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NTC Great Lakes

Technical Memorandum
Site Sampling in Support of Relative Risk Evaluation at Various Activities
Addendum 1

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888
Contract Task Order 0060

AUGUST 1998

Tetra Tech NUS, Inc.

D53079802M

TECHNICAL MEMORANDUM
FOR
SITE SAMPLING IN SUPPORT OF
RELATIVE RISK EVALUATION AT VARIOUS ACTIVITIES
ADDENDUM 1

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
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Naval Facilities Engineering Command
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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0060

AUGUST 1998

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TABLE OF CONTENTS

SECTION		PAGE
1.0	**INTRODUCTION**	**1-1**
1.1	PROJECT OVERVIEW	1-1
1.2	SAMPLING OVERVIEW	1-1
2.0	**SAMPLE COLLECTION AND RATIONAL**	**2-1**
3.0	**ANALYTICAL RESULTS**	**3-1**
REFERENCES		**R-1**

APPENDICES

A SAMPLE LOG SHEETS - NTC GREAT LAKES

B LABORATORY SAMPLE DATA SUMMARY PACKAGE

TABLES

NUMBER		PAGE
3-1	Analytical Results – Soil – Volatile Organic Compounds	3-2
3-2	Analytical Results – Soil – Semi-Volatile Organic Compounds	3-3
3-3	Analytical Results – Soil – Inorganic Compounds Compounds	3-5
3-4	Analytical Results – Soil – Pesticides/PCBs	3-6

FIGURES

NUMBER		PAGE
2-1	Sample Location Map	2-2

1.0 INTRODUCTION

This Technical Memorandum Addendum 1 presents the data collected for Site Sampling in Support of Relative Risk Evaluation at the Naval Training Center in Great Lakes, Illinois (NTC Great Lakes). This document was prepared for the U.S. Navy (Navy) Southern Division (SOUTHDIV) Naval Facilities Engineering Command (NAVFAC) under Contract Task Order (CTO) 0060, for the Comprehensive Long-term Environmental Action Navy (CLEAN III), Contract Number N62467-94-D-0888.

This memorandum provides the sampling rationale and analytical results for the sample collection conducted at NTC Great Lakes. The work for this CTO was conducted in accordance with the Work Plan (Brown & Root Environmental, May 1998). The data obtained will be used to supplement previous data from sampling conducted at NTC Great Lakes by Brown & Root Environmental (B&R Environmental) in December 1995

1.1 PROJECT OVERVIEW

Tetra Tech NUS (TtNUS) conducted sampling and analysis of shallow subsurface soils at Site 1-Golf Course Landfill of the NTC Great Lakes, as identified in the original Technical Memorandum (B&R Environmental, 1996). The soil samples were analyzed for the full Target Compound List/Target Analyte List (TCL/TAL) and cyanide.

Personnel from the TtNUS office located in Williamston, Michigan conducted sampling.

1.2 SAMPLING OVERVIEW

The specific locations for the four sampling points on Site 1-Golf Course Landfill were established in the field during the pre-sampling site walkover conducted on June 8, 1998. The specific locations were established based upon communication between the TtNUS Task Order Manager (TOM) and the Naval Activity Point of Contact (POC) for NTC Great Lakes. The specific sites were agreed upon in the field, marked, and recorded prior to sampling.

After the sampling locations were marked, the Naval Activity POC verified utility clearance and the sites were sampled. A sufficient volume of soil was collected in the required sample containers provided by the laboratory, and in accordance with the Work Plan. The samples were shipped to the Katahdin Analytical Services Laboratory on June 8, 1998.

2.0 SAMPLE COLLECTION AND RATIONAL

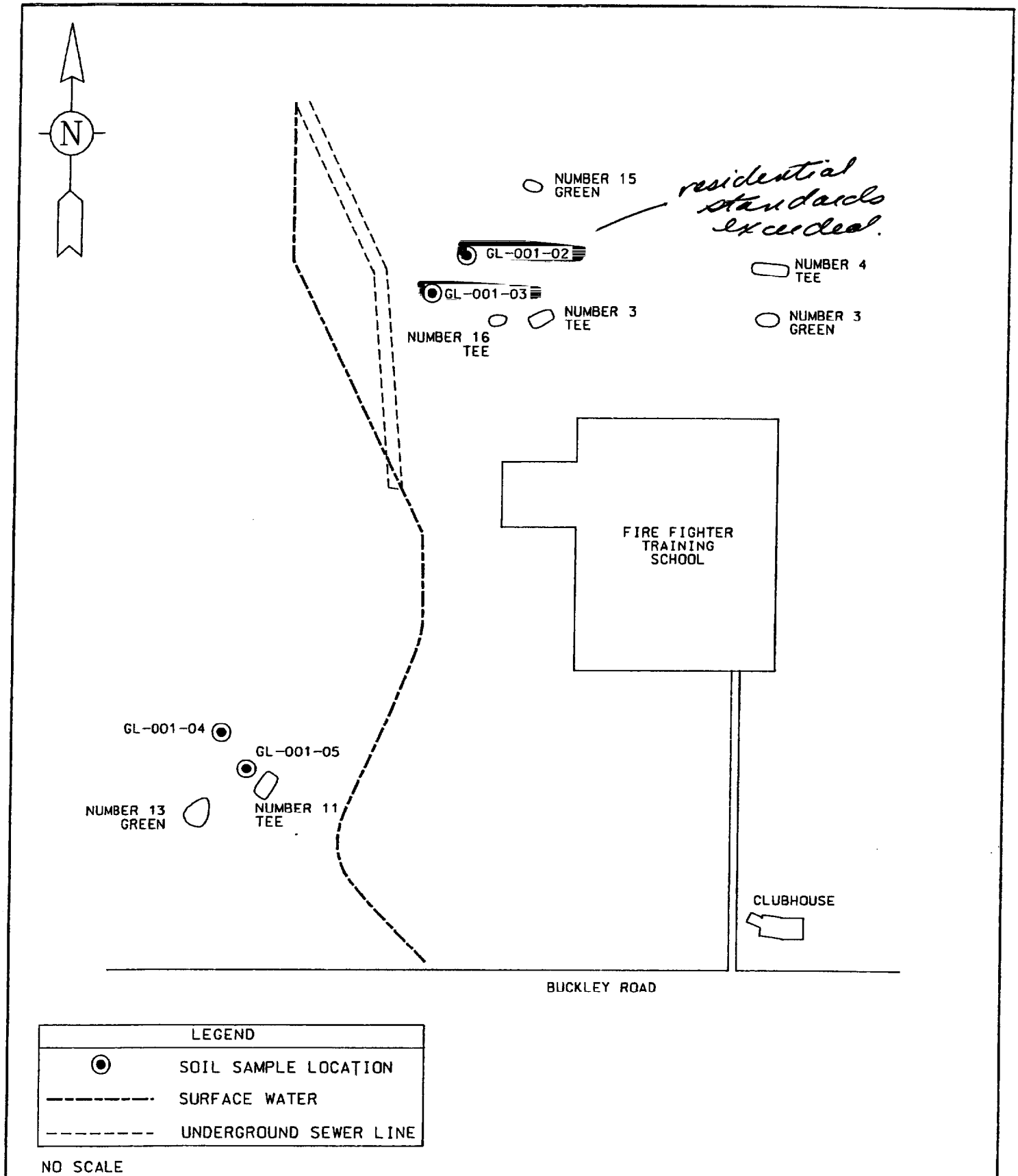
Tetra Tech NUS conducted the shallow subsurface soil sampling at NTC Great Lakes on June 8, 1998. All samples were collected from low-lying areas on the NTC Great Lakes Golf Course (Figure 2-1) which was constructed on an old landfill. The soil samples were collected at a depth of 1.2 feet below ground level and analyzed for TAL Metals and Cyanide, TCL Pesticides and PCBs, TCL Volatiles and Semivolatiles. Volatile samples were collected using an Encore™ Sampler. The samples for the remaining analyses were collected using disposable trowels. The samples collected and the rational for collection of these samples at each location is summarized below:

GL-001-02 – This sample was collected in a low area approximately 9 feet north of the edge of the Hole # 4 Fairway, approximately 642 feet from the edge of the Hole # 4 Green. The sample location was chosen based upon information that golf course personnel encountered fill material in this area when conducting routine maintenance on underground piping for the watering system. Some stressed vegetation was identified at the location.

GL-001-03 - This sample was collected in a low area approximately 25 feet south of the edge of the Hole # 4 Fairway approximately 597 feet from the edge of the Hole # 4 Green. The sample location was chosen based upon information that golf course personnel encountered fill material in this area when conducting routine maintenance on underground piping for the watering system. Stressed vegetation was not observed at this location.

GL-001-04 - This sample was collected in a low area in the middle of the Hole # 13 Fairway approximately 189 feet from the edge of the Hole # 13 Green. The sample location was chosen based upon information that golf course personnel encountered fill material in this area when conducting routine maintenance on underground piping for the watering system. Stressed vegetation was observed at this location.

GL-001-05 - This sample was collected in a low area approximately 27 feet northwest of the edge of the Hole # 11 Tee. The sample location was chosen based upon information that golf course personnel encountered fill material in this area when conducting routine maintenance on underground piping for the watering system. Severely stressed vegetation was observed at this location.



NO SCALE

TETRA TECH NUS, INC.

TITLE

SAMPLE LOCATION MAP

GREAT LAKES NAVAL TRAINING CENTER
GREAT LAKES, ILLINOIS

DATE DRAWN: JULY 1998

DRAWING NO.: Figure 2-1

3.0 ANALYTICAL RESULTS

Four soil samples were collected at NTC Great Lakes and analyzed for TAL metals, cyanide, TCL pesticides and PCBs, TCL volatiles, and TCL semivolatiles. Analytical results for the four soil samples are presented in Tables 3-1, 3-2, 3-3, and 3-4. The tables summarize all analytical data as received from the laboratory with positive results being highlighted. Tentatively Identified Compound (TICs) are not included in the summary tables. The analytical data was not validated and still has all laboratory qualifiers associated with the results.

The sample data package received from the laboratory is provided in Appendix B. This package includes the laboratory SDG narrative on each sample for each analyses. This package also includes quality control/quality assurance data and TIC data.

TABLE 3-1
ANALYTICAL RESULTS - SOIL - VOLATILE ORGANIC COMPOUNDS
NTC - GREAT LAKES

TtNUS SAMPLE ID:	GL-001-02	GL-001-03	GL-001-04	GL-001-05
DATE SAMPLED	6/8/98	6/8/98	6/8/98	6/8/98
DEPTH OF SAMPLE	1.2 Feet	1.2 Feet	1.2 Feet	1.2 Feet
UNITS	ug/Kg	ug/Kg	ug/Kg	ug/Kg
CHLOROMETHANE	12U	12U	12U	12U
BROMOMETHANE	12U	12U	12U	12U
VINYL CHLORIDE	12U	12U	12U	12U
CHLOROETHANE	12U	12U	12U	12U
METHYLENE CHLORIDE	13 B	12U	12U	12U
ACETONE	30 B	12U	27 B	12U
CARBON DISULFIDE	12U	12U	12U	12U
1,1-DICHLOROETHENE	12U	12U	12U	12U
1,1-DICHLOROETHANE	12U	12U	12U	12U
TOTAL 1,2-DICHLOROETHENE	12U	12U	12U	12U
CHLOROFORM	12U	12U	12U	12U
1,2-DICHLOROETHANE	12U	12U	12U	12U
2-BUTANONE	6 J	12U	8 J	12U
1,1,1-TRICHLOROETHANE	12U	12U	12U	12U
CARBON TETRACHLORIDE	12U	12U	12U	12U
BROMODICHLOROMETHANE	12U	12U	12U	12U
1,2-DICHLOROPROPANE	12U	12U	12U	12U
cis-1,3-DICHLOROPROPENE	12U	12U	12U	12U
TRICHLOROETHENE	12U	12U	12U	12U
DIBROMOCHLOROMETHANE	12U	12U	12U	12U
1,1,2-TRICHLOROETHANE	12U	12U	12U	12U
BENZENE	12U	12U	12U	12U
trans-1,3-DICHLOROPROPENE	12U	12U	12U	12U
BROMOFORM	12U	12U	12U	12U
4-METHYL-2-PENTANONE	12U	12U	12U	12U
2-HEXANONE	12U	12U	12U	12U
TETRACHLOROETHENE	12U	12U	12U	12U
1,1,2,2-TETRACHLOROETHANE	12U	12U	12U	12U
TOULENE	12U	12U	12U	12U
CHLOROBENZENE	12U	12U	12U	12U
ETHYLBENZENE	12U	12U	12U	12U
STYRENE	12U	12U	12U	12U
XYLENE,TOTAL	12U	12U	12U	12U

200 ug class II
18000 inhal.

LEGEND:

B - Indicates compound found in associated blank sample.

J - Indicates estimated value (Below MDL but above IDL).

TABLE 3-2
ANALYTICAL RESULTS - SOIL - SEMI-VOLATILE ORGANIC COMPOUNDS
NTC - GREAT LAKES

TtNUS Sample ID:	GL-001-02	GL-001-03	GL-001-04	GL-001-05
DATE SAMPLED	6/8/98	6/8/98	6/8/98	6/8/98
DEPTH OF SAMPLE	1.2 Feet	1.2 Feet	1.2 Feet	1.2 Feet
UNITS	ug/Kg	ug/Kg	ug/Kg	ug/Kg
PHENOL	400U	29 J	400U	400U
BIS(2-CHLOROETHYL) ETHER	400U	400U	400U	400U
2-CHLOROPHENOL	400U	400U	400U	400U
1,3-DICHLOROBENZENE	400U	400U	400U	400U
1,4-DICHLOROBENZENE	400U	400U	400U	400U
1,2-DICHLOROBENZENE	400U	400U	400U	400U
2-METHYLPHENOL	400U	400U	400U	400U
2,2'-OXYBIS (1-CHLOROPROPANE)	400U	400U	400U	400U
4-METHYLPHENOL	400U	400U	400U	400U
N-NITROSO-DIPROPYLAMINE	400U	400U	400U	400U
HEXACHLOROETHANE	400U	400U	400U	400U
NITROBENZENE	400U	400U	400U	400U
ISOPHORONE	400U	400U	400U	400U
2-NITROPHENOL	400U	400U	400U	400U
2,4-DIMETHYLPHENOL	400U	400U	400U	400U
BIS(2-CLETHOXY)-METHANE	400U	400U	400U	400U
2,4-DICHLOROPHENOL	400U	400U	400U	400U
1,2,4-TRICHLOROBENZENE	400U	400U	400U	400U
NAPTHALENE	55 J	420	400U	400U
4-CHLOROANILINE	400U	400U	400U	400U
HEXACHLOROBUTADIENE	400U	400U	400U	400U
4-CHLORO-3-METHYLPHENOL	400U	400U	400U	400U
2-METHYLNAPTHALENE	42 J	430	21 J	400U
HEXACHLOROCYCLOPENTADIENE	400U	400U	400U	400U
2,4,6-TRICHLOROPHENOL	400U	400U	400U	400U
2,4,5-TRICHLOROPHENOL	1,000U	1,000U	1,000U	1,000U
2-CHLORONAPTHALENE	400U	400U	400U	400U
2-NITROANILINE	1,000U	1,000U	1,000U	1,000U
DIMETHYLPHTHALATE	400U	400U	400U	400U
ACENAPTHYLENE	400U	90 J	400U	400U
2,6-DINITROTOLUENE	400U	400U	400U	400U
3-NITROANILINE	1,000U	1,000U	1,000U	1,000U
ACENAPTHENE	120 J	1,500	400U	400U
2,4-DINITROPHENOL	1,000U	1,000U	1,000U	1,000U
4-NITROPHENOL	1,000U	400U	1,000U	1,000U
DIBENZOFURAN	65 J	890	400U	400U
2,4-DINITROTOLUENE	400U	400U	400U	400U
DIETHYLPHTHALATE	400U	400U	400U	400U
4-CHLOROPHENYLPHENYL-ETHER	400U	400U	400U	400U
FLUORENE	89 J	1,800	400U	400U
4-NITROANILINE	1,000U	1,000U	1,000U	1,000U

TABLE 3-2
ANALYTICAL RESULTS - SOIL - SEMI-VOLATILE ORGANIC COMPOUNDS
NTC - GREAT LAKES

TtNUS Sample ID:	GL-001-02	GL-001-03	GL-001-04	GL-001-05
DATE SAMPLED	6/8/98	6/8/98	6/8/98	6/8/98
DEPTH OF SAMPLE	1.2 Feet	1.2 Feet	1.2 Feet	1.2 Feet
UNITS	ug/Kg	ug/Kg	ug/Kg	ug/Kg
4,6-DINITRO-2-METHYLPHENOL	1,000U	1,000U	1,000U	1,000U
N-NITROSO-DI-PHENYLAMINE	400U	400U	400U	400U
4-BROMOPHENYL PHENYLETHER	400U	400U	400U	400U
HEXACHLOROBENZENE	400U	400U	400U	400U
PENTACHLOROPHENOL	1,000U	39 J	1,000U	1,000U
PHENANTHRENE	1,300	30,000	46 J	34 J
ANTHRACENE	324 J	4,500 J	400U	400U
CARBAZOLE	180 J	3,300 J	400U	400U
DI-n-BUTYLPHTHALATE	25 J	400U	400U	400U
FLUORANTHENE	2,300	59,000	37 J	81 J
PYRENE	2,300	63,000	81 J	160 J
BUTYL BENZYL PHTHALATE	400U	400U	400U	400U
3,3'-DICHLOROBENZIDINE	400U	400U	400U	400U
BENZO(a)ANTHRACENE	1,200	27,000	22 J	58 J
CHRYSENE	1,200	30,000	40 J	73 J
BIS(2-ETHYLHEXYL)-PHTHALATE	100 J	160 JB	170 JB	130 JB
DI-n-OCTYLPHTHALATE	400U	400U	400U	400U
BENZO(b)FLUORANTHENE	1,400	37,000	33 J	66 J
BENZO(k)FLUORANTHENE	900	21,000	25 J	42 J
BENZO(a)PYRENE	1,300	28,000	25 J	65 J
INDENO(1,2,3-cd)PYRENE	890	15,000 J	46 J	56 J
DIBENZO(a,h)ANTHRACENE	380 J	8,300 J	400U	32 J
BENZO(g,h,i)PERYLENE	1,000 J	15,000 J	66 J	61 J

Class I gw 80 mg/kg

~~81,000 ingest~~

ingest. 900 mg/kg Class I = 2,000 ingest 88,000

9000 ingest

900 ingest

900 ingest

90 ingest

LEGEND:

B - Indicates compound found in associated blank sample.
J - Indicates estimated value (Below MDL but above IDL)
U - Indicates compound was not detected at the specified limit.

DRAFT

TABLE 3-3
ANALYTICAL RESULTS - SOIL - INORGANIC COMPOUNDS
NTC - GREAT LAKES

TtNUS Sample ID:	GL-001-02	GL-001-03	GL-001-04	GL-001-05	
DATE	6/8/98	6/8/98	6/8/98	6/8/98	
DEPTH OF SAMPLE	1.2 Feet	1.2 Feet	1.2 Feet	1.2 Feet	
UNITS	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
ALUMINUM	16,000	13,200	9,850	11,500	
ANTIMONY	0.40U	1.7 BN	0.39 BN	0.44 BN	31
ARSENIC	9	9.9	6.2	7.4	0.4
BARIUM	91.8	151	73.8	61.3	~~04~~ 5,500
BERYLLIUM	0.91 B	1.2	0.54 B	0.60 B	0.1
CADMIUM	0.99 B	1.7	0.46U	0.50 B	78
CALCIUM	8,840 *	31,400	38,700 *	40,600 *	
CHROMIUM	38.1 N*	37.2 N*	21.0 N*	20.9 N*	270 (inhalation)
COBALT	9.8 B	10.4	12.1	12.3	4700
COPPER	32.5	117 *	20.4	23.2 *	2900
IRON	24,900	29,400	19,300 *	20,400	—
LEAD	49	429 *	17.4 *	19.4 *	400
MAGNESIUM	7,390	14,700	21,400	22,700	
MANGANESE	470	637	1,500	891	3700
MERCURY	0.47 *	2.4 *	0.10 B*	0.17 *	10 inhalation
NICKEL	26.8	29.2	25.2	25.7	1600
POTASSIUM	2,780	2,160	1,730	2,430	~~380~~
SELENIUM	0.64U N	0.66U N	0.64U N	0.63U N	890
SILVER	1.1B	1.1 B	0.53U	0.60 B	390
SODIUM	66.7 B	161 B	95.2 B	104 B	
THALLIUM	1.0 B	1.3 B	3	2	6.8
VANADIUM	37.8	33.3	22.5	25.8	550
ZINC	139 N	252	62.4 N	68.2 N	23,000

CYANIDE	2.0U	2.0U	2.0U	2.0U
PERCENT SOLIDS (%)	85	85	84	87

LEGEND:
B - Sample result below MDL but above IDL.
N - Matrix spiked sample recovery not within control limits.
U - Indicates compound not detected at specified limit.
*** - Duplicate analysis not within control limit.**

DRAFT

TABLE 3-4
ANALYTICAL RESULTS SOIL - PESTICIDES/PCBs
NTC - GREAT LAKES

TtNUS Sample ID:	GL-001-02	GL-001-03	GL-001-04	GL-001-05	
DATE	6/8/98	6/8/98	6/8/98	6/8/98	
DEPTH OF SAMPLE	1.2 Feet	1.2 Feet	1.2 Feet	1.2 Feet	
UNITS	ug/Kg	ug/Kg	ug/Kg	ug/Kg	
alpha-BHC	2.0U	2.0U	2.0U	2.0U	
beta-BHC	2.0U	2.0U	2.0U	2.0U	
delta-BHC	2.0U	2.0U	2.0U	2.0U	
gamma-BHC (Lindane)	2.0U	2.0U	2.0U	2.0U	
Heptachlor	2.0U	2.0U	2.0U	2.0U	
Aldrin	2.0 P	2.0U	2.0U	2.0U	40
Heptachlor epoxide	2.0U	2.0U	2.0U	2.0U	
Endosulfan I	2.0U	2.0U	2.0U	2.0U	
Dieldrin	3.9U	3.9U	3.9U	3.8U	
4,4' DDE	30	94 P	3.9U	3.0 JP	2000
Endrin	3.9U	3.9U	3.9U	3.8U	
Endosulfan II	3.9U	3.9U	3.9U	3.8U	
4,4' DDD	3.9U	3.9U	3.9U	3.8 P	
Endosulfan sulfate	3.9U	3.9U	3.9U	3.8U	
4,4' DDT	16 P	81 P	3.9U	3.3 JP	2000
Methoxychlor	20U	20U	20U	20U	
Endrin ketone	3.9U	3.9U	3.9U	3.8U	
Endrin Aldehyde	3.9U	3.9U	3.9U	3.8U	
alpha-Chlordane	2.0U	2.0U	2.0U	2.0U	
gamma-Chlordane	2.0U	2.0U	2.0U	2.0U	
Toxaphene	200U	200U	200U	200U	
Arochlor-1016	39U	39U	39U	38U	
Arochlor-1221	79U	79U	80U	77U	
Arochlor-1232	39U	39U	39U	38U	
Arochlor-1242	39U	39U	39U	38U	
Arochlor-1248	39U	39U	39U	38U	
Arochlor-1254	39U	1,500 DP	39U	38U	100 or 1000
Arochlor-1260	39U	39U	39U	26 JP	100 or 1000

LEGEND:
D - Dilution sample result. Validation would identify biased high result.
P - Indicates a greater than 25 % difference between GC columns.
U - Indicates compound was not detected at the specified limit.
J - Indicates estimated value (Below MDL but above IDL).

REFERENCES

Brown & Root Environmental, May 1998, Work Plan for Sampling in Support of Relative Risk Evaluation at Various Activities Addendum 1.

APPENDIX A

SAMPLE LOG SHEETS

NTC GREAT LAKES

SINGLE SAMPLE LOG SHEET

Project Site Name: NTC GREAT LAKES

Project No.: 7848 CTO 060

- ☐ Surface Soil
- ☒ Subsurface Soil
- ☐ Sediment
- ☐ Other _____
- ☐ QA Sample Type: _____

Sample ID No.: GL-001-02

Sample Location: GOLF COURSE LANDFILL

Sampled By: DAN HAMEL

C.O.C. No.: _____

Sample Method: SHOVEL AND DISPOSABLE TROWEL - ENCORE SAMPLER

Depth Sampled: 1.2 FT BGL

Sample Date and Time: 6/8/98 1445 HRS

Type of Sample
- ☒ Grab
- ☐ Composite
- ☐ Grab-Composite
- ☐ High Concentration
- ☐ Low Concentration

Composite Sample Data		
Sample	Time	Color/Description
	N/A	

Grab Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
GRAY-BROWN	GLASS, CINDER, SOME CLAY, TRACE COAL

Analysis	Container Requirements	Collected (✓)
TCL VOLATILES (METHOD 5035/8260B)	3 - 5gram ENCORE SAMPLERS	✓
TCL SEMIVOLATILES	2-4OZ JARS	✓
TCL PESTICIDE/PCBs	2-4OZ JARS	✓
TAL METALS/CYANIDE	2-4OZ JARS	✓
MOISTURE CONTENT (METHOD 5035/8260B)	1-2OZ JAR	✓

Map: (FILL) - DRY

LOCATION: 9 FT NORTH OF #4 FAIRWAY. 642 FEET FROM EDGE OF #4 GREEN.

Observations/Notes: BORING 0-0.2 FT TOPSOIL
STRESSED VEGETATION 0.2-0.8 FT BROWN CLAY, LITTLE F-M SAND, TRACE FINE GRAVEL, DRY
0.8-1.2 FT GRAY-BROWN; GLASS, CINDER, SOME CLAY, TRACE COAL (FILL)

Circle if Applicable:

MS/MSD | Duplicate ID No:

Signature(s): Daniel R Hamel

SINGLE SAMPLE LOG SHEET

Project Site Name: NTC GREAT LAKES

Sample ID No.: GL-001-03

Project No.: 7848 CTO 060

Sample Location: GOLF COURSE LANDFILL

- ☐ Surface Soil
- ☒ Subsurface Soil
- ☐ Sediment
- ☐ Other _____
- ☐ QA Sample Type: _____

Sampled By: DAN HAMEL

C.O.C. No.: _____

Sample Method: SHOVEL AND DISPOSABLE TROWEL - ENCORE SAMPLER

Depth Sampled: 1.2 FT BGL

Sample Date and Time: 6/8/98 1555 HRS

Type of Sample
- ☒ Grab
- ☐ Composite
- ☐ Grab-Composite
- ☐ High Concentration
- ☐ Low Concentration

Composite Sample Data

Sample	Time	Color/Description
	N/A	

Grab Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
GRAY	CINDERS, GLASS, SOME CLAY, TRACE COAL

Analysis	Container Requirements	Collected (✓)
TCL VOLATILES (METHOD 5035/8260B)	3 - 5gram ENCORE SAMPLERS	✓
TCL SEMIVOLATILES	2-4OZ JARS	✓
TCL PESTICIDE/PCBs	2-4OZ JARS	✓
TAL METALS/CYANIDE	2-4OZ JARS	✓
MOISTURE CONTENT (METHOD 5035/8260B)	1-2OZ JAR	✓

Map: (FILL); DRY

LOCATION: 25 FT SOUTH OF #4 FAIRWAY. 597 FEET FROM EDGE OF #4 GREEN.

Observations/Notes: BORING 0-0.2 FT TOP SOIL
NOT STRESSED VEGETATION 0.2-0.6 FT BROWN; CLAY, LITTLE F-M SAND, TRACE F. GRAVEL; DRY
0.6-1.2 FT GRAY; CINDERS, GLASS, SOME CLAY, TRACE COAL; DRY (FILL)

Circle if Applicable:

MS/MSD	Duplicate ID No:

Signature(s): Daniel R Hamel

SINGLE SAMPLE LOG SHEET

Project Site Name: NTC GREAT LAKES

Sample ID No.: GL-001-04

Project No.: 7848 CTO 060

Sample Location: GOLF COURSE LANDFILL

- ☐ Surface Soil
- ☒ Subsurface Soil
- ☐ Sediment
- ☐ Other _____
- ☐ QA Sample Type: _____

Sampled By: DAN HAMEL

C.O.C. No.: _____

Sample Method: SHOVEL AND DISPOSABLE TROWEL - ENCORE SAMPLER

Depth Sampled: 1.2 FT BGL

Sample Date and Time: 6/8/98 1650 HRS

Type of Sample
- ☒ Grab
- ☐ Composite
- ☐ Grab-Composite
- ☐ High Concentration
- ☐ Low Concentration

Composite Sample Data		
Sample	Time	Color/Description
	N/A	

Grab Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
GRAY	CLAY, TRACE F-M SAND, TRACE FINE GRAVEL; DRY

Analysis	Container Requirements	Collected (✓)
TCL VOLATILES (METHOD 5035/8260B)	3 - 5gram ENCORE SAMPLERS	✓
TCL SEMIVOLATILES	2-4OZ JARS	✓
TCL PESTICIDE/PCBs	2-4OZ JARS	✓
TAL METALS/CYANIDE	2-4OZ JARS	✓
MOISTURE CONTENT (METHOD 5035/8260B)	1-2OZ JAR	✓

Map: LOCATION: CENTER LINE OF #13 FAIRWAY. 189 FEET FROM EDGE OF #13 GREEN.

Observations/Notes: BORING 0-0.2 FT TOPSOIL - PEAT
SEVERLY STRESSED VEGETATION 0.2-1.2 FT GRAY; CLAY, TRACE F-M SAND, TRACE FINE GRAVEL; DRY
NON FILL SAMPLE

Circle if Applicable:

MS/MSD

Duplicate ID No:

Signature(s): Daniel R Hamel

SINGLE SAMPLE LOG SHEET

Project Site Name: NTC GREAT LAKES

Sample ID No.: GL-001-05

Project No.: 7848 CTO 060

Sample Location: GOLF COURSE LANDFILL

- ☐ Surface Soil
- ☒ Subsurface Soil
- ☐ Sediment
- ☐ Other _____
- ☐ QA Sample Type: _____

Sampled By: DAN HAMEL

C.O.C. No.: _____

Sample Method: SHOVEL AND DISPOSABLE TROWEL - ENCORE SAMPLER

Depth Sampled: 1.2 FT BGL

Sample Date and Time: 6/8/98 1745 HRS

Type of Sample
- ☒ Grab
- ☐ Composite
- ☐ Grab-Composite
- ☐ High Concentration
- ☐ Low Concentration

Composite Sample Data		
Sample	Time	Color/Description
	N/A	

Grab Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
GRAY-BROWN	CLAY, TRACE F-M SAND, TRACE FINE GRAVEL

Analysis	Container Requirements	Collected (✓)
TCL VOLATILES (METHOD 5035/8260B)	3 5gram ENCORE SAMPLERS	✓
TCL SEMIVOLATILES	2-4OZ JARS	✓
TCL PESTICIDE/PCBs	2-4OZ JARS	✓
TAL METALS/CYANIDE	2-4OZ JARS	✓
MOISTURE CONTENT (METHOD 5035/8260B)	1-2OZ JAR	✓

Map: LOCATION: 27 FT NW OF EDGE OF #11 TEE.

Observations/Notes: SEVERELY STRESSED VEGETATION.

BORING 0-0.2FT TOPSOIL - PEAT

0.2-0.8 FT BROWN; CLAY, LITTLE F-M SAND, TRACE FINE GRAVEL; DRY

0.8-1.2FT GRAY-BROWN; CLAY; TRACE F-M SAND TRACE FINE GRAVEL, GLASS, COAL; DRY (FILL)

Circle if Applicable:

MS/MSD

Duplicate ID No:

Signature(s): Daniel R Hamel

APPENDIX B

LABORATORY SAMPLE DATA SUMMARY PACKAGE

NTC GREAT LAKES

TETRA TECH NUS
NTC-GREAT LAKES/7848
SDG: NTC01
WO-1606

KATAHDIN ANALYTICAL SERVICES, INC.
340 COUNTY ROAD 5
WESTBROOK, ME 04092

SAMPLE DATA SUMMARY PACKAGE

Katahdin
ANALYTICAL SERVICES

TABLE OF CONTENTS

SAMPLE DATA PACKAGE		0000001		
Narrative	----------	0000002	to	0000006
Supporting Documents	----------	0000005	to	0000007
Chain of Custody Record	----------	0000008	to	0000008
Confirmation	----------	0000009	to	0000009
VOLATILE ANALYSIS		1000001		
QC Summary	----------	1000002	to	1000012
Sample Data	----------	1000013	to	1000097
Standards Data	----------	1000098	to	1000164
Raw QC Data	----------	1000165	to	1000212
Logbooks and Supporting Documents	----------	1000213	to	1000219
SEMIVOLATILE ANALYSIS		2000001		
QC Summary	----------	2000002	to	2000018
Sample Data	----------	2000019	to	2000248
Standards Data	----------	2000249	to	2000358
Raw QC Data	----------	2000359	to	2000410
Logbooks and Supporting Documents	----------	2000411	to	2000416
PESTICIDE/PCB ANALYSIS	----------	3000001		
QC Summary	----------	3000002	to	3000006
Sample Data	----------	3000007	to	3000058
Standards Data	----------	3000059	to	3000419
Raw QC Data	----------	3000420	to	3000508
Logbooks and Supporting Documents	----------	3000509	to	3000517
METALS ANALYSIS		4000001		
Sample Data	----------	4000002	to	4000007
QC Summary	----------	4000008	to	4000134
Raw Data	----------	4000135	to	4000418
Logbooks and Supporting Documents	----------	4000419	to	4000423
CONVENTIONAL AND PHYSICAL ANALYTICAL DATA		5000001		
QC Summary	----------	5000002	to	5000008
Sample Data	----------	5000009	to	5000013
Raw Data	----------	5000014	to	5000028

Katahdin
ANALYTICAL SERVICES

SDG NARRATIVE
KATAHDIN ANALYTICAL SERVICES
TETRA TECH NUS, INC.
CASE: NTC-GREAT LAKES CTO 060 SDG:NTC01

Sample Receipt

The following samples were received on June 9, 1998 and were logged in under Katahdin Analytical Services work order number WO1606 for a hardcopy due date of June 30, 1998.

KATAHDIN	TETRA TECH NUS
Sample No.	Sample Identification
WO1606-1	GL-001-02
WO1606-2	GL-001-03
WO1606-3	GL-001-04
WO1606-4	GL-001-05
WO1606-5	TRIP BLANK

The samples were logged in for the analyses specified on the chain of custody form. All problems encountered and resolved during sample receipt have been documented on the applicable chain of custody forms with the following exception:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) will not be reported on any sample. Insufficient volume was received. Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) will be provided for analysis.

Volatile Organics Analysis

One aqueous and four soil/sediment samples were received by the Katahdin Analytical Services, Inc. GC/MS laboratory on June 9, 1998 for analysis and reporting in accordance with the USEPA CLP OLM03.1 statement of work (SOW). The client requested that freon-113 be calibrated for and reported along with the USEPA CLP list of analytes. The client also requested that the soil samples be purged using USEPA method 5035 rather than the USEPA CLP method.

No matrix spike/matrix spike duplicate pairs were analyzed on any of the samples in this workorder.

The pH of the aqueous sample (methanol trip blank) was monitored by VOA analysts immediately prior to analysis and was determined to be <2.

Two instruments were used for analysis, 5972-S (low level soils, equipped with an Archon model 5100 purge and trap autosampler system) and 5970-Q (methanol trip blank), with the capillary columns and traps as follows:

340 County Road No. 5
P.O. Box 720, Westbrook, ME 04098
Tel: (207) 874-2400 Fax: (207) 775-4029

210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

5972-S: column: RTX-624, 40m, 0.18mm id, 3.0 um film thickness
trap: Tekmar C trap, charcoal/tenax/silica gel

5970-Q: column: RTX-624, 75m, 0.53 mm id, 3.0 um film thickness
trap: Tekmar C trap, charcoal/tenax/silica gel

The following alkanes were identified as tentatively identified compounds (TICs) and have not been included on the form 1E:

EPA Sample ID	Alkane	Estimated Concentration
WO1606-3, GL-001-04	n-alkanes	42
	branched alkanes	25
	cyclic alkanes	11

Estimated concentrations in the table above are in units of either ug/kg or ug/l, depending on the matrix. All results in this table are estimated and should be used with the "J" qualifier.

Samples were extruded from the ENCORE samplers on June 10, 1998 into a VOA vial containing methanol and or sodium bisulfate. Addition of samples WO1606-2, -3, and -4 to their respective VOA vials caused effervescence. In accordance with the method, the remaining ENCORE samplers for samples WO1606-2 and -4 were extruded into methanol only. Sample WO1606-3 did not effervesce immediately, so both ENCORE aliquots were extruded into a methanol-sodium bisulfate solution. Effervescence of each occurred after approximately five minutes in contact with the solution.

Analyses occurred with non-effervescing aliquots of samples WO1606-1, WO1606-2, and WO1606-4. Initial analysis of sample WO1606-3 was performed using one of the effervescent aliquots since both effervesced.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" (software-generated) on the pertinent quantitation reports. All "M" flags have been dated and initialed by the analyst performing the integration. In addition, all "M" flags have been reviewed and approved by the GC/MS supervisor. Copies of each manual integration performed are included in the data package.

No other protocol deviations were noted by the volatile organics staff.

Semivolatile Organics Extraction and Analysis

Four soil/sediment samples were received by the Katahdin Analytical Services, Inc. GC/MS laboratory on June 9, 1998 for analysis and reporting in accordance with the USEPA CLP OLM03.1 statement of work (SOW).

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Tel: (207) 874-2400 Fax: (207) 775-4029

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Tel: (603) 431-5777 Fax: (603) 436-3356

Initial extraction of the samples occurred under SBLK01 on June 12, 1998. A laboratory control spike, along with a matrix spike/matrix spike duplicate pair on sample WO1606-1 (GL-001-02), was extracted in the batch.

Analysis of sample WO1606-1 (GL-001-02) yielded low surrogate recoveries. Reextraction of this sample occurred under SBLK02 on June 19, 1998, within holding times. All QC results for this reextracted sample met criteria. Only the reextracted sample with no suffix has been included in the data package.

Initial analysis of sample WO1606-2 (GL-001-03) yielded internal standard area recovery deviations and target analyte concentrations over the upper limit of the calibration curve. Reanalysis occurred at a 1:50 dilution, also with internal standard area recovery deviations, confirming matrix interference. This diluted analysis also had no recovery of the surrogate 2,4,6-tribromophenol. Both sets of data for this sample are included in the data package.

Analysis of the QC samples WO1606-1MS and -1MSD (GL-001-02MS and MSD) each yielded internal standard area recovery deviations. Sample WO1606-1MS also yielded a high recovery of the surrogate terphenyl-d14. No action was taken with these QC samples.

One instrument was used for analysis, 5970-X, with the capillary column as follows:

column: Restek RTX-5 30m, 0.25 mm id, 0.25 um film thickness or equivalent.

The following alkanes were identified as tentatively identified compounds (TICs) and have not been included on the form 1E:

EPA Sample ID	Alkane	Estimated Concentration
SBLK;061298	cyclic alkanes	630
	straight alkanes	1000
SBLK;061998	straight alkanes	870
WO1606-1, GL-001-02	straight alkanes	710
WO1606-2, GL-001-03	straight alkanes	1900
WO1606-3, GL-001-04	straight alkanes	1800
	branched alkanes	570
WO1606-4, GL-001-05	straight alkanes	2600
	branched alkanes	250

Estimated concentrations in the table above are in units of either ug/kg or ug/l, depending on the matrix. All results in this table are estimated and should be used with the "J" qualifier.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" (software-generated) on the pertinent quantitation reports. All "M" flags have been dated and initialed by the analyst performing the integration. In addition, all "M" flags have been reviewed and approved by the GC/MS supervisor. Copies of each manual integration performed are included in the data

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P.O. Box 720, Westbrook, ME 04098
210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

package.

No other protocol deviations were noted by the semivolatile organics staff.

GC Laboratory

Samples WO1606-1 through -4 were received on 6/9/98 and were analyzed for pesticides/PCBs according to EPA CLP OLM03.1. Sample WO1606-1 was used for the matrix spiked sample (MS) and the matrix spiked sample duplicate (MSD), as per client request. The samples were extracted and analyzed within holding time with the following comments:

CLP Analysis

Two calibration verification standards, PEMCB and PEMDA, files 2OF5023 and 2OF5056, had high responses for beta-BHC, which resulted in %Ds of 40% and 30%, respectively, on the primary column, which is outside of the method acceptance limit of 25%. This is due to the coelution of a phthalate peak with beta-BHC. The recoveries for beta-BHC on the secondary column were within the acceptance limits. The data quality should not be affected.

Some samples had high surrogate recoveries for DCB due to matrix interference..

The surrogate recoveries for TCMX in sample WO1606-1 were low and outside acceptable limits on both the primary and secondary columns. Since the recoveries for DCB were within acceptance limits, the sample quality should still be useable. The retention times for both surrogates on the primary column were outside of the retention time window. This is likely due to matrix interference.

Sample WO1606-2 needed to be reanalyzed at a 0.1/0.5 dilution in order to bring the Aroclor 1254 concentration into the calibration range. Both the original and the diluted analyses are reported and included in the package.

The calibration verification standard, PEMCD, file 2OF6049, had Endrin breakdown of 32%. This is all attributable to carryover that interferes with Endrin ketone.

There were no other deviations or observations made by the GC laboratory staff.

Metals Analysis

SDG NTC01 samples were analyzed in accordance with the "USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis", Document Number ILM04.0.

Inductively-Coupled Plasma (ICP) Atomic Emission Spectroscopic Analysis

The soil-matrix samples of SDG NTC01 were originally digested for total metals on 06/13/98 (QC Batch OF13ICS2) prior to ICP analysis. The recoveries of several metals from the laboratory control sample

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Tel: (603) 431-5777 Fax: (603) 436-3356

that was associated with this batch exceeded the laboratory's acceptance limits. For this reason, no analytical results that were obtained from this batch for client samples were accepted. The samples of SDG NTC01 were therefore redigested on 06/16/98 (QC Batch OF16ICS2) for ICP analysis. Katahdin Sample No. WO1606-1 was digested in duplicate and with a matrix spike in this batch. Redigested samples are identified throughout the accompanying raw data by the suffix "R" appended to the Katahdin Sample Number, e.g. "WO1606-001R". Please note that all ICP analytical results that are reported in the accompanying data package were obtained from the redigestion of 06/16/98.

ICP analyses of SDG NTC01 sample digestates were performed using a Thermo Jarrell Ash (TJA) Trace ICP spectrometer and a TJA 61 ICP spectrometer. All samples were analyzed within holding times and all QC criteria were met with the following comments or exceptions:

Some CCVs and/or CCBs included in the accompanying data package may have exceeded acceptance limits for some elements. Please note that all client samples and batch QC samples associated with out-of-control results for CCVs or CCBs were subsequently reanalyzed for the analytes in question.

Analysis of Mercury by Cold Vapor Atomic Absorption (CVAA)

The samples of SDG NTC01 were digested on 06/11/98 (QC Batch OF11HGS1) for mercury analysis in accordance with USEPA Method 245.5 CLP-M. Katahdin Sample No. WO1606-1 was digested in duplicate and with a matrix spike in this batch.

Mercury analyses of SDG NTC01 sample digestates were performed using a Leeman Labs PS200 automated mercury analyzer. All samples were analyzed within holding times and all QC criteria were met.

Wet Chemistry Analysis

Analyses for Cyanide SDG NTC01 samples and reporting of SDG NTC01 sample results have been performed in accordance with the "Standard Methods for the Examination of Water and Wastewater". Analyses for Total Solids (TS) for SDG NTC01 samples have been performed in accordance with "EPA Contract Laboratory Program Statement of Work for Inorganic Analysis". No protocol deviations were noted by the Wet Chemistry group.

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 has been authorized by the Laboratory Manager and/or his designee, as verified by the following signature.

Maria Crouch
Authorized Signature
07/16/98

00000006

KATAHDIN ANALYTICAL SERVICES, INC.

SAMPLE RECEIPT CONDITION REPORT

Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER) # WO 16 06

PAGE: 1 OF 1

COOLER: 1 OF 1

CLIENT: Tetra Tech

PROJECT: Great Lakes

COC#

SDG#

DATE / TIME RECEIVED: 6/9/98

DELIVERED BY: FEDEX

RECEIVED BY: TAS

LIMS ENTRY BY: TAS

LIMS REVIEW BY / PM: LPepin

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	☒	☐	☐		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	☒	☐	☐		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	☒	☐	☐		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	☒	☐	☐		
5. TEMPERATURE BLANKS PRESENT?	☒	☐	☐	TEMP BLANK TEMP (°C)= 4.0	
6. SAMPLES RECEIVED AT 4°C +/- 2? ICE / ICE PACKS PRESENT (Y) or N?	☒	☐	☐	COOLER TEMP (°C)= NA (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	☐	☐	☒	NA	
8. TRIP BLANK PRESENT IN THIS COOLER	☒	☐	☐		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	☒	☐	☐		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	☒	☐	☐		
11. SAMPLES PROPERLY PRESERVED[1]?	☒	☐	☐		
12. CORRECTIVE ACTION REPORT FILED?	☐	☒	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP (NFESC) ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES[1]:

(1) Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

Katahdin
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04098
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE PRINT IN PEN

Client: Tetra Tech NUS
Contact: DAN HAMEL
Phone #: (517) 655-4342
Fax #: (517) 655-183

Address: 1099 West Grand River, PO Box 100
City: WILLIAMSTON
State: MI
Zip Code: 48895

Purchase Order #:
Proj. Name / No.: NTC-Great Lakes / 7848
Katahdin Quote #:

Bill (if different than above): Tetra Tech NUS
Address: 661 Andersen Drive Foster Plaza 7 PITTSBURGH, PA 15220

Sampler (Print / Sign): DANIEL R. HAMEL Daniel R Hamel
Copies To:

LAB USE ONLY
WORK ORDER #: W01606
KATAHDIN PROJECT MANAGER: L PEPIN

REMARKS:

SHIPPING INFO: ☒ FED EX ☐ UPS ☐ CLIENT
AIRBILL NO: 3999 569 615

TEMP°C: ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE / PRESERVATIVES

*	Sample Description	Date / Time coll'd	Matrix	No. of Ctrs.	Pest/PCB/CLP 4oz GLASS	SemiVOA/TICs 4oz GLASS	Metals/Cyanide 4oz GLASS	Encore Sampler 5 Gram 5035 VOA CLP *	5035 - Moisture Content 2oz GLASS	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N
	GL-001-02	6/8/98/1455	SOIL	10	2	2	2	3	1						
	GL-001-03	6/8/98/1555	SOIL	10	2	2	2	3	1						
	GL-001-04	6/8/98/1650	SOIL	10	2	2	2	3	1						
	GL-001-05	6/8/98/1745	SOIL	10	2	2	2	3	1						
	TRIP BLANK	/													
		/													
		/													
		/													
		/													
		/													
		/													
		/													
		/													
		/													
		/													
	METHOD 5035	/													

COMMENTS * LOW LEVEL - MED LEVEL IF REQUIRED

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Daniel R Hamel	6/8/98 1940	FED EXPRESS			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
		[illegible signature]		6/9/98 1115	

SAMPLE DATA PACKAGE

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

GL-001-02I

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Soil

Sample wt/vol: 5.0 g

Level: (low/med) low

% Moisture: not dec. 15

GC Column: RTX-624 ID: 0.18 (mm)

Soil Extract Volume: (uL)

Lab Sample ID: WO1606-1

Lab File ID: S0037

Date Received: 06/09/98

Date Analyzed: 06/18/98

Dilution Factor: 1.0

Concentration Units: ug/Kg

CAS NO.	COMPOUND	CONCENTRATION	Q
74-87-3	CHLOROMETHANE	12	U
74-83-9	BROMOMETHANE	12	U
75-01-4	VINYL CHLORIDE	12	U
75-00-3	CHLOROETHANE	12	U
75-09-2	METHYLENE CHLORIDE	13	B
67-64-1	ACETONE	30	B
75-15-0	CARBON DISULFIDE	12	U
75-35-4	1,1-DICHLOROETHENE	12	U
75-34-3	1,1-DICHLOROETHANE	12	U
540-59-0	TOTAL 1,2-DICHLOROETHENE	12	U
67-66-3	CHLOROFORM	12	U
107-06-2	1,2-DICHLOROETHANE	12	U
78-93-3	2-BUTANONE	6	J
71-55-6	1,1,1-TRICHLOROETHANE	12	U
56-23-5	CARBON TETRACHLORIDE	12	U
75-27-4	BROMODICHLOROMETHANE	12	U
78-87-5	1,2-DICHLOROPROPANE	12	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	12	U
79-01-6	TRICHLOROETHENE	12	U
124-48-1	DIBROMOCHLOROMETHANE	12	U
79-00-5	1,1,2-TRICHLOROETHANE	12	U
71-43-2	BENZENE	12	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	12	U
75-25-2	BROMOFORM	12	U
108-10-1	4-METHYL-2-PENTANONE	12	U
591-78-6	2-HEXANONE	12	U
127-18-4	TETRACHLOROETHENE	12	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	12	U
108-88-3	TOLUENE	12	U
108-90-7	CHLOROBENZENE	12	U
100-41-4	ETHYLBENZENE	12	U
100-42-5	STYRENE	12	U
1330-20-7	TOTAL XYLENES	12	U

Surrogate Recoveries

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

GL-001-02I

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Soil

Sample wt/vol: 5.0 g

Level: (low/med) low

% Moisture: not dec. 15

GC Column: RTX-624 ID: 0.18 (mm)

Soil Extract Volume: (uL)

Lab Sample ID: WO1606-1

Lab File ID: S0037

Date Received: 06/09/98

Date Analyzed: 06/18/98

Dilution Factor: 1.0

Concentration Units: ug/Kg

CAS NO.	COMPOUND	CONCENTRATION	Q
17060-07-0	1,2-DICHLOROETHANE-D4	97	%
2037-26-5	TOLUENE-D8	102	%
460-00-4	BROMOFLUOROBENZENE	76	%

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

GL-001-03J

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Soil
Sample wt/vol: 5.0 g
Level: (low/med) low
% Moisture: not dec. 15
GC Column: RTX-624 ID: 0.18 (mm)
Soil Extract Volume: (uL)

Lab Sample ID: WO1606-2
Lab File ID: S0038
Date Received: 06/09/98
Date Analyzed: 06/18/98
Dilution Factor: 1.0
Concentration Units: ug/Kg

CAS NO.	COMPOUND	CONCENTRATION	Q
74-87-3	CHLOROMETHANE	12	U
74-83-9	BROMOMETHANE	12	U
75-01-4	VINYL CHLORIDE	12	U
75-00-3	CHLOROETHANE	12	U
75-09-2	METHYLENE CHLORIDE	12	U
67-64-1	ACETONE	12	U
75-15-0	CARBON DISULFIDE	12	U
75-35-4	1,1-DICHLOROETHENE	12	U
75-34-3	1,1-DICHLOROETHANE	12	U
540-59-0	TOTAL 1,2-DICHLOROETHENE	12	U
67-66-3	CHLOROFORM	12	U
107-06-2	1,2-DICHLOROETHANE	12	U
78-93-3	2-BUTANONE	12	U
71-55-6	1,1,1-TRICHLOROETHANE	12	U
56-23-5	CARBON TETRACHLORIDE	12	U
75-27-4	BROMODICHLOROMETHANE	12	U
78-87-5	1,2-DICHLOROPROPANE	12	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	12	U
79-01-6	TRICHLOROETHENE	12	U
124-48-1	DIBROMOCHLOROMETHANE	12	U
79-00-5	1,1,2-TRICHLOROETHANE	12	U
71-43-2	BENZENE	12	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	12	U
75-25-2	BROMOFORM	12	U
108-10-1	4-METHYL-2-PENTANONE	12	U
591-78-6	2-HEXANONE	12	U
127-18-4	TETRACHLOROETHENE	12	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	12	U
108-88-3	TOLUENE	12	U
108-90-7	CHLOROBENZENE	12	U
100-41-4	ETHYLBENZENE	12	U
100-42-5	STYRENE	12	U
1330-20-7	TOTAL XYLENES	12	U

Surrogate Recoveries

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

GL-001-03J

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Soil

Sample wt/vol: 5.0 g

Level: (low/med) low

% Moisture: not dec. 15

GC Column: RTX-624 ID: 0.18 (mm)

Soil Extract Volume: (uL)

Lab Sample ID: WO1606-2

Lab File ID: S0038

Date Received: 06/09/98

Date Analyzed: 06/18/98

Dilution Factor: 1.0

Concentration Units: ug/Kg

CAS NO.	COMPOUND	CONCENTRATION	Q
17060-07-0	1,2-DICHLOROETHANE-D4	97	%
2037-26-5	TOLUENE-D8	107	%
460-00-4	BROMOFLUOROBENZENE	87	%

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

GL-001-04I

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Soil

Sample wt/vol: 5.0 g

Level: (low/med) low

% Moisture: not dec. 16

GC Column: RTX-624 ID: 0.18 (mm)

Soil Extract Volume: (uL)

Lab Sample ID: WO1606-3

Lab File ID: S0040

Date Received: 06/09/98

Date Analyzed: 06/18/98

Dilution Factor: 1.0

Concentration Units: ug/Kg

CAS NO.	COMPOUND	CONCENTRATION	Q
74-87-3	CHLOROMETHANE	12	U
74-83-9	BROMOMETHANE	12	U
75-01-4	VINYL CHLORIDE	12	U
75-00-3	CHLOROETHANE	12	U
75-09-2	METHYLENE CHLORIDE	12	U
67-64-1	ACETONE	27	B
75-15-0	CARBON DISULFIDE	12	U
75-35-4	1,1-DICHLOROETHENE	12	U
75-34-3	1,1-DICHLOROETHANE	12	U
540-59-0	TOTAL 1,2-DICHLOROETHENE	12	U
67-66-3	CHLOROFORM	12	U
107-06-2	1,2-DICHLOROETHANE	12	U
78-93-3	2-BUTANONE	8	J
71-55-6	1,1,1-TRICHLOROETHANE	12	U
56-23-5	CARBON TETRACHLORIDE	12	U
75-27-4	BROMODICHLOROMETHANE	12	U
78-87-5	1,2-DICHLOROPROPANE	12	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	12	U
79-01-6	TRICHLOROETHENE	12	U
124-48-1	DIBROMOCHLOROMETHANE	12	U
79-00-5	1,1,2-TRICHLOROETHANE	12	U
71-43-2	BENZENE	12	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	12	U
75-25-2	BROMOFORM	12	U
108-10-1	4-METHYL-2-PENTANONE	12	U
591-78-6	2-HEXANONE	12	U
127-18-4	TETRACHLOROETHENE	12	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	12	U
108-88-3	TOLUENE	12	U
108-90-7	CHLOROBENZENE	12	U
100-41-4	ETHYLBENZENE	12	U
100-42-5	STYRENE	12	U
1330-20-7	TOTAL XYLENES	12	U

Surrogate Recoveries

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

GL-001-04I

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Soil

Sample wt/vol: 5.0 g

Level: (low/med) low

% Moisture: not dec. 16

GC Column: RTX-624 ID: 0.18 (mm)

Soil Extract Volume: (uL)

Lab Sample ID: WO1606-3

Lab File ID: S0040

Date Received: 06/09/98

Date Analyzed: 06/18/98

Dilution Factor: 1.0

Concentration Units: ug/Kg

CAS NO.	COMPOUND	CONCENTRATION	Q
17060-07-0	1,2-DICHLOROETHANE-D4	94	%
2037-26-5	TOLUENE-D8	84	%
460-00-4	BROMOFLUOROBENZENE	81	%

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

GL-001-05J

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Soil
Sample wt/vol: 5.0 g
Level: (low/med) low
% Moisture: not dec. 13
GC Column: RTX-624 ID: 0.18 (mm)
Soil Extract Volume: (uL)

Lab Sample ID: WO1606-4
Lab File ID: S0039
Date Received: 06/09/98
Date Analyzed: 06/18/98
Dilution Factor: 1.0
Concentration Units: ug/Kg

CAS NO.	COMPOUND	CONCENTRATION	Q
74-87-3	CHLOROMETHANE	12	U
74-83-9	BROMOMETHANE	12	U
75-01-4	VINYL CHLORIDE	12	U
75-00-3	CHLOROETHANE	12	U
75-09-2	METHYLENE CHLORIDE	12	U
67-64-1	ACETONE	12	U
75-15-0	CARBON DISULFIDE	12	U
75-35-4	1,1-DICHLOROETHENE	12	U
75-34-3	1,1-DICHLOROETHANE	12	U
540-59-0	TOTAL 1,2-DICHLOROETHENE	12	U
67-66-3	CHLOROFORM	12	U
107-06-2	1,2-DICHLOROETHANE	12	U
78-93-3	2-BUTANONE	12	U
71-55-6	1,1,1-TRICHLOROETHANE	12	U
56-23-5	CARBON TETRACHLORIDE	12	U
75-27-4	BROMODICHLOROMETHANE	12	U
78-87-5	1,2-DICHLOROPROPANE	12	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	12	U
79-01-6	TRICHLOROETHENE	12	U
124-48-1	DIBROMOCHLOROMETHANE	12	U
79-00-5	1,1,2-TRICHLOROETHANE	12	U
71-43-2	BENZENE	12	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	12	U
75-25-2	BROMOFORM	12	U
108-10-1	4-METHYL-2-PENTANONE	12	U
591-78-6	2-HEXANONE	12	U
127-18-4	TETRACHLOROETHENE	12	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	12	U
108-88-3	TOLUENE	12	U
108-90-7	CHLOROBENZENE	12	U
100-41-4	ETHYLBENZENE	12	U
100-42-5	STYRENE	12	U
1330-20-7	TOTAL XYLENES	12	U

Surrogate Recoveries

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

GL-001-05J

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Soil

Sample wt/vol: 5.0 g

Level: (low/med) low

% Moisture: not dec. 13

GC Column: RTX-624 ID: 0.18 (mm)

Soil Extract Volume: (uL)

Lab Sample ID: WO1606-4

Lab File ID: S0039

Date Received: 06/09/98

Date Analyzed: 06/18/98

Dilution Factor: 1.0

Concentration Units: ug/Kg

CAS NO.	COMPOUND	CONCENTRATION	Q
17060-07-0	1,2-DICHLOROETHANE-D4	92	%
2037-26-5	TOLUENE-D8	96	%
460-00-4	BROMOFLUOROBENZENE	85	%

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

TRIP BLANK

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Water

Sample wt/vol: 0.100 ml

Level: (low/med) low

% Moisture: not dec.

GC Column: RTX-502.2 ID: 0.53 (mm)

Soil Extract Volume: (uL)

Lab Sample ID: WO1606-5

Lab File ID: Q1298

Date Received: 06/09/98

Date Analyzed: 06/17/98

Dilution Factor: 50

Concentration Units: ug/L

CAS NO.	COMPOUND	CONCENTRATION	Q
74-87-3	CHLOROMETHANE	500	U
74-83-9	BROMOMETHANE	500	U
75-01-4	VINYL CHLORIDE	500	U
75-00-3	CHLOROETHANE	500	U
75-09-2	METHYLENE CHLORIDE	330	J
67-64-1	ACETONE	500	U
75-15-0	CARBON DISULFIDE	500	U
75-35-4	1,1-DICHLOROETHENE	500	U
75-34-3	1,1-DICHLOROETHANE	500	U
540-59-0	TOTAL 1,2-DICHLOROETHENE	500	U
67-66-3	CHLOROFORM	500	U
107-06-2	1,2-DICHLOROETHANE	500	U
78-93-3	2-BUTANONE	500	U
71-55-6	1,1,1-TRICHLOROETHANE	500	U
56-23-5	CARBON TETRACHLORIDE	500	U
75-27-4	BROMODICHLOROMETHANE	500	U
78-87-5	1,2-DICHLOROPROPANE	500	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	500	U
79-01-6	TRICHLOROETHENE	500	U
124-48-1	DIBROMOCHLOROMETHANE	500	U
79-00-5	1,1,2-TRICHLOROETHANE	500	U
71-43-2	BENZENE	500	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	500	U
75-25-2	BROMOFORM	500	U
108-10-1	4-METHYL-2-PENTANONE	500	U
591-78-6	2-HEXANONE	500	U
127-18-4	TETRACHLOROETHENE	500	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	500	U
108-88-3	TOLUENE	500	U
108-90-7	CHLOROBENZENE	500	U
100-41-4	ETHYLBENZENE	500	U
100-42-5	STYRENE	500	U
1330-20-7	TOTAL XYLENES	500	U

Surrogate Recoveries

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Client Sample No.

TRIP BLANK

Lab Name: Katahdin Analytical Services SDG No.: NTC01

Matrix: (Soil/Water) Water

Sample wt/vol: 0.100 ml

Level: (low/med) low

% Moisture: not dec.

GC Column: RTX-502.2 ID: 0.53 (mm)

Soil Extract Volume: (uL)

Lab Sample ID: WO1606-5

Lab File ID: Q1298

Date Received: 06/09/98

Date Analyzed: 06/17/98

Dilution Factor: 50

Concentration Units: ug/L

CAS NO.	COMPOUND	CONCENTRATION	Q
17060-07-0	1,2-DICHLOROETHANE-D4	84	%
2037-26-5	TOLUENE-D8	101	%
460-00-4	BROMOFLUOROBENZENE	105	%

Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-1
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-02	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
CLP BNA								1,2
Phenol	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
bis(2-Chloroethyl)ether	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2-Chlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
1,3-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
1,4-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
1,2-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2-Methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2,2'-oxybis (1-chloropropane)	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
4-Methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
n-Nitroso-dipropylamine	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Hexachloroethane	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Nitrobenzene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Isophorone	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2-Nitrophenol	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 06/19/98 by ESE using SW3550
(2) "J" flag denotes an estimated value less than the Laboratory's Practical Quantitation Level.

07/15/98

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Katahdin
ANALYTICAL SERVICES

Lab Number : WO-1606-1
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-02	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTE
2,4-Dimethylphenol	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
bis(2-clethoxy)methane	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2,4-Dichlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
1,2,4-Trichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Naphthalene	J55	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
4-Chloroaniline	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Hexachlorobutadiene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
4-Chloro-3-methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2-Methylnaphthalene	J42	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Hexachlorocyclopentadien	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2,4,6-Trichlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2,4,5-Trichlorophenol	<1000.	µg/Kg	1.2	830	OLM03.1	07/02/98	JG	
2-Chloronaphthalene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	07/02/98	JG	
Dimethylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/15/98

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-1
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-02	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Acenaphthylene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2,6-Dinitrotoluene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
3-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	07/02/98	JG	
Acenaphthene	J120	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2,4-Dinitrophenol	<1000.	µg/Kg	1.2	830	OLM03.1	07/02/98	JG	
4-Nitrophenol	<1000.	µg/Kg	1.2	830	OLM03.1	07/02/98	JG	
Dibenzofuran	J65	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2,4-Dinitrotoluene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Diethylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
4-Chlorophenyl phenyl ether	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Fluorene	J89	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
4-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	07/02/98	JG	
4,6-Dinitro-2-mphenol	<1000.	µg/Kg	1.2	830	OLM03.1	07/02/98	JG	
n-Nitrosodiphenylamine	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
4-Bromophenyl phenyl ether	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/15/98

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-1
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-02	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOT
Hexachlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Pentachlorophenol	<1000.	µg/Kg	1.2	830	OLM03.1	07/02/98	JG	
Phenanthrene	1300.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Anthracene	J320	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Carbazole	J180	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Di-n-butylphthalate	J25	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Fluoranthene	2300.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Pyrene	2300.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Butyl benzylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
3,3'-Dichlorobenzidine	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Benzo(a)anthracene	1200	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Chrysene	1200	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
b(2-Ethylhexyl)phthalate	J100	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Di-n-octylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Benzo(b)fluoranthene	1400	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/15/98

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Tel: (603) 431-5777 Fax: (603) 436-3356

Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-1
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-02	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Benzo(k)fluoranthene	900	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Benzo(a)pyrene	1300	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Indeno(1,2,3-cd)pyrene	890	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Dibenzo(a,h)anthracene	J380	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
Benzo(g,h,i)perylene	1000	µg/Kg	1.2	330	OLM03.1	07/02/98	JG	
2-Fluorophenol (% Rec.)	41.	%	1.2		OLM03.1	07/02/98	JG	
Phenol-d5 (% Rec.)	49.	%	1.2		OLM03.1	07/02/98	JG	
Nitrobenzene-d5 (% Rec.)	59.	%	1.2		OLM03.1	07/02/98	JG	
2-Fluorobiphenyl (% Rec.	63.	%	1.2		OLM03.1	07/02/98	JG	
2,4,6-Tribromophenol (% Rec.)	68.	%	1.2		OLM03.1	07/02/98	JG	
Terphenyl-d14 (% Rec.)	79.	%	1.2		OLM03.1	07/02/98	JG	
2-Chlorophenol-d4 (% Rec.)	45.	%	1.2		OLM03.1	07/02/98	JG	
1,2-Dichlorobenzene-d4 (% Rec.)	33.	%	1.2		OLM03.1	07/02/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/15/98

LJO/ertert
OF19BNS1

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-3
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVE
GL-001-04	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOT
CLP BNA								1,2,3
Phenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
bis(2-Chloroethyl)ether	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Chlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,3-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,4-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,2-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,2'-oxybis (1-chloropropane)	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
n-Nitroso-dipropylamine	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachloroethane	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Nitrobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Isophorone	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 06/12/98 by ESE using SW3550
(2) "B" flag denotes detection of this analyte in the laboratory method blank analyzed concurrently with the sample.
(3) "J" flag denotes an estimated value less than the Laboratory's Practical Quantitation Level.

07/15/98

LJO/ertert
OF12BNS4

Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-3
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-04	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
2-Nitrophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dimethylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
bis(2-clethoxy)methane	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dichlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,2,4-Trichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Naphthalene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Chloroaniline	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachlorobutadiene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Chloro-3-methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Methylnaphthalene	J21	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachlorocyclopentadien	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4,6-Trichlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4,5-Trichlorophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
2-Chloronaphthalene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/15/98

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-3
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-04	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTE
2-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Dimethylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Acenaphthylene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,6-Dinitrotoluene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
3-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Acenaphthene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dinitrophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
4-Nitrophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Dibenzofuran	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dinitrotoluene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Diethylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Chlorophenyl phenyl ether	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Fluorene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	

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07/15/98

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-3
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-04	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
4,6-Dinitro-2-mphenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
n-Nitrosodiphenylamine	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Bromophenyl phenyl ether	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Pentachlorophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Phenanthrene	J46	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Anthracene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Carbazole	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Di-n-butylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Fluoranthene	J37	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Pyrene	J81	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Butyl benzylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
3,3'-Dichlorobenzidine	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(a)anthracene	J22	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

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07/15/98

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ANALYTICAL SERVICES

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PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-3
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-04	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTE
Chrysene	J40	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
b(2-Ethylhexyl)phthalate	JB170	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Di-n-octylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(b)fluoranthene	J33	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(k)fluoranthene	J25	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(a)pyrene	J25	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Indeno(1,2,3-cd)pyrene	J46	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Dibenzo(a,h)anthracene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(g,h,i)perylene	J66	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Fluorophenol (% Rec.)	83.	%	1.2		OLM03.1	06/27/98	JG	
Phenol-d5 (% Rec.)	73.	%	1.2		OLM03.1	06/27/98	JG	
Nitrobenzene-d5 (% Rec.)	75.	%	1.2		OLM03.1	06/27/98	JG	
2-Fluorobiphenyl (% Rec.	76.	%	1.2		OLM03.1	06/27/98	JG	
2,4,6-Tribromophenol (% Rec.)	64.	%	1.2		OLM03.1	06/27/98	JG	

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07/15/98

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ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-3
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-04	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Terphenyl-d14 (% Rec.)	121.	%	1.2		OLM03.1	06/27/98	JG	
2-Chlorophenol-d4 (% Rec.)	80.	%	1.2		OLM03.1	06/27/98	JG	
1,2-Dichlorobenzene-d4 (% Rec.)	71.	%	1.2		OLM03.1	06/27/98	JG	

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07/15/98

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-4
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-05	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTE
CLP BNA								1,2,3
Phenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
bis(2-Chloroethyl)ether	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Chlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,3-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,4-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,2-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,2'-oxybis (1-chloropropane)	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
n-Nitroso-dipropylamine	<400.	µg/Kg	1.2	330	OLM03:1	06/27/98	JG	
Hexachloroethane	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Nitrobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Isophorone	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample specific reporting limits. Sample-specific limits are indicated by results annotated with '<' value.
(1) Sample Preparation on 06/12/98 by ESE using SW3550
(2) "J" flag denotes an estimated value less than the Laboratory's Practical Quantitation Level.
(3) "B" flag denotes detection of this analyte in the laboratory method blank analyzed concurrently with the sample.

07/15/98

LJO/ertert
OF12BNS4

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-4
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-05	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
2-Nitrophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dimethylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
bis(2-clethoxy)methane	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dichlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,2,4-Trichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Naphthalene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Chloroaniline	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachlorobutadiene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Chloro-3-methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Methylnaphthalene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachlorocyclopentadien	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4,6-Trichlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4,5-Trichlorophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
2-Chloronaphthalene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

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07/15/98

LJO/ertert
OF12BNS4

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-4
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-05	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTE
2-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Dimethylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Acenaphthylene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,6-Dinitrotoluene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
3-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Acenaphthene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dinitrophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
4-Nitrophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Dibenzofuran	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dinitrotoluene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Diethylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Chlorophenyl phenyl ether	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Fluorene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/15/98

LJO/ertert
OF12BNS4

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-4
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-05	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
4,6-Dinitro-2-mphenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
n-Nitrosodiphenylamine	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Bromophenyl phenyl ether	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Pentachlorophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Phenanthrene	J34	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Anthracene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Carbazole	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Di-n-butylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Fluoranthene	J81	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Pyrene	J160	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Butyl benzylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
3,3'-Dichlorobenzidine	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(a)anthracene	J58	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-4
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVE
GL-001-05	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOT
Chrysene	J73	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
b(2-Ethylhexyl)phthalate	JB130	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Di-n-octylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(b)fluoranthene	J66	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(k)fluoranthene	J42	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(a)pyrene	J65	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Indeno(1,2,3-cd)pyrene	J56	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Dibenzo(a,h)anthracene	J32	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(g,h,i)perylene	J61	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Fluorophenol (% Rec.)	81.	%	1.2		OLM03.1	06/27/98	JG	
Phenol-d5 (% Rec.)	72	%	1.2		OLM03.1	06/27/98	JG	
Nitrobenzene-d5 (% Rec.)	70	%	1.2		OLM03.1	06/27/98	JG	
2-Fluorobiphenyl (% Rec.	73	%	1.2		OLM03.1	06/27/98	JG	
2,4,6-Tribromophenol (% Rec.)	61	%	1.2		OLM03.1	06/27/98	JG	

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Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-05	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Terphenyl-d14 (% Rec.)	123	%	1.2		OLM03.1	06/27/98	JG	
2-Chlorophenol-d4 (% Rec.)	78	%	1.2		OLM03.1	06/27/98	JG	
1,2-Dichlorobenzene-d4 (% Rec.)	62	%	1.2		OLM03.1	06/27/98	JG	

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ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOT
CLP BNA								1,2,3,4,5
Phenol	J29	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
bis(2-Chloroethyl)ether	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Chlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,3-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,4-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,2-Dichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,2'-oxybis (1-chloropropane)	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
n-Nitroso-dipropylamine	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachloroethane	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

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(1) Sample Preparation on 06/12/98 by ESE using SW3550
(2) "B" flag denotes detection of this analyte in the laboratory method blank analyzed concurrently with the sample.
(3) "J" flag denotes an estimated value less than the Laboratory's Practical Quantitation Level.
(4) "E" flag indicates an estimated value. The analyte was detected in the sample at a concentration greater than the standard calibration range.
(5) Internal standard area(s) are out of criteria. Reanalysis confirmed matrix interference.

07/15/98

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ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Nitrobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Isophorone	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Nitrophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dimethylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
bis(2-clethoxy)methane	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dichlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
1,2,4-Trichlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Naphthalene	420	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Chloroaniline	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachlorobutadiene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Chloro-3-methylphenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Methylnaphthalene	430	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

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Lab Number : WO-1606-2
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Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVE
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOT
Hexachlorocyclopentadien	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4,6-Trichlorophenol	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4,5-Trichlorophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
2-Chloronaphthalene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Dimethylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Acenaphthylene	J90	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,6-Dinitrotoluene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
3-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Acenaphthene	1500	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dinitrophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
4-Nitrophenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	

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REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Dibenzofuran	890	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2,4-Dinitrotoluene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Diethylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Chlorophenyl phenyl ether	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Fluorene	1800	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Nitroaniline	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
4,6-Dinitro-2-methylphenol	<1000.	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
n-Nitrosodiphenylamine	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
4-Bromophenyl phenyl ether	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Hexachlorobenzene	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Pentachlorophenol	J39	µg/Kg	1.2	830	OLM03.1	06/27/98	JG	
Phenanthrene	E23000	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

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07/15/98

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ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTE
Anthracene	E4400	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Carbazole	E3300	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Di-n-butylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Fluoranthene	E29000	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Pyrene	E53000	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Butyl benzylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
3,3'-Dichlorobenzidine	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(a)anthracene	E29000	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Chrysene	E22000	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
b(2-Ethylhexyl)phthalate	JB160	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Di-n-octylphthalate	<400.	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(b)fluoranthene	E42000	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	

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REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Benzo(k)fluoranthene	E3900	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(a)pyrene	E22000	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Indeno(1,2,3-cd)pyrene	E23000	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Dibenzo(a,h)anthracene	E9300	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
Benzo(g,h,i)perylene	E21000	µg/Kg	1.2	330	OLM03.1	06/27/98	JG	
2-Fluorophenol (% Rec.)	46.	%	1.2		OLM03.1	06/27/98	JG	
Phenol-d5 (% Rec.)	56.	%	1.2		OLM03.1	06/27/98	JG	
Nitrobenzene-d5 (% Rec.)	66.	%	1.2		OLM03.1	06/27/98	JG	
2-Fluorobiphenyl (% Rec.	78.	%	1.2		OLM03.1	06/27/98	JG	
2,4,6-Tribromophenol (% Rec.)	70.	%	1.2		OLM03.1	06/27/98	JG	
Terphenyl-d14 (% Rec.)	116.	%	1.2		OLM03.1	06/27/98	JG	
2-Chlorophenol-d4 (% Rec.)	54.	%	1.2		OLM03.1	06/27/98	JG	

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REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOT
1,2-Dichlorobenzene-d4 (% Rec.)	61.	%	1.2		OLM03.1	06/27/98	JG	

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ANALYTICAL SERVICES

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Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
CLP BNA (DL)								1,2,3,4,5
Phenol	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
bis(2-Chloroethyl)ether	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2-Chlorophenol	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
1,3-Dichlorobenzene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
1,4-Dichlorobenzene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
1,2-Dichlorobenzene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2-Methylphenol	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2,2'-oxybis (1-chloropropane)	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
4-Methylphenol	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
n-Nitroso-dipropylamine	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Hexachloroethane	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	

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(1) Sample Preparation on 06/12/98 by ESE using SW3550
(2) "J" flag denotes an estimated value less than the Laboratory's Practical Quantitation Level.
(3) "#" flag denotes surrogate compound recovery is out of criteria.
(4) Internal standard area(s) are out of criteria. Reanalysis confirmed matrix interference.
(5) Sample dilution required for quantitation of one or more target analytes; therefore, standard laboratory Practical Quantitation Level (PQL) could not be achieved.

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WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVE
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOT
Nitrobenzene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Isophorone	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2-Nitrophenol	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2,4-Dimethylphenol	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
bis(2-clethoxy)methane	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2,4-Dichlorophenol	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
1,2,4-Trichlorobenzene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Naphthalene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
4-Chloroaniline	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Hexachlorobutadiene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
4-Chloro-3-methylphenol	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2-Methylnaphthalene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/15/98

LJO/ertert
OF12BNS4

Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Hexachlorocyclopentadien	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2,4,6-Trichlorophenol	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2,4,5-Trichlorophenol	<49000.	µg/L	59.0	830	OLM03.1	06/30/98	JG	
2-Chloronaphthalene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2-Nitroaniline	<49000.	µg/L	59.0	830	OLM03.1	06/30/98	JG	
Dimethylphthalate	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Acenaphthylene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2,6-Dinitrotoluene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
3-Nitroaniline	<49000.	µg/L	59.0	830	OLM03.1	06/30/98	JG	
Acenaphthene	J1400	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2,4-Dinitrophenol	<49000.	µg/L	59.0	830	OLM03.1	06/30/98	JG	
4-Nitrophenol	<49000.	µg/L	59.0	830	OLM03.1	06/30/98	JG	

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07/15/98

LJO/ertert
OF12BNS4

Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTE
Dibenzofuran	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2,4-Dinitrotoluene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Diethylphthalate	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
4-Chlorophenyl phenyl ether	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Fluorene	J1400	µg/L	59.0	330	OLM03.1	06/30/98	JG	
4-Nitroaniline	<49000.	µg/L	59.0	830	OLM03.1	06/30/98	JG	
4,6-Dinitro-2-mphenol	<49000.	µg/L	59.0	830	OLM03.1	06/30/98	JG	
n-Nitrosodiphenylamine	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
4-Bromophenyl phenyl ether	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Hexachlorobenzene	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Pentachlorophenol	<49000.	µg/L	59.0	830	OLM03.1	06/30/98	JG	
Phenanthrene	30000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	

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07/15/98

LJO/ertert
OF12BNS4

Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Anthracene	J4500	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Carbazole	J3300	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Di-n-butylphthalate	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Fluoranthene	59000	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Pyrene	63000	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Butyl benzylphthalate	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
3,3'-Dichlorobenzidine	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Benzo(a)anthracene	27000	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Chrysene	30000	µg/L	59.0	330	OLM03.1	06/30/98	JG	
b(2-Ethylhexyl)phthalate	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Di-n-octylphthalate	<19000.	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Benzo(b)fluoranthene	37000	µg/L	59.0	330	OLM03.1	06/30/98	JG	

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07/15/98

LJO/ertert
OF12BNS4

Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVE
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOT
Benzo(k)fluoranthene	21000	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Benzo(a)pyrene	28000	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Indeno(1,2,3-cd)pyrene	J15000	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Dibenzo(a,h)anthracene	J8300	µg/L	59.0	330	OLM03.1	06/30/98	JG	
Benzo(g,h,i)perylene	J15000	µg/L	59.0	330	OLM03.1	06/30/98	JG	
2-Fluorophenol (% Rec.)	31.	%	59.0		OLM03.1	06/30/98	JG	
Phenol-d5 (% Rec.)	38.	%	59.0		OLM03.1	06/30/98	JG	
Nitrobenzene-d5 (% Rec.)	36.	%	59.0		OLM03.1	06/30/98	JG	
2-Fluorobiphenyl (% Rec.	67.	%	59.0		OLM03.1	06/30/98	JG	
2,4,6-Tribromophenol (% Rec.)	#0	%	59.0		OLM03.1	06/30/98	JG	
Terphenyl-d14 (% Rec.)	86.	%	59.0		OLM03.1	06/30/98	JG	
2-Chlorophenol-d4 (% Rec.)	34.	%	59.0		OLM03.1	06/30/98	JG	

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07/15/98

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 07/15/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
1,2-Dichlorobenzene-d4 (% Rec.)	80.	%	59.0		OLM03.1	06/30/98	JG	

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07/15/98

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OF12BNS4

560 County Road No. 5
P.O. Box 720, Westbrook, ME 04098
Tel: (207) 775-3400 Fax: (207) 775-4029

210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WO1606-1

Lab Name:Katahdin Analytical SVCS Contract:Tetratech

Lab Code:----- Case No.:----- SAS No.:----- SDG No.:NTC01

Matrix: (soil/water) SOIL Lab Sample ID:WO1606-1

Sample wt/vol: 30.00 (g/ml) G Lab File ID:

% Moisture: 15 decanted: (Y/N)N Date Received: 6/09/98

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 6/12/98

Concentrated Extract Volume: 5000.00 (uL) Date Analyzed: 6/24/98

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH:0.00 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6--------	alpha-BHC	2.0	U
319-85-7--------	beta-BHC	2.0	U
319-86-8--------	delta-BHC	2.0	U
58-89-9---------	gamma-BHC(Lindane)	2.0	U
76-44-8---------	Heptachlor	2.0	U
309-00-2--------	Aldrin	2.0	P
1024-57-3-------	Heptachlor epoxide	2.0	U
959-98-8--------	Endosulfan I	2.0	U
60-57-1---------	Dieldrin	3.9	U
72-55-9---------	4,4'-DDE	30.	
72-20-8---------	Endrin	3.9	U
33213-65-9------	Endosulfan II	3.9	U
72-54-8---------	4,4'-DDD	3.9	U
1031-07-8-------	Endosulfan sulfate	3.9	U
50-29-3---------	4,4'-DDT	16.	P
72-43-5---------	Methoxychlor	20.	U
53494-70-5------	Endrin ketone	3.9	U
7421-36-3-------	Endrin aldehyde	3.9	U
5103-71-9-------	alpha-Chlordane	2.0	U
5103-74-2-------	gamma-Chlordane	2.0	U
8001-35-2-------	Toxaphene	200.	U
12674-11-2------	Aroclor-1016	39.	U
11104-28-2------	Aroclor-1221	79.	U
11141-16-5------	Aroclor-1232	39.	U
53469-21-9------	Aroclor-1242	39.	U
12672-29-6------	Aroclor-1248	39.	U
11097-69-1------	Aroclor-1254	39.	U
11096-82-5------	Aroclor-1260	39.	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WO1606-2

Lab Name:Katahdin Analytical SVCS Contract:Tetratech

Lab Code:----- Case No.:----- SAS No.:----- SDG No.:NTC01

Matrix: (soil/water) SOIL Lab Sample ID:WO1606-2

Sample wt/vol: 30.00 (g/ml) G Lab File ID:

% Moisture: 15 decanted: (Y/N)N Date Received: 6/09/98

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 6/12/98

Concentrated Extract Volume: 5000.00 (uL) Date Analyzed: 6/24/98

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH:0.00 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC(Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.9	U
72-55-9	4,4'-DDE	94.	P
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	U
72-54-8	4,4'-DDD	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	81.	P
72-43-5	Methoxychlor	20.	U
53494-70-5	Endrin ketone	3.9	U
7421-36-3	Endrin aldehyde	3.9	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200.	U
12674-11-2	Aroclor-1016	39.	U
11104-28-2	Aroclor-1221	79.	U
11141-16-5	Aroclor-1232	39.	U
53469-21-9	Aroclor-1242	39.	U
12672-29-6	Aroclor-1248	39.	U
11097-69-1	Aroclor-1254	540.	P
11096-82-5	Aroclor-1260	39.	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WO1606-2DL

Lab Name:Katahdin Analytical SVCS Contract:Tetratech

Lab Code:----- Case No.:----- SAS No.:----- SDG No.:NTC01

Matrix: (soil/water) SOIL Lab Sample ID:WO1606-2DL

Sample wt/vol: 30.00 (g/ml) G Lab File ID:

% Moisture: 15 decanted: (Y/N)N Date Received: 6/09/98

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 6/12/98

Concentrated Extract Volume: 5000.00 (uL) Date Analyzed: 6/26/98

Injection Volume: 1.00 (uL) Dilution Factor: 5.00

GPC Cleanup: (Y/N) Y pH:0.00 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	10.	U
319-85-7	beta-BHC	10.	U
319-86-8	delta-BHC	10.	U
58-89-9	gamma-BHC(Lindane)	10.	U
76-44-8	Heptachlor	10.	U
309-00-2	Aldrin	10.	U
1024-57-3	Heptachlor epoxide	10.	U
959-98-8	Endosulfan I	10.	U
60-57-1	Dieldrin	19.	U
72-55-9	4,4'-DDE	57.	DP
72-20-8	Endrin	19.	U
33213-65-9	Endosulfan II	19.	U
72-54-8	4,4'-DDD	19.	U
1031-07-8	Endosulfan sulfate	19.	U
50-29-3	4,4'-DDT	140.	DP
72-43-5	Methoxychlor	100.	U
53494-70-5	Endrin ketone	19.	U
7421-36-3	Endrin aldehyde	19.	U
5103-71-9	alpha-Chlordane	10.	U
5103-74-2	gamma-Chlordane	10.	U
8001-35-2	Toxaphene	1000.	U
12674-11-2	Aroclor-1016	190.	U
11104-28-2	Aroclor-1221	390.	U
11141-16-5	Aroclor-1232	190.	U
53469-21-9	Aroclor-1242	190.	U
12672-29-6	Aroclor-1248	190.	U
11097-69-1	Aroclor-1254	1500.	DP
11096-82-5	Aroclor-1260	190.	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WO1606-3

Lab Name:Katahdin Analytical SVCS Contract:Tetratech

Lab Code:----- Case No.:----- SAS No.:----- SDG No.:NTC01

Matrix: (soil/water) SOIL Lab Sample ID:WO1606-3

Sample wt/vol: 30.00 (g/ml) G Lab File ID:

% Moisture: 16 decanted: (Y/N)N Date Received: 6/09/98

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 6/12/98

Concentrated Extract Volume: 5000.00 (uL) Date Analyzed: 6/24/98

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH:0.00 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC(Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.9	U
72-55-9	4,4'-DDE	3.9	U
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	U
72-54-8	4,4'-DDD	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	3.9	U
72-43-5	Methoxychlor	20.	U
53494-70-5	Endrin ketone	3.9	U
7421-36-3	Endrin aldehyde	3.9	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200.	U
12674-11-2	Aroclor-1016	39.	U
11104-28-2	Aroclor-1221	80.	U
11141-16-5	Aroclor-1232	39.	U
53469-21-9	Aroclor-1242	39.	U
12672-29-6	Aroclor-1248	39.	U
11097-69-1	Aroclor-1254	39.	U
11096-82-5	Aroclor-1260	39.	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WO1606-4

Lab Name:Katahdin Analytical SVCS Contract:Tetratech

Lab Code:----- Case No.:----- SAS No.:----- SDG No.:NTC01

Matrix: (soil/water) SOIL Lab Sample ID:WO1606-4

Sample wt/vol: 30.00 (g/ml) G Lab File ID:

% Moisture: 13 decanted: (Y/N)N Date Received: 6/09/98

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 6/12/98

Concentrated Extract Volume: 5000.00 (uL) Date Analyzed: 6/24/98

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH:0.00 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC(Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.8	U
72-55-9	4,4'-DDE	3.0	JP
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	3.8	P
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	3.3	JP
72-43-5	Methoxychlor	20.	U
53494-70-5	Endrin ketone	3.8	U
7421-36-3	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200.	U
12674-11-2	Aroclor-1016	38.	U
11104-28-2	Aroclor-1221	77.	U
11141-16-5	Aroclor-1232	38.	U
53469-21-9	Aroclor-1242	38.	U
12672-29-6	Aroclor-1248	38.	U
11097-69-1	Aroclor-1254	38.	U
11096-82-5	Aroclor-1260	26.	JP

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services **Client Field ID: GL-001-02**

Matrix: SOIL **SDG Name: NTC01**

Percent Solids: 85.7 **Lab Sample ID: WO1606-001**

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	DF
7429-90-5	ALUMINUM	16000			P	1
7440-36-0	ANTIMONY	0.40	U	N	P	1
7440-38-2	ARSENIC	9.0			P	1
7440-39-3	BARIUM	91.8			P	1
7440-41-7	BERYLLIUM	0.91	B		P	1
7440-43-9	CADMIUM	0.99	B		P	1
7440-70-2	CALCIUM	8840		*	P	1
7440-47-3	CHROMIUM	38.1		N*	P	1
7440-48-4	COBALT	9.8	B		P	1
7440-50-8	COPPER	32.5		*	P	1
7439-89-6	IRON	24900			P	1
7439-92-1	LEAD	49.0		*	P	1
7439-95-4	MAGNESIUM	7390			P	1
7439-96-5	MANGANESE	470			P	1
7439-97-6	MERCURY	0.47		*	CV	1
7440-02-0	NICKEL	26.8			P	1
7440-09-7	POTASSIUM	2780			P	1
7782-49-2	SELENIUM	0.64	U	N	P	1
7440-22-4	SILVER	1.1	B		P	1
7440-23-5	SODIUM	66.7	B		P	1
7440-28-0	THALLIUM	1.0	B		P	1
7440-62-2	VANADIUM	37.8			P	1
7440-66-6	ZINC	139		N	P	1

Color Before: BROWN **Texture:** MEDIUM **Artifacts:** PEBBLES

Color After: YELLOW **Clarity After:** CLEAR

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services
Client Field ID: GL-001-03
Matrix: SOIL
SDG Name: NTC01
Percent Solids: 85.3
Lab Sample ID: WO1606-002

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	DF
7429-90-5	ALUMINUM	13200			P	1
7440-36-0	ANTIMONY	1.7	B	N	P	1
7440-38-2	ARSENIC	9.9			P	1
7440-39-3	BARIUM	151			P	1
7440-41-7	BERYLLIUM	1.2			P	1
7440-43-9	CADMIUM	1.7			P	1
7440-70-2	CALCIUM	31400		*	P	1
7440-47-3	CHROMIUM	37.2		N*	P	1
7440-48-4	COBALT	10.4			P	1
7440-50-8	COPPER	117		*	P	1
7439-89-6	IRON	29400			P	1
7439-92-1	LEAD	429		*	P	1
7439-95-4	MAGNESIUM	14700			P	1
7439-96-5	MANGANESE	637			P	1
7439-97-6	MERCURY	2.4		*	CV	1
7440-02-0	NICKEL	29.2			P	1
7440-09-7	POTASSIUM	2160			P	1
7782-49-2	SELENIUM	0.66	U	N	P	1
7440-22-4	SILVER	1.1	B		P	1
7440-23-5	SODIUM	161	B		P	1
7440-28-0	THALLIUM	1.3	B		P	1
7440-62-2	VANADIUM	33.3			P	1
7440-66-6	ZINC	252		N	P	1

Color Before: BROWN
Texture: MEDIUM
Artifacts: PEBBLES
Color After: YELLOW
Clarity After: CLEAR
Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services | **Client Field ID: GL-001-04**

Matrix: SOIL | **SDG Name: NTC01**

Percent Solids: 84.3 | **Lab Sample ID: WO1606-003**

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	DF
7429-90-5	ALUMINUM	9850			P	1
7440-36-0	ANTIMONY	0.39	B	N	P	1
7440-38-2	ARSENIC	6.2			P	1
7440-39-3	BARIUM	73.8			P	1
7440-41-7	BERYLLIUM	0.54	B		P	1
7440-43-9	CADMIUM	0.46	U		P	1
7440-70-2	CALCIUM	38700		*	P	1
7440-47-3	CHROMIUM	21.0		N*	P	1
7440-48-4	COBALT	12.1			P	1
7440-50-8	COPPER	20.4		*	P	1
7439-89-6	IRON	19300			P	1
7439-92-1	LEAD	17.4		*	P	1
7439-95-4	MAGNESIUM	21400			P	1
7439-96-5	MANGANESE	1500			P	1
7439-97-6	MERCURY	0.10	B	*	CV	1
7440-02-0	NICKEL	25.2			P	1
7440-09-7	POTASSIUM	1730			P	1
7782-49-2	SELENIUM	0.64	U	N	P	1
7440-22-4	SILVER	0.53	U		P	1
7440-23-5	SODIUM	95.2	B		P	1
7440-28-0	THALLIUM	3.0			P	1
7440-62-2	VANADIUM	22.5			P	1
7440-66-6	ZINC	62.4		N	P	1

Color Before: TAN | **Texture:** FINE | **Artifacts:**

Color After: YELLOW | **Clarity After:** CLEAR

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services **Client Field ID:** GL-001-05

Matrix: SOIL **SDG Name:** NTC01

Percent Solids: 86.6 **Lab Sample ID:** WO1606-004

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	Q	M	DF
7429-90-5	ALUMINUM	11500			P	1
7440-36-0	ANTIMONY	0.44	B	N	P	1
7440-38-2	ARSENIC	7.4			P	1
7440-39-3	BARIUM	61.3			P	1
7440-41-7	BERYLLIUM	0.60	B		P	1
7440-43-9	CADMIUM	0.50	B		P	1
7440-70-2	CALCIUM	40600		*	P	1
7440-47-3	CHROMIUM	20.9		N*	P	1
7440-48-4	COBALT	12.3			P	1
7440-50-8	COPPER	23.2		*	P	1
7439-89-6	IRON	20400			P	1
7439-92-1	LEAD	19.4		*	P	1
7439-95-4	MAGNESIUM	22700			P	1
7439-96-5	MANGANESE	891			P	1
7439-97-6	MERCURY	0.17		*	CV	1
7440-02-0	NICKEL	25.7			P	1
7440-09-7	POTASSIUM	2430			P	1
7782-49-2	SELENIUM	0.63	U	N	P	1
7440-22-4	SILVER	0.60	B		P	1
7440-23-5	SODIUM	104	B		P	1
7440-28-0	THALLIUM	2.0			P	1
7440-62-2	VANADIUM	25.8			P	1
7440-66-6	ZINC	68.2		N	P	1

Color Before: TAN **Texture:** FINE **Artifacts:**

Color After: YELLOW **Clarity After:** CLEAR

Comments:

Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-1
Report Date: 06/25/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-02	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Cyanide, Total	<2.0	mg/kgdrywt	1.0	2.0	APHA 412/901	06/11/98	CM	1
Solids-Total Residue (TS)	85.	wt %	1.0	0.10	CLP/CIP SOW	06/10/98	JF	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 06/10/98 by CLM
(2) Sample Preparation on 06/09/98 by JF

06/25/98

LJO/msmlp(dw)
OF10CNS2

890 County Road No. 5
P.O. Box 720, Westbrook, ME 04098
Tel: (207) 874-2400 Fax: (207) 775-4029

210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-2
Report Date: 06/25/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-03	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTE
Cyanide, Total	<2.0	mg/kgdrywt	1.0	2.0	APHA 412/901	06/11/98	CM	1
Solids-Total Residue (TS)	85.	wt %	1.0	0.10	CLP/CIP SOW	06/10/98	JF	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 06/10/98 by CLM
(2) Sample Preparation on 06/09/98 by JF

06/25/98

LJO/msmlp(dw)
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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-3
Report Date: 06/25/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-04	Solid	D.HAMEL	06/08/98	06/09/98

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Cyanide, Total	<2.0	mg/kgdrywt	1.0	2.0	APHA 412/901	06/11/98	CM	1
Solids-Total Residue (TS)	84.	wt %	1.0	0.10	CLP/CIP SOW	06/10/98	JF	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 06/10/98 by CLM
(2) Sample Preparation on 06/09/98 by JF

06/25/98

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Katahdin
ANALYTICAL SERVICES

CLIENT: DAN HAMEL
TETRA TECH NUS
PO BOX 101, 109 WEST GRAND RIVER
WILLIAMSTON, MI 48895-0101

Lab Number : WO-1606-4
Report Date: 06/25/98
PO No. : 2049-7848-P98390
Project : NTC-GREAT LAKES/7848

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
GL-001-05	Solid	D.HAMEL	06/08/98	06/09/9

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOT
Cyanide, Total	<2.0	mg/kgdrywt	1.0	2.0	APHA 412/901	06/11/98	CM	1
Solids-Total Residue (TS)	87.	wt %	1.0	0.10	CLP/CIP SOW	06/10/98	JF	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 06/10/98 by CLM
(2) Sample Preparation on 06/09/98 by JF

06/25/98

LJO/msmlp(dw)
OF10CNS2

TETRA TECH NUS, INC.
1099 W. Grand River Ave., P.O. Box 101 ▪ Williamston, Michigan 48895-0101
(517) 655-4342 ▪ FAX (517) 655-1833 ▪ www.tetratech.com

C-53-08-98-02M

August 6, 1998

Project Number 7848

Commanding Officer
Department of the Navy
SOUTHDIV NAVFACENGCOM
ATTN: Mr. Bill Gates (Code 18510)
Remedial Project Manager
2155 Eagle Drive
North Charleston, SC 29406

Reference: CLEAN Contract No. N62467-94-D-0088, Contract Task Order No. 060

Subject: Transmittal of Draft Technical Memorandum Addendum 1 for the Additional Sampling of Site 1 – Golf Course Landfill at NTC Great Lakes.

Dear Mr. Gates:

Enclosed please find two (2) copies of the Draft Technical Memorandum Addendum 1 for the additional soil sampling of Site 1-Golf Course Landfill at NTC Great Lakes.

If you have any questions or require additional information, please contact me at (517) 655-4342.

Very truly yours,

Daniel R. Hamel
Task Order Manager

c: Ms. Jenny Ross, NTC Great Lakes (1 copy)
Ms. D. Evans-Riply, SOUTHDIV (w/o enclosure)
Ms. D. Wroblewski, B&RE
Mr. M. Perry, B&RE (w/o enclosures)
File 7848