

Volume I

PROJECT REPORT Chemical Testing of Dredged Fill Material from Euclid Creek Estuary

Prepared for:

U.S. Army Corps of Engineers
Buffalo District
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1.0 Introduction

Under the provisions of contract No. DACW49-00-D-0004, Engineering and Environment, Inc. (EEI) provided the U.S. Army Corps of Engineers, Buffalo District (LRB) with technical and analytical capabilities to perform chemical and physical testing for the samples collected from a one acre oxbow area on the lower end of Euclid Creek. This area had been filled with dredged material from Wildwood Harbor. The Chemical and Physical testing was performed as per guidance provided in the LRB Project Scope of Work. The Buffalo District Project Manager is Mr. Douglas Gorecki.

2.0 Field Work

2.1 Sample Collection, Handling, Containerization, Packaging and Shipment

All sample collection, handling, containerization, packaging and shipment was performed by Buffalo District (LRB). Sample collection, handling, packaging and Chain of Custody (CoC) documentation were performed as per internal LRB Standard Operating Procedures based on COE/EPA and OEPA guidance. A total of 12 samples were collected. Three samples were collected at each of the four sampling locations. Sufficient sample volume was collected as per testing requirements. Samples were collected at various depth intervals: 0-1 ft.; 2-3 ft and 4-5 ft.. A decontaminated hand auger was used for collection of the samples. A special sampling kit was used for collection of samples designated for organic volatile (VOA) components. The purpose of the solid matrix VOA sampling kit is to minimize analyte loss due to various degradative processes, i.e. evaporation. Except for samples collected in special VOA sample collection kits, all samples were homogenized in the field. Sample collection and homogenization procedures were performed in an effort to minimize cross-contamination, i.e. change of nitrile gloves between sampling points, stainless steel bowls, mixing spoons and transfer of sample material into new pre-cleaned and lot chemically analyzed COE/EPA recommended containerization. Packaging included zip-loc bagging, bubble wrapping of sample containers, organized placement of containers in coolers and buffering with packaging material, i.e. bubble wrap. A chain of custody was completed and relinquished to an overnight carrier, bagged natural ice was placed on top of the cooler contents. The samples were pre-chilled prior to cooler packaging. The coolers were shipped via overnight carrier to the appropriate laboratories. All coolers were received at the laboratories under custody. Laboratory cooler receipt forms did not indicated any cooler or sample containerization anomalies.

3.0 Sampling Locations and Samples Collected

(See Appendix B, Field Notes Summary Table)

4.0 Chemical Testing

4.1 Laboratory Qualifications

- The Chemistry Lab met requirements outlined in section 1, paragraph 4 of the LRB project scope of work as follows:
- All laboratories conducting analytical work shall be in compliance with the most recent version of the Department of Defense Quality Systems Manual (DOD QSM).
- Since the DOD QSM incorporates requirements of the National Environmental Laboratory Accreditation Conference (NELAC) standard, Chapter 5 compliance will also be a component of this. NELAP (National Environmental Laboratory Accreditation Program) accreditation for appropriate fields-of-testing to verify laboratory compliance with the NELAC standard.
- A signed copy of the laboratory's Self Declaration Form and all supporting documentation should be submitted to the Buffalo District chemist prior to any sample analyses.
- The Physical Lab is COE certified for various geotechnical testing procedures.

4.2 Chemistry

All coolers and containers arrived at the lab under custody, preserved (chemical and temperature per COE/EPA requirements) and in good condition.

All inorganic (metallic and non-metallic) and organic chemistry preparative and determinative analytical procedures were performed at General Engineering Labs (GEL), Charleston, South Carolina except as noted below. All results are corrected for moisture content (dry weight basis) and reported to the laboratory statistically determined method detection limits (MDLs). All procedures are currently the "Best Available Technology" for routine environmental analytical determinations. All laboratory performance based method SOPs are derived from the most recent version of EPA SW-846 methods unless otherwise noted below. Appendix A presents sample analytical results in summary table format.

4.2.1 Soil Testing

4.2.1.1 Semi-Volatile Organic Compounds (SVOA)

Twelve investigative samples were analyzed following EPA analytical method 8270C protocol for sixty-five analytes included on the EPA CLP Target Compound List (TCL). SVOCs have boiling points >200 C. The TCL analytes are extracted from soil by preparative EPA SW-846 method 3550C (ultra-sonic extraction) under acidic and base/neutral conditions. The acid extractable compounds consist of the phenolic alcohols (phenols). The Base/Neutral extractable compound classes are: PAHs; phtalates; esters; anilines; ethers; and chlorinated aromatics

(benzenes). This instrumental analytical technique uses Gas Chromatography for separation of analytes and a Mass Spectrometer as the detector (GC/MS).

4.2.1.2 Volatiles (VOA)

Twelve investigative samples were analyzed following EPA analytical method 8260B, for 33 VOA analytes are included in the EPA CLP TCL. Analytes were diffused from the soil matrix via purge and trap methodology. A special auto-sampler is used to accommodate the VOA special soil sample collection kit. EPA method 8260B is a GC/MS instrumental definitive testing procedure. The TCL consists of 33 VOA compounds. There are 8 aromatic volatile compounds, i.e. Benzene, Ethylbenzene, Toluene, o-xylene, m-xylene, p-xylene, 1,2-Dichloroethane (DCE), 1,1,1-Trichloroethane (TCA), Tetrachloroethene (PCE), Trichloroethene (TCE), 1,1,2-Trichloroethane (TCA).

4.2.1.3 Pesticides (pest)

Twelve investigative samples were analyzed by EPA method 8081A protocol calibrated to quantify the standard Target Compound List (TCL) chlorinated pesticide analytes. This is a GC/Electron Capture Detector (ECD) determination. Sediment sample material was extracted via EPA 3550B. The extracts are then cleaned-up utilizing various impurity exclusion techniques. Currently, this procedure is performed independently from the PCB determination, EPA 8082.

4.2.1.4 PCBs

Twelve investigative sample determinations by EPA 8082 protocol calibrated to detect the seven standard TCL PCB mixtures referred to as aroclors (chlorinated aromatics). The method is similar to the 8081A pesticide determination except for a sulphuric acid clean-up that is performed. This clean-up removes any impurities (substances that may cause analytical interference), including pesticides.

4.2.1.5 Metals

Twelve investigative and two field duplicate determinations for EPA Target Analyte List (TAL) metals. The TAL is composed of 21 metals plus mercury. Mercury is analyzed independently. Some of the metals on the TAL list may be toxic to humans and/or pose a potential threat to the environment. Results for the 22 metals are generated simultaneously. In an effort to meet LRB

sensitivity requirements samples are initially screened by Inductively Coupled Argon Plasma (ICAP), emission spectroscopy. Method EPA 6010. This method incorporates a series of element specific photo-multiplier (PM) tubes. PM tubes measure metallic emission intensity for the 21 metals. The initial results are reviewed for client sensitivity requirements and if necessary, samples containing non-positive hit analytes, not meeting client sensitivity requirements are reanalyzed by ICP/MS Method EPA 6020. This method is at least one order of magnitude more sensitive than 6010.

4.2.1.6 Mercury

Twelve investigative samples were analyzed for mercury. This method determines both inorganic and organic forms of mercury. Mercury is included as one of the 23 TAL metals. The samples are prepared for analysis by EPA Method 3050B. This is a hot nitric acid digestion technique. Subsequent analysis for mercury is performed relative to EPA Method 7471A guidance. This is a cold vapor Atomic Absorption Spectroscopy (AAS) analytical technique.

4.2.1.7 Cyanide

Twelve investigative samples were analyzed for total cyanide. Total cyanide is determined by EPA Method 9012B. This method detects inorganic cyanides that are present as either soluble salts or complexes. It is used to determine values for both total and cyanide amenable to chlorination. "Reactive" cyanide is not determined by this method. "Reactive" cyanide is determined by a RCRA characteristic test. This test may be required for material disposal purposes.

References

U.S. Army Corps of Engineers, Requirements for the Preparation of Sampling and Analysis Plans, EM200-1-3, February 2001.

USEPA, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, with current updates.

Appendix A

Soil Chemistry Results Summary (EEI) Tables

EUCLID CREEK
(SEMI-VOLATILES [PAGE 1 OF 4])
SEDIMENTS
SEPTEMBER 2007

Semi-Volatiles-ug/L (ppb)	EC-1 0-1	EC-1 2-3	EC-1 4-5	Semi-Volatiles-ug/L (ppb)	EC-1 0-1	EC-1 2-3	EC-1 4-5	Semi-Volatiles-ug/L (ppb)	EC-1 0-1	EC-1 2-3	EC-1 4-5
N-Methyl-N-nitrosomethylamine	83.8 U	81.6 U	79.6 U	2,4-Dimethylphenol	83.8 U	81.6 U	79.6 U	Diphenylamine	83.8 U	81.6 U	79.6 U
Phenol	83.8 U	81.6 U	79.6 U	bis (2-Chloroethoxy) methane	83.8 U	81.6 U	79.6 U	1,2-Diphenylhydrazine	83.8 U	81.6 U	79.6 U
2-Chlorophenol	83.8 U	81.6 U	79.6 U	2,4-Dichlorophenol	83.8 U	81.6 U	79.6 U	Tributylphosphate	83.8 U	81.6 U	79.6 U
1,4-Dichlorobenzene	83.8 U	81.6 U	79.6 U	Benzoic acid	210 U	204 U	199 U	4-Bromophenylphenylether	41.9 U	40.8 U	39.8 U
N-Nitrosodipropylamine	83.8 U	81.6 U	79.6 U	Naphthalene	37.0 J	23.4 J	11.9 U	Hexachlorobenzene	83.8 U	81.6 U	79.6 U
4-Chloro-3methylamine	41.9 U	40.8 U	39.8 U	4-Chloroaniline	83.8 U	81.6 U	79.6 U	Phenanthrene	764	193	26.3 J
Acenaphthylene	38.4 J	13.6 U	13.3 U	Hexachlorobutadiene	83.8 U	81.6 U	79.6 U	Anthracene	154	38.6	7.96 U
2,4-Dinitrotoluene	41.9 U	40.8 U	39.0 U	2-Methylnaphthalene	46.5	40.5 J	15.4 J	Di-n-butylphthalate	41.9 U	40.8 U	39.8 U
4-Nitrophenol	83.8 U	81.6 U	8.0 U	1-Methylnaphthalene	44.6	32.5 J	13.9 J	Fluoranthene	1620	391	37.9 J
Pentachlorophenol	83.8 U	81.6 U	79.6 U	Hexachlorocyclopentadiene	83.8 U	81.6 U	79.6 U	Benzidine	419 U	408 U	398 U
Pyrene	1210	302.0	79.6 J	2,4,6-Trichlorophenol	83.8 U	81.6 U	79.6 U	Butylbenzylphthalate	418 J	81.6 U	79.6 U
Pyridine	83.8 U	81.6 U	79.6 U	2,4,5-Trichlorophenol	83.8 U	81.6 U	79.6 U	Benzo(a)anthracene	712	193	32.4 J
Aniline	147 U	143.0 U	139 U	2-Chloronaphthalene	14.7 U	14.3 U	13.9 U	3,3'-Dichlorobenzidine	126 U	122 U	119 U
bis (2-Chloroethyl) ether	83.8 U	81.6 U	79.6 U	o-Nitroaniline	83.8 U	81.6 U	79.6 U	Chrysene	735	185	19.0 J
1,3-Dichlorobenzene	83.8 U	81.6 U	79.6 U	m-Nitroaniline	83.8 U	81.6 U	79.6 U	bis (2-Ethylhexyl) phthalate	168 J	81.6 U	79.6 U
Benzyl alcohol	126 U	122 U	119 U	Dimethylphthalate	83.8 U	81.6 U	79.6 U	Di-n-octylphthalate	83.8 U	81.6 U	79.6 U
1,2-Dichlorobenzene	83.8 U	81.6 U	79.6 U	2,6-Dinitrotoluene	41.9 U	40.8 U	39.8 U	Benzo(b)fluoranthene	1020	351	45.9
bis (2-Chloroisopropyl) ether	83.8 U	81.6 U	79.6 U	Acenaphthylene	21.0 J	12.2 U	11.9 U	Benzo(k)fluoranthene	481	12.2 U	11.9 U
o-Cresol	83.8 U	81.6 U	79.6 U	2,4-Dinitrophenol	159 U	155 U	151 U	Benzo(a)pyrene	753	186	16.5 J
Acetophenone	41.9 U	40.8 U	39.8 U	Dibenzofuran	83.8 U	81.6 U	79.6 U	Indeno (1,2,3-cd) pyrene	375	116	53.0
m,p-Cresols	168 U	163 U	159 U	Diethylphthalate	83.8 U	81.6 U	79.6 U	Dibenzo(a,h)anthracene	162	12.2 U	11.9 U
Hexachloroethane	83.8 U	81.6 U	79.6 U	Fluorene	50.0	19.4 J	11.9 U	Benzo(g,h,i)perylene	397	93.6	12.6 J
Nitrobenzene	83.8 U	81.6 U	79.6 U	4-Chlorophenylphenylether	41.9 U	40.8 U	39.8 U	Carbazole	107	25.7 J	11.9 U
Isophorone	83.8 U	81.6 U	79.6 U	2-Methyl-4,6-dinitrophenol	83.8 U	81.7 U	79.6 U	1,2,4-Trichlorobenzene	83.8 U	81.6 U	79.6 U
2-Nitrophenol	41.9 U	40.8 U	39.8 U	p-Nitroaniline	83.8 U	81.6 U	79.6 U				

Note: Positive detections are presented in bold.

U = Indicates that the compound was analyzed for but not detected at or above the reporting limit.

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EUCLID CREEK
(SEMI-VOLATILES {PAGE 2 OF 4})
SEDIMENTS
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Semi-Volatiles-ug/L (ppb)	EC-2 0-1	EC-2 2-3	EC-2 4-5	Semi-Volatiles-ug/L (ppb)	EC-2 0-1	EC-2 2-3	EC-2 4-5	Semi-Volatiles-ug/L (ppb)	EC-2 0-1	EC-2 2-3	EC-2 4-5
N-Methyl-N-nitrosomethylamine	83.9 U	80.4 U	79.6 U	2,4-Dimethylphenol	83.9 U	80.4 U	79.6 U	Diphenylamine	83.9 U	80.4 U	79.6 U
Phenol	83.9 U	80.4 U	79.6 U	bis (2-Chloroethoxy) methane	83.9 U	80.4 U	79.6 U	1,2-Diphenylhydrazine	83.9 U	80.4 U	79.6 U
2-Chlorophenol	83.9 U	80.4 U	79.6 U	2,4-Dichlorophenol	83.9 U	80.4 U	79.6 U	Tributylphosphate	83.9 U	80.4 U	79.6 U
1,4-Dichlorobenzene	83.9 U	80.4 U	79.6 U	Benzoic acid	210.0 U	201 U	199.0 U	4-Bromophenylphenylether	42.0 U	40.2 U	39.8 U
N-Nitrosodipropylamine	83.9 U	80.4 U	79.6 U	Naphthalene	51.5	40.9	11.9 U	Hexachlorobenzene	83.9 U	80.4 U	79.6 U
4-Chloro-3methylamine	42.0 U	40.2 U	39.8 U	4-Chloroaniline	83.9 U	80.4 U	79.6 U	Phenanthrene	1130	581	14.0 J
Acenaphthene	77.4	24.6 J	13.3 U	Hexachlorobutadiene	83.9 U	80.4 U	79.6 U	Anthracene	223	95.1	7.96 U
2,4-Dinitrotoluene	42.0 U	40.2 U	39.8 U	2-Methylnaphthalene	53.1	48.0	79.6 U	Di-n-butylphthalate	42.0 U	51.1 J	39.8 U
4-Nitrophenol	83.9 U	80.4 U	79.6 U	1-Methylnaphthalene	43.9	43.7	11.9 U	Fluoranthene	2160	1010	20.0 J
Pentachlorophenol	83.9 U	80.4 U	79.6 U	Hexachlorocyclopentadiene	83.9 U	80.4 U	79.6 U	Benzydine	420 U	402 U	398 U
Pyrene	1680	903	15.0 J	2,4,6-Trichlorophenol	83.9 U	80.4 U	79.6 U	Butylbenzylphthalate	401 J	226 J	79.6 U
Pyridine	83.9 U	80.4 U	79.6 U	2,4,5-Trichlorophenol	83.9 U	80.4 U	79.6 U	Benzo(a)anthracene	838	428	16.9 J
Aniline	147 U	141 U	139 U	2-Chloronaphthalene	14.7 U	14.1 U	13.9 U	3,3'-Dichlorobenzidine	126 U	121 U	119 U
bis (2-Chloroethyl) ether	83.9 U	80.4 U	79.6 U	o-Nitroaniline	83.9 U	80.4 U	79.6 U	Chrysene	854	469	13.2 J
1,3-Dichlorobenzene	83.9 U	80.4 U	79.6 U	m-Nitroaniline	83.9 U	80.4 U	79.6 U	bis (2-Ethylhexyl) phthalate	248	201 J	79.6 U
Benzyl alcohol	126 U	121 U	119 U	Dimethylphthalate	83.9 U	80.4 U	79.6 U	Di-n-octylphthalate	83.9 U	80.4 U	79.6 U
1,2-Dichlorobenzene	83.9 U	80.4 U	79.6 U	2,6-Dinitrotoluene	42.0 U	40.2 U	39.8 U	Benzo(b)fluoranthene	1310	947	26.3 J
bis (2-Chloroisopropyl) ether	83.9 U	80.4 U	79.6 U	Acenaphthylene	21.9 J	24.1 J	11.9 U	Benzo(k)fluoranthene	638	12.1 U	11.9 U
o-Cresol	83.9 U	80.4 U	79.6 U	2,4-Dinitrophenol	159 U	153 U	151.0 U	Benzo(a)pyrene	890	487	11.9 U
Acetophenone	42.0 U	40.2 U	39.8 U	Dibenzofuran	83.9 U	80.4 U	79.6 U	Indeno (1,2,3-cd) pyrene	375	222	11.9 U
m,p-Cresols	168 U	161 U	159 U	Diethylphthalate	83.9 U	80.4 U	79.6 U	Dibenzo(a,h)anthracene	153	12.1 U	11.9 U
Hexachloroethane	83.9 U	80.4 U	79.6 U	Fluorene	104	45.6	11.9 U	Benzo(g,h,i)perylene	347	230	11.9 U
Nitrobenzene	83.9 U	80.4 U	79.6 U	4-Chlorophenylphenylether	42.0 U	40.2 U	39.8 U	Carbazole	172	83.8	11.9 U
Isophorone	83.9 U	80.4 U	79.6 U	2-Methyl-4,6-dinitrophenol	83.9 U	80.4 U	79.6 U	1,2,4-Trichlorobenzene	83.9 U	80.4 U	79.6 U
2-Nitrophenol	42.0 U	40.2 U	39.8 U	p-Nitroaniline	83.9 U	80.4 U	79.6 U				

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SEPTEMBER 2007

Semi-Volatiles-ug/L (ppb)	EC-3 0-1	EC-3 2-3	EC-3 4-5	Semi-Volatiles-ug/L (ppb)	EC-3 0-1	EC-3 2-3	EC-3 4-5	Semi-Volatiles-ug/L (ppb)	EC-3 0-1	EC-3 2-3	EC-3 4-5
N-Methyl-N-nitrosomethylamine	79.5 U	77.4 U	83.5 U	2,4-Dimethylphenol	79.5 U	77.4 U	83.5 U	Diphenylamine	79.5 U	77.4 U	83.5 U
Phenol	79.5 U	77.4 U	83.8 U	bis (2-Chloroethoxy) methane	79.5 U	77.4 U	83.5 U	1,2-Diphenylhydrazine	79.5 U	77.4 U	83.5 U
2-Chlorophenol	79.5 U	77.4 U	83.5 U	2,4-Dichlorophenol	79.5 U	77.4 U	83.5 U	Tributylphosphate	79.5 U	77.4 U	83.5 U
1,4-Dichlorobenzene	79.5 U	77.4 U	83.5 U	Benzoic acid	199 U	193 U	209.0 U	4-Bromophenylphenylether	39.7 U	38.7 U	41.8 U
N-Nitrosodipropylamine	79.5 U	77.4 U	83.5 U	Naphthalene	77.7	20.7 J	12.5 U	Hexachlorobenzene	79.5 U	77.4 U	83.5 U
4-Chloro-3methylamine	39.7 U	38.7 U	41.8 U	4-Chloroaniline	79.5 U	77.4 U	83.5 U	Phenanthrene	573	48.9	12.5 U
Acenaphthene	44.9	12.9 U	13.9 U	Hexachlorobutadiene	79.5 U	77.4 U	83.5 U	Anthracene	125	8.4 J	8.35 U
2,4-Dinitrotoluene	39.7 U	38.7 U	41.8 U	2-Methylnaphthalene	109	31.5 J	8.35 U	Di-n-butylphthalate	39.7 U	38.7 U	41.8 U
4-Nitrophenol	79.5 U	77.4 U	83.5 U	1-Methylnaphthalene	85.3	25.2 J	41.8 U	Fluoranthene	1230	89.2	20.1 J
Pentachlorophenol	79.5 U	77.4 U	83.5 U	Hexachlorocyclopentadiene	79.5 U	77.4 U	83.5 U	Benidine	397 U	387 U	418 U
Pyrene	1010	88.9	19.7 J	2,4,6-Trichlorophenol	79.5 U	77.4 U	83.5 U	Butylbenzylphthalate	564	77.4 U	83.5 U
Pyridine	79.5 U	77.4 U	83.5 U	2,4,5-Trichlorophenol	79.5 U	77.4 U	83.5 U	Benzo(a)anthracene	571	48.9	17.7 J
Aniline	139 U	135 U	146 U	2-Chloronaphthalene	13.9 U	13.5 U	14.6 U	3,3'-Dichlorobenzidine	119 U	116 U	125 U
bis (2-Chloroethyl) ether	79.5 U	77.4 U	83.5 U	o-Nitroaniline	79.5 U	77.4 U	83.5 U	Chrysene	618	69.1	12.7 J
1,3-Dichlorobenzene	79.5 U	77.4 U	83.5 U	m-Nitroaniline	79.5 U	77.4 U	83.5 U	bis (2-Ethylhexyl) phthalate	121 J	77.4 U	83.5 U
Benzyl alcohol	119 U	116 U	125 U	Dimethylphthalate	79.5 U	77.4 U	83.5 U	Di-n-octylphthalate	79.5 U	77.4 U	83.5 U
1,2-Dichlorobenzene	79.5 U	77.4 U	83.5 U	2,6-Dinitrotoluene	39.7 U	38.7 U	41.8 U	Benzo(b)fluoranthene	1050	87.9	26.3 J
bis (2-Chloroisopropyl) ether	79.5 U	77.4 U	83.5 U	Acenaphthylene	29.0 J	11.6 U	12.5 U	Benzo(k)fluoranthene	11.9 U	11.6 U	12.5 U
o-Cresol	79.5 U	77.4 U	83.5 U	2,4-Dinitrophenol	151 U	147 U	159.0 U	Benzo(a)pyrene	595	56.7	15.8 J
Acetophenone	39.7 U	38.7 U	41.8 U	Dibenzofuran	79.5 U	77.4 U	83.5 U	Indeno (1,2,3-cd) pyrene	262	67.8	12.5 U
m,p-Cresols	159 U	155 U	167 U	Diethylphthalate	79.5 U	77.4 U	83.5 U	Dibenzo(a,h)anthracene	11.9 U	11.6 U	12.5 U
Hexachloroethane	79.5 U	77.4 U	83.5 U	Fluorene	56.5	11.6 U	12.5 U	Benzo(g,h,i)perylene	241	34.7 J	12.5 U
Nitrobenzene	79.5 U	77.4 U	83.5 U	4-Chlorophenylphenylether	39.7 U	38.7 U	41.8 U	Carbazole	91.7	11.6 U	12.5 U
Isophorone	79.5 U	77.4 U	83.5 U	2-Methyl-4,6-dinitrophenol	79.5 U	77.4 U	83.5 U	1,2,4-Trichlorobenzene	79.5 U	77.4 U	418 U
2-Nitrophenol	39.7 U	38.7 U	41.8 U	p-Nitroaniline	79.5 U	77.4 U	83.5 U				

Note: Positive detections are presented in bold.

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SEPTEMBER 2007

Semi-Volatiles-ug/L (ppb)	EC-4 0-1	EC-4 2-3	EC-4 4.5	Semi-Volatiles-ug/L (ppb)	EC-4 0-1	EC-4 2-3	EC-4 4.5	Semi-Volatiles-ug/L (ppb)	EC-4 0-1	EC-4 2-3	EC-4 4.5
N-Methyl-N-nitrosomethylamine	82.7 U	79.7 U	82.0 U	2,4-Dimethylphenol	82.7 U	79.7 U	82.0 U	Diphenylamine	82.7 U	79.7 U	82.0 U
Phenol	82.7 U	79.7 U	82.0 U	bis (2-Chloroethoxy) methane	82.7 U	79.7 U	82.0 U	1,2-Diphenylhydrazine	82.7 U	79.7 U	82.0 U
2-Chlorophenol	82.7 U	79.7 U	82.0 U	2,4-Dichlorophenol	82.7 U	79.7 U	82.0 U	Tributylphosphate	82.7 U	79.7 U	82.0 U
1,4-Dichlorobenzene	82.7 U	79.7 U	82.0 U	Benzoic acid	207 U	199.0 U	205 U	4-Bromophenylphenylether	41.4 U	39.9 U	41.0 U
N-Nitrosodipropylamine	82.7 U	79.7 U	82.0 U	Naphthalene	38.8 J	12.0 U	12.3 U	Hexachlorobenzene	82.7 U	79.7 U	82.0 U
4-Chloro-3methylamine	41.8 U	39.9 U	41.0 U	4-Chloroaniline	82.7 U	79.7 U	82.0 U	Phenanthrene	672	32.0 J	12.3 U
Acenaphthene	49.4	13.3 U	13.7 U	Hexachlorobutadiene	82.7 U	79.7 U	82.0 U	Anthracene	183	7.97 U	8.20 U
2,4-Dinitrotoluene	41.4 U	39.9 U	41.0 U	2-Methylnaphthalene	40.0 J	79.7 J	8.20 U	Di-n-butylphthalate	41.4 U	39.9 U	41.0 U
4-Nitrophenol	82.7 U	79.7 U	82.0 U	1-Methylnaphthalene	36.9 J	14.0 J	41.0 U	Fluoranthene	1300	53.4	12.3 U
Pentachlorophenol	82.7 U	79.7 U	82.0 U	Hexachlorocyclopentadiene	82.7 U	79.7 U	82.0 U	Benzidine	414 U	399 U	410 U
Pyrene	875	46.1	12.9 U	2,4,6-Trichlorophenol	82.7 U	79.7 U	82.0 U	Butylbenzylphthalate	407 J	79.7 U	82.0 U
Pyridine	82.7 U	79.7 U	82.0 U	2,4,5-Trichlorophenol	82.7 U	79.7 U	82.0 U	Benzo(a)anthracene	518	29.2 J	12.3 U
Aniline	145 U	140 U	143 U	2-Chloronaphthalene	14.5 U	14.0 U	14.3 U	3,3'-Dichlorobenzidine	124 U	120 U	123 U
bis (2-Chloroethyl) ether	82.7 U	79.7 U	82.0 U	o-Nitroaniline	82.7 U	79.7 U	82.0 U	Chrysene	580	37.3 J	12.3 U
1,3-Dichlorobenzene	82.7 U	79.7 U	82.0 U	m-Nitroaniline	82.7 U	79.7 U	82.0 U	bis (2-Ethylhexyl) phthalate	127 J	79.7 U	82.0 U
Benzyl alcohol	124 U	120 U	123 U	Dimethylphthalate	82.7 U	79.7 U	82.0 U	Di-n-octylphthalate	82.7 U	79.7 U	82.0 U
1,2-Dichlorobenzene	82.7 U	79.7 U	82.0 U	2,6-Dinitrotoluene	41.4 U	39.9 U	41.0 U	Benzo(b)fluoranthene	763	49.7	12.3 U
bis (2-Chloroisopropyl) ether	82.7 U	79.7 U	82.0 U	Acenaphthylene	12.9 J	12.0 U	12.3 U	Benzo(k)fluoranthene	12.4 U	23.0 J	12.3 U
o-Cresol	82.7 U	79.7 U	82.0 U	2,4-Dinitrophenol	157 U	152 U	156 U	Benzo(a)pyrene	537	31.0 J	12.3 U
Acetophenone	41.4 U	39.9 U	41.0 U	Dibenzofuran	82.7 U	79.7 U	82.0 U	Indeno (1,2,3-cd) pyrene	230	12.0 U	12.3 U
m,p-Cresols	165 U	159 U	164 U	Diethylphthalate	82.7 U	79.7 U	82.0 U	Dibenzo(a,h)anthracene	12.4 U	12.0 U	12.3 U
Hexachloroethane	82.7 U	79.7 U	82.0 U	Fluorene	73.2	12.0 U	12.3 U	Benzo(g,h,i)perylene	198	12.0 U	12.3 U
Nitrobenzene	82.7 U	79.7 U	82.0 U	4-Chlorophenylphenylether	41.4 U	39.9 U	41.0 U	Carbazole	91.2	12.0 U	12.3 U
Isophorone	82.7 U	79.7 U	82.0 U	2-Methyl-4,6-dinitrophenol	82.7 U	79.7 U	82.0 U	1,2,4-Trichlorobenzene	82.7 U	79.7 U	82.0 U
2-Nitrophenol	41.4 U	39.9 U	41.0 U	p-Nitroaniline	82.7 U	79.7 U	82.0 U				

Note: Positive detections are presented in bold.

U = Indicates that the compound was analyzed for but not detected at or above the reporting limit.

J = This is an estimated value and should be considered a minimum concentration.

EUCLID CREEK
(VOLATILES [PAGE 1 OF 4])
SEDIMENT
SEPTEMBER 2007

Volatiles-ug/L (ppb)	EC-1 0-1	EC-1 2-3	EC-1 4-5	Volatiles-ug/L (ppb)	EC-1 0-1	EC-1 2-3	EC-1 4-5	Volatiles-ug/L (ppb)	EC-1 0-1	EC-1 2-3	EC-1 4-5	Volatiles-ug/L (ppb)	EC-4 0-1	EC-4 2-3	EC-4 4.5
Dichloroifluoromethane	0.523 U	0.481 U	0.654 U	Cyclohexane	0.314 U	0.288 U	0.392 U	m,p-Xylene	0.261 U	0.240 U	0.327 U	Trichlorotrifluoroethane	1.05 U	0.692 U	1.31 U
Chloromethane	0.523 U	0.481 U	0.654 U	1,1-Dichloropropene	0.261 U	0.240 U	0.327 U	o-Xylene	0.209 U	0.192 U	0.261 U	Allyl chloride	2.09 U	1.92 U	2.61 U
Vinyl chloride	0.523 U	0.481 U	0.654 U	n-Butyl alcohol	28.2 U	26.0 U	35.3 U	Styrene	1.20	1.64	2.10	Acrylonitrile	1.05 U	0.962 U	1.31 U
Bromomethane	0.523 U	0.481 U	0.654 U	Carbon tetrachloride	0.209 U	0.192 U	0.261 U	Bromoform	0.314 U	0.288 U	0.392 U	2-Chloro-1,3-butadiene	0.314 U	0.288 U	0.392 U
Chloroethane	0.523 U	0.481 U	0.654 U	1,2-Dichloroethane	0.261 U	0.240 U	0.327 U	1,1,2,2-Tetrachloroethane	0.261 U	0.240 U	0.327 U	Propionitrile	1.05 U	0.962 U	1.31 U
Trichloroifluoromethane	0.523 U	0.481 U	0.654 U	Benzene	0.345 U	0.317 U	0.431 U	1,2,3-Trichloropropane	0.523 U	0.481 U	0.654 U	Methacrylonitrile	0.732 U	0.673 U	0.915 U
Ethyl ether	0.261 U	0.240 U	0.327 U	Trichloroethylene	0.261 U	0.240 U	0.327 U	Bromobenzene	0.209 U	0.192 U	0.261 U	Isobutyl alcohol	10.5 U	9.62 U	13.1 U
Acetone	2.70 U	2.48 U	3.37 U	1,2-Dichloropropane	0.314 U	0.288 U	0.392 U	n-Propylbenzene	0.209 U	0.192 U	0.261 U	Methyl methacrylate	1.05 U	0.962 U	1.31 U
Acetonitrile	9.52 U	8.76 U	11.9 U	Methylcyclohexane	0.314 U	0.288 U	0.392 U	2-Chlorotoluene	0.209 U	0.192 U	0.261 U	Ethyl methacrylate	0.523 U	0.481 U	0.654 U
1,1-Dichloroethylene	0.314 U	0.288 U	0.392 U	Bromodichloromethane	0.209 U	0.192 U	0.261 U	Isopropylbenzene	0.209 U	0.192 U	0.261 U	2-Nitropropane	0.941 U	0.865 U	1.18 U
Methyl acetate	1.75 U	1.61 U	2.18 U	Dibromomethane	0.314 U	0.288 U	0.392 U	1,3,5-Trimethylbenzene	0.209 U	0.192 U	0.261 U	Cyclohexanone	15.7 U	14.4 U	19.6 U
Iodomethane	1.75 U	1.61 U	2.18 U	2-Chloroethylvinyl ether	1.31 U	1.20 U	1.63 U	4-Chlorotoluene	0.251 U	0.231 U	0.314 U	cis-1,4-Dichloro-2-butene	0.523 U	0.481 U	0.654 U
Methylene chloride	2.09 U	1.92 U	4.33 J	4-Methyl-2-pentanone	1.14 U	1.05 U	1.42 U	tert-Butylbenzene	0.209 U	0.192 U	0.261 U	trans-1,4-Dichloro-2-butene	0.523 U	0.481 U	0.654 U
Carbon disulfide	1.31 U	1.20 U	1.63 U	cis-1,3-Dichloropropylene	0.209 U	0.192 U	0.261 U	1,2,4-Trimethylbenzene	0.209 U	0.192 U	0.261 U	Pentachloroethane	1.57 U	1.44 U	1.96 U
tert-Butyl methyl ether	0.209 U	0.221	0.273 J	Toluene	0.303 U	0.279 U	0.379 U	sec-Butylbenzene	0.209 U	0.192 U	0.261 U	Benzyl chloride	0.627 U	0.577 U	0.784 U
trans-1,2-Dichloroethylene	0.314 U	0.288 U	0.392 U	trans-1,3-Dichloropropylene	0.314 U	0.288 U	0.392 U	4-Isopropyltoluene	0.261 U	0.240 U	0.327 U	bis(2-Chloroisopropyl)ether	1.57 U	1.44 U	1.96 U
Vinyl acetate	1.31 U	1.20 U	1.63 U	1,1,2-Trichloroethane	0.314 U	0.288 U	0.392 U	1,3-Dichlorobenzene	0.209 U	0.192 U	0.261 U	1,2-Dichloroethylene (total)	0.314 U	0.288 U	0.392 U
1-1-Dichloroethane	0.314 U	0.288 U	0.392 U	2-Hexanone	1.59 U	1.46 U	1.99 U	1,4-Dichlorobenzene	0.209 U	0.192 U	0.261 J	Xylenes (total)	0.209 U	0.192 U	0.261 U
2-Butanone	1.78 U	1.63 U	2.22 U	1,3-Dichloropropane	0.314 U	0.288 U	0.392 U	n-Butylbenzene	0.209 U	0.192 U	0.261 U	1,1,1,2-Tetrachloroethane	0.209 U	0.192 U	0.261 U
cis-1,2-Dichloroethylene	0.314 U	0.288 U	0.392 U	Tetrachloroethylene	0.209 U	0.192 U	0.261 U	1,2-Dibromo-3-chloropropane	0.523 U	0.481 U	0.654 U	1,2,4-Trichlorobenzene	0.314 U	0.288 U	0.392 U
2,2-Dichloropropane	0.314 U	0.288 U	0.392 U	Dibromochloromethane	0.314 U	0.288 U	0.392 U	Hexachlorobutadiene	0.523 U	0.481 U	0.654 U	1,2-Dichlorobenzene	0.209 U	0.192 U	0.261 U
Chloroform	0.209 U	0.192 U	0.261 U	1,2-Dibromoethane	0.209 U	0.192 U	0.261 U	Naphthalene	0.209 U	0.192 U	0.261 U				
Bromochloromethane	0.523 U	0.481 U	0.654 U	Chlorobenzene	0.209 U	0.192 U	0.261 U	1,2,3-Trichlorobenzene	0.261 U	0.240 U	0.327 U				
1,1,1-Trichloromethane	0.314 U	0.288 U	0.392 U	Ethylbenzene	0.209 U	0.192 U	0.261 U	Acrolein	3.14 U	2.88 U	3.92 U				

Note: Positive detections are presented in bold.

U = Indicates that the compound was analyzed for but not detected at or above the reporting limit.

J = This is an estimated value and should be considered a minimum concentration.

EUCLID CREEK
(VOLATILES [PAGE 2 OF 4])
SEDIMENT
SEPTEMBER 2007

Volatiles-ug/L (ppb)	EC-2 0-1	EC-2 2-3	EC-2 4-5	Volatiles-ug/L (ppb)	EC-2 0-1	EC-2 2-3	EC-2 4-5	Volatiles-ug/L (ppb)	EC-2 0-1	EC-2 2-3	EC-2 4-5	Volatiles-ug/L (ppb)	EC-2 0-1	EC-2 2-3	EC-2 4-5
Dichloroifluoromethane	0.881 U	0.629 U	0.573 U	Cyclohexane	0.528 U	0.378 U	0.344 U	m,p-Xylene	0.440 U	0.315 U	0.286 U	Trichlorotrifluoroethane	1.76 U	1.26 U	1.15 U
Chloromethane	0.881 U	0.629 U	0.573 U	1,1-Dichloropropene	0.440 U	0.315 U	0.286 U	o-Xylene	0.352 U	0.252 U	0.229 U	Allyl chloride	3.52 U	2.52 U	2.29 U
Vinyl chloride	0.881 U	0.629 U	0.573 U	n-Butyl alcohol	47.6 U	34.0 U	30.9 U	Styrene	2.26	1.93	0.229 J	Acrylonitrile	1.76 U	1.26 U	1.15 U
Bromomethane	0.881 U	0.629 U	0.573 U	Carbon tetrachloride	0.352 U	0.252 U	0.229 U	Bromoform	0.528 U	0.378 U	0.344 U	2-Chloro-1,3-butadiene	0.528 U	0.378 U	0.344 U
Chloroethane	0.881 U	0.629 U	0.573 U	1,2-Dichloroethane	0.440 U	0.315 U	0.286 U	1,1,2,2-Tetrachloroethane	0.440 U	0.315 U	0.286 U	Propionitrile	1.76 U	1.26 U	1.15 U
Trichloroifluoromethane	0.881 U	0.629 U	0.573 U	Benzene	0.581 U	0.415 U	0.378 U	1,2,3-Trichloropropane	0.881 U	0.629 U	0.573 U	Methacrylonitrile	1.23 U	0.881 U	0.802 U
Ethyl ether	0.440 U	0.315 U	0.286 U	Trichloroethylene	0.440 U	0.315 U	0.286 U	Bromobenzene	0.352 U	0.252 U	0.229 U	Isobutyl alcohol	17.6 U	12.6 U	11.5 U
Acetone	4.540 U	3.25 U	2.96 U	1,2-Dichloropropane	0.528 U	0.378 U	0.344 U	n-Propylbenzene	0.352 U	0.252 U	0.229 U	Methyl methacrylate	1.76 U	1.26 U	1.15 U
Acetonitrile	16.0 U	11.5 U	10.4 U	Methylcyclohexane	0.528 U	0.378 U	0.344 U	2-Chlorotoluene	0.352 U	0.252 U	0.229 U	Ethyl methacrylate	0.881 U	0.629 U	0.573 U
1,1-Dichloroethylene	0.528 U	0.378 U	0.344 U	Bromodichloromethane	0.352 U	0.252 U	0.229 U	Isopropylbenzene	0.352 U	0.252 U	0.229 U	2-Nitropropane	1.59 U	1.13 U	1.03 U
Methyl acetate	2.940 U	2.10 U	1.91 U	Dibromomethane	0.528 U	0.378 U	0.344 U	1,3,5-Trimethylbenzene	0.352 U	0.252 U	0.229 U	Cyclohexanone	26.4 U	18.9 U	17.2 U
Iodomethane	2.940 U	2.10 U	1.91 U	2-Chloroethylvinyl ether	2.200 U	1.57 U	1.43 U	4-Chlorotoluene	0.423 U	0.302 U	0.275 U	cis-1,4-Dichloro-2-butene	0.881 U	0.629 U	0.573 U
Methylene chloride	3.520 U	2.52 U	2.29 U	4-Methyl-2-pentanone	1.92 U	1.37 U	4.25 U	tert-Butylbenzene	0.352 U	0.252 U	0.229 U	trans-1,4-Dichloro-2-butene	0.881 U	0.629 U	0.573 U
Carbon disulfide	2.200 U	1.57 U	1.43 U	cis-1,3-Dichloropropylene	0.352 U	0.252 U	0.229 U	1,2,4-Trimethylbenzene	0.352 U	0.252 U	0.229 U	Pentachloroethane	2.64 U	1.89 U	1.72 U
tert-Butyl methyl ether	0.389 J	0.311 J	0.229 U	Toluene	0.511 U	0.365 U	0.332 U	sec-Butylbenzene	0.352 U	0.252 U	0.229 U	Benzyl chloride	1.06 U	0.755 U	0.687 U
trans-1,2-Dichloroethylene	0.528 U	0.378 U	0.344 U	trans-1,3-Dichloropropylene	0.528 U	0.378 U	0.344 U	4-Isopropyltoluene	0.440 U	0.315 U	0.286 U	bis(2-Chloroisopropyl)ether	2.64 U	1.89 U	1.72 U
Vinyl acetate	2.200 U	1.57 U	1.43 U	1,1,2-Trichloroethane	0.528 U	0.378 U	0.344 U	1,3-Dichlorobenzene	0.352 U	0.252 U	0.229 U	1,2-Dichloroethylene (total)	0.528 U	0.378 U	0.344 U
1-1-Dichloroethane	0.528 U	0.378 U	0.344 U	2-Hexanone	2.680 U	1.91 U	1.74 U	1,4-Dichlorobenzene	0.352 U	0.252 U	0.229 U	Xylenes (total)	0.352 U	0.252 U	0.229 U
2-Butanone	2.990 U	2.14 U	1.95 U	1,3-Dichloropropane	0.528 U	0.378 U	0.334 U	n-Butylbenzene	0.352 U	0.252 U	0.229 U	1,1,1,2-Tetrachloroethane	0.352 U	0.252 U	0.229 U
cis-1,2-Dichloroethylene	0.528 U	0.378 U	0.344 U	Tetrachloroethylene	0.352 U	0.252 U	0.229 U	1,2-Dibromo-3-chloropropane	0.881 U	0.629 U	0.573 U	1,2,4-Trichlorobenzene	0.528 U	0.378 U	0.344 U
2,2-Dichloropropane	0.528 U	0.378 U	0.344 U	Dibromochloromethane	0.528 U	0.378 U	0.344 U	Hexachlorobutadiene	0.881 U	0.629 U	0.573 U	1,2-Dichlorobenzene	0.352 U	0.252 U	0.229 U
Chloroform	0.352 U	0.252 U	0.229 U	1,2-Dibromoethane	0.352 U	0.252 U	0.229 U	Naphthalene	0.352 U	0.252 U	0.229 U				
Bromochloromethane	0.881 U	0.629 U	0.573 U	Chlorobenzene	0.352 U	0.252 U	0.229 U	1,2,3-Trichlorobenzene	0.440 U	0.315 U	0.286 U				
1,1,1-Trichloromethane	0.528 U	0.378 U	0.344 U	Ethylbenzene	0.352 U	0.252 U	0.229 U	Acrolein	5.28 U	3.780 U	3.44 U				

Note: Positive detections are presented in bold.

U = Indicates that the compound was analyzed for but not detected at or above the reporting limit.

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BUFFALO HARBOR
(BRCMU)
MODIFIED ELUTRIATE
SEPTEMBER 2007

Volatiles-ug/L (ppb)	EC-3 0-1	EC-3 2-3	EC-3 4-5	Volatiles-ug/L (ppb)	EC-3 0-1	EC-3 2-3	EC-3 4-5	Volatiles-ug/L (ppb)	EC-3 0-1	EC-3 2-3	EC-3 4-5	Volatiles-ug/L (ppb)	EC-3 0-1	EC-3 2-3	EC-3 4-5
Dichloroifluoromethane	0.634 U	0.506 U	0.520 U	Cyclohexane	0.381 U	0.343 J	0.312 U	m,p-Xylene	0.317 U	0.253 U	0.260 U	Trichlorotrifluoroethane	1.27 U	1.01 U	1.04 U
Chloromethane	0.634 U	0.506 U	0.520 U	1,1-Dichloropropene	0.317 U	0.253 U	0.260 U	o-Xylene	0.254 U	0.203 U	0.208 U	Allyl chloride	2.54 U	2.03 U	2.08 U
Vinyl chloride	0.634 U	0.506 U	0.520 U	n-Butyl alcohol	34.2 U	27.3 U	28.1 U	Styrene	1.39	0.203 J	1.31	Acrylonitrile	1.27 U	1.01 U	1.04 U
Bromomethane	0.634 U	0.506 U	0.520 U	Carbon tetrachloride	0.254 U	0.203 U	0.208 U	Bromoform	0.381 U	0.304 U	0.213 U	2-Chloro-1,3-butadiene	0.381 U	0.304 U	0.312 U
Chloroethane	0.634 U	0.506 U	0.520 U	1,2-Dichloroethane	0.317 U	0.253 U	0.260 U	1,1,2,2-Tetrachloroethane	0.317 U	0.253 U	0.260 U	Propionitrile	1.27 U	1.01 U	1.04 U
Trichloroifluoromethane	0.634 U	0.506 U	0.520 U	Benzene	0.419 U	0.334 U	0.343 U	1,2,3-Trichloropropane	0.634 U	0.506 U	0.520 U	Methacrylonitrile	0.888 U	0.709 U	0.729 U
Ethyl ether	0.317 U	0.253 U	0.260 U	Trichloroethylene	0.317 U	0.253 U	0.260 U	Bromobenzene	0.254 U	0.203 U	0.208 U	Isobutyl alcohol	12.7 U	10.1 U	10.4 U
Acetone	3.27 U	0.261 U	2.69 U	1,2-Dichloropropane	0.381 U	0.304 U	0.312 U	n-Propylbenzene	0.254 U	0.203 U	0.208 U	Methyl methacrylate	1.27 U	1.01 U	1.04 U
Acetonitrile	11.6 U	9.22 U	9.48 U	Methylcyclohexane	0.381 U	0.304 U	0.312 U	2-Chlorotoluene	0.254 U	0.203 U	0.208 U	Ethyl methacrylate	0.634 U	0.506 U	0.520 U
1,1-Dichloroethylene	0.747 J	0.907 J	3.12 U	Bromodichloromethane	0.254 U	0.203 U	0.208 U	Isopropylbenzene	0.254 U	0.203 U	0.208 U	2-Nitropropane	1.14 U	0.911 U	0.937 U
Methyl acetate	2.12 U	1.69 U	1.74 U	Dibromomethane	0.381 U	0.304 U	0.312 U	1,3,5-Trimethylbenzene	0.254 U	0.203 U	0.208 U	Cyclohexanone	19.0 U	15.2 U	15.6 U
Iodomethane	2.12 U	1.69 U	1.74 U	2-Chloroethylvinyl ether	1.590 U	1.27 U	1.30 U	4-Chlorotoluene	0.304 U	0.243 U	0.250 U	cis-1,4-Dichloro-2-butene	0.634 U	0.506 U	0.520 U
Methylene chloride	2.54 U	2.03 U	4.87 J	4-Methyl-2-pentanone	1.380 U	1.10 U	1.13 U	tert-Butylbenzene	0.254 U	0.203 U	0.208 U	trans-1,4-Dichloro-2-butene	0.634 U	0.506 U	0.520 U
Carbon disulfide	1.59 U	1.27 U	1.30 U	cis-1,3-Dichloropropylene	0.254 U	0.203 U	0.208 U	1,2,4-Trimethylbenzene	0.254 U	0.203 U	0.208 U	Pentachloroethane	1.90 U	1.520 U	1.56 U
tert-Butyl methyl ether	0.254 U	0.203 U	0.208 U	Toluene	0.502 J	0.473 J	0.302 U	sec-Butylbenzene	0.254 U	0.203 U	0.208 U	Benzyl chloride	0.761 U	0.608 U	0.624 U
trans-1,2-Dichloroethylene	0.381 U	0.304 U	0.312 U	trans-1,3-Dichloropropylene	0.381 U	0.304 U	0.312 U	4-Isopropyltoluene	0.317 U	0.253 U	0.260 U	bis(2-Chloroisopropyl)ether	1.90 U	1.52 U	1.56 U
Vinyl acetate	1.59 U	1.27 U	1.30 U	1,1,2-Trichloroethane	0.381 U	0.304 U	0.312 U	1,3-Dichlorobenzene	0.254 U	0.203 U	0.208 U	1,2-Dichloroethylene (total)	0.381 U	0.304 U	0.312 U
1-1-Dichloroethane	0.381 U	0.304 U	0.312 U	2-Hexanone	1.930 U	1.54 U	1.58 U	1,4-Dichlorobenzene	0.254 U	0.203 U	0.208 U	Xylenes (total)	0.254 U	0.203 U	0.208 U
2-Butanone	2.16 U	1.72 U	1.77 U	1,3-Dichloropropane	0.381 U	0.304 U	0.312 U	n-Butylbenzene	0.254 U	0.203 U	0.208 U	1,1,1,2-Tetrachloroethane	0.254 U	0.203 U	0.208 U
cis-1,2-Dichloroethylene	0.381 U	0.304 U	0.312 U	Tetrachloroethylene	0.254 U	0.203 U	0.208 U	1,2-Dibromo-3-chloropropane	0.634 U	0.506 U	0.520 U	1,2,4-Trichlorobenzene	0.381 U	0.304 U	0.312 U
2,2-Dichloropropane	0.381 U	0.304 U	0.312 U	Dibromochloromethane	0.381 U	0.304 U	0.312 U	Hexachlorobutadiene	0.634 U	0.506 U	0.520 U	1,2-Dichlorobenzene	0.254 U	0.203 U	0.208 U
Chloroform	0.254 U	0.203 U	0.208 U	1,2-Dibromoethane	0.254 U	0.203 U	0.208 U	Naphthalene	0.254 U	0.203 U	0.208 U				
Bromochloromethane	0.631 U	0.506 U	0.520 U	Chlorobenzene	0.254 U	0.203 U	0.208 U	1,2,3-Trichlorobenzene	0.317 U	0.253 U	0.260 U				
1,1,1-Trichloromethane	0.381 U	0.304 U	0.312 U	Ethylbenzene	0.254 U	0.203 U	0.208 U	Acrolein	3.81 U	3.04 U	3.12 U				

Note: Positive detections are presented in bold.

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J = This is an estimated value and should be considered a minimum concentration.

EUCLID CREEK
(VOLATILE [PAGE 4 OF 4])
SEDIMENT
SEPTEMBER 2007

Volatiles-ug/L (ppb)	EC-4 0-1	EC-4 2-3	EC-4 4.5	Volatiles-ug/L (ppb)	EC-4 0-1	EC-4 2-3	EC-4 4.5	Volatiles-ug/L (ppb)	EC-4 0-1	EC-4 2-3	EC-4 4.5	Volatiles-ug/L (ppb)	EC-4 0-1	EC-4 2-3	EC-4 4.5
Dichloroifluoromethane	0.614 U	0.559 U	0.691 U	Cyclohexane	0.368 U	0.910 J	0.414 U	m,p-Xylene	0.307 U	0.279 U	0.345 U	Trichlorotrifluoroethane	1.23 U	1.12 U	1.38 U
Chloromethane	0.614 U	0.559 U	0.691 U	1,1-Dichloropropene	0.307 U	0.279 U	0.345 U	o-Xylene	0.246 U	0.223 U	0.276 U	Allyl chloride	2.46 U	2.23 U	2.76 U
Vinyl chloride	0.614 U	0.559 U	0.691 U	n-Butyl alcohol	33.2 U	30.2 U	37.3 U	Styrene	1.08 J	0.954 J	1.08 J	Acrylonitrile	1.23 U	1.12 U	1.38 U
Bromomethane	0.614 U	0.559 U	0.691 U	Carbon tetrachloride	0.246 U	0.223 U	0.276 U	Bromoform	0.368 U	0.335 U	0.414 U	2-Chloro-1,3-butadiene	0.368 U	0.335 U	0.414 U
Chloroethane	0.614 U	0.559 U	0.691 U	1,2-Dichloroethane	0.307 U	0.279 U	0.345 U	1,1,2,2-Tetrachloroethane	0.307 U	0.279 U	0.345 U	Propionitrile	1.23 U	1.12 U	1.38 U
Trichloroifluoromethane	0.614 U	0.559 U	0.691 U	Benzene	0.405 U	0.369 U	0.456 U	1,2,3-Trichloropropane	0.614 U	0.559 U	0.691 U	Methacrylonitrile	0.860 U	0.782 U	0.967 U
Ethyl ether	0.307 U	0.279 U	0.345 U	Trichloroethylene	0.307 U	0.279 U	0.345 U	Bromobenzene	0.246 U	0.223 U	0.276 U	Isobutyl alcohol	12.3 U	11.2 U	13.8 U
Acetone	3.17 U	2.88 U	6.22 J	1,2-Dichloropropane	0.368 U	0.335 U	0.414 U	n-Propylbenzene	0.246 U	0.223 U	0.276 U	Methyl methacrylate	1.23 U	1.12 U	1.38 U
Acetonitrile	11.2 U	10.2 U	12.6 U	Methylcyclohexane	0.368 U	0.335 U	0.414 U	2-Chlorotoluene	0.246 U	0.223 U	0.276 U	Ethyl methacrylate	0.614 U	0.559 U	0.691 U
1,1-Dichloroethylene	0.368 U	2.88	0.414 U	Bromodichloromethane	0.246 U	0.223 U	0.276 U	Isopropylbenzene	0.246 U	0.223 U	0.276 U	2-Nitropropane	1.11 U	1.01 U	1.24 U
Methyl acetate	2.05 U	1.87 U	2.31 U	Dibromomethane	0.368 U	0.335 U	0.414 U	1,3,5-Trimethylbenzene	0.246 U	0.223 U	0.276 U	Cyclohexanone	18.4 U	16.8 U	20.7 U
Iodomethane	2.05 U	1.87 U	2.31 U	2-Chloroethylvinyl ether	1.54 U	1.40 U	1.73 U	4-Chlorotoluene	0.295 U	0.268 U	0.331 U	cis-1,4-Dichloro-2-butene	0.614 U	0.559 U	0.691 U
Methylene chloride	2.46 U	2.23 U	3.76 J	4-Methyl-2-pentanone	1.34 U	1.22 U	1.51 U	tert-Butylbenzene	0.246 U	0.223 U	0.276 U	trans-1,4-Dichloro-2-butene	0.614 U	0.559 U	0.691 U
Carbon disulfide	1.54 U	1.40 U	1.73 U	cis-1,3-Dichloropropylene	0.246 U	0.223 U	0.276 U	1,2,4-Trimethylbenzene	0.246 U	0.223 U	0.276 U	Pentachloroethane	1.84 U	1.68 U	2.07 U
tert-Butyl methyl ether	0.246 U	0.223 U	0.276 U	Toluene	0.356 U	1.44	0.400 U	sec-Butylbenzene	0.246 U	0.223 U	0.276 U	Benzyl chloride	0.737 U	0.670 U	0.829 U
trans-1,2-Dichloroethylene	0.368 U	0.335 U	0.414 U	trans-1,3-Dichloropropylene	0.368 U	0.335 U	0.414 U	4-Isopropyltoluene	0.307 U	0.279 U	0.345 U	bis(2-Chloroisopropyl)ether	1.84 U	1.68 U	2.07 U
Vinyl acetate	1.54 U	1.40 U	1.73 U	1,1,2-Trichloroethane	0.368 U	0.335 U	0.414 U	1,3-Dichlorobenzene	0.246 U	0.223 U	0.276 U	1,2-Dichloroethylene (total)	0.368 U	0.335 U	0.414 U
1-1-Dichloroethane	0.368 U	0.335 U	0.414 U	2-Hexanone	1.870 U	1.70 U	2.100 U	1,4-Dichlorobenzene	0.246 U	0.223 U	0.276 U	Xylenes (total)	0.246 U	0.223 U	0.276 U
2-Butanone	2.09 U	1.90 U	2.35 U	1,3-Dichloropropane	0.368 U	0.335 U	0.414 U	n-Butylbenzene	0.246 U	0.223 U	0.276 U	1,1,1,2-Tetrachloroethane	0.246 U	0.223 U	0.276 U
cis-1,2-Dichloroethylene	0.368 U	0.335 U	0.414 U	Tetrachloroethylene	0.246 U	0.223 U	0.276 U	1,2-Dibromo-3-chloropropane	0.614 U	0.559 U	0.691 U	1,2,4-Trichlorobenzene	0.368 U	0.335 U	0.414 U
2,2-Dichloropropane	0.368 U	0.335 U	0.414 U	Dibromochloromethane	0.368 U	0.335 U	0.414 U	Hexachlorobutadiene	0.614 U	0.559 U	0.691 U	1,2-Dichlorobenzene	0.246 U	0.223 U	0.276 U
Chloroform	0.246 U	0.223 U	0.276 U	1,2-Dibromoethane	0.246 U	0.223 U	0.276 U	Naphthalene	0.246 U	0.223 U	0.276 U				
Bromochloromethane	0.614 U	0.559 U	0.910 U	Chlorobenzene	0.246 U	0.223 U	0.276 U	1,2,3-Trichlorobenzene	0.307 U	0.279 U	0.345 U				
1,1,1-Trichloromethane	0.368 U	0.335 U	0.414 U	Ethylbenzene	0.246 U	0.223 U	0.276 U	Acrolein	3.68 U	3.35 U	4.14 U				

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EUCLID CREEK
(PESTICIDES)
SEDIMENT
SEPTEMBER 2007

Pesticides-ug/L (ppb)	EC-1 0-1	EC-1 2-3	EC-1 4-5	EC-2 0-1	EC-2 2-3	EC-2 4-5	EC-3 0-1	EC-3 2-3	EC-3 4-5	EC-4 0-1	EC-4 2-3	EC-4 4.5
Alpha-BHC	2.08 U	2.05 U	1.99 U	2.10 U	2.01 U	1.99 U	1.99 U	1.94 U	2.09 U	2.06 U	1.99 U	2.06 U
Gamma-BHC (Lindane)	2.08 U	2.05 U	1.99 U	2.10 U	2.01 U	1.99 U	1.99 U	1.94 U	2.09 U	2.06 U	1.99 U	2.06 U
Beta-BHC	2.08 U	2.05 U	1.99 U	2.10 U	2.01 U	1.99 U	1.99 U	1.94 U	2.09 U	2.06 U	1.99 U	2.06 U
Delta-BHC	2.08 U	2.05 U	1.99 U	2.10 U	2.01 U	1.99 U	1.99 U	1.94 U	2.09 U	2.06 U	1.99 U	2.06 U
Heptachlor	2.08 U	2.05 U	1.99 U	2.10 U	2.01 U	1.99 U	1.99 U	1.94 U	2.09 U	2.06 U	1.99 U	2.06 U
Aldrin	2.08 U	2.05 U	1.99 U	2.10 U	2.01 U	1.99 U	1.99 U	1.94 U	2.09 U	2.06 U	1.99 U	2.06 U
Heptachlor Epoxide	9.61	2.05 U	1.99 U	10.4	2.01 U	1.99 U	1.99 U	1.94 U	2.09 U	6.51 J	1.99 U	2.06 U
Endosulfan I	2.08 U	2.05 U	1.99 U	2.10 U	2.01 U	1.99 U	1.99 U	1.94 U	2.09 U	4.12 U	1.99 U	2.06 U
4,4-DDE	25.3	4.09 U	3.97 U	20.6	25.5	3.99 U	21.5	3.87 U	4.18 U	21.9	3.98 U	4.12 U
Dieldrin	24.3	4.09 U	3.97 U	23.2	4.03 U	3.99 U	181	3.87 U	4.18 U	18.8	3.98 U	4.12 U
Endrin	4.17 U	4.09 U	3.97 U	4.19 U	4.03 U	3.99 U	3.97 U	3.87 U	4.18 U	4.12 U	3.98 U	4.12 U
4,4-DDD	26.9	4.09 U	3.97 U	16.3 J	17.2	3.99 U	12.7 J	3.87 U	4.18 U	17.0	3.98 U	4.12 U
Endosulfan II	4.17 U	4.09 U	3.97 U	4.19 U	4.03 U	3.99 U	3.97 U	3.87 U	4.18 U	4.12 U	3.98 U	4.12 U
Endrin Aldehyde	4.17 U	4.09 U	3.97 U	4.19 U	4.03 U	3.99 U	3.97 U	3.87 U	4.18 U	4.12 U	3.98 U	4.12 U
4,4-DDT	163	8.61 J	3.97 U	95.8	105	3.99 U	76.6	3.87 U	4.18 U	66.9	3.98 U	4.12 U
Endosulfan Sulfate	4.17 U	4.09 U	3.97 U	4.19 U	4.03 U	3.99 U	3.97 U	3.87 U	4.18 U	4.12 U	3.98 U	4.12 U
Methoxychlor	20.8 U	20.5 U	19.9 U	21.0 U	20.1 U	19.9 U	19.9 U	19.4 U	20.9 U	20.6 U	19.9 U	20.6 U
Endrin Ketone	4.17 U	4.09 U	3.97 U	4.19 U	4.03 U	3.99 U	3.97 U	3.87 U	4.18 U	4.12 U	3.98 U	4.12 U
Chlordane (Technical)	174	20.5 U	19.9 U	197	20.1 U	19.9 U	159	19.4 U	20.9 U	158	19.9 U	20.6 U
Toxaphene	69.4 U	68.2 U	66.1 U	69.8 U	67.0 U	66.4 U	66.1 U	64.5 U	69.6 U	68.7 U	66.3 U	68.6 U

Note: Positive detections are presented in bold.

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J = This is an estimated value and should be considered a minimum concentration.

EUCLID CREEK
(PCBs)
SEDIMENT
SEPTEMBER 2007

PCBs-ug/L (ppb)	EC-1 0-1	EC-1 2-3	EC-1 4-5	EC-2 0-1	EC-2 2-3	EC-2 4-5	EC-3 0-1	EC-3 2-3	EC-3 4-5	EC-4 0-1	EC-4 2-3	EC-4 4.5
Aroclor-1016	1.39 U	1.36 U	1.32 U	1.40 U	1.34 U	1.33 U	1.32 U	1.29 U	1.39 U	1.37 U	1.33 U	1.37 U
Aroclor-1221	1.39 U	1.36 U	1.32 U	1.40 U	1.34 U	1.33 U	1.32 U	1.29 U	1.39 U	1.37 U	1.33 U	1.37 U
Aroclor-1232	1.39 U	1.36 U	1.32 U	1.40 U	1.34 U	1.33 U	1.32 U	1.29 U	1.39 U	1.37 U	1.33 U	1.37 U
Aroclor-1242	1.39 U	1.36 U	1.32 U	1.40 U	1.34 U	1.33 U	1.32 U	1.29 U	1.39 U	1.37 U	1.33 U	1.37 U
Aroclor-1248	1.39 U	1.36 U	1.32 U	1.40 U	1.34 U	1.33 U	1.32 U	1.29 U	1.39 U	1.37 U	1.33 U	1.37 U
Aroclor-1254	46.1	1.36 U	1.32 U	41.1	1.34 U	1.33 U	37.3	1.29 U	1.39 U	35.2	1.33 U	1.37 U
Aroclor-1260	26.7	25.4	1.32 U	24.2	14.1	1.33 U	21.6	1.29 U	1.39 U	18.9	1.33 U	1.37 U

Note: Positive detections are presented in bold.

U = Indicates that the compound was analyzed for but not detected at or above the reporting limit.

J = This is an estimated value and should be considered a minimum concentration.

EUCLID CREEK
(METALS)
SEDIMENT
SEPTEMBER 2007

Metals-mg/L (ppm)	EC-1 0-1	EC-1 2-3	EC-1 4-5	EC-2 0-1	EC-2 2-3	EC-2 4-5	EC-3 0-1	EC-3 2-3	EC-3 4-5	EC-4 0-1	EC-4 2-3	EC-4 4.5
Aluminum	9250	10000	8140	10100	10000	9840	11000	9220	12200	10700	9650	11200
Antimony	0.730	0.900	0.400	1.10	2.60	0.410	1.00	1.00	0.520	1.20	0.360 U	0.370 U
Arsenic	11.5	20.8	22.6	23.4	18.9	19.6	19.0	19.0	18.8	22.0	19.2	16.7
Barium	40.2	69.6	47.7	78.0	173	49.9	83.1	54.7	50.8	93.4	42.1	55.2
Beryllium	0.800	0.760	0.660	1.10	0.770	0.640	1.40	0.700	0.870	1.40	0.72	0.71
Cadmium	0.600 U	0.610 U	0.580 U	0.620 U	1.00	0.580 U	0.590 U	0.580 U	0.620 U	0.620 U	0.590 U	0.600 U
Calcium	1980	1650	1300	2350	1770	929	3910	1610	2070	2870	1320	869
Chromium	24.0	31.8	13.8	30.9	23.1	15.6	28.8	15.5	17.2	32.7	15.2	16
Cobalt	14.3	13.9	13.9	17.1	14.0	13.7	14.0	12.1	13.4	16.8	13.6	15.8
Copper	25.6	32.3	23.2	50.4	31.9	21.1	51.8	49.6	20.6	44.9	23.5	16.4
Iron	20700	36700	41000	40700	32200	34800	32600	34400	34500	35500	37100	33400
Lead	63.4	52.6	18.2	128	116	17.5	116	258	17.6	103	26.1	14
Magnesium	2090	3510	3000	3820	3190	3360	3740	3160	3490	3280	3410	3230
Manganese	343	427	510	680	443	465	478	364	216	588	405	380
Molybdenum	3.90	3.20	3.900	7.20	3.10	3.10	4.80	2.90	3.80	6.90	2.9	3
Nickel	30.0	26.5	25.4	35.9	29.0	24.3	33.3	25.5	28.4	39.5	22.8	24.9
Potassium	1270	1120	893	1320	1120	1150	1170	1280	1240	1380	1240	1040
Selenium	27.3	45.2	54.3	55.9	37.4	41.7	42.0	42.3	39.5	45.8	44.2	39.8
Silver	0.600 U	0.610 U	0.580 U	0.640	0.600 U	0.580 U	0.590 U	0.580 U	0.620 U	0.620 U	0.590 U	0.600 U
Sodium	66.1	53.0	200	56.5	58.6	50.2	69.8	45.7	105	55.7	41.9	40.2
Thallium	0.600 U	0.610 U	0.580 U	0.620 U	0.600 U	0.580 U	0.590 U	0.580 U	0.620 U	0.620 U	0.590 U	0.600 U
Vanadium	12.6	22.0	20.5	22.2	18.6	21.0	21.9	19.6	23.2	20.7	21.2	21.9
Zinc	98.0	119	81.7	183	140	86.2	164	134	81.5	165	82.9	76.6
Mercury	0.285	0.431	0.0194	0.320	0.0964	0.0189	0.197	0.301	0.0284	0.215	0.0296	0.0187

Note: Positive detections are presented in bold.

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EUCLID CREEK
(TOTAL CYANIDE)
SEDIMENT
SEPTEMBER 2007

Cyanide Total-mg/L (ppm)	EC-1 0-1	EC-1 2-3	EC-1 4-5	EC-2 0-1	EC-2 2-3	EC-2 4-5	EC-3 0-1	EC-3 2-3	EC-3 4-5	EC-4 0-1	EC-4 2-3	EC-4 4.5
Cyanide, Total	0.0600 U	0.0600 U	0.0700 U	0.0600 U	0.0600 U	0.0700 U	0.0600 U	0.0600 U	0.0600 U	0.0600 U	0.0500 U	0.0600 U

Note: Positive detections are presented in bold.

U = Indicates that the compound was analyzed for but not detected at or above the indicated reporting limit.

J = This is an estimated value and should be considered a minimum concentration.

Appendix B

Field Notes Summary Table

Appendix C

LRB Project Scope of Work

Section C - Descriptions and Specifications

SCOPE OF WORK**SCOPE OF WORK****Euclid Creek Estuary
Soil Sampling and Analysis
August 2007****EEI Contract W912P4-05-D-0002**

1. **Introduction:** The Contractor (Engineering & Environment, Inc. [EEI]) shall provide the personnel, labor, materials, equipment, and laboratory facilities to perform chemical testing on soil material collected from the Euclid Creek Estuary as described in the following paragraphs under the provisions of Contract No. W912P4-05-D-0002. The samples will be taken from an oxbow area on the lower section of Euclid Creek which had been filled in with dredged material from Wildwood Harbor.
2. **Responsibility:** The U.S Army Corps of Engineers (USACE) – Buffalo District, is responsible for providing the personnel and equipment required for obtaining augered soil samples from the Euclid Creek Estuary and for preparing and shipping the sediment samples to the applicable laboratories.

Samples will be collected by USACE sampling team between 10-12 September 2007.

EEI (or its subcontractors) is responsible for providing to the USACE all the necessary sample containers, shipping coolers, and laboratory facilities for chemical testing.

It is the responsibility of EEI (subcontractors including laboratories) to properly store, analyze, and report results for investigative samples. **If EEI does not follow or meet the specified criteria (e.g. detection limits) in the approved work plan, and thereby jeopardizes the usability of the sample results, then the Contracting Officer may reject the samples. If this occurs, the Contracting Officer will direct EEI to resample, reanalyze, and present the data at no additional cost to the Government.** If analyses are not performed on each sample, the contract price will be reduced according to the agreed unit price.

Laboratories conducting work on the behalf of USACE either directly or through contracting means shall be in compliance with the following USACE requirements:

- All laboratories conducting analytical work shall be in compliance with the most recent version of the Department of Defense Quality Systems Manual (DOD QSM).
- Since the DOD QSM incorporates requirements of the National Environmental Laboratory Accreditation Conference (NELAC) standard, Chapter 5 compliance will also be a component of this. NELAP (National Environmental Laboratory Accreditation Program) accreditation for appropriate fields-of-testing to verify laboratory compliance with the NELAC standard.
- A signed copy of the laboratory's Self Declaration Form and all supporting documentation should be submitted to the Buffalo District chemist prior to any sample analyses.

The laboratory performing the chemistry analyses on the sediment must strictly adhere to the Buffalo District Required Reporting Limits.

3. **Sample Collection:** All sample collection will be performed by USACE-Buffalo District personnel in the field. All sampling will be done using a hand auger and all other necessary accessories and sampling equipment will be used for sample recovery.

Sample sites will be visually determined onsite by the sample team. The actual GPS coordinates will be recorded at each site to identify the exact sample location. Field notes will be taken at each site including information such as weather, soil characteristics and any other items of note. Auger samples will be collected and homogenized in stainless steel bowls, and appropriate quantities will be transferred to the pre-cleaned sample containers. All sample containers will be labeled with sample location, date, time, unique sample number and analyses required. The samples will be packed in coolers with ice sufficient to maintain the samples at 4° C for 24 hours using proper Chain-of-Custody procedures. The coolers will be sealed using proper security procedures and shipped via overnight delivery to the appropriate analytical laboratory.

4. **Soil Sampling Sites:** Samples will be taken at four locations at the 1-acre oxbow in the lower section of Euclid Creek. At each of these sites, individual samples will be taken at depths of two feet, four feet, and 6 feet, for a total of 12 samples. Each sampling site will be determined on-site by the sampling team. At each individual site, one quart of soil will be collected for discrete soil chemistry analysis. The sediment collected from each site is to be homogenized in the field prior to placing it in sample jars. The sample analysis parameters and the required detection limits are summarized in paragraph 6.

5. **Laboratory Quality Assurance/Quality Control (QA/QC):** Laboratory work will include a standard QA/QC analysis, including Laboratory Control Samples (LCS), Matrix Spike/Matrix Spike Duplicates (MS/MSD) and blanks. In addition, a duplicate soil sample will be collected from one of the locations will be analyzed for metals.

no homogenize
WDA

6. **Bulk Chemical Analyses:** The following bulk chemical analyses will be performed on the samples as specified in accordance with test specifications, quality assurance procedures and holding times stipulated in the EPA methods used. **All samples shall be analyzed first without dilutions. All concentrations shall be reported on a dry weight basis.** The project required analyte detection limits are provided below. The following parameters are to be analyzed for all individual sample sites.

Test Parameter	Acceptable Method(s)	Required Detection Limits (mg/kg)
PCBs (Aroclors)	8082	0.005
Metals (TAL)	6010/7000 Series	0.050 (Al, Ca, Fe, Mg, Mn, Na, K – no limit)
Total CN	9012	0.025
Volatile Organics	8260B	0.001
B/N/A	8270C	0.01
Pesticides	8081A	0.0025 (Chlordane, Methoxychlor, Toxaphene – 0.025)

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7. **Scheduling and Reporting:** Soil sampling is scheduled to proceed in early September. This Scope of Work and the Price Scheduling should be reviewed and any discrepancies or problems should be discussed and resolved with the Project Manager (PM) before sampling is initiated. The point of contact and PM for this work is Mr. Doug Gorecki, 716-879-4415. Partial payment invoices can be submitted for payment. Shipping Coolers and sample containers are to be provided before the sampling effort. General chemical analyses testing shall be completed within six (6) weeks of sample collection. A draft final report containing map(s) of the soil sampling sites, methods of analyses, all testing results, and quality assurance data as required under Contract No. W912P4-05-D-0002 shall be submitted to the PM within two (2) weeks of sample chemistry approval for approval as a draft report.

Data deliverables for all laboratory analytical data:

- All supporting analytical data packages submitted shall be of a defensible format containing all elements required for data validation.
- The above mentioned data packages shall be in an Adobe PDF format.

Volume I shall contain project information and summary of the sampling effort, sampling maps, field notes, test methods, and summary tables of the test results. Volume II is to contain chemistry and physical summary tables, **Case Narratives and the actual laboratory Certificates of Analysis**. After final approval, two (2) copies of Volume I, one (1) copy of Volume II, and an electronic copy of Volumes I and II shall be provided in pdf format and an EXCEL copy of all summary tables shall be provided.

8. **Payment Requests:** Payment requests or invoices shall contain the following information as a minimum: Project Title, Contract Number, Delivery Order Number, Vendor's name, address, telephone number and POC, invoice (voucher) number (or indicate FINAL PAYMENT, when appropriate), date of invoice, dates covered for each invoice, total contract amount with all modifications and amounts listed individually, amounts retained, amount remaining in the contract to be completed, certification of the invoice by a responsible individual of the firm, and any other pertinent information that will assist in review and processing. Each submitted invoice will reflect the payment request and the percentage of work completed. The invoice must be accompanied by supporting documentation for each task worked on during the billing period. The USACE Contracting Officer cannot sign off on any invoice for which supporting documentation is not provided. Mail payments requests promptly to:

U.S. Army Engineer District, Buffalo
ATTN: CELRB-TD-DE (Stephen J. Golyski, P.E., AE Program Manager, Cost and Project
Engineering Team)
Contract No. W912P4-05-D-0002
Delivery Order No. 00XX
1776 Niagara Street
Buffalo, NY 14207