylene	< 10.9	< 10.0	< 10.0	< 10.0	< 10.0	NT	NT	NT
PCBs (ug/L)								
Aroclor-1016	< 1.0	< 1.0	< 1.0	< 1.05	< 1.0	NT	NT	NT
Aroclor-1221	< 2.0	< 2.0	< 2.0	< 2.1	< 2.0	NT	NT	NT
Aroclor-1232	< 1.0	< 1.0	< 1.0	< 1.05	< 1.0	NT	NT	NT
Aroclor-1242	< 1.0	< 1.0	< 1.0	< 1.05	< 1.0	NT	NT	NT
Aroclor-1248	< 1.0	< 1.0	< 1.0	< 1.05	< 1.0	NT	NT	NT
Aroclor-1254	< 1.0	< 1.0	< 1.0	< 1.05	< 1.0	NT	NT	NT
Aroclor-1260	< 1.0	< 1.0	< 1.0	< 1.05	< 1.0	NT	NT	NT
PESTICIDES (ug/L)								
alpha-BHC	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
beta-BHC	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
delta-BHC	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
gamma-BHC (Lindane)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
Heptachlor	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
Aldrin	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
Heptachlor Epoxide	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
Endosulfan I	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
Dieldrin	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NT	NT	NT
4,4'-DDE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NT	NT	NT
Endrin	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NT	NT	NT
Endosulfan II	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NT	NT	NT
4,4'-DDD	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NT	NT	NT
Endosulfan Sulfate	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NT	NT	NT
4,4'-DDT	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NT	NT	NT
Methoxychlor	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
Endrin ketone	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NT	NT	NT
Endrin aldehyde	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NT	NT	NT
alpha-Chlordane	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
gamma-Chlordane	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	NT	NT	NT
Toxaphene	< 2.5	< 2.5	< 2.5	< 2.6	< 2.5	NT	NT	NT
VOLATILE ORGANICS (ug/L)								
Benzene	NT	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	NT	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	NT	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes (total)	NT	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 1.0	< 1.0

NOTES

B - (Inorganics) Indicates analyte result between IDL and quantitation limits
 NT - Not tested

Table 4
Data Validation for Semivolatile Sample Results
Islander East Pipe Line Project

Parameter	Requirement	Performance	Comment
Equipment Blank	1 per day	<ul style="list-style-type: none"> Requirement met 	<ul style="list-style-type: none"> None
Sample Duplicate	1 per week or 10% (whichever is greater)	<ul style="list-style-type: none"> Requirement met 	<ul style="list-style-type: none"> None
MS/MSD	1 per 20 samples	<ul style="list-style-type: none"> Requirement met 	<ul style="list-style-type: none"> None
Laboratory QC			
Parameter	Requirement	Performance	Comment
Sample receipt	4 °C ± 2 °C	<ul style="list-style-type: none"> Samples received between 6 and 10°C 	<ul style="list-style-type: none"> None
Holding times	Method specified	<ul style="list-style-type: none"> Holding times and preservation requirements met 	<ul style="list-style-type: none"> None
DFTPP Tuning	Daily	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
SPCC	Daily	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
CCC	Daily	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
MS/MSD	One spike and spike duplicate per analytical batch	<ul style="list-style-type: none"> MS % recovery-all compounds high for VC10.w. MSD % recovery- all compounds high except Naphthalene, 2-Methylnaphthalene, Fluoranthene for VC10.w. 	<ul style="list-style-type: none"> No PAHs detected, no flags applied to sample results from VC10.w (flags would have been applied to positive results)
Equipment Blank	None specified	<ul style="list-style-type: none"> Naphthalene and 2-methylnaphthalene detected in the equipment blank from 11/17/01 	<ul style="list-style-type: none"> B flag positive results for analytes in effected samples (VC10.d, VC10.e, VC10.f, VC10.g, VC10.h)
Lab Check	One spike per analytical batch	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None.

Table 4 (continued)
Data Validation for Soil Semivolatile Sample Results
Islander East Pipe Line Project

Parameter	Requirement	Performance	Comment
Surrogate	Every sample	<ul style="list-style-type: none"> Fluorene-d10 low recovery for VC10.d, VC10.dMSD, VC10.f, VC10.g, VC10.h. Pyrene-d10 - high recovery for SBLKWPFMS, SBLKFPFMS, VC10.mB, VC10.k, VC10.b, VC10.j, VC10.e, VC10.d, VC10.s, VC10.g, VC10.rA, VC10.I, VC10.c, VC10.oA, VC10.oAD1, VC10.oAD2, VC10.dMS, VC10.dMSD, VC10.f, VC10.h, VC10.wMSB 	<ul style="list-style-type: none"> J flag positive results, UJ non-detect results in samples VC10.d, VC10.f, and VC10.h because two surrogates were outside recovery limits.
Internal Standard Area	Every sample	<ul style="list-style-type: none"> Phenanthrene-d10, Chrysene-d12 low recovery for VC15.b, VC10.mB, VC10.I, VC10.k, VC10.j, VC10.e, VC10.f, VC10.h, VC10.d, VC10.dMS, VC10.dMSD, Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d12 low recovery for VC10.g. 	<ul style="list-style-type: none"> J flag positive results for analytes quantified using listed internal standards for listed samples UJ non-detect results for analytes quantified using listed internal standards for listed samples
Quantitation limits	0.02 mg/kg	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None.
<p>Notes: MS/MSD - matrix spike and matrix spike duplicate DFTPP - decafluorotriphenylphosphine SPCC - system performance check compounds CCC - calibration check compounds</p>			

Table 5
Data Validation for Pesticide Sample Results
Islander East Pipe Line Project

Parameter	Requirement	Performance	Comments
Equipment Blank	1 per day	• Requirement met	• None
Sample Duplicate	1 per week or 10% (whichever is greater)	• Requirement met	• None
MS/MSD	1 per 20 samples	• Requirement met	• None
Laboratory QA/QC			
Parameter	Requirement	Performance	Comments
Sample Receipt	4 °C ± 2 °C	• Samples received between 6 to 10°C	• None
Holding Times	Method specified	• Holding times and preservation requirements met	• None
Initial Calibration	Method specified	• Within limits	• None
Calibration Check	Method specified	• Within limits	• None
RT Check	Method specified	• Retention time for analytes within limits	• None
DDT/Endrin Breakdown	Method specified	• DDT breakdown exceeded limits for QC associated with VC10.MB, VC10.L, VC10.K, VC15.B, VC10.J, VC10.G, VC10.D, VC10.F, VC10.H, VC10.I, VC10.C, VC10.Q, VC10.RA, VC10.OA, VC10.OAD1, VC10.OAD2 VC10.W, VC10.V, VC10.T, VC10.A, VC10.N, VC10.S, VC10.P	• J flag positive results for DDT, DDD, and DDE in samples listed • UJ flag non-detect results for DDT in sample listed
Surrogate	Lab specified	• TCMX below limits for method blank, lab control, and matrix spike blank	• None
MS/MSD	Lab specified	• RPD and percent recovery within limits	• None

Table 5 (continued)
Data Validation for Pesticide Sample Results
Islander East Pipe Line Project

Parameter	Requirement	Performance	Comments
Lab Check	Lab specified	<ul style="list-style-type: none"> Per cent recovery for beta-BHC, gamma-BHC, Heptachlor, and Heptachlor epoxide below limits for lab check associated with VC15.B, VC10.L, VC10.MB, VC10.C, VC10.D, VC10.E, VC10.H, VC10.I, VC10.J 	<ul style="list-style-type: none"> J flag positive results for analytes and samples listed. UJ flag non-detect results for analytes and samples listed
Quantitation limits	Total < 0.02 mg/kg	<ul style="list-style-type: none"> Required detection limits achieved 	<ul style="list-style-type: none"> None
Equipment Blank	Work plan specified	<ul style="list-style-type: none"> No analytes detected 	<ul style="list-style-type: none"> None
Method Blank	Method specified	<ul style="list-style-type: none"> alpha-BHC detected in method blank associated with VC15.B, VC10.L, VC10.MB, VC10.C, VC10.D, VC10.E, VC10.H, VC10.I, VC10.J, VC10.K 	<ul style="list-style-type: none"> B flag positive results for analyte and samples listed.

Notes: -MS/MSD - matrix spike and matrix spike duplicate
- RT - retention time
- DDT - 4, 4'-DDT
- TCMX - tetrachlorometaxylene
- RPD - relative per cent difference

**Table 6
Data Validation for PCB Sample Results
Islander East Pipe Line Project**

Parameter	Requirement	Performance	Comment
Equipment Blank	1 per day	<ul style="list-style-type: none"> Requirement met 	<ul style="list-style-type: none"> None
Sample Duplicate	1 per week or 10% (whichever is greater)	<ul style="list-style-type: none"> Requirement met 	<ul style="list-style-type: none"> None
MS/MSD	1 per 20 samples	<ul style="list-style-type: none"> Requirement met 	<ul style="list-style-type: none"> None
Parameter	Requirement	Performance	Comment
Sample Receipt	4 °C ± 2 °C	<ul style="list-style-type: none"> Samples received between 6 to 10°C 	<ul style="list-style-type: none"> None
Holding Times	Method specified	<ul style="list-style-type: none"> Holding times and preservation requirements met 	<ul style="list-style-type: none"> None
Initial Calibration	Method specified	<ul style="list-style-type: none"> Within method limits 	<ul style="list-style-type: none"> None
Calibration Check	Method specified	<ul style="list-style-type: none"> Within method limits 	<ul style="list-style-type: none"> None
RT Check	Method specified	<ul style="list-style-type: none"> Within method limits 	<ul style="list-style-type: none"> None
Surrogate	Method specified	<ul style="list-style-type: none"> Within method limits 	<ul style="list-style-type: none"> None
MS/MSD	Laboratory specified	<ul style="list-style-type: none"> Per cent RPD exceeded criteria for VC10.DMS and VC10.DMSD 	<ul style="list-style-type: none"> J flag positive results in sample VC10.D
Lab Check	Laboratory specified	<ul style="list-style-type: none"> Within method limits 	<ul style="list-style-type: none"> None
Quantitation limits	0.01 mg/kg	<ul style="list-style-type: none"> Within method limits except for Aroclor 1221 	<ul style="list-style-type: none"> None
Equipment Blank	Work plan specified	<ul style="list-style-type: none"> No analytes detected 	<ul style="list-style-type: none"> None
Method Blank	Method specified	<ul style="list-style-type: none"> No analytes detected 	<ul style="list-style-type: none"> None

Notes: MS/MSD - matrix spike and matrix spike duplicate
RT - retention time
RPD - relative per cent difference

Table 7
Data Validation for Metals Sample Results
Islander East Pipe Line Project

Parameter	Requirement	Performance	Comments
Equipment Blank	1 per day	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
Sample Duplicate	1 per week or 10% (whichever is greater)	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
MS/MSD	1 per 20 samples	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
Field Data			
Laboratory Data			
Parameter	Requirement	Performance	Comments
Holding times	Method specified	<ul style="list-style-type: none"> • Holding times and preservation requirements met 	<ul style="list-style-type: none"> • None
Initial Calibration Verification	Method specified	<ul style="list-style-type: none"> • Within method limits. 	<ul style="list-style-type: none"> • None
Initial Calibration Blank	Method specified	<ul style="list-style-type: none"> • Within method limits. 	<ul style="list-style-type: none"> • None
Continuing Calibration Verification	Method specified	<ul style="list-style-type: none"> • Within method limits. 	<ul style="list-style-type: none"> • None
Continuing Calibration Blank	Method specified	<ul style="list-style-type: none"> • Within method limits. 	<ul style="list-style-type: none"> • None
Matrix Spike	Method specified	<ul style="list-style-type: none"> • Within method limits. 	<ul style="list-style-type: none"> • None
Lab Control	Method specified	<ul style="list-style-type: none"> • Within method limits. 	<ul style="list-style-type: none"> • None
Duplicate	Method specified	<ul style="list-style-type: none"> • Within method limits. 	<ul style="list-style-type: none"> • None
Quantitation limits	Work plan specified	<ul style="list-style-type: none"> • Achieved for all analytes except cadmium 	<ul style="list-style-type: none"> • None
Interference check sample	Method specified	<ul style="list-style-type: none"> • Within method limits 	<ul style="list-style-type: none"> • None
Equipment Blank	Method specified	<ul style="list-style-type: none"> • Zinc and copper detected in equipment blank from 11/06/01 	<ul style="list-style-type: none"> • B flag added to positive results for effected samples (VC10.b, VC10.ab)
Method Blank	Method specified	<ul style="list-style-type: none"> • Within method limits 	<ul style="list-style-type: none"> • None

Notes: -MS/MSD - matrix spike and matrix spike duplicate

Table 8

Data Validation for Mercury Sample Results
Islander East Pipe Line Project

Parameter	Requirement	Performance	Comment
Equipment Blank	1 per day	<ul style="list-style-type: none"> Requirement met 	<ul style="list-style-type: none"> None
Sample Duplicate	1 per week or 10% (whichever is greater)	<ul style="list-style-type: none"> Requirement met 	<ul style="list-style-type: none"> None
MS/MSD	1 per 20 samples	<ul style="list-style-type: none"> Requirement met 	<ul style="list-style-type: none"> None
Laboratory QC			
Parameter	Requirement	Performance	Comment
Sample receipt	4 °C ± 2 °C	<ul style="list-style-type: none"> Samples received between 6 and 10°C 	<ul style="list-style-type: none"> None
Holding times	Method specified	<ul style="list-style-type: none"> Holding times and preservation requirements met 	<ul style="list-style-type: none"> None
Initial Calibration	Daily	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
Initial Calibration Verification	Daily	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
Initial Calibration Blank	Daily	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
Continuing Calibration Verification	Every 10 samples	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
Continuing Calibration Blank	Every 10 samples	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
MS/MSD	1 per analytical batch	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
Lab Control	Laboratory specified	<ul style="list-style-type: none"> Within laboratory limits. 	<ul style="list-style-type: none"> None
Duplicate	Method specified	<ul style="list-style-type: none"> Within method limits. 	<ul style="list-style-type: none"> None
Quantitation limits	0.02 mg/kg	<ul style="list-style-type: none"> Within specified limits 	<ul style="list-style-type: none"> None
Sample Dilution	1 per analytical batch	<ul style="list-style-type: none"> Interferences found, corrections made 	<ul style="list-style-type: none"> None
Notes: MS/MSD - matrix spike and matrix spike duplicate			

Table 9
Data Validation for TOC Sample Results
Islander East Pipe Line Project

Field QA/QC			
Parameter	Requirement	Performance	Comment
Equipment Blank	1 per day	• Requirement met	• None
Sample Duplicate	1 per week or 10% (whichever is greater)	• Requirement met	• None
MS/MSD	1 per 20 samples	• Requirement met	• None
Laboratory QA/QC			
Parameter	Requirement	Performance	Comment
Sample Receipt	4 °C ± 2 °C	• Samples received between 6 and 10°C	• None
Holding Times	Method specified	• Holding times and preservation requirements met	• None
Calibration	1 per analytical batch	• Within specified limits	• None
Method Blank	1 per analytical batch	• Within specified limits	• None
CCV	1 per 15 samples	• Within specified limits	• None
Duplicate	1 per 10 samples	• Within specified limits	• None
Quantitation limits	0.1%	• Within specified limits	• None
Triplicate Analysis	Every samples	• Within specified limits	• None
Spike Duplicates	1 per 10 samples	• Within specified limits	• None
Lab Control	Laboratory specified	• Within specified limits	• None
Notes: -MS/MSD - matrix spike and matrix spike duplicate CCV - continuing calibration verification			

Table 10
Data Validation for Volatiles Sample Results
Islander East Pipe Line Project

Parameter	Requirement	Performance	Comment
Equipment Blank	1 per day	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
Field Blank	1 per day	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
Sample Duplicate	1 per week or 10% (whichever is greater)	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
MS/MSD	1 per 20 samples	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
Field VOC			
Parameter	Requirement	Performance	Comment
Sample Receipt	4 °C ± 2 °C	<ul style="list-style-type: none"> • Samples received between 6 and 8°C 	<ul style="list-style-type: none"> • None
Holding Times	Method specified	<ul style="list-style-type: none"> • Holding times and preservation requirements met 	<ul style="list-style-type: none"> • None
Calibration	Method specified	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
Calibration Verification	Method specified	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
Lab Control	Lab specified	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
MS/MSD	Lab specified	<ul style="list-style-type: none"> • Not performed for one analytical batch 	<ul style="list-style-type: none"> • Lab control samples performed with analytical batch were within specified limits
Surrogate	Lab specified	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
Internal Standard	Lab specified	<ul style="list-style-type: none"> • Within specified limits 	<ul style="list-style-type: none"> • None
Quantitation limits	0.002 mg/kg	<ul style="list-style-type: none"> • Quantitation limits not achieved for samples VC10.UB, VC10.T, and VC10.S 	<ul style="list-style-type: none"> • Percent moistures greater than 50%, no effect on data quality

Notes: -MS/MSD - matrix spike and matrix spike duplicate

ATTACHMENT III
LABORATORY ANALYTICAL RESULTS

**SEVERN
TRENT
SERVICES**

December 12, 2001

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484

Tel: 203 929 8140
Fax: 203 929 8142
www.sthinc.com

Ms. Megan Brown
TRC ENVIRONMENTAL
5 Waterside Crossing
Windsor, CT 06095

Dear Ms. Brown :

Please find enclosed the analytical results of 33 sample(s) received at our laboratory on November 7-16, 2001. This report contains sections addressing the following information at a minimum:

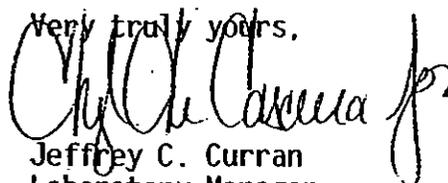
- sample summary
- analytical methodology
- state certifications
- definition of data qualifiers and terminology
- analytical results
- chain-of-custody

STL Report #7001-2791A	Purchase Order #38077
Project ID: ISLANDER EAST	

Copies of this analytical report and supporting data are maintained in our files for a minimum of five years unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (203) 929-8140 for any additional information. Thank you for utilizing our services; we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Very truly yours,

Jeffrey C. Curran
Laboratory Manager

JCC

This report contains 58 pages.

7001-2791A
TRC ENVIRONMENTAL

Case Narrative

Sample Receipt -The samples that were received on November 7th and 14th were received at 9°C and samples that were received on November 9th were received at 10°C and the samples received on November 16th were received at 8°C. The client was notified, and the laboratory was instructed to proceed with the analyses.

The following analyses were subcontracted out to the indicated laboratories:

Specific Gravity sent to STL - VT, 55 South Park Dr., Colchester, VT 05446.

8021 BTEX sent to STL - North Canton (OH), 4101 Shuffel Dr. NW, North Canton, OH 44720.

Polychlorinated Biphenyls (PCB's) - PCB samples were extracted and analyzed by GC/ECD using guidance provided in Methods 3510C/3550B/8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

All soil samples were acid cleaned up prior to analysis..

Samples VC10.I, VC10.C, VC10.AB, VC10.B, VC10.T, VC10.S, VC10.P, VC10.Q, and VC10.RA required sulfur cleanup and reanalysis. The extracts really could have used more sulfur cleanup but due to limited extract volume this was not possible.

Manual integrations were performed if required, and any affected peaks were designated with an "MM" on the area report in the column titled "Code". Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID - VC10.B

Compound - Aroclor 1260 peak at retention time 21.30 on the RTX-35 column.

$(14769\text{area})(2000\text{ul}) = 3.02\text{ug/kg}$

$(646439\text{area/ng})(30.9\text{g})(.49)(1\text{ul})$

Classical Chemistry - The samples in this SDG were analyzed for percent solids and total organic carbon according to Test Methods for the Evaluation of Solid Wastes, SW846, 3rd ed., 1986. Percent moisture results were obtained by calculation. Samples were analyzed in triplicate for total organic carbon by method 9060. No analytical problems were encountered.

Metals - ICAP metals were determined using a JA61E trace ICAP; mercury was determined by cold vapor technique using a Leeman Labs mercury analyzer; following guidance provided in SW846 according to methods: ICAP - 3010A, 3050B/6010B; mercury-7470A, 7471A.

Mercury failed the controls for spike recovery analysis of sample VC10.OA resulting in one "N" flag.

No other problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Semi-Volatile Organics - Semi-volatile organic samples were extracted and analyzed by capillary GC/MS according to NYSDEC '95 Protocols using guidance provided in Methods 3510C/3550C/8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

The following samples exhibited internal standard area suppression. The samples were re-analyzed with similar results confirming matrix interference. Only the original analyses are reported.

VC10.I	VC10.C	VC10.B
VC10.UB	VC10.T	VC10.N
VC10.S	VC10.Q	VC10.RA
VC10.OA	VC10.OAD1	VC10.OAD2

The spike recovery for the compounds pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene and benzo(g,h,i)perylene, were above recovery limits for SBLKFPFMS and SBLKWPFMS.

The spike recovery for the compounds pyrene, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene and benzo(g,h,i)perylene, were above recovery limits for VC10.WMS and VC10.MSB. The recovery for the compounds pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene and benzo(g,h,i)perylene, were above recovery for VC10.WMSD

Surrogate recoveries were above the limits for pyrene-d10 on twelve samples and fluorene-d10 was below the limits on two samples.

The laboratory does not have enough data to establish control limits for the low concentration soils based on historical data. The limits presented here are based on method TO13A.

Sample Calculation:

Sample ID – VC10.S

Compound - acenaphthylene

$$\frac{(26376)(1)(1000)(1.0)}{(58757)(1.671)(2)(30.2)(.46)} = 9.66 = 9.7$$

TABLE SV-1.0
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.AB	VC10.B	Quant. Limits with no Dilution
Lab Sample I.D.	SBLKFP	012791A-02	012791A-03	
Method Blank I.D.	SBLKFP	SBLKFP	SBLKFP	
Quant. Factor	1.00	1.78	2.04	
Naphthalene	U	U	U	3.3
2-Methylnaphthalene	U	U	U	3.3
Acenaphthylene	U	U	4.8J	3.3
Acenaphthene	U	U	U	3.3
Fluorene	U	U	U	3.3
Phenanthrene	U	U	11	3.3
Anthracene	U	U	4.3J	3.3
Fluoranthene	U	3.1J	21	3.3
Pyrene	U	5J	45	3.3
Benzo(a)anthracene	U	U	13	3.3
Chrysene	U	U	17	3.3
Benzo(b)fluoranthene	U	U	16	3.3
Benzo(k)fluoranthene	U	U	20	3.3
Benzo(a)pyrene	U	U	20	3.3
Indeno(1,2,3-cd)pyrene	U	U	16	3.3
Dibenzo(a,h)anthracene	U	U	U	3.3
Benzo(g,h,i)perylene	U	U	20	3.3
Date Received		11/07/01	11/07/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/30/01	12/03/01	12/03/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

0000004

TABLE SV-1.1
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.W	VC10.W MS	VC10.W MSD 012791A-05	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-05	012791A-05MS	MSD	
Method Blank I.D.	SBLKFP	SBLKFP	SBLKFP	
Quant. Factor	1.18	1.19	1.17	
Naphthalene	U	73X	66X	3.3
2-Methylnaphthalene	U	76	70	3.3
Acenaphthylene	U	69X	66X	3.3
Acenaphthene	U	72X	68X	3.3
Fluorene	U	76X	72X	3.3
Phenanthrene	U	76X	72X	3.3
Anthracene	U	75X	69X	3.3
Fluoranthene	U	77X	70X	3.3
Pyrene	U	100EX	81X	3.3
Benzo(a)anthracene	U	83X	72X	3.3
Chrysene	U	78X	70X	3.3
Benzo(b)fluoranthene	U	76X	77X	3.3
Benzo(k)fluoranthene	U	81X	72X	3.3
Benzo(a)pyrene	U	73X	71X	3.3
Indeno(1,2,3-cd)pyrene	U	91X	97X	3.3
Dibenzo(a,h)anthracene	U	94X	98EX	3.3
Benzo(g,h,i)perylene	U	96X	100EX	3.3
Date Received	11/09/01	11/09/01	11/09/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/30/01	11/30/01	11/30/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-1.2
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.V	VC10.UB	VC10.T	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-06	012791A-07	012791A-08	
Method Blank I.D.	SBLKFP	SBLKFP	SBLKFP	
Quant. Factor	1.16	2.31	2.17	
Naphthalene	U	U	U	3.3
2-Methylnaphthalene	U	U	U	3.3
Acenaphthylene	U	U	U	3.3
Acenaphthene	U	U	U	3.3
Fluorene	U	U	U	3.3
Phenanthrene	U	4.2J	3.9J	3.3
Anthracene	U	U	U	3.3
Fluoranthene	U	7.4J	5.3J	3.3
Pyrene	U	16	12	3.3
Benzo(a)anthracene	U	4J	U	3.3
Chrysene	U	6J	U	3.3
Benzo(b)fluoranthene	U	7.2J	U	3.3
Benzo(k)fluoranthene	U	8.2	U	3.3
Benzo(a)pyrene	U	U	U	3.3
Indeno(1,2,3-cd)pyrene	U	U	U	3.3
Dibenzo(a,h)anthracene	U	U	U	3.3
Benzo(g,h,i)perylene	U	U	U	3.3
Date Received	11/09/01	11/09/01	11/09/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/30/01	12/03/01	12/03/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-1.3
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC15.A	VC10.N	VC10.S	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-09	012791A-12	012791A-13	
Method Blank I.D.	SBLKFP	SBLKFP	SBLKFP	
Quant. Factor	1.14	1.74	2.16	
Naphthalene	U	3.2J	3.1J	3.3
2-Methylnaphthalene	U	2.1J	U	3.3
Acenaphthylene	U	8.8	9.7	3.3
Acenaphthene	U	U	1.2J	3.3
Fluorene	U	U	2.3J	3.3
Phenanthrene	U	17	21	3.3
Anthracene	U	6.7	9.8	3.3
Fluoranthene	U	27	28	3.3
Pyrene	U	74	75	3.3
Benzo(a)anthracene	U	24	29	3.3
Chrysene	U	29	39	3.3
Benzo(b)fluoranthene	U	33	43	3.3
Benzo(k)fluoranthene	U	32	34	3.3
Benzo(a)pyrene	U	39	46	3.3
Indeno(1,2,3-cd)pyrene	U	32	43	3.3
Dibenzo(a,h)anthracene	U	U	U	3.3
Benzo(g,h,i)perylene	U	46	66	3.3
Date Received	11/09/01	11/14/01	11/14/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/30/01	12/03/01	12/03/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-1.4
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.P	VC10.Q	VC10.RA	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-15	012791A-16	012791A-17	
Method Blank I.D.	SBLKFP	SBLKFP	SBLKFP	
Quant. Factor	1.91	1.96	1.74	
Naphthalene	U	2.2J	2.6J	3.3
2-Methylnaphthalene	U	1.7J	2J	3.3
Acenaphthylene	U	5.1J	7.8	3.3
Acenaphthene	U	.73J	1.3J	3.3
Fluorene	U	1.1J	1.6J	3.3
Phenanthrene	6.5	11	15	3.3
Anthracene	U	4.1J	5.4J	3.3
Fluoranthene	10	17	22	3.3
Pyrene	24	46	65	3.3
Benzo (a) anthracene	8	13	19	3.3
Chrysene	10	17	25	3.3
Benzo (b) fluoranthene	10	18	29	3.3
Benzo (k) fluoranthene	11	18	29	3.3
Benzo (a) pyrene	11	22	31	3.3
Indeno (1, 2, 3-cd) pyrene	8.2	19	37	3.3
Dibenzo (a, h) anthracene	U	U	U	3.3
Benzo (g, h, i) perylene	11	27	50	3.3
Date Received	11/14/01	11/14/01	11/14/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	12/01/01	12/03/01	12/03/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

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TABLE SV-1.5
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.OA			
Lab Sample I.D.	012791A-18			Quant. Limits with no Dilution
Method Blank I.D.	SBLKFP			
Quant. Factor	1.80			
Naphthalene	3J			3.3
2-Methylnaphthalene	2J			3.3
Acenaphthylene	11			3.3
Acenaphthene	U			3.3
Fluorene	U			3.3
Phenanthrene	18			3.3
Anthracene	8			3.3
Fluoranthene	33			3.3
Pyrene	88			3.3
Benzo(a)anthracene	32			3.3
Chrysene	36			3.3
Benzo(b)fluoranthene	36			3.3
Benzo(k)fluoranthene	49			3.3
Benzo(a)pyrene	44			3.3
Indeno(1,2,3-cd)pyrene	39			3.3
Dibenzo(a,h)anthracene	U			3.3
Benzo(g,h,i)perylene	52			3.3
Date Received	11/14/01			
Date Extracted	11/16/01			
Date Analyzed	12/01/01			

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-1.6
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.OA	VC10.OA	Quant. Limits with no Dilution
Lab Sample I.D.	SBLKWP	012791A-18D1	012791A-18D2	
Method Blank I.D.	SBLKWP	SBLKWP	SBLKWP	
Quant. Factor	1.00	1.76	1.77	
Naphthalene	U	4J	2.5J	3.3
2-Methylnaphthalene	U	2J	U	3.3
Acenaphthylene	U	8	4.1J	3.3
Acenaphthene	U	U	U	3.3
Fluorene	U	U	U	3.3
Phenanthrene	U	14	7.8	3.3
Anthracene	U	5J	3.2J	3.3
Fluoranthene	U	21	13	3.3
Pyrene	U	64	38	3.3
Benzo(a)anthracene	U	21	12	3.3
Chrysene	U	23	13	3.3
Benzo(b)fluoranthene	U	28	13	3.3
Benzo(k)fluoranthene	U	22	16	3.3
Benzo(a)pyrene	U	26	16	3.3
Indeno(1,2,3-cd)pyrene	U	22	10	3.3
Dibenzo(a,h)anthracene	U	U	U	3.3
Benzo(g,h,i)perylene	U	29	17	3.3
Date Received		11/14/01	11/14/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	11/30/01	12/01/01	12/01/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

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TABLE SV-1.7
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.I	VC10.C		Quant. Limits with no Dilution
Lab Sample I.D.	012791A-19	012791A-20		
Method Blank I.D.	SBLKWP	SBLKWP		
Quant. Factor	1.60	1.84		
Naphthalene	2.3J	U		3.3
2-Methylnaphthalene	U	U		3.3
Acenaphthylene	9.6	U		3.3
Acenaphthene	U	U		3.3
Fluorene	U	U		3.3
Phenanthrene	11	3.9J		3.3
Anthracene	5.4	U		3.3
Fluoranthene	19	6.1		3.3
Pyrene	54	18		3.3
Benzo (a) anthracene	20	6.9		3.3
Chrysene	22	7.3		3.3
Benzo (b) fluoranthene	18	U		3.3
Benzo (k) fluoranthene	25	U		3.3
Benzo (a) pyrene	19	U		3.3
Indeno (1,2,3-cd) pyrene	19	U		3.3
Dibenzo (a, b) anthracene	U	U		3.3
Benzo (g, h, i) perylene	26	U		3.3
Date Received	11/16/01	11/16/01		
Date Extracted	11/28/01	11/28/01		
Date Analyzed	12/01/01	12/01/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-2.0
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Aqueous

All values are ug/L.

Client Sample I.D.	Method Blank	EB110601		Quant. Limits with no Dilution
Lab Sample I.D.	SBLKRQ	012791A-01		
Method Blank I.D.	SBLKRQ	SBLKRQ		
Quant. Factor	1.00	1.09		
Naphthalene	U	U		10
2-Methylnaphthalene	U	U		10
Acenaphthylene	U	U		10
Acenaphthene	U	U		10
Fluorene	U	U		10
Phenanthrene	U	U		10
Anthracene	U	U		10
Fluoranthene	U	U		10
Pyrene	U	U		10
Benzo(a)anthracene	U	U		10
Chrysene	U	U		10
Benzo(b)fluoranthene	U	U		10
Benzo(k)fluoranthene	U	U		10
Benzo(a)pyrene	U	U		10
Indeno(1,2,3-cd)pyrene	U	U		10
Dibenzo(a,h)anthracene	U	U		10
Benzo(g,h,i)perylene	U	U		10
Date Received		11/07/01		
Date Extracted	11/09/01	11/09/01		
Date Analyzed	11/15/01	11/15/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-2.1
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Aqueous

All values are ug/L.

Client Sample I.D.	Method Blank	EB110801		
Lab Sample I.D.	SBLKVQ	012791A-04		Quant. Limits with no Dilution
Method Blank I.D.	SBLKVQ	SBLKVQ		
Quant. Factor	1.00	1.00		
Naphthalene	U	U		10
2-Methylnaphthalene	U	U		10
Acenaphthylene	U	U		10
Acenaphthene	U	U		10
Fluorene	U	U		10
Phenanthrene	U	U		10
Anthracene	U	U		10
Fluoranthene	U	U		10
Pyrene	U	U		10
Benzo(a)anthracene	U	U		10
Chrysene	U	U		10
Benzo(b)fluoranthene	U	U		10
Benzo(k)fluoranthene	U	U		10
Benzo(a)pyrene	U	U		10
Indeno(1,2,3-cd)pyrene	U	U		10
Dibenzo(a,h)anthracene	U	U		10
Benzo(g,h,i)perylene	U	U		10
Date Received		11/09/01		
Date Extracted	11/13/01	11/13/01		
Date Analyzed	11/15/01	11/15/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-2.2
7001-2791A
TRC ENVIRONMENTAL
PAH'S

Aqueous

All values are ug/L.

Client Sample I.D.	Method Blank	EB111301		
Lab Sample I.D.	SBLKEQ	012791A-11		Quant. Limits with no Dilution
Method Blank I.D.	SBLKEQ	SBLKEQ		
Quant. Factor	1.00	1.00		
Naphthalene	U	U		10
2-Methylnaphthalene	U	U		10
Acenaphthylene	U	U		10
Acenaphthene	U	U		10
Fluorene	U	U		10
Phenanthrene	U	U		10
Anthracene	U	U		10
Fluoranthene	U	U		10
Pyrene	U	U		10
Benzo(a)anthracene	U	U		10
Chrysene	U	U		10
Benzo(b)fluoranthene	U	U		10
Benzo(k)fluoranthene	U	U		10
Benzo(a)pyrene	U	U		10
Indeno(1,2,3-cd)pyrene	U	U		10
Dibenzo(a,h)anthracene	U	U		10
Benzo(g,h,i)perylene	U	U		10
Date Received		11/14/01		
Date Extracted	11/16/01	11/16/01		
Date Analyzed	11/21/01	11/21/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.0
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Aqueous

All values are ug/L.

Client Sample I.D.	Method Blank	EB110601	PBLK61 QC2 111401-B04	Quant. Limits with no Dilution
Lab Sample I.D.	111401-B04	012791A-01	QC2	
Method Blank I.D.	PBLK61	PBLK61	PBLK61	
Quant. Factor	1.00	1.00	1.00	
Aroclor-1016	U	U	U	1.0
Aroclor-1221	U	U	U	2.0
Aroclor-1232	U	U	U	1.0
Aroclor-1242	U	U	4.3X	1.0
Aroclor-1248	U	U	U	1.0
Aroclor-1254	U	U	U	1.0
Aroclor-1260	U	U	5.0X	1.0
Date Received		11/07/01		
Date Extracted	11/14/01	11/14/01	11/14/01	
Date Analyzed	11/20/01	11/20/01	11/20/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.1
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Aqueous

All values are ug/L.

Client Sample I.D.	Method Blank	EB110801	EB111301	Quant. Limits with no Dilution
Lab Sample I.D.	111601-B06	012791A-04	012791A-11	
Method Blank I.D.	PBLK65	PBLK65	PBLK65	
Quant. Factor	1.00	1.00	1.00	
Aroclor-1016	U	U	U	1.0
Aroclor-1221	U	U	U	2.0
Aroclor-1232	U	U	U	1.0
Aroclor-1242	U	U	U	1.0
Aroclor-1248	U	U	U	1.0
Aroclor-1254	U	U	U	1.0
Aroclor-1260	U	U	U	1.0
Date Received		11/09/01	11/14/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/22/01	11/21/01	11/21/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.2
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Aqueous

All values are ug/L.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	PBLK65 QC2 111601-B06 QC2 PBLK65 1.00			Quant. Limits with no Dilution
Aroclor-1016	U			1.0
Aroclor-1221	U			2.0
Aroclor-1232	U			1.0
Aroclor-1242	4.8X			1.0
Aroclor-1248	U			1.0
Aroclor-1254	U			1.0
Aroclor-1260	4.6X			1.0
Date Received				
Date Extracted	11/16/01			
Date Analyzed	11/22/01			

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

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TABLE GC-2.3
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	Method Blank 111601-B02 PBLK63 0.200	VC10.W 012791A-05 PBLK63 0.235	VC10.W MS1 012791A-05 MS1 PBLK63 0.236	Quant. Limits with no Dilution
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	U	33.
Aroclor-1260	U	U	51.X	33.
Date Received		11/09/01	11/09/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/22/01	11/21/01	11/22/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any
 variation in sample weight/volume, % moisture and
 sample dilution.

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TABLE GC-2.4
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	VC10.W MSB1 012791A-05 MSB1 PBLK63 0.200	VC10.W MSD1 012791A-05 MSD1 PBLK63 0.235	VC10.V 012791A-06 PBLK63 0.227	Quant. Limits with no Dilution
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	U	33.
Aroclor-1260	51.X	49.X	U	33.
Date Received	11/09/01	11/09/01	11/09/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/22/01	11/22/01	11/21/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.5
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.UB	VC15.A	VC10.OA	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-07	012791A-09	012791A-18	
Method Blank I.D.	PBLK63	PBLK63	PBLK63	
Quant. Factor	0.464	0.229	0.360	
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	U	33.
Aroclor-1260	U	U	U	33.
Date Received	11/09/01	11/09/01	11/14/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/21/01	11/22/01	11/22/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.6
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	PBLK63			
Lab Sample I.D.	QC2			
Method Blank I.D.	111601-B02			
Quant. Factor	QC2			Quant. Limits with no Dilution
	PBLK63			
	0.200			
Aroclor-1016	U			33.
Aroclor-1221	U			67.
Aroclor-1232	U			33.
Aroclor-1242	130X			33.
Aroclor-1248	U			33.
Aroclor-1254	U			33.
Aroclor-1260	150X			33.
Date Received				
Date Extracted	11/16/01			
Date Analyzed	11/22/01			

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.7
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.OA D1	VC10.OA D2	Quant. Limits with no Dilution
Lab Sample I.D.	112601-B04	012791A-18D1	012791A-18D2	
Method Blank I.D.	PBLK83	PBLK83	PBLK83	
Quant. Factor	0.200	0.356	0.354	
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	U	33.
Aroclor-1260	U	4.2J	3.4J	33.
Date Received		11/14/01	11/14/01	
Date Extracted	11/26/01	11/26/01	11/26/01	
Date Analyzed	12/04/01	12/04/01	12/04/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

0000022

TABLE GC-2.8
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	PBLK83 QC2 112601-B04 QC2 PBLK83 0.200			Quant. Limits with no Dilution
Aroclor-1016	U			33.
Aroclor-1221	U			67.
Aroclor-1232	U			33.
Aroclor-1242	120X			33.
Aroclor-1248	U			33.
Aroclor-1254	U			33.
Aroclor-1260	150X			33.
Date Received				
Date Extracted	11/26/01			
Date Analyzed	12/04/01			

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any
 variation in sample weight/volume, % moisture and
 sample dilution.

0000023

TABLE GC-2.9
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.AB	VC10.B	Quant. Limits with no Dilution
Lab Sample I.D.	111601-S02	012791A-02	012791A-03	
Method Blank I.D.	PCBLK63	PCBLK63	PCBLK63	
Quant. Factor	0.200	0.355	0.396	
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	3.7J	33.
Aroclor-1260	U	U	3.3J	33.
Date Received		11/07/01	11/07/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/26/01	11/26/01	11/26/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

0000024

TABLE GC-2.10
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	VC10.T 012791A-08 PCBLK63 0.432	VC10.N 012791A-12 PCBLK63 0.350	VC10.S 012791A-13 PCBLK63 0.433	Quant. Limits with no Dilution
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	3.0J	33.
Aroclor-1260	U	2.1J	2.7J	33.
Date Received	11/09/01	11/14/01	11/14/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/26/01	11/26/01	12/03/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.11
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.P	VC10.Q	VC10.RA	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-15	012791A-16	012791A-17	
Method Blank I.D.	PCBLK63	PCBLK63	PCBLK63	
Quant. Factor	0.376	0.391	0.348	
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	2.1J	4.2J	3.3J	33.
Aroclor-1260	1.5J	2.8J	2.9J	33.
Date Received	11/14/01	11/14/01	11/14/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	12/03/01	12/03/01	12/03/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.12
7001-2791A
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	Method Blank 112601-S04 PCBLK83 0.200	VC10.I 012791A-19 PCBLK83 0.324	VC10.C 012791A-20 PCBLK83 0.372	Quant. Limits with no Dilution
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	U	33.
Aroclor-1260	U	2.4J	U	33.
Date Received		11/16/01	11/16/01	
Date Extracted	11/26/01	11/26/01	11/26/01	
Date Analyzed	12/05/01	12/06/01	12/06/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE AS-1.0
7001-2791A
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

Aqueous

All values are ug/L.

Client Sample I.D.	EB110601	EB110801	EB111301	
Lab Sample I.D.	012791A-01	012791A-04	012791A-11	
Arsenic	4.4U	4.4U	4.6U	
Cadmium	0.80U	0.80U	0.80U	
Chromium	0.90U	0.90U	1.0U	
Copper	24.2B	1.3U	1.5U	
Lead	2.0U	2.0U	2.3U	
Mercury	0.10U	0.10U	0.10U	
Nickel	1.3U	1.3U	1.3U	
Zinc	15.1B	4.6U	5.0U	

See Appendix for qualifier definitions

TABLE AS-1.1
7001-2791A
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

Soil

All values are mg/Kg dry weight basis.

Client Sample I.D.	VC10.AB	VC10.B	VC10.W	VC10.W D
Lab Sample I.D.	012791A-02	012791A-03	012791A-05	012791A-05D
Arsenic	6.9	8.2	0.89U	0.89U
Cadmium	0.19U	0.33U	0.16U	0.16U
Chromium	27.2	34.7	1.5B	1.4B
Copper	10.9	18.9	1.2B	1.1B
Lead	7.4	11.6	0.94	1.0
Mercury	0.0051BN	0.030N	0.0038UN	0.0034U
Nickel	17.5	20.3	0.59B	0.64B
Zinc	51.1	68.1	3.8B	3.4B

See Appendix for qualifier definitions

TABLE AS-1.2
7001-2791A
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

Soil

All values are mg/Kg dry weight basis.

Client Sample I.D.	VC10.W S	VC10.V	VC10.UB	VC10.T
Lab Sample I.D.	012791A-05S	012791A-06	012791A-07	012791A-08
Arsenic	8.6	1.1B	6.1	15.7
Cadmium	1.0	0.18U	0.24U	0.51U
Chromium	42.2	2.6	29.3	59.4
Copper	53.6	0.88B	14.9	28.2
Lead	5.4	0.90	10.3	20.3
Mercury	0.031	0.0037UN	0.045N	0.022N
Nickel	103.	1.4B	18.4	37.9
Zinc	104.	3.0B	57.8	117.

See Appendix for qualifier definitions

0000030

TABLE AS-1.3
7001-2791A
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

Soil

All values are mg/Kg dry weight basis.

Client Sample I.D.	VC15.A	VC10.N	VC10.S	VC10.P
Lab Sample I.D.	012791A-09	012791A-12	012791A-13	012791A-15
Arsenic	1.6B	8.1	11.1	8.4
Cadmium	0.17U	0.26U	0.32U	0.28U
Chromium	2.4	37.4	46.5	34.8
Copper	0.97B	32.6	31.0	15.9
Lead	0.83	19.4	21.0	11.8
Mercury	0.0030UN	0.025N	0.023N	0.027N
Nickel	1.3B	21.8	27.2	23.0
Zinc	2.9B	93.7	101.	69.0

See Appendix for qualifier definitions

TABLE AS-1.4
7001-2791A
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

Soil

All values are mg/Kg dry weight basis.

Client Sample I.D.	VC10.Q	VC10.RA	VC10.OA	VC10.I
Lab Sample I.D.	012791A-16	012791A-17	012791A-18	012791A-19
Arsenic	9.3	2.4B	8.6	6.2
Cadmium	0.30U	0.26U	0.19U	0.14U
Chromium	37.7	28.1	33.5	29.5
Copper	18.3	10.3	17.6	17.9
Lead	12.8	7.7	11.4	11.5
Mercury	0.060N	0.047N	0.020N	0.027N
Nickel	24.5	17.6	21.6	18.9
Zinc	74.4	55.7	68.4	63.4

See Appendix for qualifier definitions

TABLE AS-1.5
7001-2791A
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

Soil

All values are mg/Kg dry weight basis.

Client Sample I.D.	VC10.C			
Lab Sample I.D.	012791A-20			
Arsenic	8.3			
Cadmium	0.18U			
Chromium	34.7			
Copper	14.9			
Lead	10.5			
Mercury	0.015N			
Nickel	22.7			
Zinc	67.0			

See Appendix for qualifier definitions

TABLE AS-2.0
7001-2791A
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

Soil

All values are mg/Kg dry weight basis.

Client Sample I.D.	D2 VC10.OA			
Lab Sample I.D.	012791A-18			
Arsenic	8.6			
Cadmium	0.22U			
Chromium	31.3			
Copper	20.0			
Lead	11.4			
Mercury	0.034			
Nickel	20.4			
Zinc	73.1			

See Appendix for qualifier definitions

0000034

TABLE AS-3.0
7001-2791A
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

Soil

All values are mg/Kg dry weight basis.

Client Sample I.D.	DI VC10.0A			
Lab Sample I.D.	012791A-18			
Arsenic	8.3			
Cadmium	0.220			
Chromium	33.4			
Copper	20.9			
Lead	12.6			
Mercury	0.036			
Nickel	21.3			
Zinc	74.5			

See Appendix for qualifier definitions

WET CHEM DATA ANALYSIS SHEET

Lab Name: STL

Lab Code: STL

SAS No.:

Contract:

Case No.:

SDG No.: A2791

Client Sample ID: VC10.0A

Lab Sample ID: 012791A-18D1

Matrix: Soil

Analyte	Concentration	C	Units
TOC 1	11,400		mg/Kg
TOC 2	11,100		mg/Kg
TOC 3	7,050		mg/Kg

WET CHEM DATA ANALYSIS SHEET

Lab Name: STL
Lab Code: STL
SAS No.:

Contract:
Case No.:
SDG No.: A2791

Client Sample ID: VC10.0A
Lab Sample ID: 012791A-18D2

Matrix: Soil

Analyte	Concentration	C	Units
TOC 1	11,100		mg/Kg
TOC 2	11,400		mg/Kg
TOC 3	7,210		mg/Kg

ORGANICS APPENDIX

U – Indicates that the compound was analyzed for but not detected.

J – Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.

B – This flag is used when the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.

N – Indicates that the compound was analyzed for but not requested as an analyte. Value will not be listed on tabular result sheet.

S – Estimated due to surrogate outliers.

X – Matrix spike compound.

(1) - Cannot be separated

(2) – Decomposes to azobenzene. Measured and calibrated as azobenzene.

A – This flag indicates that a TIC is a suspected aldol condensation product.

E – Indicates that it exceeds calibration curve range.

D – This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C – Confirmed by GC/MS.

T – Compound present in TCLP blank.

P – This flag is used for a pesticide/aroclor target analyte when there is a greater than 25 percent difference for detected concentrations between the two GC columns (see Form X).

INORGANICS APPENDIX

C – Concentration qualifiers

U – Indicates analyte was not detected at method reporting limit.

B- Indicates analyte result between IDL and contract required detection limit (CRDL)

Q – QC qualifiers

E – Reported value is estimated because of the presence of interference

M – Duplicate injection precision not met

N – Spiked sample recovery not within control limits

S – The reported value was determined by the method of standard additions (MSA)

W – Post-digest spike recovery furnace analysis was out of 85-115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance

*** - Duplicate analysis not within control limit**

+ - Correlation coefficient for MSA is less than 0.995

M – Method codes

P – ICP

A – Flame AA

F – Furnace AA

CV – Cold vapor AA (manual)

C – Cyanide

NR – Not required

NC – Not calculated as per protocols

SEVERN

TRENT

SERVICES

December 14, 2001

Ms. Megan Brown
TRC ENVIRONMENTAL
5 Waterside Crossing
Windsor, CT 06095

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484

Tel: 203 929 8140
Fax: 203 929 8142
www.stl-inc.com

Dear Ms. Brown :

Please find enclosed the analytical results of 24 sample(s) received at our laboratory on November 16-20, 2001. This report contains sections addressing the following information at a minimum:

- . sample summary
- . analytical methodology
- . state certifications
- . definition of data qualifiers and terminology
- . analytical results
- . chain-of-custody

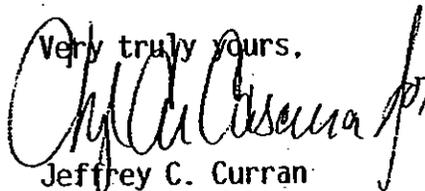
STL Report #7001-2791B	Purchase Order #38077
Project ID: ISLANDER EAST	

Copies of this analytical report and supporting data are maintained in our files for a minimum of five years unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (203) 929-8140 for any additional information. Thank you for utilizing our services; we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Very truly yours,



Jeffrey C. Curran
Laboratory Manager

JCC

This report contains 36 pages.

7001-2791B
TRC ENVIRONMENTAL

Case Narrative

Sample Receipt - The samples were received at 8°C. The client was notified, and the laboratory was instructed to proceed with the analyses.

The following analyses were subcontracted out to the indicated laboratories:

Specific Gravity sent to STL - VT, 55 South Park Dr., Colchester, VT 05446.

8021 BTEX sent to STL - North Canton (OH), 4101 Shuffel Dr. NW, North Canton, OH 44720.

Metals - ICAP metals were determined using a JA61E trace ICAP; mercury was determined by cold vapor technique using a Leeman Labs mercury analyzer; following guidance provided in SW846 according to methods: ICAP - 3010A, 3050B/6010B; mercury-7470A, 7471A.

No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Semi-Volatile Organics - Semi-volatile organic samples were extracted and analyzed by capillary GC/MS according to NYSDEC '95 Protocols using guidance provided in Methods 3510C/3550C/8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

The following samples exhibited internal standard area suppression. The samples were re-analyzed with similar results confirming matrix interference. Only the original analyses are reported.

VC10.G	VC10.F	VC10.H
VC10.E	VC10.MB	VC10.L
VC10.K	VC15.B	VC10.J

Sample VC10.D exhibited internal standard area suppression and matrix interference was confirmed my similar results for the matrix spike samples VC10.DMS and VC10.DMSD.

The spike recovery for the compound pyrene, was above recovery limits for SBLKNIFMS.

The spike recovery for the compounds pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene and benzo(g,h,i)perylene, were above recovery limits for SBLKWPFMS. The recovery for the all compounds were above recovery for VC10.WMS and most were above recovery limits for the MSB and MSD.

Surrogate recoveries were above the limits for pyrene-d10 on eleven samples and fluorene-d10 was below the limits on five samples.

The laboratory does not have enough data to establish control limits for the low concentration soils based on historical data. The limits presented here are based on method TO13A.

Sample Calculation:

Sample ID - VC10.S
Compound - acenaphthylene

$$\frac{(44603)(1)(1000)(1.0)}{(62742)(1.671)(2)(30.7)(.61)} = 11.35 = 11 \text{ ug/kg}$$

Classical Chemistry - The samples in this SDG were analyzed for percent solids and total organic carbon according to Test Methods for the Evaluation of Solid Wastes, SW846, 3rd ed., 1986. Percent moisture results were obtained by calculation. Samples were analyzed in triplicate for total organic carbon by method 9060. No analytical problems were encountered.

Polychlorinated Biphenyls (PCB's) - PCB samples were extracted and analyzed by GC/ECD using guidance provided in Methods 3510C/3550B/8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

All soil samples were acid and sulfur cleaned up prior to analysis.

All soil samples really could have used more sulfur cleanup, but due to limited extract volume this was not possible.

Samples were brought to a 2ml final volume in order to meet client required detection limits.

The amount spiked was not adjusted for the lower final volume for the QC checks and MS/MSD's.

The surrogate, tetrachlorometaxylene, was outside of retention time windows on the RTX-35 column in samples PBLK83, VC10.L, VC10.K, VC15.B, VC10.J, VC10.D, VC10.F, VC10.H, VC10.H, VC10.G, VC10.DMSB1, and VC10.DMS1. This shift was taken into consideration when samples were reviewed for target compounds.

The surrogate, tetrachlorometaxylene, was outside of retention time windows on the RTX-35 column in the AR16603 and PIBLK continuing calibration checks analyzed on 12/7/01 at 12:42, 13:22, 23:25; and 12/8/01 at 00:46. These were bracketing standards for

PBLK83, VC10.L, VC10.K, VC15.B, VC10.J, VC10.D, VC10.F, VC10.H, VC10.H, VC10.G, and VC10.DMS1.

This shift was taken into consideration when samples were reviewed for target compounds.

The %RPD of Aroclor 1260 for samples VC10.DMS/MSD was over QC criteria.

The Aroclor 1260 spike present in sample VC10.DMSB was outside of retention time windows on the RTX-35 column. This shift was taken into consideration when the sample was reviewed for target compounds.

Manual integrations were performed if required, and any affected peaks were designated with an "MM" on the area report in the column titled "Code". Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID - VC10.DMSB1

Compound - Aroclor 1260 peak at retention time 22.23 on the RTX-35 column.

$(500433 \text{ area})(2000 \text{ ul}) = 95 \text{ ug/kg}$
 $(351115 \text{ area/ng})(30 \text{ g})(1 \text{ ul})$

TABLE SV-1.0
7001-2791B
TRC ENVIRONMENTAL
PAH'S

Aqueous

All values are ug/L.

Client Sample I.D.	Method Blank	EB111701		Quant. Limits with no Dilution
Lab Sample I.D.	SBLKN1	012791B-08		
Method Blank I.D.	SBLKN1	SBLKN1		
Quant. Factor	1.00	1.00		
Naphthalene	U	1J		10
2-Methylnaphthalene	U	.4J		10
Acenaphthylene	U	U		10
Acenaphthene	U	U		10
Fluorene	U	U		10
Phenanthrene	U	U		10
Anthracene	U	U		10
Fluoranthene	U	U		10
Pyrene	U	U		10
Benzo(a)anthracene	U	U		10
Chrysene	U	U		10
Benzo(b)fluoranthene	U	U		10
Benzo(k)fluoranthene	U	U		10
Benzo(a)pyrene	U	U		10
Indeno(1,2,3-cd)pyrene	U	U		10
Dibenzo(a,h)anthracene	U	U		10
Benzo(g,h,i)perylene	U	U		10
Date Received		11/20/01		
Date Extracted	11/21/01	11/21/01		
Date Analyzed	11/24/01	11/28/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-i.1
7001-2791B
TRC ENVIRONMENTAL
PAH'S

Aqueous

All values are ug/L.

Client Sample I.D.	Method Blank	EB111501		Quant. Limits with no Dilution
Lab Sample I.D.	SBLKPP	012791B-01		
Method Blank I.D.	SBLKPP	SBLKPP		
Quant. Factor	1.00	1.00		
Naphthalene	U	U		10
2-Methylnaphthalene	U	U		10
Acenaphthylene	U	U		10
Acenaphthene	U	U		10
Fluorene	U	U		10
Phenanthrene	U	U		10
Anthracene	U	U		10
Fluoranthene	U	U		10
Pyrene	U	U		10
Benzo(a)anthracene	U	U		10
Chrysene	U	U		10
Benzo(b)fluoranthene	U	U		10
Benzo(k)fluoranthene	U	U		10
Benzo(a)pyrene	U	U		10
Indeno(1,2,3-cd)pyrene	U	U		10
Dibenzo(a,h)anthracene	U	U		10
Benzo(g,h,i)perylene	U	U		10
Date Received		11/16/01		
Date Extracted	11/20/01	11/20/01		
Date Analyzed	11/28/01	11/28/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-1.2
7001-2791B
TRC ENVIRONMENTAL
PAH'S

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.MB	VC10.L	Quant. Limits with no Dilution
Lab Sample I.D.	SBLKWP	012791B-02	012791B-03	
Méthod Blank I.D.	SBLKWP	SBLKWP	SBLKWP	
Quant. Factor	1.00	1.62	1.65	
Naphthalene	U	2.6J	2.8J	3.3
2-Methylnaphthalene	U	1.7J	2.1J	3.3
Acenaphthylene	U	3J	5.2J	3.3
Acenaphthene	U	U	5.3J	3.3
Fluorene	U	.86J	U	3.3
Phenanthrene	U	7.3	11	3.3
Anthracene	U	2.6J	5.4	3.3
Fluoranthene	U	9.7	16	3.3
Pyrene	U	30	48	3.3
Benzo(a)anthracene	U	8.5	16	3.3
Chrysene	U	9.8	16	3.3
Benzo(b)fluoranthene	U	8.3	17	3.3
Benzo(k)fluoranthene	U	10	17	3.3
Benzo(a)pyrene	U	12	22	3.3
Indeno(1,2,3-cd)pyrene	U	12	22	3.3
Dibenzo(a,h)anthracene	U	U	U	3.3
Benzo(g,h,i)perylene	U	16	34	3.3
Date Received		11/16/01	11/16/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	11/30/01	12/04/01	12/04/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-1.3
7001-2791B
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.K	VC15.B	VC10.J	Quant. Limits with no Dilution
Lab Sample I.D.	012791B-04	012791B-05	012791B-06	
Method Blank I.D.	SBLKWP	SBLKWP	SBLKWP	
Quant. Factor	1.60	1.66	1.67	
Naphthalene	4.5J	4.3J	5J	3.3
2-Methylnaphthalene	3.3J	2.6J	3.3J	3.3
Acenaphthylene	11	13	15	3.3
Acenaphthene	1.9J	1.9J	2.4J	3.3
Fluorene	3J	2.6J	2.9J	3.3
Phenanthrene	26	23	33	3.3
Anthracene	9.9	9.5	13	3.3
Fluoranthene	40	36	56	3.3
Pyrene	120	110	130	3.3
Benzo(a)anthracene	35	34	40	3.3
Chrysene	38	39	49	3.3
Benzo(b)fluoranthene	40	38	51	3.3
Benzo(k)fluoranthene	37	40	58	3.3
Benzo(a)pyrene	49	48	70	3.3
Indeno(1,2,3-cd)pyrene	51	53	66	3.3
Dibenzo(a,h)anthracene	0	0	18	3.3
Benzo(g,h,i)perylene	74	72	92	3.3
Date Received	11/16/01	11/16/01	11/16/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/04/01	12/04/01	12/04/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE SV-1.4
7001-2791B
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.E	VC10.D	VC10.D MS	Quant. Limits with no Dilution
Lab Sample I.D.	012791B-09	012791B-10	012791B-10MS	
Method Blank I.D.	SBLKWP	SBLKWP	SBLKWP	
Quant. Factor	1.95	1.85	1.83	
Naphthalene	U	U	100X	3.3
2-Methylnaphthalene	U	U	110	3.3
Acenaphthylene	2.4J	2.5J	130X	3.3
Acenaphthene	U	U	130X	3.3
Fluorene	U	U	140X	3.3
Phenanthrene	4.2J	5J	150X	3.3
Anthracene	U	2.2J	140X	3.3
Fluoranthene	6.5	9	120X	3.3
Pyrene	17	24	280EX	3.3
Benzo(a)anthracene	U	6.4	160EX	3.3
Chrysene	U	9.6	150X	3.3
Benzo(b)fluoranthene	8.4	8.6	160EX	3.3
Benzo(k)fluoranthene	5.6J	11	130X	3.3
Benzo(a)pyrene	U	8.4	140X	3.3
Indeno(1,2,3-cd)pyrene	U	U	220EX	3.3
Dibenzo(a,h)anthracene	U	U	220EX	3.3
Benzo(g,h,i)perylene	U	U	250EX	3.3
Date Received	11/20/01	11/20/01	11/20/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/04/01	12/05/01	12/05/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any
variation in sample weight/volume, % moisture and
sample dilution.

TABLE SV-1.5
7001-2791B
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	VC10.D MSD 012791B-10 MSD SBLKWP 1.85	VC10.F 012791B-11 SBLKWP 1.80	VC10.H 012791B-12 SBLKWP 1.75	Quant. Limits with no Dilution
Naphthalene	73X	3.8J	3J	3.3
2-Methylnaphthalene	80	2.3J	2J	3.3
Acenaphthylene	98X	9.9	8	3.3
Acenaphthene	100X	1.3J	1J	3.3
Fluorene	100X	2.1J	U	3.3
Phenanthrene	110X	25	17	3.3
Anthracene	110X	8.6	7	3.3
Fluoranthene	88X	48	31	3.3
Pyrene	220EX	100	79	3.3
Benzo(a)anthracene	130X	43	26	3.3
Chrysene	120X	47	31	3.3
Benzo(b)fluoranthene	120X	40	30	3.3
Benzo(k)fluoranthene	110X	35	27	3.3
Benzo(a)pyrene	120X	50	35	3.3
Indeno(1,2,3-cd)pyrene	180EX	28	22	3.3
Dibenzo(a,h)anthracene	170EX	U	U	3.3
Benzo(g,h,i)perylene	210EX	38	31	3.3
Date Received	11/20/01	11/20/01	11/20/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/05/01	12/05/01	12/05/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any
 variation in sample weight/volume, % moisture and
 sample dilution.

TABLE SV-1.6
7001-2791B
TRC ENVIRONMENTAL
PAH'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.G			Quant. Limits with no Dilution
Lab Sample I.D.	012791B-13			
Method Blank I.D.	SBLKWP			
Quant. Factor	1.81			
Naphthalene	U			3.3
2-Methylnaphthalene	1.7J			3.3
Acenaphthylene	9.9			3.3
Acenaphthene	U			3.3
Fluorene	U			3.3
Phenanthrene	11			3.3
Anthracene	4.7J			3.3
Fluoranthene	25			3.3
Pyrene	40			3.3
Benzo(a)anthracene	23			3.3
Chrysene	29			3.3
Benzo(b)fluoranthene	21			3.3
Benzo(k)fluoranthene	21			3.3
Benzo(a)pyrene	24			3.3
Indeno(1,2,3-cd)pyrene	15			3.3
Dibenzo(a,h)anthracene	U			3.3
Benzo(g,h,i)perylene	20			3.3
Date Received	11/20/01			
Date Extracted	11/28/01			
Date Analyzed	12/06/01			

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.0
7001-2791B
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

All values are ug/L.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	Method Blank 112601-B08 PBLK85 5.00	EB111701 012791B-08 PBLK85 1.05	PBLK85 QC2 112601-B08 QC2 PBLK85 5.00	Quant. Limits with no Dilution
Aroclor-1016	U	U	U	1.0
Aroclor-1221	U	U	U	2.0
Aroclor-1232	U	U	U	1.0
Aroclor-1242	U	U	19.X	1.0
Aroclor-1248	U	U	U	1.0
Aroclor-1254	U	U	U	1.0
Aroclor-1260	U	U	23.X	1.0
Date Received		11/20/01		
Date Extracted	11/26/01	11/26/01	11/26/01	
Date Analyzed	11/30/01	12/01/01	12/08/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any
variation in sample weight/volume, % moisture and
sample dilution.

TABLE GC-2.1
7001-2791B
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Aqueous

All values are ug/L.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	Method Blank 112001-B08 PBLK75 1.00	EB111501 012791B-01 PBLK75 1.00	PBLK75 QC2 112001-B08 QC2 PBLK75 1.00	Quant. Limits with no Dilution
Aroclor-1016	U	U	U	1.0
Aroclor-1221	U	U	U	2.0
Aroclor-1232	U	U	U	1.0
Aroclor-1242	U	U	4.9X	1.0
Aroclor-1248	U	U	U	1.0
Aroclor-1254	U	U	U	1.0
Aroclor-1260	U	U	4.9X	1.0
Date Received		11/16/01		
Date Extracted	11/20/01	11/20/01	11/20/01	
Date Analyzed	12/08/01	12/08/01	12/08/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.2
7001-2791B
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.MB	VC10.L	Quant. Limits with no Dilution
Lab Sample I.D.	112601-S04	012791B-02	012791B-03	
Method Blank I.D.	PCBLK83	PCBLK83	PCBLK83	
Quant. Factor	0.200	0.330	0.337	
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	2.9J	33.
Aroclor-1260	U	U	1.7J	33.
Date Received		11/16/01	11/16/01	
Date Extracted	11/26/01	11/26/01	11/26/01	
Date Analyzed	12/05/01	12/05/01	12/05/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor

Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.3
7001-2791B
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.K	VC15.B	VC10.J	Quant. Limits with no Dilution
Lab Sample I.D.	012791B-04	012791B-05	012791B-06	
Method Blank I.D.	PCBLK83	PCBLK83	PCBLK83	
Quant. Factor	0.322	0.325	0.336	
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	U	33.
Aroclor-1260	U	1.4J	2.3J	33.
Date Received	11/16/01	11/16/01	11/16/01	
Date Extracted	11/26/01	11/26/01	11/26/01	
Date Analyzed	12/05/01	12/05/01	12/05/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.4
7001-2791B
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

All values are ug/Kg dry weight basis.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	VC10.E 012791B-09 PCBLK83 0.388	VC10.D 012791B-10 PCBLK83 0.364	VC10.D MS1 012791B-10 MS1 PCBLK83 0.368	Quant. Limits with no Dilution
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	U	33.
Aroclor-1260	U	1.5J	100X	33.
Date Received	11/20/01	11/20/01	11/20/01	
Date Extracted	11/26/01	11/26/01	11/26/01	
Date Analyzed	12/05/01	12/05/01	12/05/01	

See Appendix for qualifier definitions
 Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-2.5
7001-2791B
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

All values are ug/Kg dry weight basis.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	VC10.D MSB1 012791B-10 MSB1 PCBLK83 0.200	VC10.D MSD1 012791B-10 MSD1 PCBLK83 0.368	VC10.F 012791B-11 PCBLK83 0.356	Quant. Limits with no Dilution
Aroclor-1016	U	U	U	33.
Aroclor-1221	U	U	U	67.
Aroclor-1232	U	U	U	33.
Aroclor-1242	U	U	U	33.
Aroclor-1248	U	U	U	33.
Aroclor-1254	U	U	U	33.
Aroclor-1260	88.X	170X	2.6J	33.
Date Received	11/20/01	11/20/01	11/20/01	
Date Extracted	11/26/01	11/26/01	11/26/01	
Date Analyzed	12/05/01	12/05/01	12/05/01	

See Appendix for qualifier definitions
 Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any
 variation in sample weight/volume, % moisture and
 sample dilution.

TABLE GC-2.6
7001-2791B
TRC ENVIRONMENTAL
8082 POLYCHLORINATED BIPHENYL'S

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.H	VC10.G		Quant. Limits with no Dilution
Lab Sample I.D. Method Blank I.D. Quant. Factor	012791B-12 PCBLK83 0.347	012791B-13 PCBLK83 0.364		
Aroclor-1016	U	U		33.
Aroclor-1221	U	U		67.
Aroclor-1232	U	U		33.
Aroclor-1242	U	U		33.
Aroclor-1248	U	U		33.
Aroclor-1254	U	U		33.
Aroclor-1260	2.9J	2.4J		33.
Date Received	11/20/01	11/20/01		
Date Extracted	11/26/01	11/26/01		
Date Analyzed	12/05/01	12/05/01		

See Appendix for qualifier definitions
 Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE AS-1.0
7001-2791B
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

All values are ug/L.

Client Sample I.D.	EB111501	EB111701		
Lab Sample I.D.	012791B-01	012791B-08		
Arsenic	4.6U	4.6U		
Cadmium	0.80U	0.80U		
Chromium	1.0U	1.0U		
Copper	1.5U	1.5U		
Lead	2.3U	2.3U		
Mercury	0.10U	0.10U		
Nickel	1.3U	1.3U		
Zinc	5.2B	5.0U		

See Appendix for qualifier definitions

TABLE AS-1.1
7001-2791B
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

All values are mg/Kg dry weight basis.

Client Sample I.D.	VC10.MB	VC10.L	VC10.K	VC15.B
Lab Sample I.D.	012791B-02	012791B-03	012791B-04	012791B-05
Arsenic	6.8	6.8	5.3	5.6
Cadmium	0.21U	0.23U	0.18U	0.20U
Chromium	30.0	34.3	31.7	32.3
Copper	14.9	25.0	29.8	24.3
Lead	10.5	16.4	16.6	16.0
Mercury	0.018	0.064	0.022	0.021
Nickel	19.6	20.0	17.7	18.6
Zinc	61.4	79.6	80.9	76.5

See Appendix for qualifier definitions

TABLE AS-1.2
7001-2791B
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

All values are mg/Kg dry weight basis.

Client Sample I.D.	VC10.J	VC10.E	VC10.D	VC10.D D
Lab Sample I.D.	012791B-06	012791B-09	012791B-10	012791B-10D
Arsenic	7.5	6.7	8.5	8.0
Cadmium	0.26U	0.29U	0.25U	0.26U
Chromium	29.1	36.9	43.6	43.2
Copper	10.6	23.2	48.2	41.7
Lead	7.7	16.1	25.3	23.9
Mercury	0.032	0.026	0.018	0.0083U
Nickel	19.3	21.3	22.6	22.5
Zinc	55.8	78.4	114.	108.

See Appendix for qualifier definitions

TABLE AS-1.3
7001-2791B
TRC ENVIRONMENTAL
MISCELLANEOUS ATOMIC SPECTROSCOPY

Soil

All values are mg/Kg dry weight basis.

Client Sample I.D.	VC10.D S	VC10.F	VC10.H	VC10.G
Lab Sample I.D.	012791B-10S	012791B-11	012791B-12	012791B-13
Arsenic	20.6	6.3	5.2	7.3
Cadmium	1.6	0.26U	0.17U	0.26U
Chromium	106.	37.9	27.1	35.6
Copper	121.	23.5	10.6	17.7
Lead	34.1	17.5	7.5	11.4
Mercury	0.074	0.028	0.044	0.016
Nickel	172.	22.2	18.1	22.1
Zinc	257.	81.5	53.0	72.2

See Appendix for qualifier definitions



STL Connecticut

ORGANICS APPENDIX

U – Indicates that the compound was analyzed for but not detected.

J – Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.

B – This flag is used when the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.

N – Indicates that the compound was analyzed for but not requested as an analyte. Value will not be listed on tabular result sheet.

S – Estimated due to surrogate outliers.

X – Matrix spike compound.

(1) - Cannot be separated

(2) – Decomposes to azobenzene. Measured and calibrated as azobenzene.

A – This flag indicates that a TIC is a suspected aldol condensation product.

E – Indicates that it exceeds calibration curve range.

D – This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C – Confirmed by GC/MS.

T – Compound present in TCLP blank.

P – This flag is used for a pesticide/rochlor target analyte when there is a greater than 25 percent difference for detected concentrations between the two GC columns (see Form X).

INORGANICS APPENDIX

C – Concentration qualifiers

U – Indicates analyte was not detected at method reporting limit.

B- Indicates analyte result between IDL and contract required detection limit (CRDL)

Q – QC qualifiers

E – Reported value is estimated because of the presence of interference.

M – Duplicate injection precision not met

N – Spiked sample recovery not within control limits

S – The reported value was determined by the method of standard additions (MSA)

W – Post-digest spike recovery furnace analysis was out of 85-115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.

* - Duplicate analysis not within control limit

+ - Correlation coefficient for MSA is less than 0.995

M – Method codes

P – ICP

A – Flame AA

F – Furnace AA

CV – Cold vapor AA (manual)

C – Cyanide

NR – Not required

NC – Not calculated as per protocols

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December 20, 2001

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Ms. Megan Brown
TRC ENVIRONMENTAL
5 Waterside Crossing
Windsor, CT 06095

Dear Ms. Brown :

Please find enclosed the analytical results of 33 sample(s) received at our laboratory on November 7-16, 2001. This report contains sections addressing the following information at a minimum:

- . sample summary
- . analytical methodology
- . state certifications
- . definition of data qualifiers and terminology
- . analytical results
- . chain-of-custody

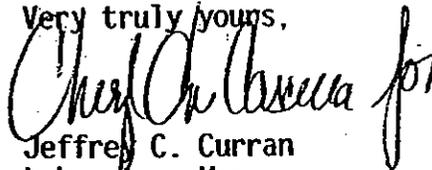
STL Report #7001-2791A	Purchase Order #38077
Project ID: ISLANDER EAST	

Copies of this analytical report and supporting data are maintained in our files for a minimum of five years unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (203) 929-8140 for any additional information. Thank you for utilizing our services; we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Very truly yours,



Jeffrey C. Curran
Laboratory Manager

JCC

This report contains 21 pages.

7001-2791A
TRC ENVIRONMENTAL

Case Narrative

Sample Receipt - The samples that were received on November 7th and 14th were received at 9°C and samples that were received on November 9th were received at 10°C and the samples received on November 16th were received at 8°C. The client was notified, and the laboratory was instructed to proceed with the analyses.

Pesticides - Pesticide samples were extracted and analyzed by GC/ECD using guidance provided in Methods 3510C/3550B/8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

All soil samples were very wet and required additional sodium sulfate during the extraction procedure.

All soil samples were spiked with surrogate and spike at the normal volume. However, samples were brought to 5 times the normal final volume, causing the spiked compounds to be elevated. Recoveries were calculated accordingly.

VC10.WMSB was not extracted. An LCS was extracted and analyzed with this batch of samples. An LCS is similar to an MSB with the exception of an additional Aroclor in the spike mix.

Surrogate percent recoveries were below QC limits for Tetrachloro-m-xylene in PBLK07 and PBLK07QC1.

Spike percent recoveries for beta-BHC, Heptachlor, and Heptachlor Epoxide were below QC limits in PBLK07QC1. These compounds were not present in any of the samples associated with this LCS.

Heptachlor Epoxide had only a 4 point initial calibration curves analyzed on 12/14/01 and 12/18/01 on the RTX-35 column. This compound had a contamination peak present that interfered with Heptachlor Epoxide in the first mix of the curve. This standard is being re-prepped.

The result for 4,4'-DDT had little to no recovery on the RTX-35 column in samples VC10.WMS2 and VC10.WMSD2. The sample matrix of the previous samples analyzed caused severe breakdown of this compound.

Results for 4,4'-DDD and Endosulfan II were reported from the RTX-35 column in PBLK58QC1, PBLK69QC1, and PBLK07QC1 due to coelution on the DB-1701 column.

Results for Endosulfan I and alpha-Chlordane were reported from the DB-1701 column in PBLK58QC1, PBLK69QC1, and PBLK07QC1 due to coelution on the RTX-35 column.

Results for Endosulfan I and alpha-Chlordane were elevated in PBLK65QC1 due to coelution.

The % breakdown for 4,4'-DDT was outside of QC limits in the IBS analyzed at 17:46 on 12/07/01 on the DB-1701 column. The % differences for Heptachlor, 4,4'-DDD, 4,4'-DDT, and Methoxychlor were below QC limits in the INDA3 analyzed at 18:27 on 12/07/01 on the DB-1701 column. Samples were run twice with similar results. Sample matrix was the cause. These were the end bracketing standards for samples VC10.AB, VC10.B, VC10.W, VC10.V, VC10.T, VC15.A, VC10.N, VC10.S, VC10.P, PBLK69, and PBLK69QC1.

The % breakdown for 4,4'-DDT was outside of QC limits in the IBS analyzed at 03:53 on 12/10/01 on the DB-1701 column. The % difference for Endosulfan Sulfate was above QC limits in the INDB3 standard analyzed at 05:15 on 12/11/01 on the DB-1701 column. Sample matrix was the cause of the breakdown. These were the end bracketing standards for samples VC10.WMS2, VC10.WMSD2, VC10.Q, VC10.RA, VC10.OA, VC10.OAD1, and VC10.OAD2. There was no Endosulfan Sulfate present in any of these samples above the reporting limit.

The % breakdown for 4,4'-DDT was outside of QC limits in the IBS analyzed at 20:14 on 12/18/01 on the DB-1701 column. Sample matrix was the cause. This was the end bracketing standard for samples VC10.I, VC10.C, PBLK07, and PBLK07QC1.

The % breakdown for 4,4'-DDT was complete in the IBS analyzed at 17:22 on 12/16/01 on the RTX-35 column. The % difference for Endrin Ketone was below QC limits in the INDB3 analyzed at 17:59 on 12/16/01 on the RTX-35 column. Sample matrix was the cause. These were the end bracketing standards for samples VC10.AB, VC10.B, VC10.W, VC10.V, VC10.T, VC15.A, VC10.N, PBLK69, and PBLK69QC1.

The % breakdown for 4,4'-DDT was complete in the IBS analyzed at 01:20 on 12/18/01 on the RTX-35 column. The % differences for gamma-BHC, Heptachlor, Endrin and 4,4'-DDD were outside of QC limits and there was no recovery of 4,4'-DDT or Methoxychlor in the INDA3 analyzed at 01:56 on 12/18/01 on the RTX-35 column. Sample matrix was the cause. These were the end bracketing standards for samples VC10.WMS2, VC10.WMSD2, VC10.S, VC10.P, VC10.Q, VC10.RA, VC10.OA, VC10.OAD1, and VC10.OAD2.

The % breakdown for 4,4'-DDT was complete in the IBS analyzed at 08:52 on 12/19/01 on the RTX-35 column. The % differences for beta-BHC, Endosulfan Sulfate, Endrin Ketone, alpha-Chlordane, gamma-Chlordane, and Decachlorobiphenyl were outside of QC limits in the INDB3 standard analyzed at 09:29 on 12/19/01 on the RTX-35 column. Sample matrix was the cause. These were the end bracketing standards for samples VC10.I, VC10.C, PBLK07, and PBLK07QC1.

Manual integrations were performed if required, and any affected peaks were designated with an "MM" on the area report in the column titled "Code". Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID – VC10.B

Compound – 4,4'-DDE

$$\frac{(70389 \text{ area})(2000 \text{ ul})}{(11020531 \text{ area/ng})(30.5 \text{ g})(.49)(1 \text{ ul})} = 0.85 \text{ ug/kg}$$

TABLE GC-1.0
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/L.

Client Sample I.D.	Method Blank	EB110601	PBLK61 QC1 111401-B04	Quant. Limits with no Dilution
Lab Sample I.D.	111401-B04	012791A-01	QC1	
Method Blank I.D.	PBLK61	PBLK61	PBLK61	
Quant. Factor	1.00	1.00	1.00	
alpha-BHC	U	U	0.19X	0.050
beta-BHC	U	U	0.21X	0.050
delta-BHC	U	U	0.14X	0.050
gamma-BHC (Lindane)	U	U	0.18X	0.050
Heptachlor	U	U	0.21X	0.050
Aldrin	U	U	0.19X	0.050
Heptachlor Epoxide	U	U	0.20X	0.050
Endosulfan I	U	U	0.18X	0.050
Dieldrin	U	U	0.21X	0.10
4,4'-DDE	U	U	0.21X	0.10
Endrin	U	U	0.22X	0.10
Endosulfan II	U	U	0.21X	0.10
4,4'-DDD	U	U	0.20X	0.10
Endosulfan Sulfate	U	U	0.19X	0.10
4,4'-DDT	U	U	0.20X	0.10
Methoxychlor	U	U	0.25X	0.50
Endrin Ketone	U	U	0.22X	0.10
Endrin Aldehyde	U	U	0.20X	0.10
Alpha-Chlordane	U	U	0.19X	0.050
gamma-Chlordane	U	U	0.20X	0.050
Toxaphene	U	U	U	2.5
Date Received		11/07/01		
Date Extracted	11/14/01	11/14/01	11/14/01	
Date Analyzed	11/16/01	11/16/01	11/16/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.1
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

Aqueous

All values are ug/L.

Client Sample I.D.	Method Blank	EB110801	EB111301	Quant. Limits with no Dilution
Lab Sample I.D.	111601-B06	012791A-04	012791A-11	
Method Blank I.D.	PBLK65	PBLK65	PBLK65	
Quant. Factor	1.00	1.00	1.00	
alpha-BHC	U	U	U	0.050
beta-BHC	U	U	U	0.050
delta-BHC	U	U	U	0.050
gamma-BHC (Lindane)	U	U	U	0.050
Heptachlor	U	U	U	0.050
Aldrin	U	U	U	0.050
Heptachlor Epoxide	U	U	U	0.050
Endosulfan I	U	U	U	0.050
Dieldrin	U	U	U	0.10
4,4'-DDE	U	U	U	0.10
Endrin	U	U	U	0.10
Endosulfan II	U	U	U	0.10
4,4'-DDD	U	U	U	0.10
Endosulfan Sulfate	U	U	U	0.10
4,4'-DDT	U	U	U	0.10
Methoxychlor	U	U	U	0.50
Endrin Ketone	U	U	U	0.10
Endrin Aldehyde	U	U	U	0.10
alpha-Chlordane	U	U	U	0.050
gamma-Chlordane	U	U	U	0.050
Toxaphene	U	U	U	2.5
Date Received		11/09/01	11/14/01	
Date Extracted	11/16/01	11/16/01	11/16/01	
Date Analyzed	11/22/01	11/22/01	11/22/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.2
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/L.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	PBLK65 QC1 111601-B06 QC1 PBLK65 1.00			Quant. Limits with no Dilution
alpha-BHC	0.18X			0.050
beta-BHC	0.20X			0.050
delta-BHC	0.12X			0.050
gamma-BHC (Lindane)	0.18X			0.050
Heptachlor	0.19X			0.050
Aldrin	0.18X			0.050
Heptachlor Epoxide	0.19X			0.050
Endosulfan I	0.38X			0.050
Dieldrin	0.19X			0.10
4,4'-DDE	0.19X			0.10
Endrin	0.20X			0.10
Endosulfan II	0.20X			0.10
4,4'-DDD	0.17X			0.10
Endosulfan Sulfate	0.19X			0.10
4,4'-DDT	0.19X			0.10
Methoxychlor	0.26X			0.50
Dieldrin Ketone	0.22X			0.10
Dieldrin Aldehyde	0.21X			0.10
alpha-Chlordane	0.36X			0.050
gamma-Chlordane	0.18X			0.050
Toxaphene	U			2.5
Date Received				
Date Extracted	11/16/01			
Date Analyzed	11/22/01			

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

7
Soil

TABLE GC-1.3
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.I	VC10.C	Quant. Limits with no Dilution
Lab Sample I.D.	112801-B04	012791A-19	012791A-20	
Method Blank I.D.	PBLK07	PBLK07	PBLK07	
Quant. Factor	0.200	0.328	0.375	
alpha-BHC	0.042J	0.44JB	0.70B	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	U	U	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	U	3.3
4,4'-DDE	U	U	U	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	J	U	3.3
Endosulfan Sulfate	U	0.11J	0.16J	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17.
Endrin ketone	U	U	U	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received		11/16/01	11/16/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/18/01	12/18/01	12/18/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.4
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	PBLK07 QC1 112801-B04			Quant. Limits with no Dilution
Lab Sample I.D.	QC1			
Method Blank I.D.	PBLK07			
Quant. Factor	0.200			
alpha-BHC	3.6BX			1.7
beta-BHC	4.9X			1.7
delta-BHC	2.0X			1.7
gamma-BHC (Lindane)	4.3X			1.7
Heptachlor	3.9X			1.7
Aldrin	4.4X			1.7
Heptachlor Epoxide	4.9X			1.7
Endosulfan I	4.8X			1.7
Dieldrin	5.4X			3.3
4,4'-DDE	5.6X			3.3
Endrin	6.1X			3.3
Endosulfan II	5.9X			3.3
4,4'-DDD	5.0X			3.3
Endosulfan Sulfate	4.8X			3.3
4,4'-DDT	5.7X			3.3
Methoxychlor	6.7X			17
Endrin ketone	5.8X			3.3
ndrin aldehyde	4.9X			3.9
alpha-Chlordane	5.0X			1.7
gamma-Chlordane	4.9X			1.7
Toxaphene	U			110
Date Received				
Date Extracted	11/28/01			
Date Analyzed	12/18/01			

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.5
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.AB	VC10.B	Quant. Limits with no Dilution
Lab Sample I.D.	111901-B08	012791A-02	012791A-03	
Method Blank I.D.	PBLK69	PBLK69	PBLK69	
Quant. Factor	0.200	0.362	0.401	
alpha-BHC	U	0.11J	0.20J	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	U	U	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	U	3.3
4,4'-DDE	U	U	0.85J	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	U	3.3
Endosulfan Sulfate	U	U	0.24J	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17
Endrin ketone	U	U	U	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received		11/07/01	11/07/01	
Date Extracted	11/19/01	11/19/01	11/19/01	
Date Analyzed	12/07/01	12/07/01	12/07/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.6
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.W	VC10.W MS2 012791A-05	VC10.W MSD2 012791A-05	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-05	MS2	MSD2	
Method Blank I.D.	PBLK69	PBLK69	PBLK69	
Quant. Factor	0.234	0.234	0.234	
alpha-BHC	U	0.12J	U	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	14.X	16.X	1.7
Heptachlor	U	11.X	12.X	1.7
Aldrin	U	16.X	16.X	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	32.X	33.X	3.3
4,4'-DDE	U	1.7	1.3	3.3
Endrin	U	30.X	33.X	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	13.	10.	3.3
Endosulfan Sulfate	U	U	U	3.3
4,4'-DDT	U	6.8X	6.2X	3.3
Methoxychlor	U	U	U	17.
Endrin ketone	U	3.0	2.2	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/09/01	11/09/01	11/09/01	
Date Extracted	11/19/01	11/19/01	11/19/01	
Date Analyzed	12/07/01	12/10/01	12/11/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.7
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.V	VC10.UB	VC10.T	Quant. Limits with no. Dilution
Lab Sample I.D.	012791A-06	012791A-07	012791A-08	
Method Blank I.D.	PBLK69	PBLK69	PBLK69	
Quant. Factor	0.229	0.459	0.428	
alpha-BHC	U	0.30J	0.51J	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	U	U	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	U	3.3
4,4'-DDE	U	U	U	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	U	3.3
Endosulfan Sulfate	U	U	U	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17
Endrin ketone	U	U	U	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/09/01	11/09/01	11/09/01	
Date Extracted	11/19/01	11/19/01	11/19/01	
Date Analyzed	12/07/01	12/07/01	12/07/01	

See Appendix for qualifier definitions.

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.8
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC15.A	VC10.N	VC10.S	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-09	012791A-12	012791A-13	
Method Blank I.D.	PBLK69	PBLK69	PBLK69	
Quant. Factor	0.232	0.346	0.432	
alpha-BHC	0.094J	0.20J	0.37J	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	U	U	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	U	3.3
4,4'-DDE	U	U	U	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	U	3.3
Endosulfan Sulfate	U	0.32J	0.36J	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17.
Endrin ketone	U	0.35J	U	3.3
Endrin aldehyde	U	U	U	3.3
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/09/01	11/14/01	11/14/01	
Date Extracted	11/19/01	11/19/01	11/19/01	
Date Analyzed	12/07/01	12/07/01	12/07/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor.
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.9
 7001-2791A
 TRC ENVIRONMENTAL
 8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.P	VC10.Q	VC10.RA	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-15	012791A-16	012791A-17	
Method Blank I.D.	PBLK69	PBLK69	PBLK69	
Quant. Factor	0.376	0.387	0.346	
alpha-BHC	0.35J	0.50J	U	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	U	U	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	U	3.3
4,4'-DDE	U	U	U	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	U	3.3
Endosulfan Sulfate	0.26J	U	0.35J	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17.
Endrin ketone	U	U	U	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/14/01	11/14/01	11/14/01	
Date Extracted	11/19/01	11/19/01	11/19/01	
Date Analyzed	12/07/01	12/10/01	12/10/01	

See Appendix for qualifier definitions
 Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.10
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.OA	VC10.OA D1	VC10.OA D2	Quant. Limits with no Dilution
Lab Sample I.D.	012791A-18	012791A-18D1	012791A-18D2	
Method Blank I.D.	PBLK69	PBLK69	PBLK69	
Quant. Factor	0.358	0.359	0.361	
alpha-BHC	0.59J	0.29J	0.62	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	U	U	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	U	3.3
4,4'-DDE	U	U	U	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	U	3.3
Endosulfan Sulfate	0.48J	0.37J	U	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17
Endrin ketone	U	U	U	3.3
ndrin aldehyde	U	U	U	3.9
lpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/14/01	11/14/01	11/14/01	
Date Extracted	11/19/01	11/19/01	11/19/01	
Date Analyzed	12/10/01	12/10/01	12/10/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any
variation in sample weight/volume, % moisture and
sample dilution.

TABLE GC-1.11
7001-2791A
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	PBLK69 QC1 111901-B08			Quant. Limits with no Dilution
Lab Sample I.D.	QC1			
Method Blank I.D.	PBLK69			
Quant. Factor	0.200			
alpha-BHC	5.3X			1.7
beta-BHC	5.4X			1.7
delta-BHC	3.7X			1.7
gamma-BHC (Lindane)	5.5X			1.7
Heptachlor	5.3X			1.7
Aldrin	5.5X			1.7
Heptachlor Epoxide	5.7X			1.7
Endosulfan I	5.0X			1.7
Dieldrin	6.5X			3.3
4,4'-DDE	6.1X			3.3
Endrin	6.3X			3.3
Endosulfan II	6.0X			3.3
4,4'-DDD	6.4X			3.3
Endosulfan Sulfate	5.8X			3.3
4,4'-DDT	6.9X			3.3
Methoxychlor	7.7X			17
Endrin ketone	7.0X			3.3
Endrin aldehyde	4.1X			3.9
alpha-Chlordane	5.0X			1.7
gamma-Chlordane	5.6X			1.7
Toxaphene	U			110
Date Received				
Date Extracted	11/19/01			
Date Analyzed	12/07/01			

See Appendix for qualifier definitions
 Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

ORGANICS APPENDIX

U – Indicates that the compound was analyzed for but not detected.

J – Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.

B – This flag is used when the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.

N – Indicates that the compound was analyzed for but not requested as an analyte. Value will not be listed on tabular result sheet.

S – Estimated due to surrogate outliers.

X – Matrix spike compound.

(1) - Cannot be separated

(2) – Decomposes to azobenzene. Measured and calibrated as azobenzene.

A – This flag indicates that a TIC is a suspected aldol condensation product.

E – Indicates that it exceeds calibration curve range.

D – This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C – Confirmed by GC/MS.

T – Compound present in TCLP blank.

P – This flag is used for a pesticide/aroclor target analyte when there is a greater than 25 percent difference for detected concentrations between the two GC columns (see Form X).

SEVERN
TRENT
SERVICES

December 28, 2001

Ms. Megan Brown
TRC ENVIRONMENTAL
5 Waterside Crossing
Windsor, CT 06095

STL Connecticut
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Shelton, CT 06484

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Dear Ms. Brown :

Please find enclosed the analytical results of 24 sample(s) received at our laboratory on November 16-20, 2001. This report contains sections addressing the following information at a minimum:

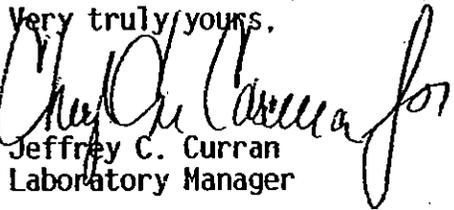
- sample summary
- analytical methodology
- state certifications
- definition of data qualifiers and terminology
- analytical results
- chain-of-custody

STL Report #7001-2791B	Purchase Order #38077
Project ID: ISLANDER EAST	

Copies of this analytical report and supporting data are maintained in our files for a minimum of five years unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (203) 929-8140 for any additional information. Thank you for utilizing our services; we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Very truly yours,

Jeffrey C. Curran
Laboratory Manager

JCC

This report contains 22 pages.

7001-2791B
TRC ENVIRONMENTAL

Case Narrative

Sample Receipt –The samples were received at 8°C. The client was notified, and the laboratory was instructed to proceed with the analyses.

Polychlorinated Biphenyls (PCB's) - PCB samples were extracted and analyzed by GC/ECD using guidance provided in Methods 3510C/3550B/8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

All soil samples were acid and sulfur cleaned up prior to analysis.

All soil samples really could have used more sulfur cleanup, but due to limited extract volume this was not possible.

Samples were brought to a 2ml final volume in order to meet client required detection limits.

The amount spiked was not adjusted for the lower final volume for the QC checks and MS/MSD's.

The surrogate, tetrachlorometaxylene, was outside of retention time windows on the RTX-35 column in samples PBLK83, VC10.L, VC10.K, VC15.B, VC10.J, VC10.D, VC10.F, VC10.H, VC10.H, VC10.G, VC10.DMSB1, and VC10.DMS1. This shift was taken into consideration when samples were reviewed for target compounds.

The surrogate, tetrachlorometaxylene, was outside of retention time windows on the RTX-35 column in the AR16603 and PIBLK continuing calibration checks analyzed on 12/7/01 at 12:42, 13:22, 23:25; and 12/8/01 at 00:46. These were bracketing standards for PBLK83, VC10.L, VC10.K, VC15.B, VC10.J, VC10.D, VC10.F, VC10.H, VC10.H, VC10.G, and VC10.DMS1.

This shift was taken into consideration when samples were reviewed for target compounds.

The %RPD of Aroclor 1260 for samples VC10.DMS/MSD was over QC criteria.

The Aroclor 1260 spike present in sample VC10.DMSB was outside of retention time windows on the RTX-35 column. This shift was taken into consideration when the sample was reviewed for target compounds.

Manual integrations were performed if required, and any affected peaks were designated with an "MM" on the area report in the column titled "Code". Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID - VC10.DMSB1

Compound - Aroclor 1260 peak at retention time 22.23 on the RTX-35 column.

$$\frac{(500433\text{area})(2000\text{ul})}{(351115\text{area/ng})(30\text{g})(1\text{ul})} = 95\text{ug/kg}$$

Pesticides - Pesticide samples were extracted and analyzed by GC/ECD using guidance provided in Methods 3510C/3550B/8081A. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

All soil samples were sulfur cleaned up prior to analysis.

Soil samples were brought to a 2ml final volume in order to meet client required detection limits.

The amount spiked was not adjusted for the lower final volume for the soil samples.

An LCS was not extracted with sample EB111701.

Surrogate percent recovery for Tetrachloro-m-xylene was below QC limits in PBLK07, PBLK07QC1, and VC10.DMSB2.

Spike recoveries for beta-BHC, gamma-BHC, Heptachlor, and Heptachlor Epoxide were below QC limits in PBLK07QC1. These compounds were not present in any of the associated samples above the reporting limit. A new LCS solution has been re-prepped.

Spike recoveries for 4,4'-DDD and Endosulfan II were elevated in PBLK75QC1 due to coelution of these compounds on both columns. Carrier gas flows have been adjusted on one of the columns to improve separation.

Results for Aldrin were reported from the DB-1701 column in VC10.B due to sample matrix interference on the RTX-35 column.

Results for 4,4'-DDD and Endosulfan II were reported from the RTX-35 column in PBLK07QC1 due to coelution on the DB-1701 column.

Results for Endosulfan I and alpha-Chlordane were reported from the DB-1701 column in PBLK07QC1 due to coelution on the RTX-35 column.

The % difference for Tetrachloro-m-xylene was below QC limits in the INDA3 standard analyzed at 11:30 on 12/8/01 on the DB-1701 column. This was the end standard for samples EB111501, PBLK79, and PBLK79QC1.

The % breakdown for 4,4'-DDT was outside of QC limits in the IBS analyzed at 10:41 on 12/15/01 on the DB-1701 column. The % difference for Endrin Ketone was below QC limits in the INDB3 standard analyzed at 11:35 on 12/15/01 on the DB-1701 column.

These were the end standards for samples VC10.MB, VC10.L, VC10.K, VC15.B, VC10.J, VC10.DMSB2, PBLK07, and PBLK07QC1. Sample matrix was the cause.

The % breakdown for 4,4'-DDT was outside of QC limits in the IBS analyzed at 00:03 on 12/17/01 on the DB-1701 column. The % differences for Heptachlor, 4,4'-DDD, 4,4'-DDT, and Methoxychlor were below QC limits in the INDA3 standard analyzed at 00:44 on 12/17/01 on the DB-1701 column. These were the end standards for samples VC10.E, VC10.D, VC10.F, VC10.H, VC10.G, VC10.DMS2, and VC10.DMSD2. Sample matrix was the cause.

The % breakdown for 4,4'-DDT was complete in the IBS analyzed at 08:52 on 12/19/01 on the RTX-35 column. The % differences for beta-BHC, Endosulfan Sulfate, Endrin Ketone, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane, and Decachlorobiphenyl were below QC limits in the INDB3 standard analyzed at 09:29 on 12/19/01 on the RTX-35 column. These were the end standards for samples PBLK07, PBLK07QC1, VC10.MB, VC10.L, VC10.K, VC15.B, VC10.J, VC10.E, VC10.D, VC10.F, VC10.H, VC10.G, VC10.DMSB2, VC10.DMS2, and VC10.DMSD2. Sample matrix was the cause.

Manual integrations were performed if required, and any affected peaks were designated with an "MM" on the area report in the column titled "Code". Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID - VC10.K

Compound - Aldrin

$$\frac{(82918 \text{ area})(2000 \text{ ul})}{(9476106 \text{ area/ng})(30.9 \text{ g})(0.61)(1 \text{ ul})} = 0.93 \text{ ug/Kg}$$

TABLE GC-1.0
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/L.

Client Sample I.D.	Method Blank	EB111701		Quant. Limits with no Dilution
Lab Sample I.D.	112601-B08	012791B-08		
Method Blank I.D.	PBLK85	PBLK85		
Quant. Factor	1.00	1.05		
alpha-BHC	U	U		0.050
beta-BHC	U	U		0.050
delta-BHC	U	U		0.050
gamma-BHC (Lindane)	U	U		0.050
Heptachlor	U	U		0.050
Aldrin	U	U		0.050
Heptachlor Epoxide	U	U		0.050
Endosulfan I	U	U		0.050
Dieldrin	U	U		0.10
4,4'-DDE	U	U		0.10
Endrin	U	U		0.10
Endosulfan II	U	U		0.10
4,4'-DDD	U	U		0.10
Endosulfan Sulfate	U	U		0.10
4,4'-DDT	U	U		0.10
Methoxychlor	U	U		0.50
drin Ketone	U	U		0.10
drin Aldehyde	U	U		0.10
alpha-Chlordane	U	U		0.050
gamma-Chlordane	U	U		0.050
Toxaphene	U	U		2.5
Date Received		11/20/01		
Date Extracted	11/26/01	11/26/01		
Date Analyzed	12/21/01	12/21/01		

See Appendix for qualifier definitions
 Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.1
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

Aqueous

All values are ug/L.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	Method Blank 112001-B08 PBLK75 1.00	EB111501 012791B-01 PBLK75 1.00	PBLK75 QC1 112001-B08 QC1 PBLK75 1.00	Quant. Limits with no Dilution
alpha-BHC	U	U	0.18X	0.050
beta-BHC	U	U	0.24X	0.050
delta-BHC	U	U	0.13X	0.050
gamma-BHC (Lindane)	U	U	0.21X	0.050
Heptachlor	U	U	0.22X	0.050
Aldrin	U	U	0.21X	0.050
Heptachlor Epoxide	U	U	0.22X	0.050
Endosulfan I	U	U	0.21X	0.050
Dieldrin	U	U	0.23X	0.10
4,4'-DDE	U	U	0.22X	0.10
Endrin	U	U	0.23X	0.10
Endosulfan II	U	U	0.41X	0.10
4,4'-DDD	U	U	0.48X	0.10
Endosulfan Sulfate	U	U	0.20X	0.10
4,4'-DDT	U	U	0.24X	0.10
Methoxychlor	U	U	0.29JX	0.50
Endrin Ketone	U	U	0.25X	0.10
Endrin Aldehyde	U	U	0.23X	0.10
alpha-Chlordane	U	U	0.23X	0.050
gamma-Chlordane	U	U	0.23X	0.050
Toxaphene	U	U	U	2.5
Date Received		11/16/01		
Date Extracted	11/20/01	11/20/01	11/20/01	
Date Analyzed	12/08/01	12/08/01	12/08/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.2
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.MB	VC10.L	Quant. Limits with no Dilution
Lab Sample I.D.	112801-B04	012791B-02	012791B-03	
Method Blank I.D.	PBLK07	PBLK07	PBLK07	
Quant. Factor	0.200	0.658	0.338	
alpha-BHC	0.042J	0.87JB	0.56JB	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	U	U	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	U	3.3
4,4'-DDE	U	U	U	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	U	3.3
Endosulfan Sulfate	U	U	U	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17.
Endrin ketone	U	U	U	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received		11/16/01	11/16/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/15/01	12/15/01	12/15/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.3
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.K	VC15.B	VC10.J	Quant. Limits with no Dilution
Lab Sample I.D.	012791B-04	012791B-05	012791B-06	
Method Blank I.D.	PBLK07	PBLK07	PBLK07	
Quant. Factor	0.318	0.326	0.330	
alpha-BHC	0.54B	0.41JB	0.67B	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	0.93	0.44J	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	0.30J	0.18J	0.16J	3.3
4,4'-DDE	U	U	U	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	U	3.3
Endosulfan Sulfate	0.17J	0.28J	0.21J	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17.
Endrin ketone	0.29J	U	0.23J	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/16/01	11/16/01	11/16/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/15/01	12/15/01	12/15/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.4
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.E	VC10.D	VC10.D MS2 012791B-10	Quant. Limits with no Dilution
Lab Sample I.D.	012791B-09	012791B-10	MS2	
Method Blank I.D.	PBLK07	PBLK07	PBLK07	
Quant. Factor	0.386	0.370	0.366	
alpha-BHC	0.39JB	0.31JB	0.54JB	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	20.X	1.7
Heptachlor	0.24J	U	18.X	1.7
Aldrin	U	U	24.X	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	46.X	3.3
4,4'-DDE	0.63J	0.53J	4.1	3.3
Endrin	U	U	48.X	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	19.	3.3
Endosulfan Sulfate	U	U	U	3.3
4,4'-DDT	U	U	21.X	3.3
Methoxychlor	U	U	U	17.
Endrin ketone	U	U	U	3.3
drin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/20/01	11/20/01	11/20/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/16/01	12/16/01	12/16/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any
 variation in sample weight/volume, % moisture and
 sample dilution.

TABLE GC-1.5
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.D MSB2 012791B-10	VC10.D MSD2 012791B-10	VC10:F 012791B-11 PBLK07 0.364	Quant. Limits with no Dilution
Lab Sample I.D.				
Method Blank I.D.				
Quant. Factor	0.200	0.366		
alpha-BHC	0.052JB	0.54JB	U	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	8.1X	21.X	U	1.7
Heptachlor	7.0X	18.X	U	1.7
Aldrin	8.1X	24.X	0.95	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	23.X	49.X	U	3.3
4,4'-DDE	1.8	2.7	U	3.3
Endrin	24.X	49.X	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	0.19J	18.	U	3.3
Endosulfan Sulfate	U	U	0.60J	3.3
4,4'-DDT	23.X	15.X	U	3.3
Methoxychlor	1.0J	U	U	17.
Endrin ketone	0.18J	U	U	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/20/01	11/20/01	11/20/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/15/01	12/16/01	12/16/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.6
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.H	VC10.G	PBLK07 QC1 112801-B04	Quant. Limits with no Dilution
Lab Sample I.D.	012791B-12	012791B-13	QC1	
Method Blank I.D.	PBLK07	PBLK07	PBLK07	
Quant. Factor	0.347	0.362	0.200	
alpha-BHC	0.61B	0.45JB	3.3BX	1.7
beta-BHC	U	U	4.4X	1.7
delta-BHC	U	U	1.8X	1.7
gamma-BHC (Lindane)	U	U	3.9X	1.7
Heptachlor	U	U	3.7X	1.7
Aldrin	0.67	U	4.0X	1.7
Heptachlor Epoxide	U	U	4.6X	1.7
Endosulfan I	U	U	4.4X	1.7
Dieldrin	U	U	5.3X	3.3
4,4'-DDE	U	U	5.3X	3.3
Endrin	U	U	5.8X	3.3
Endosulfan II	U	U	5.9X	3.3
4,4'-DDD	U	U	5.0X	3.3
Endosulfan Sulfate	0.18J	U	4.7X	3.3
4,4'-DDT	U	U	5.7X	3.3
Methoxychlor	U	U	6.7X	17.
drin ketone	U	U	5.5X	3.3
drin aldehyde	U	U	4.3X	3.9
alpha-Chlordane	U	U	4.6X	1.7
gamma-Chlordane	U	U	4.7X	1.7
Toxaphene	U	U	U	110
Date Received	11/20/01	11/20/01		
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/16/01	12/16/01	12/15/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.0
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

Aqueous

All values are ug/L.

Client Sample I.D.	Method Blank	EB111701		Quant. Limits with no Dilution
Lab Sample I.D.	112601-B08	012791B-08		
Method Blank I.D.	PBLK85	PBLK85		
Quant. Factor	1.00	1.05		
alpha-BHC	U	U		0.050
beta-BHC	U	U		0.050
delta-BHC	U	U		0.050
gamma-BHC (Lindane)	U	U		0.050
Heptachlor	U	U		0.050
Aldrin	U	U		0.050
Heptachlor Epoxide	U	U		0.050
Endosulfan I	U	U		0.050
Dieldrin	U	U		0.10
4,4'-DDE	U	U		0.10
Endrin	U	U		0.10
Endosulfan II	U	U		0.10
4,4'-DDD	U	U		0.10
Endosulfan Sulfate	U	U		0.10
4,4'-DDT	U	U		0.10
Methoxychlor	U	U		0.50
Endrin Ketone	U	U		0.10
Endrin Aldehyde	U	U		0.10
alpha-Chlordane	U	U		0.050
gamma-Chlordane	U	U		0.050
Toxaphene	U	U		2.5
Date Received		11/20/01		
Date Extracted	11/26/01	11/26/01		
Date Analyzed	12/21/01	12/21/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.1
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

Aqueous

All values are ug/L.

Client Sample I.D. Lab Sample I.D. Method Blank I.D. Quant. Factor	Method Blank 112001-B08 PBLK75 1.00	EB111501 012791B-01 PBLK75 1.00	PBLK75 QC1 112001-B08 QC1 PBLK75 1.00	Quant. Limits with no Dilution
alpha-BHC	U	U	0.18X	0.050
beta-BHC	U	U	0.24X	0.050
delta-BHC	U	U	0.13X	0.050
gamma-BHC (Lindane)	U	U	0.21X	0.050
Heptachlor	U	U	0.22X	0.050
Aldrin	U	U	0.21X	0.050
Heptachlor Epoxide	U	U	0.22X	0.050
Endosulfan I	U	U	0.21X	0.050
Dieldrin	U	U	0.21X	0.050
4,4'-DDE	U	U	0.23X	0.10
Endrin	U	U	0.23X	0.10
Endosulfan II	U	U	0.23X	0.10
4,4'-DDD	U	U	0.41X	0.10
Endosulfan Sulfate	U	U	0.48X	0.10
4,4'-DDT	U	U	0.20X	0.10
Methoxychlor	U	U	0.24X	0.10
Fenitrothion Ketone	U	U	0.295X	0.50
1-naphthol Aldehyde	U	U	0.25X	0.10
alpha-Chlordane	U	U	0.23X	0.10
gamma-Chlordane	U	U	0.23X	0.050
Toxaphene	U	U	0.23X	0.050
Date Received			U	2.5
Date Extracted				
Date Analyzed	11/20/01 12/08/01	11/16/01 11/20/01 12/08/01	11/20/01 12/08/01	

See Appendix for qualifier definitions
 Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.2
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	Method Blank	VC10.MB	VC10.L	Quant. Limits with no Dilution
Lab Sample I.D.	112801-B04	012791B-02	012791B-03	
Method Blank I.D.	PBLK07	PBLK07	PBLK07	
Quant. Factor	0.200	0.658	0.338	
alpha-BHC	0.042J	0.87JB	0.56JB	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	U	U	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	U	3.3
4,4'-DDE	U	U	U	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	U	3.3
Endosulfan Sulfate	U	U	U	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17.
Endrin ketone	U	U	U	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received		11/16/01	11/16/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/15/01	12/15/01	12/15/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.3
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.K	VC15.B	VC10.J	Quant. Limits with no Dilution
Lab Sample I.D.	012791B-04	012791B-05	012791B-06	
Method Blank I.D.	PBLK07	PBLK07	PBLK07	
Quant. Factor	0.318	0.326	0.330	
alpha-BHC	0.54B	0.41JB	0.67B	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	U	1.7
Heptachlor	U	U	U	1.7
Aldrin	0.93	0.44J	U	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	0.30J	0.18J	U	3.3
4,4'-DDE	U	U	U	3.3
Endrin	U	U	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	U	3.3
Endosulfan Sulfate	0.17J	0.28J	0.21J	3.3
4,4'-DDT	U	U	U	3.3
Methoxychlor	U	U	U	17.
drin ketone	0.29J	U	0.23J	3.3
drin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	0.65	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/16/01	11/16/01	11/16/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/15/01	12/15/01	12/15/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.4
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.E	VC10.D	VC10.D MS2 012791B-10	Quant. Limits with no Dilution
Lab Sample I.D.	012791B-09	012791B-10	MS2	
Method Blank I.D.	PBLK07	PBLK07	PBLK07	
Quant. Factor	0.386	0.370	0.366	
alpha-BHC	0.39JB	0.31JB	0.54JB	1.7
beta-BHC	U	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	U	U	20.X	1.7
Heptachlor	0.24J	U	18.X	1.7
Aldrin	U	U	24.X	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	U	U	46.X	3.3
4,4'-DDE	0.63J	0.53J	4.1	3.3
Endrin	U	U	48.X	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	U	U	19.	3.3
Endosulfan Sulfate	U	U	U	3.3
4,4'-DDT	U	U	21.X	3.3
Methoxychlor	U	U	U	17.
Endrin ketone	U	U	U	3.3
Endrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/20/01	11/20/01	11/20/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/16/01	12/16/01	12/16/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any
 variation in sample weight/volume, % moisture and
 sample dilution.

TABLE GC-1.5
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

Soil

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.D MSB2 012791B-10	VC10.D MSD2 012791B-10	VC10.F 012791B-11 PBLK07 0.364	Quant. Limits with no Dilution
Lab Sample I.D.				
Method Blank I.D.				
Quant. Factor	0.200	0.366		
alpha-BHC	0.052JB	0.54JB	U	1.7
beta-BHC	0.25J	U	U	1.7
delta-BHC	U	U	U	1.7
gamma-BHC (Lindane)	8.1X	21.X	U	1.7
Heptachlor	7.0X	18.X	U	1.7
Aldrin	8.1X	24.X	0.95	1.7
Heptachlor Epoxide	U	U	U	1.7
Endosulfan I	U	U	U	1.7
Dieldrin	23.X	49.X	U	3.3
4,4'-DDE	1.8	2.7	U	3.3
Endrin	24.X	49.X	U	3.3
Endosulfan II	U	U	U	3.3
4,4'-DDD	0.19J	18.	U	3.3
Endosulfan Sulfate	U	U	0.60J	3.3
4,4'-DDT	23.X	15.X	U	3.3
Methoxychlor	1.0J	U	U	17.
Aldrin ketone	0.18J	U	U	3.3
Aldrin aldehyde	U	U	U	3.9
alpha-Chlordane	U	U	U	1.7
gamma-Chlordane	U	U	U	1.7
Toxaphene	U	U	U	110
Date Received	11/20/01	11/20/01	11/20/01	
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/15/01	12/16/01	12/16/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE GC-1.6
7001-2791B
TRC ENVIRONMENTAL
8081A PESTICIDES

All values are ug/Kg dry weight basis.

Client Sample I.D.	VC10.H	VC10.G	PBLK07 QC1 112801-B04	Quant. Limits with no Dilution
Lab Sample I.D.	012791B-12	012791B-13	QC1	
Method Blank I.D.	PBLK07	PBLK07	PBLK07	
Quant. Factor	0.347	0.362	0.200	
alpha-BHC	0.61B	0.45JB	3.3BX	1.7
beta-BHC	U	U	4.4X	1.7
delta-BHC	U	U	1.8X	1.7
gamma-BHC (Lindane)	U	U	3.9X	1.7
Heptachlor	U	U	3.7X	1.7
Aldrin	0.67	U	4.0X	1.7
Heptachlor Epoxide	U	U	4.6X	1.7
Endosulfan I	U	U	4.4X	1.7
Dieldrin	U	U	5.3X	3.3
4,4'-DDE	U	U	5.3X	3.3
Endrin	U	U	5.8X	3.3
Endosulfan II	U	U	5.9X	3.3
4,4'-DDD	U	U	5.0X	3.3
Endosulfan Sulfate	0.18J	U	4.7X	3.3
4,4'-DDT	U	U	5.7X	3.3
Methoxychlor	U	U	6.7X	17.
Endrin ketone	U	U	5.5X	3.3
Endrin aldehyde	U	U	4.3X	3.9
alpha-Chlordane	U	U	4.6X	1.7
gamma-Chlordane	U	U	4.7X	1.7
Toxaphene	U	U	U	110
Date Received	11/20/01	11/20/01		
Date Extracted	11/28/01	11/28/01	11/28/01	
Date Analyzed	12/16/01	12/16/01	12/15/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any
 variation in sample weight/volume, % moisture and
 sample dilution.

ORGANICS APPENDIX

U – Indicates that the compound was analyzed for but not detected.

J – Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.

B – This flag is used when the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.

N – Indicates that the compound was analyzed for but not requested as an analyte. Value will not be listed on tabular result sheet.

S – Estimated due to surrogate outliers.

X – Matrix spike compound.

(1) - Cannot be separated

(2) – Decomposes to azobenzene. Measured and calibrated as azobenzene.

A – This flag indicates that a TIC is a suspected aldol condensation product.

E – Indicates that it exceeds calibration curve range.

D – This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C – Confirmed by GC/MS.

T – Compound present in TCLP blank.

P – This flag is used for a pesticide/rochlor target analyte when there is a greater than 25 percent difference for detected concentrations between the two GC columns (see Form X).



STL Connecticut

SUBCONTRACTED VOLATILE DATA

Client:	TRC ENVIRONMENTAL
Project ID:	ISLANDER EAST
P.O.	38077
SDG #:	A2791
STL ID:	7001-2791A

CASE NARRATIVE

A1K210141

The following report contains the analytical results for four water samples and thirteen solid samples submitted to STL North Canton by STL Connecticut, project number 7001-2791A. The samples were received November 21, 2001, according to documented sample acceptance procedures.

STL utilizes only USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. A summary of QC data for these analyses is included at the rear of the report.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

SUPPLEMENTAL QC INFORMATION

GC VOLATILES

Due to analyst error, no MS/MSD was performed; therefore, an LCS/LCSD was provided for batch 1330458.

An LCS/LCSD was provided for batch 1330464 since there was insufficient sample volume to perform an MS/MSD.

Sample V10.OA (REP 3) could not be analyzed. The sample vial leaked in transit from the STL Connecticut laboratory.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called **QUALITY CONTROL BATCHES (QC batches)**. A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a **METHOD BLANK (MB)**, a **LABORATORY CONTROL SAMPLE (LCS)** and, where appropriate, a **MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)** pair or a **MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU)** pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a **LABORATORY CONTROL SAMPLE DUPLICATE (LCSD)** is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the reparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)

Methylene chloride
Acetone
2-Butanone

Semivolatile (GC/MS)

Phthalate Esters

Metals

Copper
Iron
Zinc
Lead*

- *for analyses run on TJA Trace ICP, ICPMS or GFAA only*
- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (Continued)

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is repped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be repped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, PAH, and Herbicide methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

STL North Canton Certifications and Approvals:

Alabama (#41170), California (#2157), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#100439), Kansas (#E10336), Kentucky (#90021), Massachusetts (#M-OH048),
Maryland (#272), Minnesota (#39-999-348), Missouri (#6090), New Jersey (#74001),
New York (#10975), North Dakota (#R-156), Ohio (#6090), OhioVAP (#CL0024),
Pennsylvania (#68-340), Rhode Island (#237), South Carolina (#92007001, #92007002, #92007003),
Tennessee (#02903), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY,
USDA Soil Permit, ACIL Seal of Excellence - Participating Lab Status Award (#82)



STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc. SDG Number: A2791
 Matrix: (soil/water) WG Lab Sample ID: A1K210141 001
 Method: SW846 8021B
 Volatile Organics (8021B)
 Sample WT/Vol: 5 / mL Date Received: 11/21/01
 Work Order: EPDVP1AA Date Extracted: 11/21/01
 Dilution factor: 1 Date Analyzed: 11/21/01
 Moisture %:
 Client Sample Id: EB110801 QC Batch: 1330464

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/kg)	ug/L
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	1.0	U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 002

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDV81AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 16

QC Batch: 1330458

Client Sample Id: VC10.W

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/kg)	ug/kg	Q
75-35-4	1,1-Dichloroethene	1.2		U
79-01-6	Trichloroethene	1.2		U
108-90-7	Chlorobenzene	1.2		U
71-43-2	Benzene	1.2		U
100-41-4	Ethylbenzene	1.2		U
108-88-3	Toluene	1.2		U
1330-20-7	Xylenes (total)	1.2		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 003

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDWE1AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 14

QC Batch: 1330458

Client Sample Id: VC10.V

CONCENTRATION UNITS:

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/kg	
71-43-2	Benzene	1.2		U
100-41-4	Ethylbenzene	1.2		U
108-88-3	Toluene	1.2		U
1330-20-7	Xylenes (total)	1.2		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 004

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDW11AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 57

QC Batch: 1330458

Client Sample Id: VC10.UB

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/kg)	ug/kg	Q
71-43-2	Benzene	2.3		U
100-41-4	Ethylbenzene	2.3		U
108-88-3	Toluene	2.3		U
1330-20-7	Xylenes (total)	2.3		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 005

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDW21AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 54

QC Batch: 1330458

Client Sample Id: VC10.T

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/kg	
71-43-2	Benzene	2.2		U
100-41-4	Ethylbenzene	2.2		U
108-88-3	Toluene	2.2		U
1330-20-7	Xylenes (total)	2.2		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 006

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDW41AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 14

QC Batch: 1330458

Client Sample Id: VC15.A

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/kg)	ug/kg	Q
71-43-2	Benzene	1.2		U
100-41-4	Ethylbenzene	1.2		U
108-88-3	Toluene	1.2		U
1330-20-7	Xylenes (total)	1.2		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141.007

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / mL

Date Received: 11/21/01

Work Order: EPDW51AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %:

QC Batch: 1330464

Client Sample Id: FB110801

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/kg)	ug/L	Q
71-43-2	Benzene	1.0		U
100-41-4	Ethylbenzene	1.0		U
108-88-3	Toluene	1.0		U
1330-20-7	Xylenes (total)	1.0		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 008

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / mL

Date Received: 11/21/01

Work Order: EPDW71AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %:

QC Batch: 1330464

Client Sample Id: EB111301

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/kg)	ug/L
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	1.0	U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 009

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDW91AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 43

QC Batch: 1330458

Client Sample Id: VC10.N

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/kg) ug/kg	Q
71-43-2	Benzene	1.8	U
100-41-4	Ethylbenzene	1.8	U
108-88-3	Toluene	1.8	U
1330-20-7	Xylenes (total)	1.8	U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc. SDG Number: A2791

Matrix: (soil/water) WG Lab Sample ID: A1K210141 010
 Method: SW846 8021B
 Volatile Organics (8021B)

Sample WT/Vol: 5 / g Date Received: 11/21/01
 Work Order: EPDXA1AA Date Extracted: 11/21/01
 Dilution factor: 1 Date Analyzed: 11/21/01
 Moisture %: 54

QC Batch: 1330458

Client Sample Id: VC10.S

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/kg	
71-43-2	Benzene	2.2		U
100-41-4	Ethylbenzene	2.2		U
108-88-3	Toluene	2.2		U
1330-20-7	Xylenes (total)	2.2		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 011

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / mL

Date Received: 11/21/01

Work Order: EPDXD1AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %:

QC Batch: 1330464

Client Sample Id: FB111301

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/kg)	ug/L Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	1.0	U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 012

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDXE1AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 48

QC Batch: 1330458

Client Sample Id: VC10.P

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/kg)	ug/kg
71-43-2	Benzene	1.9	U
100-41-4	Ethylbenzene	1.9	U
108-88-3	Toluene	1.9	U
1330-20-7	Xylenes (total)	1.9	U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 013

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDXH1AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 49

QC Batch: 1330458

Client Sample Id: VC10.0

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/kg)	ug/kg	Q
71-43-2	Benzene	2.0		U
100-41-4	Ethylbenzene	2.0		U
108-88-3	Toluene	2.0		U
1330-20-7	Xylenes (total)	2.0		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 014

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDXJ1AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 43

QC Batch: 1330458

Client Sample Id: VC10.RA

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/kg)	ug/kg
71-43-2	Benzene	1.8	U
100-41-4	Ethylbenzene	1.8	U
108-88-3	Toluene	1.8	U
1330-20-7	Xylenes (total)	1.8	U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 015

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDXL1AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 45

QC Batch: 1330458

Client Sample Id: VC10.OA (REP 1)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/kg	
71-43-2	Benzene	1.8		U
100-41-4	Ethylbenzene	1.8		U
108-88-3	Toluene	1.8		U
1330-20-7	Xylenes (total)	1.8		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: A2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210141 016

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDXN1AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 45

QC Batch: 1330458

Client Sample Id: VC10.OA (REP 2)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/kg	
71-43-2	Benzene	1.8		U
100-41-4	Ethylbenzene	1.8		U
108-88-3	Toluene	1.8		U
1330-20-7	Xylenes (total)	1.8		U



STL Connecticut

SUBCONTRACTED DATA

Client:	TRC ENVIRONMENTAL
Project ID:	ISLANDER EAST
P.O.	38077
SDG #:	B2791
STL ID:	7001-2791B

CASE NARRATIVE

A1K210149

The following report contains the analytical results for two water samples and two solid samples submitted to STL North Canton by STL Connecticut, project number 7001-2791B. The samples were received November 21, 2001, according to documented sample acceptance procedures.

STL utilizes only USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. A summary of QC data for these analyses is included at the rear of the report.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

SUPPLEMENTAL QC INFORMATION

GC VOLATILES

Due to analyst error, no MS/MSD was performed; therefore, an LCS/LCSD was provided for batch 1330458.

An LCS/LCSD was provided for batch 1330464 since there was insufficient sample volume to perform an MS/MSD.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the reparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)

Methylene chloride

Acetone

2-Butanone

Semivolatile (GC/MS)

Phthalate Esters

Metals

Copper

Iron

Zinc

Lead*

- *for analyses run on TJA Trace ICP, ICPMS or GFAA only*
- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (Continued)

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is repped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be repped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, PAH, and Herbicide methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

STL North Canton Certifications and Approvals:

Alabama (#41170), California (#2157), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#100439), Kansas (#E10336), Kentucky (#90021), Massachusetts (#M-OH048),
Maryland (#272), Minnesota (#39-999-348), Missouri (#6099), New Jersey (#74001),
New York (#10975), North Dakota (#R-156), Ohio (#6090), OhioVAP (#CL0024),
Pennsylvania (#68-340), Rhode Island (#237), South Carolina (#92007001, #92007002, #92007003),
Tennessee (#02903), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY,
USDA Soil Permit, ACIL Seal of Excellence – Participating Lab Status Award (#82)



STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc. SDG Number: B2791

Matrix: (soil/water) WG Lab Sample ID: A1K210149 001
 Method: SW846 8021B
 Volatile Organics (8021B)

Sample WT/Vol: 5 / mL Date Received: 11/21/01
 Work Order: EPDQ1AA Date Extracted: 11/21/01
 Dilution factor: 1 Date Analyzed: 11/21/01
 Moisture %:

QC Batch: 1330464

Client Sample Id: EB111501

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/kg)	ug/L
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	1.0	U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: B2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210149 002

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPD0V1AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 40

QC Batch: 1330458

Client Sample Id: VC10.MB

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/kg)	ug/kg
71-43-2	Benzene	1.7	U
100-41-4	Ethylbenzene	1.7	U
108-88-3	Toluene	1.7	U
1330-20-7	Xylenes (total)	1.7	U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc.

SDG Number: B2791

Matrix: (soil/water) WG

Lab Sample ID: A1K210149 003

Method: SW846 8021B

Volatile Organics (8021B)

Sample WT/Vol: 5 / g

Date Received: 11/21/01

Work Order: EPDOW1AA

Date Extracted: 11/21/01

Dilution factor: 1

Date Analyzed: 11/21/01

Moisture %: 41

QC Batch: 1330458

Client Sample Id: VC10.L

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/kg	
71-43-2	Benzene	1.7		U
100-41-4	Ethylbenzene	1.7		U
108-88-3	Toluene	1.7		U
1330-20-7	Xylenes (total)	1.7		U

STL CONNECTICUT

Lab Name: Severn Trent Laboratories, Inc. SDG Number: B2791

Matrix: (soil/water) WG Lab Sample ID: A1K210149.004

Method: SW846 8021B
 Volatile Organics (8021B)

Sample WT/Vol: 5 / mL Date Received: 11/21/01

Work Order: EPD0X1AA Date Extracted: 11/21/01

Dilution factor: 1 Date Analyzed: 11/21/01

Moisture %: QC Batch: 1330464

Client Sample Id: FB111501

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/kg)	ug/L
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	1.0	U



STL Connecticut

SPECIFIC GRAVITY

Client:	TRC ENVIRONMENTAL
Project ID:	ISLANDER EAST
P.O.	38077
SDG #:	B2791
STL ID:	7001-2791B

**SEVERN
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SERVICES**

STL Burlington
208 South Park Drive
Suite 1
Colchester, VT 05446

Tel: 802 655 1203
Fax: 802 655 1248
www.stl-inc.com

December 5, 2001

Ms. Johanna Dubauskas
Severn Trent Laboratories
128 Long Hill Cross Road
Shelton, CT 06484

Re: Laboratory Project No. 21000
Case: 21000; SDG: B2791

Dear Ms. Dubauskas:

Enclosed are the analytical results of samples received intact by Severn Trent Laboratories on November 20, and 21, 2001. Laboratory numbers have been assigned and designated as follows:

<u>Lab ID</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
Received: 11/20/01 ETR No: 85654			
471551	VC10.MB	11/15/01	Soil
471552	VC10.L	11/15/01	Soil
471553	VC10.K	11/15/01	Soil
471554	VC15.J	11/15/01	Soil
Received: 11/21/01 ETR No: 85669			
471636	VC10.E	11/17/01	Soil
471637	VC10.D	11/17/01	Soil
471638	VC10.F	11/17/01	Soil
471639	VC10.H	11/17/01	Soil
471640	VC10.G	11/17/01	Soil

Documentation that identifies the condition of the samples at the time of sample receipt and the issues arising at the time of sample log-in is included in the Sample Handling section of this submittal.

Please note that no exceptions to the method prescribed quality control criteria were observed during the analysis of the samples in this delivery group.

Client specific matrix spike/matrix spike duplicate samples were not performed, nor requested with this sample delivery group.

If there are any questions regarding this submittal, please contact Ron Pentkowski at (802) 655-1203.

001A

Ms. Johanna Dubauskas
December 5, 2001
Page 2



STL Burlington

This report shall not be reproduced, except in full, without the written approval of the laboratory.
This report is sequentially numbered starting with page 0001 and ending with page 19.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data, submitted on floppy diskette, has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Wheeler". The signature is fluid and cursive, with a long horizontal line extending to the right.

Michael F. Wheeler, Ph.D
Laboratory Director

Enclosure

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Severn Trent Laboratories, Inc.

SAMPLE DATA SUMMARY PACKAGE

FOR Specific Gravity

Specific Gravity of Soils By ASTM Method D854

Client: <u>STLCT</u>	ETR(s): <u>85654</u>
Client Code: <u>STLCT</u>	SDG(s): <u>85654</u>
Project: <u>21000</u>	Analyst(s): <u>MRD</u>
Job #: <u>Isle East</u>	Start Date: <u>04-Dec-01</u>
Date Received: <u>20-Nov-01</u>	End Date: <u>05-Dec-01</u>

Sample No:	471551	471552	471553	471554
Sample ID:	VC10.MB	VC10.L	VC10.K	VC15.J
Flask No.	551	552	553	554
Flask Volume, ml	100	100	100	100
Flask Weight, g	63.87	67.01	66.41	65.05
Flask/H2O Weight, g	163.60	166.80	166.18	164.89
Flask/H2O Temp., °C	23.0	23.0	23.0	23.0
Flask/H2O/Sample Weight, g	186.04	187.39	186.99	190.34
Flask/H2O/Sample Temp., °C	20.0	20.0	20.0	20.0
Pan, g	63.87	67.01	66.41	65.05
Pan/sample, g	99.87	100.60	100.22	106.43
Oven dried sample mass, g	36.00	33.59	33.81	41.38
Dens @ H2O temp	0.998	0.998	0.998	0.998
Dens @ smpl temp	0.998	0.998	0.998	0.998
Specific gravity	2.64	2.57	2.59	2.59

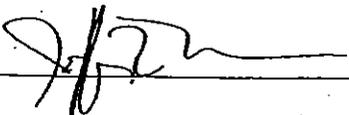
Submitted By:  Date: 12/05/01

Specific Gravity of Soils By ASTM Method D854

Client: STLCT
 Client Code: STLCT
 Project: 21000
 Job #: Islander East
 Date Received: 21-Nov-01

ETR(s): 85669
 SDG(s): B2791
 Analyst(s): MRD
 Start Date: 04-Dec-01
 End Date: 05-Dec-01

Sample No:	471636	471637	471638	471639	471640
Sample ID:	VC10.E	VC10.D	VC10.F	VC10.H	VC10.G
Flask No.	7	572	19	20	640
Flask Volume, ml	100	100	100	100	100
Flask Weight, g	66.48	71.38	68.58	66.51	67.01
Flask/H2O Weight, g	166.22	171.19	168.48	166.31	166.94
Flask/H2O Temp., °C	21.0	21.0	21.0	21.0	21.0
Flask/H2O/Sample Weight, g	185.75	191.33	190.24	187.76	186.31
Flask/H2O/Sample Temp., °C	20.0	20.0	20.0	20.0	20.0
Pan, g	66.48	71.38	68.58	66.51	67.01
Pan/sample, g	98.51	104.42	104.45	101.88	98.88
Oven dried sample mass, g	32.03	33.04	35.87	35.37	31.87
Dens @ H2O temp	0.998	0.998	0.998	0.998	0.998
Dens @ smpl temp	0.998	0.998	0.998	0.998	0.998
Specific gravity	2.56	2.56	2.54	2.54	2.54

Submitted By:  Date: 12/05/01

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NARRATIVE

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STL Burlington
208 South Park Drive
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www.stl-inc.com

December 5, 2001

Ms. Johanna Dubauskas
Severn Trent Laboratories
128 Long Hill Cross Road
Shelton, CT 06484

Re: Laboratory Project No. 21000
Case: 21000; SDG: B2791

Dear Ms. Dubauskas:

Enclosed are the analytical results of samples received intact by Severn Trent Laboratories on November 20, and 21, 2001. Laboratory numbers have been assigned and designated as follows:

<u>Lab ID</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
Received: 11/20/01 ETR No: 85654			
471551	VC10.MB	11/15/01	Soil
471552	VC10.L	11/15/01	Soil
471553	VC10.K	11/15/01	Soil
471554	VC15.J	11/15/01	Soil
Received: 11/21/01 ETR No: 85669			
471636	VC10.E	11/17/01	Soil
471637	VC10.D	11/17/01	Soil
471638	VC10.F	11/17/01	Soil
471639	VC10.H	11/17/01	Soil
471640	VC10.G	11/17/01	Soil

Documentation that identifies the condition of the samples at the time of sample receipt and the issues arising at the time of sample log-in is included in the Sample Handling section of this submittal.

Please note that no exceptions to the method prescribed quality control criteria were observed during the analysis of the samples in this delivery group.

Client specific matrix spike/matrix spike duplicate samples were not performed, nor requested with this sample delivery group.

If there are any questions regarding this submittal, please contact Ron Pentkowski at (802) 655-1203.

001A

Ms. Johanna Dubauskas
December 5, 2001
Page 2



STL Burlington

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Sincerely,

A handwritten signature in black ink, appearing to read "Michael Wheeler". The signature is stylized with a large loop at the end.

Michael F. Wheeler, Ph.D
Laboratory Director

Enclosure



STL Connecticut

SUBCONTRACTED SPECIFIC GRAVITY

Client:	TRC ENVIRONMENTAL
Project ID:	ISLANDER EAST
P.O.:	38077
SDG #:	A2791
STL ID:	7001-2791A

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STL Burlington
208 South Park Drive
Suite 1
Colchester, VT 05446

Tel: 802 655 1203
Fax: 802 655 1248
www.stl-inc.com

December 5, 2001

Ms. Johanna Dubauskas
Severn Trent Laboratories
128 Long Hill Cross Road
Shelton, CT 06484

Re: Laboratory Project No. 21000
Case: 21000; SDG: A2791

Dear Ms. Dubauskas:

Enclosed are the analytical results of samples received intact by Severn Trent Laboratories on November 13, 19, and 20, 2001. Laboratory numbers have been assigned and designated as follows:

<u>Lab ID</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
Received: 11/13/01 ETR No: 85561			
471009	VC10.AB	11/06/01	Soil
471010	VC10.B	11/06/01	Soil
471011	VC10.W	11/08/01	Soil
471012	VC10.V	11/08/01	Soil
471013	VC10.UB	11/08/01	Soil
471014	VC10.T	11/08/01	Soil

Received: 11/19/01 ETR No: 85636			
471426	VC10.N	11/13/01	Soil
471427	VC10.S	11/13/01	Soil
471428	VC10.P	11/13/01	Soil
471429	VC10.Q	11/13/01	Soil
471430	VC10.OA	11/13/01	Soil
471431	VC10.0AREP1	11/13/01	Soil
471432	VC10.0AREP2	11/13/01	Soil



STL Burlington

<u>Lab ID</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
Received: 11/20/01 ETR No: 85652			
471548	VC10.RA	11/13/01	Soil
471549	VC.I	11/15/01	Soil
471550	VC10.C	11/16/01	Soil

Documentation that identifies the condition of the samples at the time of sample receipt and the issues arising at the time of sample log-in is included in the Sample Handling section of this submittal.

Please note that no exceptions to the method prescribed quality control criteria were observed during the analysis of the samples in this delivery group.

Client specific matrix spike/matrix spike duplicate samples were not performed, nor requested with this sample delivery group.

If there are any questions regarding this submittal, please contact Ron Pentkowski at (802) 655-1203.

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Sincerely,

Michael F. Wheeler, Ph.D.
Laboratory Director

Enclosure

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Severn Trent Laboratories, Inc.

SAMPLE DATA SUMMARY PACKAGE

FOR Specific Gravity

Specific Gravity of Soils By ASTM Method D854

Client: STLCT
 Client Code: STLCT
 Project: 21000
 Job #: N/A
 Date Received: 13-Nov-01

ETR(s): 85561
 SDG(s): A2791
 Analyst(s): MRD
 Start Date: 14-Nov-01
 End Date: 21-Nov-01

Sample No: Sample ID:	471009 VC10.AB	471010 VC10.B	471011 VC10.W	471012 VC10.V	471013 VC10.UB	471014 VC10.T
Flask No.	1	2	3	4	5	6
Flask Volume, ml	100	100	100	100	100	100
Flask Weight, g	65.55	66.53	68.61	61.93	67.58	70.73
Flask/H2O Weight, g	165.40	166.32	168.48	161.72	167.40	170.47
Flask/H2O Temp., °C	19.0	19.0	19.0	19.0	19.0	19.0
Flask/H2O/Sample Weight, g	186.83	183.21	192.59	183.60	182.56	187.45
Flask/H2O/Sample Temp., °C	21.0	21.0	21.0	21.0	21.0	21.0
Pan, g	65.55	66.53	68.61	61.93	67.58	70.73
Pan/sample, g	100.08	93.91	107.52	97.26	92.31	98.39
Oven dried sample mass, g	34.53	27.38	38.91	35.33	24.73	27.66
Dens @ H2O temp	0.998	0.998	0.998	0.998	0.998	0.998
Dens @ smpl temp	0.998	0.998	0.998	0.998	0.998	0.998
Specific gravity	2.64	2.62	2.64	2.64	2.60	2.60

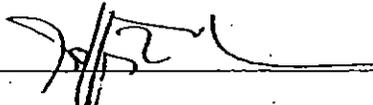
Submitted By:  Date: 11/21/01

Specific Gravity of Soils By ASTM Method D854

Client: STLCT
Client Code: STLCT
Project: 21000
Job #: N/A
Date Received: 13-Nov-01

ETR(s): 85561
SDG(s): A2791
Analyst(s): MRD
Start Date: 14-Nov-01
End Date: 21-Nov-01

Sample No:	471009	471010	471011	471012	471013	471014
Sample ID:	VC10.AB	VC10.B	VC10.W	VC10.V	VC10.UB	VC10.T
Flask No.	1	2	3	4	5	6
Flask Volume, ml	100	100	100	100	100	100
Flask Weight, g	65.55	66.53	68.61	61.93	67.58	70.73
Flask/H2O Weight, g	165.40	166.32	168.48	161.72	167.40	170.47
Flask/H2O Temp., °C	19.0	19.0	19.0	19.0	19.0	19.0
Flask/H2O/Sample Weight, g	186.83	183.21	192.59	183.60	182.56	187.45
Flask/H2O/Sample Temp., °C	21.0	21.0	21.0	21.0	21.0	21.0
Pan, g	65.55	66.53	68.61	61.93	67.58	70.73
Pan/sample, g	100.08	93.91	107.52	97.26	92.31	98.39
Oven dried sample mass, g	34.53	27.38	38.91	35.33	24.73	27.66
Dens @ H2O temp	0.998	0.998	0.998	0.998	0.998	0.998
Dens @ smpl temp	0.998	0.998	0.998	0.998	0.998	0.998
Specific gravity	2.64	2.62	2.64	2.64	2.60	2.60

Submitted By: 

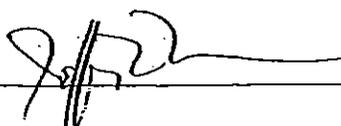
Date: 11/21/01

Specific Gravity of Soils By ASTM Method D854

Client: STLCT
Client Code: STLCT
Project: 21000
Job #: n/a
Date Received: 19-Nov-01

ETR(s): 85636
SDG(s): A2791
Analyst(s): MRD
Start Date: 04-Dec-01
End Date: 05-Dec-01

Sample No:	471426	471427	471428	471429	471430	471431
Sample ID:	VC10.N	VC10.S	VC10.P	VC10.Q	VC10.OA	VC10.OAREPI
Flask No.	A	B	C	D	E	F
Flask Volume, ml	100	100	100	100	100	100
Flask Weight, g	70.69	70.50	61.93	65.54	67.59	61.66
Flask/H ₂ O Weight, g	170.48	170.40	161.72	165.42	167.44	161.51
Flask/H ₂ O Temp., °C	19.5	19.5	19.5	19.5	19.5	19.5
Flask/H ₂ O/Sample Weight, g	191.59	187.12	182.24	186.34	181.88	175.95
Flask/H ₂ O/Sample Temp., °C	20.0	20.0	20.0	20.0	20.0	20.0
Pan, g	70.69	70.50	61.93	65.54	67.59	61.66
Pan/sample, g	107.77	98.57	95.15	99.79	91.24	85.89
Oven dried sample mass, g	37.08	28.07	33.22	34.25	23.65	24.23
Dens @ H ₂ O temp	0.998	0.998	0.998	0.998	0.998	0.998
Dens @ smpl temp	0.998	0.998	0.998	0.998	0.998	0.998
Specific gravity	2.32	2.48	2.62	2.57	2.57	2.48

Submitted By: 

Date: 12/05/01

Specific Gravity of Soils By ASTM Method D854

Client: <u>STLCT</u>	ETR(s): <u>85636</u>
Client Code: <u>STLCT</u>	SDG(s): <u>A2791</u>
Project: <u>21000</u>	Analyst(s): <u>MRD</u>
Job #: <u>n/a</u>	Start Date: <u>04-Dec-01</u>
Date Received: <u>19-Nov-01</u>	End Date: <u>05-Dec-01</u>

Sample No:	471432
Sample ID:	VC10.0AREP2
Flask No.	G
Flask Volume, ml	100
Flask Weight, g	66.22
Flask/H2O Weight, g	166.05
Flask/H2O Temp., °C	19.5
Flask/H2O/Sample Weight, g	179.33
Flask/H2O/Sample Temp., °C	20.0
Pan, g	66.22
Pan/sample, g	87.88
Oven dried sample mass, g	21.66
Dens @ H2O temp	0.998
Dens @ smpl temp	0.998
Specific gravity	2.59

Submitted By:  Date: 12/05/01

Specific Gravity of Soils By ASTM Method D854

Client: STLCT
Client Code: STLCT
Project: 21000
Job #: Isle East
Date Received: 20-Nov-01

ETR(s): 85652
SDG(s): A2791
Analyst(s): MRD
Start Date: 04-Dec-01
End Date: 05-Dec-01

Sample No:	471548	471549	471550
Sample ID:	VC10.RA	VC.I	VC10.C
Flask No.	548	549	550
Flask Volume, ml	100	100	100
Flask Weight, g	65.82	66.72	58.89
Flask/H2O Weight, g	165.61	166.61	158.81
Flask/H2O Temp., °C	20.5	20.5	20.5
Flask/H2O/Sample Weight, g	187.20	190.50	179.18
Flask/H2O/Sample Temp., °C	20.0	20.0	20.0
Pan, g	65.82	66.72	58.89
Pan/sample, g	100.85	105.41	92.30
Oven dried sample mass, g	35.03	38.69	33.41
Dens @ H2O temp	0.998	0.998	0.998
Dens @ smpl temp	0.998	0.998	0.998
Specific gravity	2.60	2.61	2.56

Submitted By: 

Date: 12/05/01

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NARRATIVE

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STL Burlington
208 South Park Drive
Suite 1
Colchester, VT 05446

Tel: 802 655 1203
Fax: 802 655 1248
www.stl-inc.com

December 5, 2001

Ms. Johanna Dubauskas
Severn Trent Laboratories
128 Long Hill Cross Road
Shelton, CT 06484

Re: Laboratory Project No. 21000
Case: 21000; SDG: A2791

Dear Ms. Dubauskas:

Enclosed are the analytical results of samples received intact by Severn Trent Laboratories on November 13, 19, and 20, 2001. Laboratory numbers have been assigned and designated as follows:

<u>Lab ID</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
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471009	VC10.AB	11/06/01	Soil
471010	VC10.B	11/06/01	Soil
471011	VC10.W	11/08/01	Soil
471012	VC10.V	11/08/01	Soil
471013	VC10.UB	11/08/01	Soil
471014	VC10.T	11/08/01	Soil

Received: 11/19/01 ETR No: 85636			
471426	VC10.N	11/13/01	Soil
471427	VC10.S	11/13/01	Soil
471428	VC10.P	11/13/01	Soil
471429	VC10.Q	11/13/01	Soil
471430	VC10.OA	11/13/01	Soil
471431	VC10.0AREP1	11/13/01	Soil
471432	VC10.0AREP2	11/13/01	Soil



STL Burlington

<u>Lab ID</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
		Received: 11/20/01	ETR No: 85652
471548	VC10.RA	11/13/01	Soil
471549	VC.I	11/15/01	Soil
471550	VC10.C	11/16/01	Soil

Documentation that identifies the condition of the samples at the time of sample receipt and the issues arising at the time of sample log-in is included in the Sample Handling section of this submittal.

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Sincerely,

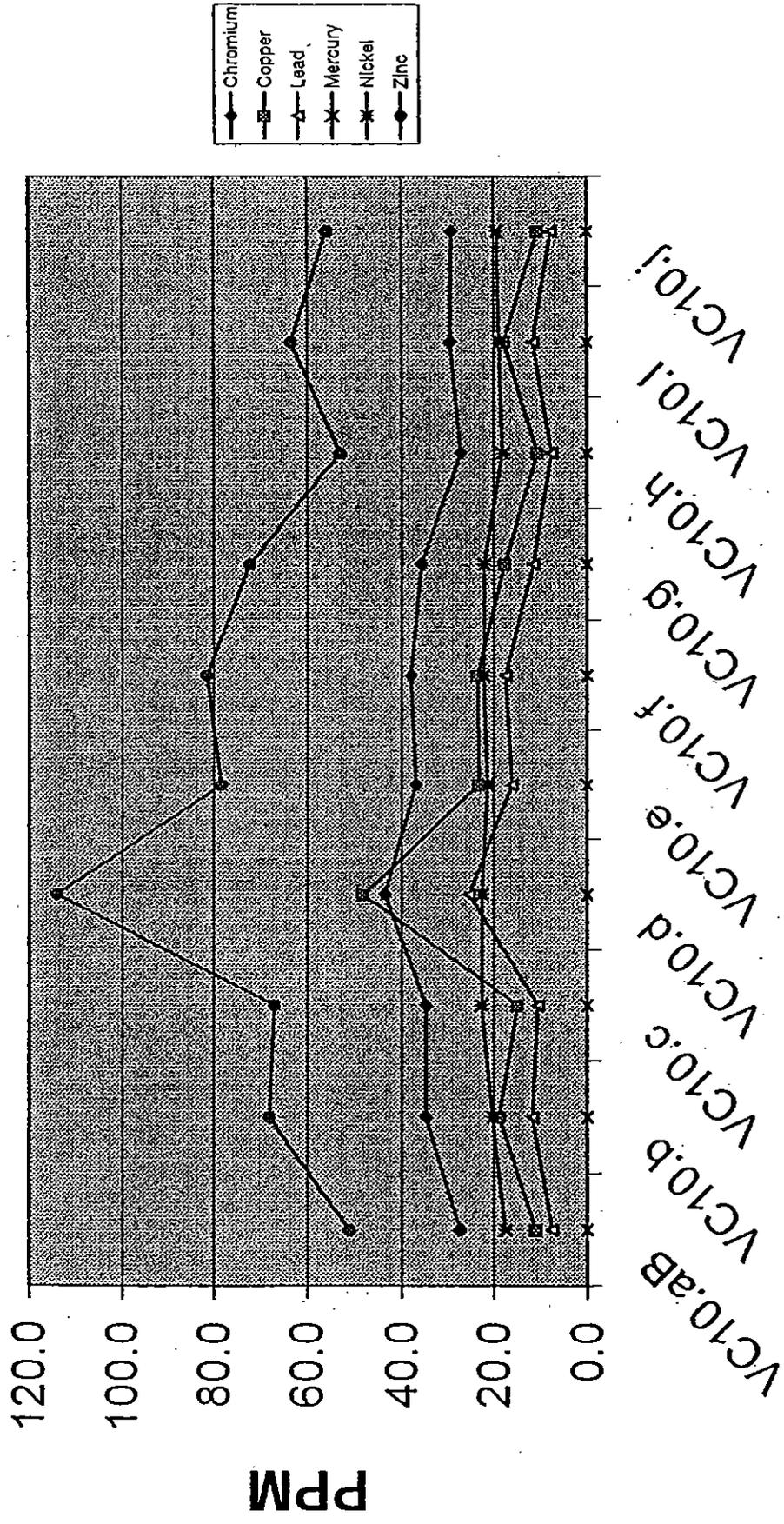
Michael F. Wheeler, Ph.D.
Laboratory Director

Enclosure

ATTACHMENT IV

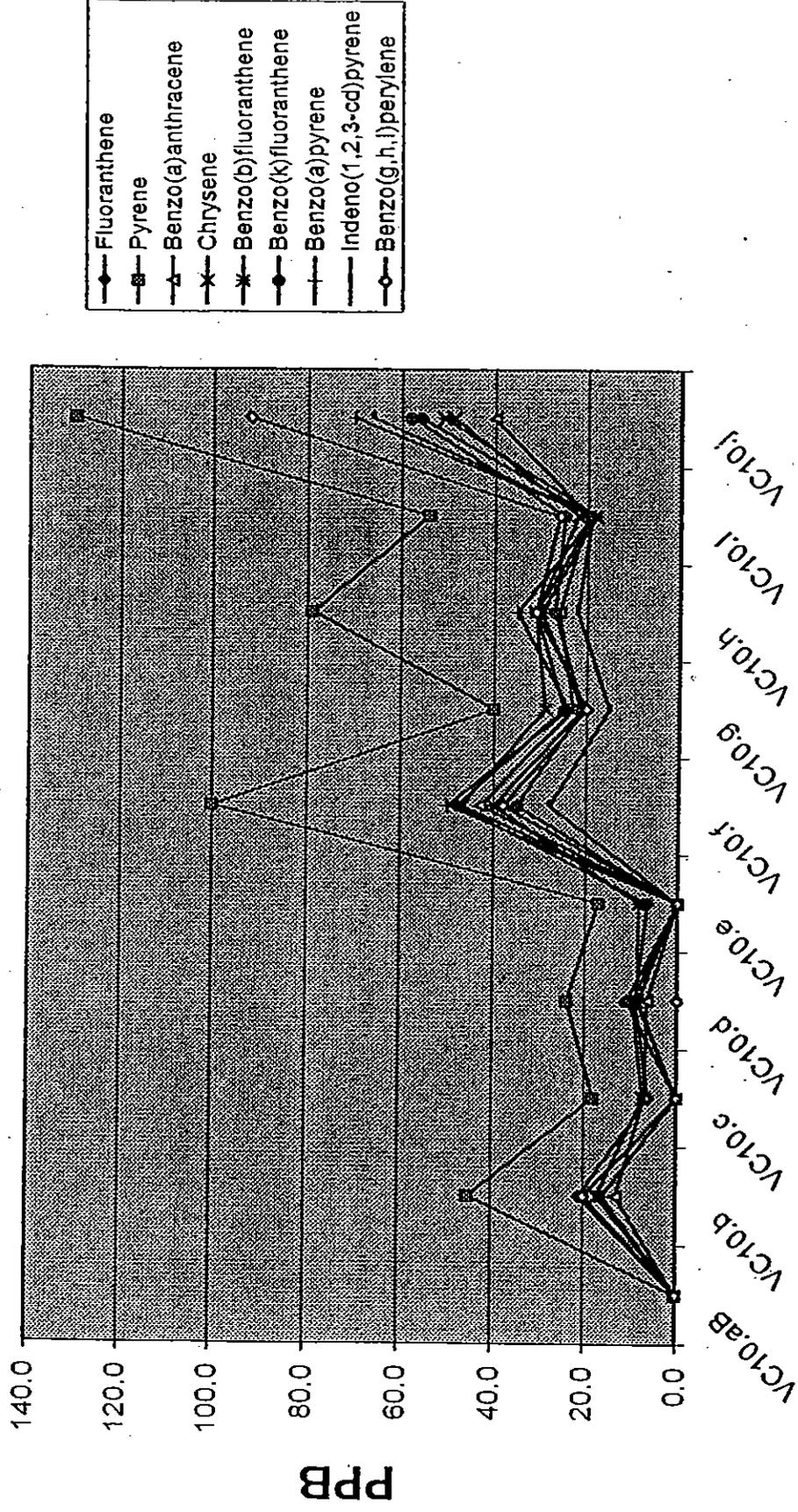
GRAPHS

Metals Analysis, CT



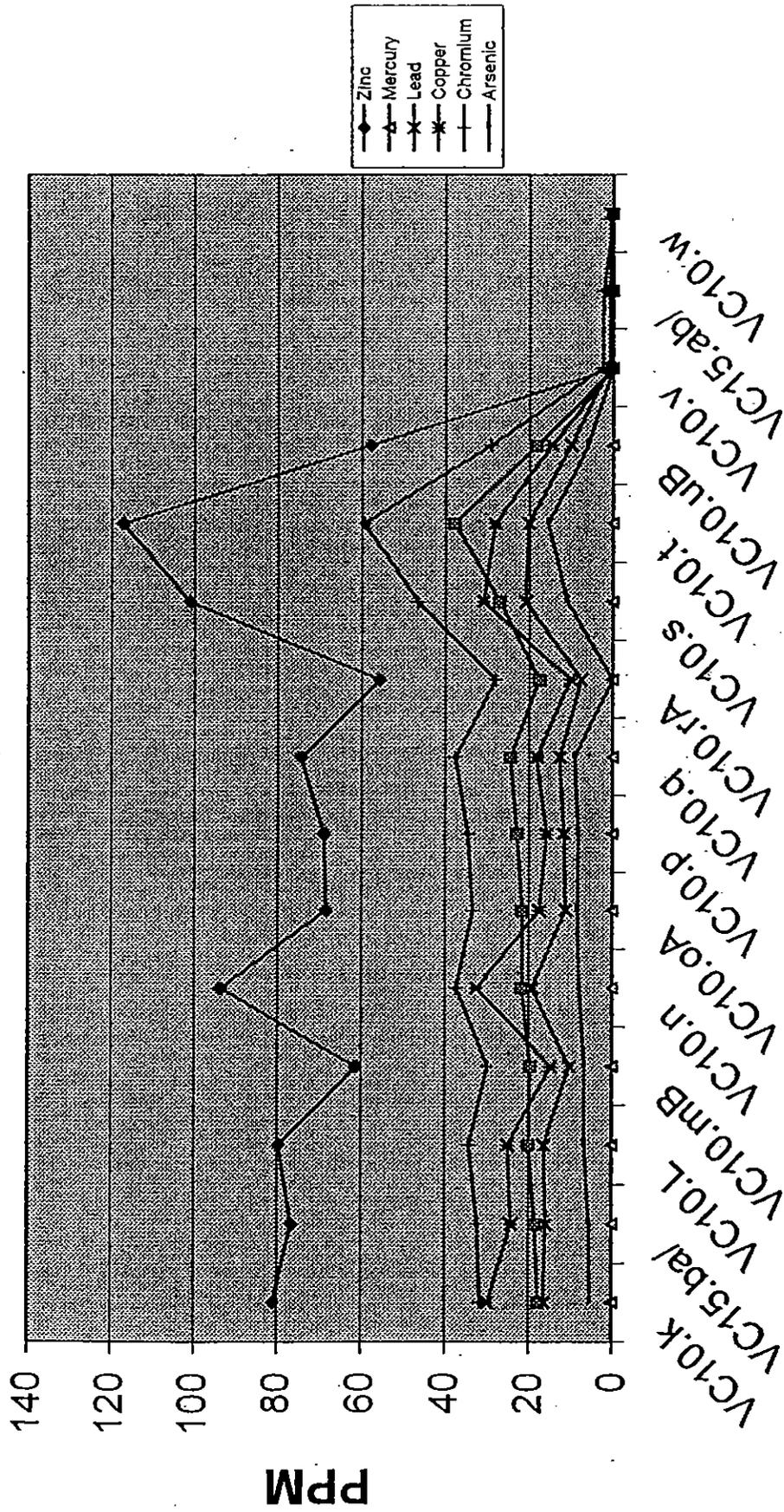
Sample ID

PAH Analysis, Connecticut



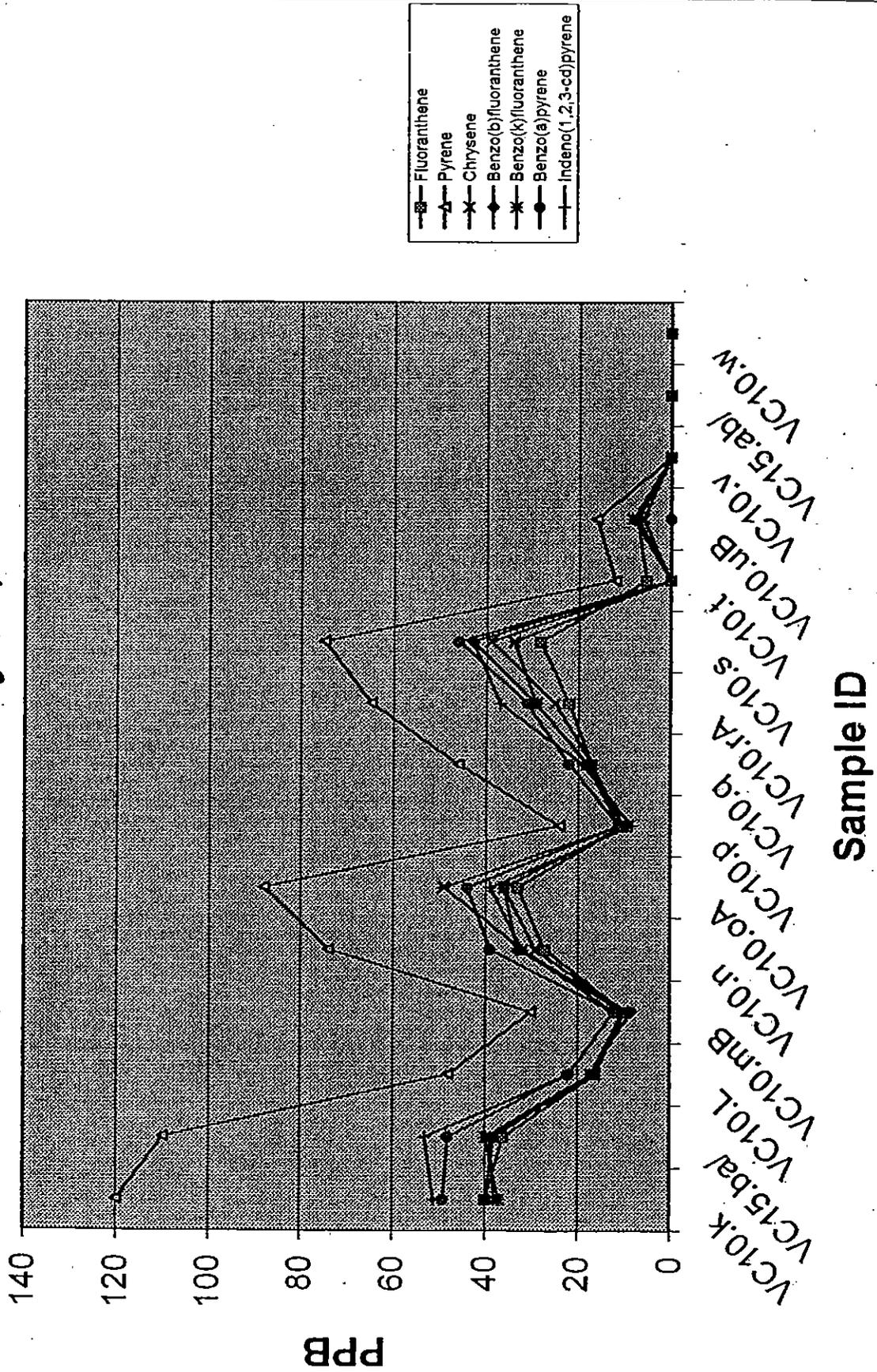
Sample ID

Metals Analysis, NY



Sample ID

PAH Analysis, NY



ATTACHMENT V

PHOTOS



PHOTO 1: VC10.d Bottom = 47-107"
Top = 0-47"



PHOTO 2: VC10.d Bottom = 47-107"
Top = 0-47"



PHOTO 3: VC10.e Bottom = 53-113"
Top = 0-53"



PHOTO 4: VC10.f Bottom = 51-111"
Top = 0-51"



PHOTO 5: VC10.f Bottom = 51-111"
Top = 0-51"



PHOTO 6: VC10.g Bottom = 53-113"
Top = 0-53"



PHOTO 7: VC10.j Bottom = 39-99"
Top = 0-39"



PHOTO 8: VC10.j Bottom = 39-99"
Top = 0-39"



PHOTO 9: VC10.k Bottom = 55-115"
Top = 0-55"



PHOTO 10: VC10.k Bottom = 55-115"
Top = 0-55"



PHOTO 11: VC10.L Bottom = 60-120"
Top = 0-60"

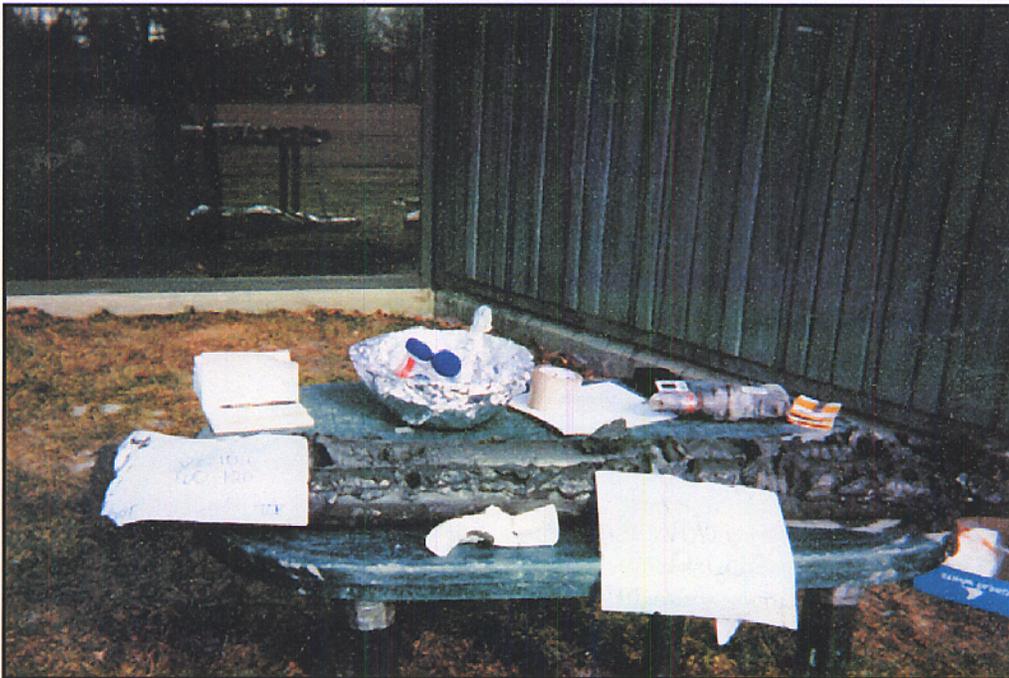


PHOTO 12: VC10.L Bottom = 60-120"
Top = 0-60"



PHOTO 13: VC10.mB Bottom = 49-109"
Top = 0-49"



PHOTO 14: VC10.mB Bottom = 49-109"
Top = 0-49"

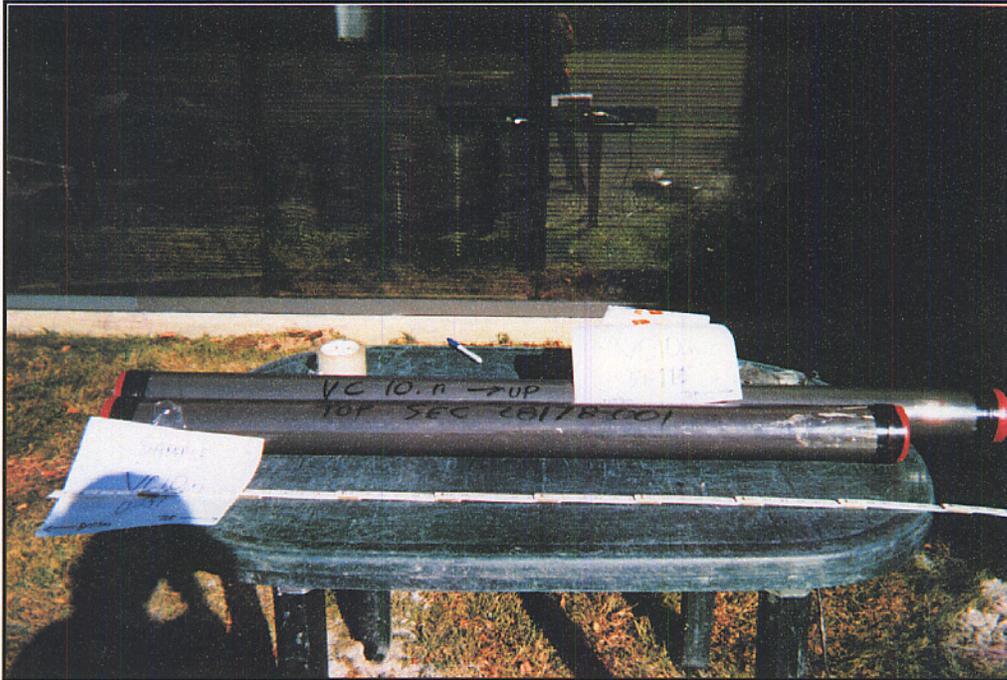


PHOTO 15: VC10.n Bottom = 51-110"
Top = 0-51"



PHOTO 16: VC10.n Bottom = 51-110"
Top = 0-51"



PHOTO 17: VC10.p Bottom = 46-106"
Top = 0-46"

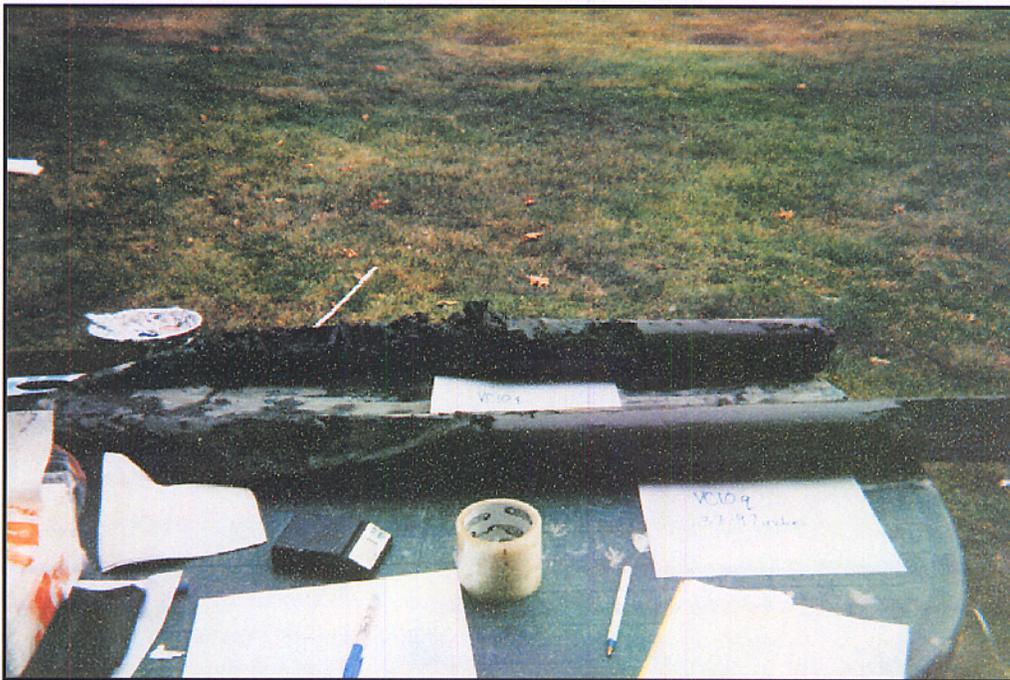


PHOTO 18: VC10.q Bottom = 37-97"
Top = 0-37"

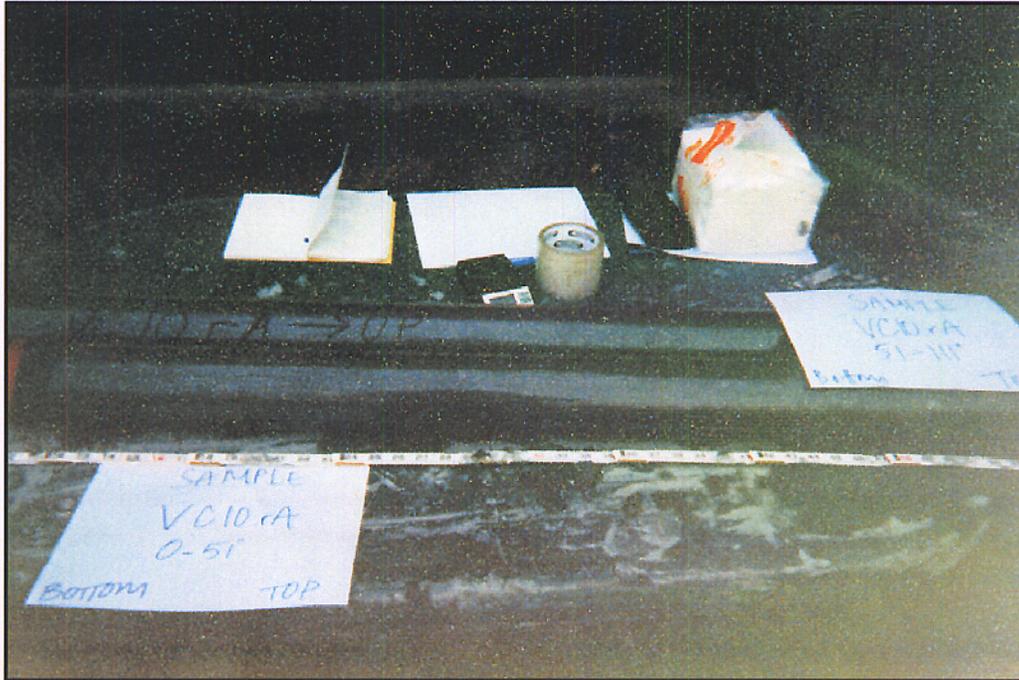


PHOTO 19: VC10.rA Bottom = 51-111"
Top = 0-51"

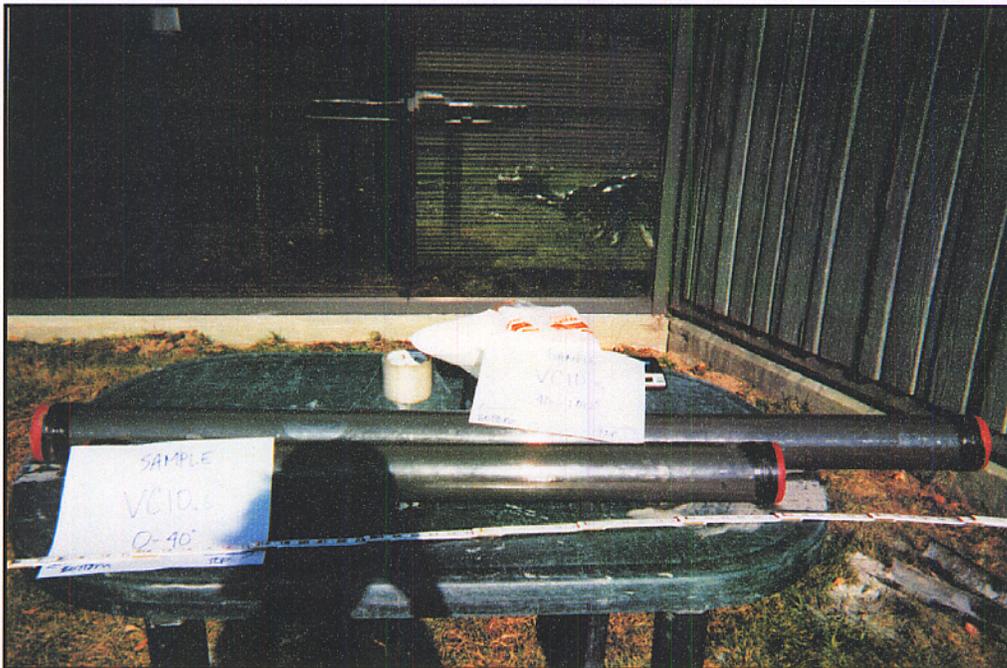


PHOTO 20: VC10.s Bottom = 40-100"
Top = 0-40"



PHOTO 21: VC10.t Bottom = 56-116"
Top = 0-56"

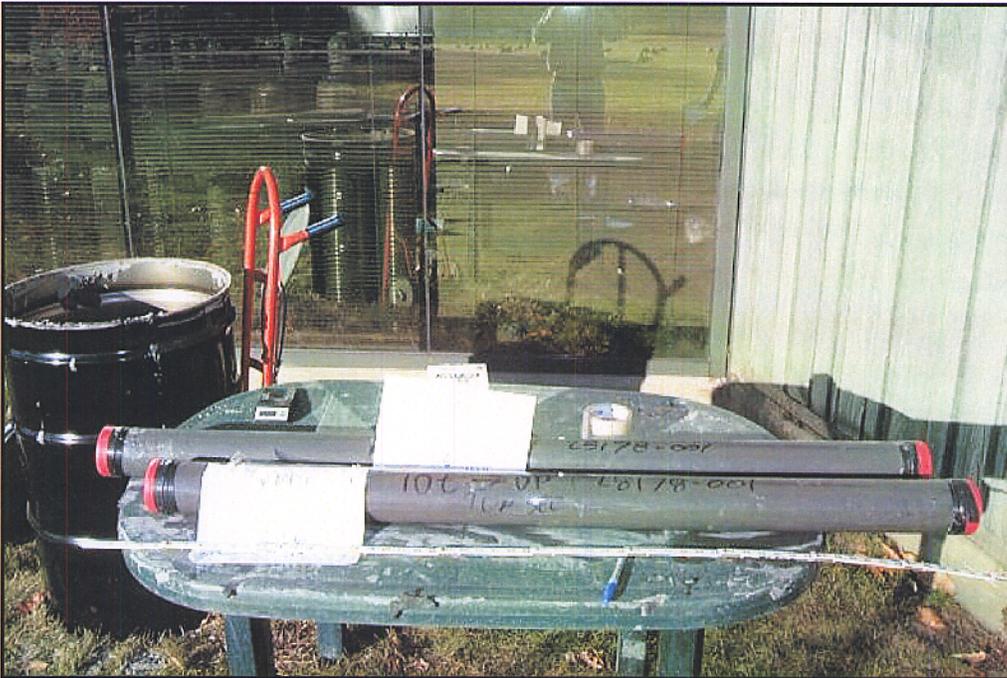


PHOTO 22: VC10.t Bottom = 56-116"
Top = 0-56"

ATTACHMENT VI

**SEDIMENT SAMPLING TO CHARACTERIZE PROPOSED
DREDGE MATERIAL (NYSDEC)**

SEDIMENT SAMPLING TO CHARACTERIZE PROPOSED DREDGE MATERIAL

Core samples are collected and analyzed to characterize the physical and chemical properties of the sediment in situ, prior to the dredging operation. Physical analysis should include grain size and TOC determinations. Chemical analysis should include case-appropriate parameters from Table 1. Evaluation of the data results of these samples will help determine the disposal and/or reuse options that might be considered, the types of dredging equipment that can be employed, and the environmental controls that may be necessary to reduce the potential impacts to fish and wildlife during dredging.

The sampling required by the Divisions to determine whether to grant a dredge permit is not the same testing required by the USACE. It must be acknowledged that for some dredging projects the USACE may require applicants to conduct a suite of biological tests to support their permit application. If such test results are available, and if open water disposal is planned, the Divisions may elect to use this information to make permit decisions in lieu of or in addition to chemical tests and criteria described in this TOGS. Under USACE requirements, sampling would be required for open water disposal according to the most recent version of "Evaluation of Dredged Material Proposed for Ocean Disposal Testing Manual" (USACE, Green Book) or "Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual Inland Testing Manual" (USACE Gold Book). The Divisions may also require in-bay zone analyses based on the biological test results.

1. Sampling Exemptions

There are instances where sediment testing is not necessary. If there are no recent spill incidents (within the past ten years) or contamination problems associated with the site or its environs, sampling and analysis of sediments for proposed dredging projects will generally not be required under the following circumstances:

- a. the material to be dredged is at least 90% sand and gravel
or
- b. the entire project involves less than 1,500 cubic yards of dredge material
or
- c. the Divisions determine that the site has been appropriately sampled and analyzed within the last five years and that data reveals sediments with no appreciable contamination.

Note: Sampling exemptions are generally not available for projects involving open water disposal.

Additional sampling waivers may be applicable on a case by case basis.

2. Collection of Samples to Characterize Sediment

A sampling plan should be submitted to the Divisions prior to sampling indicating the type, number and location of samples to ensure proper characterization of the proposed dredge material.

- a. **Type of Sample.** Samples would usually necessitate the collection of sediment cores that represent the complete depth of the material to be dredged plus an additional one foot of overdredge depth. Each core is broken into two segments for analysis: a dredging depth segment and a substrate segment representing the top six inches of the sediment to be exposed after dredging. If chemical analysis of the dredging depth segment reveals moderate or high levels of contaminants in the sediments, then some or all substrate segments may need to be analyzed. If analysis of the material six inches below proposed bottom elevation reveals a risk of increased contamination exposure after dredging, the post-dredging sediment surface should again be sampled and analyzed for contaminants of concern to assure that their values do not exceed pre-dredging levels. Sampling procedures are more fully described in Attachment 1.
- b. **Number and Location of Samples.** The applicant should propose how many samples will be collected and explain how this number was derived and why it is adequate to characterize the dredge material, including the detection of potential "hot spots" of highly contaminated sediments. The plan should also detail the locations of the sampling sites and state how they afford spatial representativeness while also providing coverage for areas likely to have been affected by specific contamination (i.e., a sampling bias should exist toward areas known to be affected by outfalls, tributaries, other industrial sources, historical spill areas, etc.). Sampling should include no less than three sample locations for any given project.
- c. **Cost Reduction Strategies.** If the cost of chemical analyses for the number of proposed samples exceeds 10 percent of the project cost (i.e., small project, small marina operation, etc.), strategies are available to reduce the cost of the analyses. These strategies should yield a reasonably accurate representation of the spatial and vertical stratigraphy and contaminant distribution in the area to be dredged and take into account historical and current pollutant inputs. Division approval must be obtained before any of the sample size reduction strategies are used. Unless otherwise exempt from the sampling requirements, a minimum of three sediment samples should be analyzed to characterize any proposed dredging project. Cost reduction strategies may include:
 - i. Collect the required number of cores, then select those with the highest organic carbon levels and closest to known/potential contaminant sources for analysis.

If the results of the initial analysis are valid, representative and indicate clean

material, the other cores could be assumed likewise. More specifically, if the sediment with the highest silt and clay fraction reveals no appreciable contamination, then it is likely that relatively coarser, textured samples would reveal similar or less contaminated results. If the results indicated contamination, however, then the other cores could be assumed contaminated or they could be analyzed by the applicant.

ii. Collect the required number of cores and composite those with similar characteristics (e.g., grain size, TOC, color, etc.) for analysis. If this is done, a record of the cores that were composited, including their percentages of total organic carbon and USCS descriptions, as well as the post-compositing analytical results, should be submitted to the Divisions. Do not composite the cores if the grain size, TOC and likelihood of contamination based on core lithology and known contamination history indicates that individual horizons between the cores may be significantly different in contaminant sediment quality. Instead, sample and analyze the horizons separately or contact the Division of Water for guidance.

These strategies may also be used to reduce the number of substrate samples that need to be analyzed to characterize the sediment to be exposed as a result of the dredging operation. Analysis cost may also be reduced, for these samples, by limiting the analytical parameters to those found to be at moderate or high levels of contamination in the dredging interval samples.

d. Quality Assurance and Quality Control. The goal of the sampling strategies is to provide sediment data which are accurate, representative and legally defensible. Therefore, the importance of Quality Assurance/Quality Control (QA/QC) measures in sampling sediments cannot be overlooked. Failure to use proper containers and appropriate methods of sample collection and preservation, collect an adequate number and type of QC samples, provide strict sample identification and chain-of-custody documentation and employ correct laboratory procedures can limit data usability, or render sample results invalid.

The project-specific sampling and analysis plan for each dredging application should include a description of the project QA/QC program. The NYSDEC Analytical Services Protocol (ASP), dated June 2000, provides the in-laboratory QA/QC requirements and should be referenced and adhered to in the project QA/QC program. All data should be reported via ASP Category B deliverables. In-field QA/QC requirements should be specified in the project sampling and analysis plan. These requirements should include, but not necessarily be limited to: sample collection methods; decontamination of sampling equipment; sample container selection; sample preservation methods; number and type of QC samples (i.e., Matrix Spike/Matrix Spike Duplicate [MS/MSD], duplicates, etc.) to be collected; sample identification; and chain-of-custody procedures. General guidelines for these elements of the QA/QC

program are specified in Attachment 1. A glossary of selected QA/QC terminology and qualifiers is also included.

3. Analytical Requirements

Core samples should be analyzed for sediment quality parameters, grain size, TOC, and Unified Soils Classification System (USCS) classification. The required method detection limits and EPA methods are listed in Table 1 below. Method detection limits must be met in order to classify the material to be dredged. The analytical laboratory selected must be certified by the New York State Department of Health.

Table 1
Minimum Quantitation Limits and Suggested Methods

Parameter Sediment/Soil	EPA Method CLP/RCRA	Required Method Detection Limits (mg/kg, ppm)
Arsenic	Metals - EPA 6010B	1.0
Mercury	Metals - EPA 6010B	2
Cadmium	Metals - EPA 6010B	0.5
Lead	Metals - EPA 6010B	5.0
Copper *	Metals - EPA 6010B	2.5
Chlordane *	EPA 8081	.031
Sum of DDT+DDE+DDD	EPA 8081	.029
Dieldrin	EPA 8081	.019
Total PCBs	EPA 8082	.025
Total PAH	EPA 8270	.33
Total BTX	EPA 8020; 8021; 8260	.002
Benzene	EPA 8020; 8021; 8260	.002
Mirex *	EPA 8081	.189
Dioxin (Toxic Equivalency Total) *	EPA 1613B	0.000002

* Case-specific parameter.

ATTACHMENT 1

Sampling Procedures

Core Samples

Sediment cores should be collected using a vibra-coring apparatus, or other appropriate coring apparatus, used in accordance with the manufacturer's instructions. Clean, decontaminated core tube liners must be used. The bottom of the coring tube liner should be immediately capped and taped upon removal of the coring apparatus from the water. The core tube liner should then be removed from the coring apparatus and its top immediately capped and taped.

The core tube liner and boat deck should then be rinsed with ambient water to reduce the risk of contaminated sediments becoming airborne as they dry.

A visual inspection of the sediment cores should then be performed. Individual horizons or strata within each core should be measured along with the overall core length. These measurements and all significant features should be documented in a field notebook along with the date, time, and location of sample collection. Using a permanent marker, the date, time, and sample location should also be recorded on the sediment core tube liner. Photographs of the cores may be taken using color print film.

The sediment core should be broken into two segments: a dredging depth segment and a substrate segment representing the top six inches of sediment to be exposed after dredging. Each segment should be emptied into a clean tub and mixed with a clean spatula made of appropriate material. Generally, sediment to be analyzed for trace metals should not come into contact with metals and sediment to be analyzed for organic compounds should not come into contact with plastics. When the sediment appears mixed to a uniform color and consistency, a clean scoop should be used to place the material into acid washed wide mouth glass jars with Teflon® lined screw lids. After a jar is capped and labeled, it should be immediately placed on ice in a cooler.

All sample containers should be labeled using a permanent marker to indicate the date, time, and sampling location. This information should then be recorded in a field log book and on a chain of custody form which will follow the samples. Sediment material not placed in sample bottles should be returned to the location from which it was collected. All sample bottles should be placed in coolers with ice and delivered to the laboratory.

QC SAMPLES FOR SEDIMENTS			
Sample Type	Purpose	Collection	Documentation
Duplicate	Check laboratory and field procedures	1 sample per week or 10% of all field samples, whichever is greater.	Assign two separate sample numbers; submit blind to the lab
Field Blank	Check cross-contamination during sample collection and shipment and in the laboratory	1 sample per day	Assign separate sample number
Equipment (Rinseate) Blank	Check field decontamination procedures	Collect when sampling equipment is decontaminated and reused in the field.	Assign separate sample number
Matrix Spike and Matrix Spike Duplicate (MS/MSD)*	Required by laboratory protocols.	1 sample per twenty sediment samples	Assign both samples the same sample number. Indicate MS/MSD on chain-of-custody form.

*This is not necessary with PCB congener method or high resolution pesticide method or dioxin/furan analyses.

SAMPLE CONTAINERS AND VOLUMES FOR SEDIMENT SAMPLES

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)
Purgeable (Volatile) Organics	2-oz. glass jar with Teflon-lined cap.	Two; fill completely
Extractable Organics, Dioxin/Furan, Pesticides/PCBs	8-oz. amber glass jar with Teflon-lined cap	One; fill completely
Metals	8-oz. glass jar with Teflon-lined cap	One; fill half full
Cyanide Amenable and Total	8-oz. glass jar with Teflon-lined cap	One; fill completely

SAMPLING, PRESERVATION AND HOLDING TIMES FOR SEDIMENT SAMPLES		
Parameter	Preservation	Holding Time
Volatiles	Cool to 4°C	7 days
PCBs/Pesticides	Cool to 4°C	Extract within 5 days, analyze within 40 days
Extractable organics	Cool to 4°C	Extract within 5 days, analyze within 40 days
Metals	Cool to 4°C	6 months
Mercury	Cool to 4°C	26 days
Cyanide, Amenable, and Total	Cool to 4°C	12 days
Dioxin/Furan	Cool to 4°C	Extract within 30 days, analyze within 1 year

Holding times are based on verified time of sample receipt (VTSR). Source NYSDEC Analytical Services Protocol.

Sediment Data Qualifiers

Qualifiers for Organics Analyses

- Value** If the result is a value greater than or equal to the quantification limit, report the value.
- U** Indicates compound was analyzed for, but not detected.
- J** Indicates an estimated value.
- N** Indicates presumptive evidence of a compound.
- P** This flag is used for a pesticide/Aroclor target analyte where there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- C** This flag applies to pesticide results where the identification has been confirmed by GC/MS.
- B** This flag is used when the analyte is found in the associated blank as well as in the sample.
- E** This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
- D** This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

Qualifiers for Metals Analyses

- B** The reported value is less than the Contract Required Detection Limit but greater than the Instrument Detection Limit.
- U** The Analyte was analyzed for but not detected, i.e., less than the Instrument Detection Limit.
- E** The reported value is estimated because of the presence of an interference.

Glossary of Selected QA/QC Terms
(source: NYSDEC ASP, 10/95)

Analytical Services Protocol (ASP) - the collection of analytical methods and corresponding reporting and quality control procedures that has been adopted by the Divisions.

Contract Required Quantitation Limit (CRQL) - minimum level of quantitation acceptable under the ASP.

Equipment Rinseate - a sample of analyte-free media which has been used to rinse the sampling equipment. It is collected after completion of decontamination and prior to sampling. This plank is useful in documenting adequate decontamination of sampling equipment.

Field Blank - any sample submitted to the laboratory identified as a blank prepared in the field. The purpose of the field blank is to document whether or not there was contamination introduced in the collection of the sample.

Field Duplicates - an additional sample taken from the same homogenized sample and set to the analytical laboratory for identical analysis.

Holding Time - the elapsed time, expressed in days, from the date of receipt of the sample by the laboratory until the date of its preparation (digestion, distillation or extraction) and/or analysis.

Matrix - the predominant material, component, or substrate (e.g., sediment) of which the sample to be analyzed is composed. Matrix is not synonymous with phase (liquid or solid).

Matrix Spike (MS) - aliquot of a sample fortified (spiked) with known quantities of specific compounds (target analytes) and subjected to the entire analytical procedure in order to indicate the appropriateness of the method for the matrix by measuring recovery. The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Matrix Spike Duplicate (MSD) - a second aliquot of the same matrix as the MS that is spiked with identical concentrations of target analytes as the MS, in order to document the precision and bias of the method in a given sample matrix.

Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

Minimum Quantitation Limit - the minimum level that an analyte can be quantitated within a specified precision.

Percent Moisture - an approximation of the amount of water in a sediment sample made by drying an aliquot of the sample at 105 °C. The percent moisture determined in this manner also includes contributions from all compounds that may volatilize at or

below 105 °C, including water. Percent moisture may be determined from decanted samples and from samples that are not decanted.

Practical Quantitation Limit (PQL) - is the lowest level that can be measured within specified limits of precision during routine laboratory operations on most effluent matrices.

Project - single or multiple data collection activities that are related through the same planning sequence.

Replicate - independent samples which are collected as close as possible to the sample point in space and time. They are two separate samples taken from the same source, stored in separate containers, and analyzed independently at the same laboratory. These replicates are used to characterize sediment heterogeneity.

Semivolatile Compounds - compounds amenable to analysis by extraction of the sample with an organic solvent. Used synonymously with Base/Neutral Acid (BNA) compounds.

Tentatively Identified Compounds (TICs) - compounds detected in samples that are not target compounds, internal standards or surrogate standards. Up to 30 peaks (those greater than 10% of peak areas or heights of nearest internal standards) are subjected to mass spectral library searches for tentative identification.

Time - when required to record time on any deliverable item, time shall be expressed as Military Time, i.e., a 24-hour clock.

Trip Blank - a sample of analyte-free media taken from the laboratory to the sampling site and returned to the laboratory unopened. A trip blank is used to document contamination attributable to shipping and field handling procedures.

Validated Time of Sample Receipt (VTSR) - the date on which a sample is received at the laboratory facility, as recorded on the shipper's delivery receipt and chain of custody.

Volatile Compounds - compounds amenable to analysis by the purge and trap technique. Used synonymously with purgeable compounds.

Wet Weight - the weight of a sample aliquot including moisture (undried).