MSD

January 15, 1998

Ms. Liza I. Montalvo
Remedial Project Manager
U. S. Environmental Protection Agency
Kentucky/Tennessee Section
Region IV
61 Forsyth Street
Atlanta, GA 30303

Re Results of Groundwater Quality Monitoring - FY 98, Second Quarter (FY98, -2Q), Lees Lane Superfund Site, Jefferson County, Kentucky, Administrative Order on Consent, USEPA Docket No. 91-32-C

Dear Ms. Montalvo:

In accordance with paragraph 11, under Reporting Requirement, of the subject Consent Order and Attachment 1, Operation and Maintenance Plan for Post-Removal Site Control at the Lee's Lane Landfill Site, Section 4.4, Groundwater Quality Monitoring, attached for your information files is one photocopy each of the following analyses and reports prepared by Heritage Laboratories, Inc., 4925 Heller Street, Louisville, Kentucky 40218 for MSD.

Certificate of Analysis

WELL LOCATION	SAMPLE DESCRIPTION	LAB ID	REPORT LENGTH
MW-02	LL-MW0221	A428975	7 pages
MW-04	LL-MW0421	A428971	7 pages
MW-05	LL-MW0521	A428973	7 pages
MW-05 DUP	LL-MW04 21 DUP	A428974	7 pages
MW-A	LL-MWA21	A428977	7 pages
MW-B	LL-MWB21	A428976	7 pages
Field Blank	LLMW05FB21	A428972	7 pages

10861087

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street Louisville, Kentucky 40203-1913 502-540-6000

Quality Assurance Reports

DESCRIPTION	REPORT LENGTH
Quality Assurance Report	28 pages
Volatile Continuing Calibration Check (2 dates)	4 pages
Volatile Method Blank (2 dates)	2 pages
Semi-volatile Continuing Calibration Check	3 pages
Semi-volatile Method Blank	2 pages

The above identified Certificates of Analysis, Quality Assurance Reports, and other documentation were received by the undersigned on January 12, 1998, and are transmitted within the five (5) working day requirement of Paragraph 11 of the Consent Order.

Please advise if you have any questions concerning the attached information.

Sincerely,

C. A. Neumayer
Director of Operations

CAN/dc
LeesgrouFY98-2q
Enclosures

cc: Kentucky Natural Resource Environment Protection Cabinet
Mr. Rick Hogan, Division of Waste Management
Kentucky Natural Resource Environment Protection Cabinet
Mr. Jeff Pratt, Division of Waste Management
G. R. Garner, Executive Director, MSD
File WD-2 (Lee's Lane M&M)

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	18-DEC-97		A428975
	Complete	PO Number	
	30-DEC-97	DP 00151	
	Printed	Sampled	
	31-DEC-97	17-DEC-97 12:53	

Report To	Bill To
DAN SAMMONS, MFWTP IND. WASTE LABORATORY LOUISVILLE AND JEFFERSON COUNTY M.S.D. P.O. BOX 740011 LOUISVILLE, KY 40201	MS. KAREN SHORTE LOUISVILLE & JEFFERSON COUNTY M.S.D. PO BOX 740011 LOUISVILLE, KY 40201

Sample Description

CLIENT ID: LLMW02-21

VOLATILE ORGANICS SW846-8240B

Analyst: R. SHAMP Analysis Date: 23-DEC-97 10:21 Instrument: GC/MS VOA Test: 0510.3.0

Parameter	Result	Det. Limit	Units
ACETONE	BDL	20	ug/L
ACROLEIN	BDL	50	ug/L
ACRYLONITRILE	BDL	70	ug/L
BENZENE	BDL	5	ug/L
BROMODICHLOROMETHANE	BDL	5	ug/L
BROMOFORM	BDL	5	ug/L
BROMOMETHANE	BDL	10	ug/L
CARBON DISULFIDE	BDL	5	ug/L
CARBON TETRACHLORIDE	BDL	5	ug/L
CHLOROBENZENE	BDL	5	ug/L
CHLOROETHANE	BDL	10	ug/L
CHLOROFORM	BDL	5	ug/L
CHLOROMETHANE	BDL	10	ug/L
DIBROMOCHLOROMETHANE	BDL	5	ug/L
CIS-1,3-DICHLOROPROPENE	BDL	5	ug/L
DICHLORODIFLUOROMETHANE	BDL	5	ug/L
1,1-DICHLOROETHANE	BDL	5	ug/L
1,2-DICHLOROETHANE	BDL	5	ug/L
1,1-DICHLOROETHENE	BDL	5	ug/L
1,2-DICHLOROPROPANE	BDL	5	ug/L
ETHYLBENZENE	BDL	5	ug/L
FLUOROTRICHLOROMETHANE	BDL	5	ug/L
2-HEXANONE	BDL	10	ug/L
METHYLENE CHLORIDE	BDL	5	ug/L
METHYL ETHYL KETONE	BDL	10	ug/L
4-METHYL-2-PENTANONE	BDL	10	ug/L
STYRENE	BDL	5	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	5	ug/L
TETRACHLOROETHENE	BDL	5	ug/L
TETRAHYDROFURAN	BDL	25	ug/L
TOLUENE	BDL	5	ug/L
1,2-DICHLOROETHENE (TOTAL)	BDL	5	ug/L
TRANS-1,3-DICHLOROPROPENE	BDL	5	ug/L
1,1,1-TRICHLOROETHANE	BDL	5	ug/L
1,1,2-TRICHLOROETHANE	BDL	5	ug/L

 (continued on next page)

Parameter	Result	Det. Limit	Units
TRICHLOROETHENE	BDL	5	ug/L
VINYL ACETATE	BDL	10	ug/L
VINYL CHLORIDE	BDL	10	ug/L
XYLENE (TOTAL)	BDL	5	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	91		% Rec
TOLUENE-D8	98		% Rec
BROMOFLUOROBENZENE	96		% Rec

On this instrument, packed column has been replaced by capillary column with 8240 criteria.

GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: P. SIMS Analysis Date: 23-DEC-97 Instrument: PREP Test: P233.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	1.0		mL

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270B

Analyst: L. DOBBINS Analysis Date: 28-DEC-97 22:53 Instrument: GC/MS SVOA Test: 0505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.4.0

Parameter	Result	Det. Limit	Units
ACENAPHTHENE	BDL	10	ug/L
ACENAPHTHYLENE	BDL	10	ug/L
ANTHRACENE	BDL	10	ug/L
BENZ(A)ANTHRACENE	BDL	10	ug/L
BENZO(A)PYRENE	BDL	10	ug/L
BENZO(B)FLUORANTHENE	BDL	10	ug/L
BENZO(G,H,I)PERYLENE	BDL	10	ug/L
BENZO(K)FLUORANTHENE	BDL	10	ug/L
BENZYL ALCOHOL	BDL	10	ug/L
BENZYLBUTYLPHTHALATE	BDL	10	ug/L
BIS(2-CHLOROETHOXY)METHANE	BDL	10	ug/L
BIS(2-CHLOROETHYL)ETHER	BDL	10	ug/L
BIS(2-CHLOROISOPROPYL)ETHER	BDL	10	ug/L
BIS(2-ETHYLHEXYL)PHTHALATE	BDL	10	ug/L
4-BROMOPHENYLPHENYLETHER	BDL	10	ug/L
CARBAZOLE	BDL	10	ug/L
4-CHLOROANILINE	BDL	10	ug/L
2-CHLORONAPHTHALENE	BDL	10	ug/L
4-CHLOROPHENYLPHENYLETHER	BDL	10	ug/L
CHRYSENE	BDL	10	ug/L
DIBENZ(A,H)ANTHRACENE	BDL	10	ug/L
DIBENZOFURAN	BDL	10	ug/L
1,2-DICHLOROBENZENE	BDL	10	ug/L
1,3-DICHLOROBENZENE	BDL	10	ug/L
1,4-DICHLOROBENZENE	BDL	10	ug/L
3,3'-DICHLOROBENZIDINE	BDL	20	ug/L
DIETHYLPHTHALATE	BDL	10	ug/L
DIMETHYLPHTHALATE	BDL	10	ug/L
DI-N-BUTYLPHTHALATE	BDL	10	ug/L
DINITROBENZENES	BDL	50	ug/L
2,4-DINITROTOLUENE	BDL	10	ug/L
2,6-DINITROTOLUENE	BDL	10	ug/L

Parameter	Result	Det. Limit	Units
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L
HEXACHLOROBENZENE	BDL	10	ug/L
HEXACHLOROBUTADIENE	BDL	10	ug/L
HEXACHLOROCYCLOPENTADIENE	BDL	10	ug/L
HEXACHLOROETHANE	BDL	10	ug/L
INDENO(1,2,3-CD)PYRENE	BDL	10	ug/L
ISOPHORONE	BDL	10	ug/L
2-METHYLNAPHTHALENE	BDL	10	ug/L
NAPHTHALENE	BDL	10	ug/L
2-NITROANILINE	BDL	50	ug/L
3-NITROANILINE	BDL	50	ug/L
4-NITROANILINE	BDL	50	ug/L
NITROBENZENE	BDL	10	ug/L
N-NITROSO-DIPHENYLAMINE	BDL	10	ug/L
N-NITROSO-DI-N-PROPYLAMINE	BDL	10	ug/L
PHENANTHRENE	BDL	10	ug/L
2-PICOLINE	BDL	50	ug/L
PYRENE	BDL	10	ug/L
PYRIDINE	BDL	50	ug/L
TETRACHLOROBENZENES	BDL	10	ug/L
TOLUENEDIAMINE	BDL	50	ug/L
1,2,4-TRICHLOROBENZENE	BDL	10	ug/L
BENZOIC ACID	BDL	50	ug/L
4-CHLORO-3-METHYLPHENOL	BDL	10	ug/L
2-CHLOROPHENOL	BDL	10	ug/L
2,4-DICHLOROPHENOL	BDL	10	ug/L
2,4-DIMETHYLPHENOL	BDL	10	ug/L
4,6-DINITRO-2-METHYLPHENOL	BDL	50	ug/L
2,4-DINITROPHENOL	BDL	50	ug/L
2-METHYLPHENOL	BDL	10	ug/L
4-METHYLPHENOL	BDL	10	ug/L
2-NITROPHENOL	BDL	10	ug/L
4-NITROPHENOL	BDL	50	ug/L
PENTACHLOROPHENOL	BDL	50	ug/L
PHENOL	BDL	10	ug/L
TETRACHLOROPHENOL	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
SURROGATE RECOVERY			
2-FLUOROPHENOL	52		% Rec
PHENOL-D5	36		% Rec
NITROBENZENE-D5	95		% Rec
2-FLUOROBIPHENYL	87		% Rec
2,4,6-TRIBROMOPHENOL	84		% Rec
TERPHENYL-D14	69		% Rec

GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: J. GRIFFIN Analysis Date: 22-DEC-97 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	930		mL
FINAL VOLUME	10		mL

PCB/PESTICIDE SCAN GC:ECD SW846-8081

Analyst: M. KEEZER Analysis Date: 24-DEC-97 04:30 Instrument: GC/ECD Test: 0305.1.0

Prep: GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.1.0

Parameter	Result	Det. Limit	Units
ALPHA-BHC	BDL	0.05	ug/L
BETA-BHC	BDL	0.05	ug/L
DELTA-BHC	BDL	0.05	ug/L
GAMMA-BHC (LINDANE)	BDL	0.05	ug/L
HEPTACHLOR	BDL	0.05	ug/L
ALDRIN	BDL	0.05	ug/L
HEPTACHLOR EPOXIDE	BDL	0.05	ug/L
ENDOSULFAN I	BDL	0.05	ug/L
DIELDRIN	BDL	0.1	ug/L
4,4'-DDE	BDL	0.1	ug/L
ENDRIN	BDL	0.1	ug/L
ENDOSULFAN II	BDL	0.1	ug/L
4,4'-DDD	BDL	0.1	ug/L
ENDOSULFAN SULFATE	BDL	0.1	ug/L
4,4'-DDT	BDL	0.1	ug/L
METHOXYCHLOR	BDL	0.5	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ENDRIN KETONE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
PCB AROCLOR 1016	BDL	0.5	ug/L
PCB AROCLOR 1221	BDL	0.5	ug/L
PCB AROCLOR 1232	BDL	0.5	ug/L
PCB AROCLOR 1242	BDL	0.5	ug/L
PCB AROCLOR 1248	BDL	0.5	ug/L
PCB AROCLOR 1254	BDL	1	ug/L
PCB AROCLOR 1260	BDL	1	ug/L
...			
SURROGATE RECOVERY			

TETRACHLORO-M-XYLENE	121.6		% Rec
DECACHLOROBIPHENYL (DCB)	100.4		% Rec

FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: S. PUGH Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P130.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL WEIGHT OR VOLUME	50		mL

ALUMINUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M101.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ALUMINUM	BDL	0.050	mg/L

ANTIMONY ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M102.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ANTIMONY	BDL	0.030	mg/L

BARIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BARIUM	0.15	0.010	mg/L

BERYLLIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M105.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BERYLLIUM	BDL	0.0040	mg/L

CADMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CADMIUM	BDL	0.0050	mg/L

CALCIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M109.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	86.	0.20	mg/L

CHROMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M110.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CHROMIUM	BDL	0.010	mg/L

COBALT ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M111.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COBALT	BDL	0.010	mg/L

COPPER ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M112.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COPPER	BDL	0.020	mg/L

IRON ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M115.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	3.7	0.025	mg/L

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MAGNESIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M118.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	28.	0.20	mg/L

MANGANESE ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M119.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	0.16	0.010	mg/L

NICKEL ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M122.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
NICKEL	BDL	0.010	mg/L

POTASSIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M126.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	2.0	0.20	mg/L

SILVER ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M130.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	0.010	mg/L

SODIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M131.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	10.	0.20	mg/L

VANADIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M138.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
VANADIUM	BDL	0.010	mg/L

ZINC ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:38 Instrument: ICP Test: M139.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ZINC	BDL	0.020	mg/L

ARSENIC TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:35 Instrument: TRACE ICP Test: M103.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ARSENIC	BDL	0.0050	mg/L

LEAD TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:35 Instrument: TRACE ICP Test: M116.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

SELENIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:35 Instrument: TRACE ICP Test: M128.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	0.0050	mg/L

THALLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:35 Instrument: TRACE ICP Test: M134.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
THALLIUM	BDL	0.010	mg/L

MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

Analyst: J. LEAK Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	100		mL
FINAL VOLUME	100		mL

MERCURY CVAA SW846-7470A

Analyst: J. LEAK Analysis Date: 23-DEC-97 09:22 Instrument: CVAA Test: M120.1.0
Prep: MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A P131.6.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.00020	mg/L

CYANIDE DISTILLATION SW846-9010A

Analyst: S. TELLES Analysis Date: 22-DEC-97 14:00 Instrument: PREP Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	250		mL
FINAL VOLUME	250		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012

Analyst: K. WHITFIELD Analysis Date: 23-DEC-97 15:30 Instrument: AUTO-ANALYZER Test: G101.4.0
Prep: CYANIDE DISTILLATION SW846-9010A P101.4.0

Parameter	Result	Det. Limit	Units
CYANIDE	BDL	0.005	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number I-37354.

This Certificate shall not be reproduced, except in full, without the written approval of the lab.

Additional copies of this report sent to:
JOHN GONZALEZ, LOUISVILLE AND JEFFERSON COUNTY
METROPOLITAN SEWER DISTRICT 700 WEST LIBERTY, LOUISVILLE, KY 40203

Approved : F.K. Spencer

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	18-DEC-97		A428971
	Complete	PO Number	
	30-DEC-97	DP 00151	
	Printed	Sampled	
	31-DEC-97	17-DEC-97 09:05	

Report To	Bill To
DAN SAMMONS, MFWTP IND. WASTE LABORATORY LOUISVILLE AND JEFFERSON COUNTY M.S.D. P.O. BOX 740011 LOUISVILLE, KY 40201	MS. KAREN SHORTE LOUISVILLE & JEFFERSON COUNTY M.S.D. PO BOX 740011 LOUISVILLE, KY 40201

Sample Description

CLIENT ID: LLMW04-21

VOLATILE ORGANICS SW846-8240B

Analyst: R. SHAMP Analysis Date: 22-DEC-97 12:54 Instrument: GC/MS VOA Test: 0510.3.0

Parameter	Result	Det. Limit	Units
ACETONE	BDL	20	ug/L
ACROLEIN	BDL	50	ug/L
ACRYLONITRILE	BDL	70	ug/L
BENZENE	BDL	5	ug/L
BROMODICHLOROMETHANE	BDL	5	ug/L
BROMOFORM	BDL	5	ug/L
BROMOMETHANE	BDL	10	ug/L
CARBON DISULFIDE	BDL	5	ug/L
CARBON TETRACHLORIDE	BDL	5	ug/L
CHLOROBENZENE	BDL	5	ug/L
CHLOROETHANE	BDL	10	ug/L
CHLOROFORM	BDL	5	ug/L
CHLOROMETHANE	BDL	10	ug/L
DIBROMOCHLOROMETHANE	BDL	5	ug/L
CIS-1,3-DICHLOROPROPENE	BDL	5	ug/L
DICHLORODIFLUOROMETHANE	BDL	5	ug/L
1,1-DICHLOROETHANE	BDL	5	ug/L
1,2-DICHLOROETHANE	BDL	5	ug/L
1,1-DICHLOROETHENE	BDL	5	ug/L
1,2-DICHLOROPROPANE	BDL	5	ug/L
ETHYLBENZENE	BDL	5	ug/L
FLUOROTRICHLOROMETHANE	BDL	5	ug/L
2-HEXANONE	BDL	10	ug/L
METHYLENE CHLORIDE	BDL	5	ug/L
METHYL ETHYL KETONE	BDL	10	ug/L
4-METHYL-2-PENTANONE	BDL	10	ug/L
STYRENE	BDL	5	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	5	ug/L
TETRACHLOROETHENE	BDL	5	ug/L
TETRAHYDROFURAN	BDL	25	ug/L
TOLUENE	BDL	5	ug/L
1,2-DICHLOROETHENE (TOTAL)	BDL	5	ug/L
TRANS-1,3-DICHLOROPROPENE	BDL	5	ug/L
1,1,1-TRICHLOROETHANE	BDL	5	ug/L
1,1,2-TRICHLOROETHANE	BDL	5	ug/L

 (continued on next page)

Parameter	Result	Det. Limit	Units
TRICHLOROETHENE	BDL	5	ug/L
VINYL ACETATE	BDL	10	ug/L
VINYL CHLORIDE	BDL	10	ug/L
XYLENE (TOTAL)	BDL	5	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	98		% Rec
TOLUENE-D8	95		% Rec
BROMOFLUOROBENZENE	97		% Rec

On this instrument, packed column has been replaced by capillary column with 8240 criteria.
pH = 7

GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: P. SIMS Analysis Date: 23-DEC-97 Instrument: PREP Test: P233.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	1.0		mL

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270B

Analyst: G. MCKAIN Analysis Date: 24-DEC-97 18:39 Instrument: GC/MS SVOA Test: 0505.3.0
Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.4.0

Parameter	Result	Det. Limit	Units
ACENAPHTHENE	BDL	10	ug/L
ACENAPHTHYLENE	BDL	10	ug/L
ANTHRACENE	BDL	10	ug/L
BENZ(A)ANTHRACENE	BDL	10	ug/L
BENZO(A)PYRENE	BDL	10	ug/L
BENZO(B)FLUORANTHENE	BDL	10	ug/L
BENZO(G,H,I)PERYLENE	BDL	10	ug/L
BENZO(K)FLUORANTHENE	BDL	10	ug/L
BENZYL ALCOHOL	BDL	10	ug/L
BENZYLBUTYLPHTHALATE	BDL	10	ug/L
BIS(2-CHLOROETHOXY)METHANE	BDL	10	ug/L
BIS(2-CHLOROETHYL)ETHER	BDL	10	ug/L
BIS(2-CHLOROISOPROPYL)ETHER	BDL	10	ug/L
BIS(2-ETHYLHEXYL)PHTHALATE	BDL	10	ug/L
4-BROMOPHENYLPHENYLETHER	BDL	10	ug/L
CARBAZOLE	BDL	10	ug/L
4-CHLOROANILINE	BDL	10	ug/L
2-CHLORONAPHTHALENE	BDL	10	ug/L
4-CHLOROPHENYLPHENYLETHER	BDL	10	ug/L
CHRYSENE	BDL	10	ug/L
DIBENZ(A,H)ANTHRACENE	BDL	10	ug/L
DIBENZOFURAN	BDL	10	ug/L
1,2-DICHLOROBENZENE	BDL	10	ug/L
1,3-DICHLOROBENZENE	BDL	10	ug/L
1,4-DICHLOROBENZENE	BDL	10	ug/L
3,3'-DICHLOROBENZIDINE	BDL	20	ug/L
DIETHYLPHTHALATE	BDL	10	ug/L
DIMETHYLPHTHALATE	BDL	10	ug/L
DI-N-BUTYLPHTHALATE	BDL	10	ug/L
DINITROBENZENES	BDL	50	ug/L
2,4-DINITROTOLUENE	BDL	10	ug/L

 (continued on next page)

Parameter	Result	Det. Limit	Units
2,6-DINITROTOLUENE	BDL	10	ug/L
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L
HEXACHLOROBENZENE	BDL	10	ug/L
HEXACHLOROBUTADIENE	BDL	10	ug/L
HEXACHLOROCYCLOPENTADIENE	BDL	10	ug/L
HEXACHLOROETHANE	BDL	10	ug/L
INDENO(1,2,3-CD)PYRENE	BDL	10	ug/L
ISOPHORONE	BDL	10	ug/L
2-METHYLNAPHTHALENE	BDL	10	ug/L
NAPHTHALENE	BDL	10	ug/L
2-NITROANILINE	BDL	50	ug/L
3-NITROANILINE	BDL	50	ug/L
4-NITROANILINE	BDL	50	ug/L
NITROBENZENE	BDL	10	ug/L
N-NITROSO-DIPHENYLAMINE	BDL	10	ug/L
N-NITROSO-DI-N-PROPYLAMINE	BDL	10	ug/L
PHENANTHRENE	BDL	10	ug/L
2-PICOLINE	BDL	50	ug/L
PYRENE	BDL	10	ug/L
PYRIDINE	BDL	50	ug/L
TETRACHLOROBENZENES	BDL	10	ug/L
TOLUENEDIAMINE	BDL	50	ug/L
1,2,4-TRICHLOROBENZENE	BDL	10	ug/L
BENZOIC ACID	BDL	50	ug/L
4-CHLORO-3-METHYLPHENOL	BDL	10	ug/L
2-CHLOROPHENOL	BDL	10	ug/L
2,4-DICHLOROPHENOL	BDL	10	ug/L
2,4-DIMETHYLPHENOL	BDL	10	ug/L
4,6-DINITRO-2-METHYLPHENOL	BDL	50	ug/L
2,4-DINITROPHENOL	BDL	50	ug/L
2-METHYLPHENOL	BDL	10	ug/L
4-METHYLPHENOL	BDL	10	ug/L
2-NITROPHENOL	BDL	10	ug/L
4-NITROPHENOL	BDL	50	ug/L
PENTACHLOROPHENOL	BDL	50	ug/L
PHENOL	BDL	10	ug/L
TETRACHLOROPHENOL	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
SURROGATE RECOVERY			
2-FLUOROPHENOL	38		% Rec
PHENOL-D5	25		% Rec
NITROBENZENE-D5	64		% Rec
2-FLUOROBIPHENYL	74		% Rec
2,4,6-TRIBROMOPHENOL	57		% Rec
TERPHENYL-D14	95		% Rec

GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: J. GRIFFIN Analysis Date: 22-DEC-97 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	970		mL
FINAL VOLUME	10		mL

PCB/PESTICIDE SCAN GC:ECD SW846-8081

Analyst: M. KEEZER Analysis Date: 24-DEC-97 02:46 Instrument: GC/ECD Test: 0305.1.0

Prep: GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.1.0

Parameter	Result	Det. Limit	Units
ALPHA-BHC	BDL	0.05	ug/L
BETA-BHC	BDL	0.05	ug/L
DELTA-BHC	BDL	0.05	ug/L
GAMMA-BHC (LINDANE)	BDL	0.05	ug/L
HEPTACHLOR	BDL	0.05	ug/L
ALDRIN	BDL	0.05	ug/L
HEPTACHLOR EPOXIDE	BDL	0.05	ug/L
ENDOSULFAN I	BDL	0.05	ug/L
DIELDRIN	BDL	0.1	ug/L
4,4'-DDE	BDL	0.1	ug/L
ENDRIN	BDL	0.1	ug/L
ENDOSULFAN II	BDL	0.1	ug/L
4,4'-DDD	BDL	0.1	ug/L
ENDOSULFAN SULFATE	BDL	0.1	ug/L
4,4'-DDT	BDL	0.1	ug/L
METHOXYCHLOR	BDL	0.5	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ENDRIN KETONE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
PCB AROCLOR 1016	BDL	0.5	ug/L
PCB AROCLOR 1221	BDL	0.5	ug/L
PCB AROCLOR 1232	BDL	0.5	ug/L
PCB AROCLOR 1242	BDL	0.5	ug/L
PCB AROCLOR 1248	BDL	0.5	ug/L
PCB AROCLOR 1254	BDL	1	ug/L
PCB AROCLOR 1260	BDL	1	ug/L
...			
SURROGATE RECOVERY			

TETRACHLORO-M-XYLENE	114.2		% Rec
DECACHLOROBIPHENYL (DCB)	100.6		% Rec

FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: S. PUGH Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P130.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL WEIGHT OR VOLUME	50		mL

ALUMINUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M101.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ALUMINUM	BDL	0.050	mg/L

ANTIMONY ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M102.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ANTIMONY	BDL	0.030	mg/L

BARIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BARIUM	0.11	0.010	mg/L

BERYLLIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M105.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BERYLLIUM	BDL	0.0040	mg/L

CADMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CADMIUM	BDL	0.0050	mg/L

CALCIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M109.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	100	0.20	mg/L

CHROMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M110.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CHROMIUM	BDL	0.010	mg/L

COBALT ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M111.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COBALT	BDL	0.010	mg/L

COPPER ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M112.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COPPER	BDL	0.020	mg/L

IRON ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M115.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	7.4	0.025	mg/L

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MAGNESIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M118.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	35.	0.20	mg/L

MANGANESE ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M119.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	0.16	0.010	mg/L

NICKEL ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M122.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
NICKEL	BDL	0.010	mg/L

POTASSIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M126.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	1.8	0.20	mg/L

SILVER ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M130.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	0.010	mg/L

SODIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M131.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	25.	0.20	mg/L

VANADIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M138.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
VANADIUM	BDL	0.010	mg/L

ZINC ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:03 Instrument: ICP Test: M139.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ZINC	BDL	0.020	mg/L

ARSENIC TRACE ICP SW846-6010A
Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:09 Instrument: TRACE ICP Test: M103.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ARSENIC	0.012	0.0050	mg/L

LEAD TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:09 Instrument: TRACE ICP Test: M116.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
LEAD	0.017	0.0050	mg/L

SELENIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:09 Instrument: TRACE ICP Test: M128.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	0.0050	mg/L

THALLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:09 Instrument: TRACE ICP Test: M134.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
THALLIUM	BDL	0.010	mg/L

MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

Analyst: J. LEAK Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	100		mL
FINAL VOLUME	100		mL

MERCURY CVAA SW846-7470A

Analyst: J. LEAK Analysis Date: 23-DEC-97 09:22 Instrument: CVAA Test: M120.1.0
Prep: MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A P131.6.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.00020	mg/L

CYANIDE DISTILLATION SW846-9010A

Analyst: S. TELLES Analysis Date: 21-DEC-97 14:30 Instrument: PREP Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	250		mL
FINAL VOLUME	250		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012

Analyst: K. WHITFIELD Analysis Date: 22-DEC-97 12:45 Instrument: AUTO-ANALYZER Test: G101.4.0
Prep: CYANIDE DISTILLATION SW846-9010A P101.4.0

Parameter	Result	Det. Limit	Units
CYANIDE	BDL	0.005	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number I-37354.

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Approved : P.K. Spence

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	18-DEC-97		A428973
	Complete	PO Number	
	30-DEC-97	DP 00151	
	Printed	Sampled	
	31-DEC-97	17-DEC-97 10:25	

Report To	Bill To
DAN SAMMONS, MFWTP IND. WASTE LABORATORY LOUISVILLE AND JEFFERSON COUNTY M.S.D. P.O. BOX 740011 LOUISVILLE, KY 40201	MS. KAREN SHORTE LOUISVILLE & JEFFERSON COUNTY M.S.D. PO BOX 740011 LOUISVILLE, KY 40201

Sample Description

CLIENT ID: LLMW05-21

VOLATILE ORGANICS SW846-8240B

Analyst: R. SHAMP Analysis Date: 22-DEC-97 14:53 Instrument: GC/MS VOA Test: 0510.3.0

Parameter	Result	Det. Limit	Units
ACETONE	BDL	20	ug/L
ACROLEIN	BDL	50	ug/L
ACRYLONITRILE	BDL	70	ug/L
BENZENE	BDL	5	ug/L
BROMODICHLOROMETHANE	BDL	5	ug/L
BROMOFORM	BDL	5	ug/L
BROMOMETHANE	BDL	10	ug/L
CARBON DISULFIDE	BDL	5	ug/L
CARBON TETRACHLORIDE	BDL	5	ug/L
CHLOROBENZENE	BDL	5	ug/L
CHLOROETHANE	BDL	10	ug/L
CHLOROFORM	BDL	5	ug/L
CHLOROMETHANE	BDL	10	ug/L
DIBROMOCHLOROMETHANE	BDL	5	ug/L
CIS-1,3-DICHLOROPROPENE	BDL	5	ug/L
DICHLORODIFLUOROMETHANE	BDL	5	ug/L
1,1-DICHLOROETHANE	BDL	5	ug/L
1,2-DICHLOROETHANE	BDL	5	ug/L
1,1-DICHLOROETHENE	BDL	5	ug/L
1,2-DICHLOROPROPANE	BDL	5	ug/L
ETHYLBENZENE	BDL	5	ug/L
FLUOROTRICHLOROMETHANE	BDL	5	ug/L
2-HEXANONE	BDL	10	ug/L
METHYLENE CHLORIDE	BDL	5	ug/L
METHYL ETHYL KETONE	BDL	10	ug/L
4-METHYL-2-PENTANONE	BDL	10	ug/L
STYRENE	BDL	5	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	5	ug/L
TETRACHLOROETHENE	BDL	5	ug/L
TETRAHYDROFURAN	BDL	25	ug/L
TOLUENE	BDL	5	ug/L
1,2-DICHLOROETHENE (TOTAL)	BDL	5	ug/L
TRANS-1,3-DICHLOROPROPENE	BDL	5	ug/L
1,1,1-TRICHLOROETHANE	BDL	5	ug/L
1,1,2-TRICHLOROETHANE	BDL	5	ug/L

 (continued on next page)

Parameter	Result	Det. Limit	Units
TRICHLOROETHENE	BDL	5	ug/L
VINYL ACETATE	BDL	10	ug/L
VINYL CHLORIDE	BDL	10	ug/L
XYLENE (TOTAL)	BDL	5	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	94		% Rec
TOLUENE-D8	100		% Rec
BROMOFLUOROBENZENE	98		% Rec

On this instrument, packed column has been replaced by capillary column with 8240 criteria.

GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: T. REECE Analysis Date: 23-DEC-97 Instrument: PREP Test: P233.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	1.0		mL

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270B

Analyst: G. MCKAIN Analysis Date: 24-DEC-97 20:19 Instrument: GC/MS SVOA Test: 0505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.4.0

Parameter	Result	Det. Limit	Units
ACENAPHTHENE	BDL	10	ug/L
ACENAPHTHYLENE	BDL	10	ug/L
ANTHRACENE	BDL	10	ug/L
BENZ(A)ANTHRACENE	BDL	10	ug/L
BENZO(A)PYRENE	BDL	10	ug/L
BENZO(B)FLUORANTHENE	BDL	10	ug/L
BENZO(G,H,I)PERYLENE	BDL	10	ug/L
BENZO(K)FLUORANTHENE	BDL	10	ug/L
BENZYL ALCOHOL	BDL	10	ug/L
BENZYLBUTYLPHTHALATE	BDL	10	ug/L
BIS(2-CHLOROETHOXY)METHANE	BDL	10	ug/L
BIS(2-CHLOROETHYL)ETHER	BDL	10	ug/L
BIS(2-CHLOROISOPROPYL)ETHER	BDL	10	ug/L
BIS(2-ETHYLHEXYL)PHTHALATE	BDL	10	ug/L
4-BROMOPHENYLPHENYLETHER	BDL	10	ug/L
CARBAZOLE	BDL	10	ug/L
4-CHLOROANILINE	BDL	10	ug/L
2-CHLORONAPHTHALENE	BDL	10	ug/L
4-CHLOROPHENYLPHENYLETHER	BDL	10	ug/L
CHRYSENE	BDL	10	ug/L
DIBENZ(A,H)ANTHRACENE	BDL	10	ug/L
DIBENZOFURAN	BDL	10	ug/L
1,2-DICHLOROBENZENE	BDL	10	ug/L
1,3-DICHLOROBENZENE	BDL	10	ug/L
1,4-DICHLOROBENZENE	BDL	10	ug/L
3,3'-DICHLOROBENZIDINE	BDL	20	ug/L
DIETHYLPHTHALATE	BDL	10	ug/L
DIMETHYLPHTHALATE	BDL	10	ug/L
DI-N-BUTYLPHTHALATE	BDL	10	ug/L
DINITROBENZENES	BDL	50	ug/L
2,4-DINITROTOLUENE	BDL	10	ug/L
2,6-DINITROTOLUENE	BDL	10	ug/L

Parameter	Result	Det. Limit	Units
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L
HEXACHLOROBENZENE	BDL	10	ug/L
HEXACHLOROBUTADIENE	BDL	10	ug/L
HEXACHLOROCYCLOPENTADIENE	BDL	10	ug/L
HEXACHLOROETHANE	BDL	10	ug/L
INDENO(1,2,3-CD)PYRENE	BDL	10	ug/L
ISOPHORONE	BDL	10	ug/L
2-METHYLNAPHTHALENE	BDL	10	ug/L
NAPHTHALENE	BDL	10	ug/L
2-NITROANILINE	BDL	50	ug/L
3-NITROANILINE	BDL	50	ug/L
4-NITROANILINE	BDL	50	ug/L
NITROBENZENE	BDL	10	ug/L
N-NITROSO-DIPHENYLAMINE	BDL	10	ug/L
N-NITROSO-DI-N-PROPYLAMINE	BDL	10	ug/L
PHENANTHRENE	BDL	10	ug/L
2-PICOLINE	BDL	50	ug/L
PYRENE	BDL	10	ug/L
PYRIDINE	BDL	50	ug/L
TETRACHLOROBENZENES	BDL	10	ug/L
TOLUENEDIAMINE	BDL	50	ug/L
1,2,4-TRICHLOROBENZENE	BDL	10	ug/L
BENZOIC ACID	BDL	50	ug/L
4-CHLORO-3-METHYLPHENOL	BDL	10	ug/L
2-CHLOROPHENOL	BDL	10	ug/L
2,4-DICHLOROPHENOL	BDL	10	ug/L
2,4-DIMETHYLPHENOL	BDL	10	ug/L
4,6-DINITRO-2-METHYLPHENOL	BDL	50	ug/L
2,4-DINITROPHENOL	BDL	50	ug/L
2-METHYLPHENOL	BDL	10	ug/L
4-METHYLPHENOL	BDL	10	ug/L
2-NITROPHENOL	BDL	10	ug/L
4-NITROPHENOL	BDL	50	ug/L
PENTACHLOROPHENOL	BDL	50	ug/L
PHENOL	BDL	10	ug/L
TETRACHLOROPHENOL	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
.			
SURROGATE RECOVERY			

2-FLUOROPHENOL	48		% Rec
PHENOL-D5	33		% Rec
NITROBENZENE-D5	82		% Rec
2-FLUOROBIPHENYL	96		% Rec
2,4,6-TRIBROMOPHENOL	91		% Rec
TERPHENYL-D14	121		% Rec

GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: J. GRIFFIN Analysis Date: 22-DEC-97 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	10		mL

PCB/PESTICIDE SCAN GC:ECD SW846-8081

Analyst: M. KEEZER Analysis Date: 24-DEC-97 03:17 Instrument: GC/ECD Test: O305.1.0

Prep: GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.1.0

Parameter	Result	Det. Limit	Units
ALPHA-BHC	BDL	0.05	ug/L
BETA-BHC	BDL	0.05	ug/L
DELTA-BHC	BDL	0.05	ug/L
GAMMA-BHC (LINDANE)	BDL	0.05	ug/L
HEPTACHLOR	BDL	0.05	ug/L
ALDRIN	BDL	0.05	ug/L
HEPTACHLOR EPOXIDE	BDL	0.05	ug/L
ENDOSULFAN I	BDL	0.05	ug/L
DIELDRIN	BDL	0.1	ug/L
4,4'-DDE	BDL	0.1	ug/L
ENDRIN	BDL	0.1	ug/L
ENDOSULFAN II	BDL	0.1	ug/L
4,4'-DDD	BDL	0.1	ug/L
ENDOSULFAN SULFATE	BDL	0.1	ug/L
4,4'-DDT	BDL	0.1	ug/L
METHOXYCHLOR	BDL	0.5	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ENDRIN KETONE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
PCB AROCLOR 1016	BDL	0.5	ug/L
PCB AROCLOR 1221	BDL	0.5	ug/L
PCB AROCLOR 1232	BDL	0.5	ug/L
PCB AROCLOR 1242	BDL	0.5	ug/L
PCB AROCLOR 1248	BDL	0.5	ug/L
PCB AROCLOR 1254	BDL	1	ug/L
PCB AROCLOR 1260	BDL	1	ug/L
...			
SURROGATE RECOVERY			

TETRACHLORO-M-XYLENE	122.4		% Rec
DECACHLOROBIPHENYL (DCB)	96.6		% Rec

FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: S. PUGH Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P130.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL WEIGHT OR VOLUME	50		mL

ALUMINUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M101.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ALUMINUM	0.70	0.050	mg/L

 (continued on next page)

ANTIMONY ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M102.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ANTIMONY	BDL	0.030	mg/L

BARIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BARIUM	0.54	0.010	mg/L

BERYLLIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M105.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BERYLLIUM	BDL	0.0040	mg/L

CADMIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CADMIUM	BDL	0.0050	mg/L

CALCIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M109.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	71.	0.20	mg/L

CHROMIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M110.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CHROMIUM	BDL	0.010	mg/L

COBALT ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M111.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COBALT	BDL	0.010	mg/L

COPPER ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M112.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COPPER	BDL	0.020	mg/L

IRON ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M115.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	7.7	0.025	mg/L

 (continued on next page)

MAGNESIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M118.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	23.	0.20	mg/L

MANGANESE ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M119.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	0.76	0.010	mg/L

NICKEL ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M122.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
NICKEL	0.020	0.010	mg/L

POTASSIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M126.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	9.7	0.20	mg/L

SILVER ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M130.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	0.010	mg/L

SODIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M131.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	43.	0.20	mg/L

VANADIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M138.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
VANADIUM	BDL	0.010	mg/L

ZINC ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:29 Instrument: ICP Test: M139.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ZINC	0.024	0.020	mg/L

ARSENIC TRACE ICP SW846-6010A
Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:28 Instrument: TRACE ICP Test: M103.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ARSENIC	0.017	0.0050	mg/L

LEAD TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:28 Instrument: TRACE ICP Test: M116.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
LEAD	0.069	0.0050	mg/L

SELENIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:28 Instrument: TRACE ICP Test: M128.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	0.0050	mg/L

THALLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:28 Instrument: TRACE ICP Test: M134.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
THALLIUM	BDL	0.010	mg/L

MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

Analyst: J. LEAK Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	100		mL
FINAL VOLUME	100		mL

MERCURY CVAA SW846-7470A

Analyst: J. LEAK Analysis Date: 23-DEC-97 09:22 Instrument: CVAA Test: M120.1.0
Prep: MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A P131.6.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.00020	mg/L

CYANIDE DISTILLATION SW846-9010A

Analyst: S. TELLES Analysis Date: 22-DEC-97 14:00 Instrument: PREP Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	250		mL
FINAL VOLUME	250		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012

Analyst: K. WHITFIELD Analysis Date: 23-DEC-97 15:30 Instrument: AUTO-ANALYZER Test: G101.4.0
Prep: CYANIDE DISTILLATION SW846-9010A P101.4.0

Parameter	Result	Det. Limit	Units
CYANIDE	BDL	0.005	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number I-37354.

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Approved : R.K. Spence

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	18-DEC-97		A428974
	Complete	PO Number	
	30-DEC-97	DP 00151	
	Printed	Sampled	
	31-DEC-97	17-DEC-97 10:25	

Report To	Bill To
DAN SAMMONS, MFWTP IND. WASTE LABORATORY LOUISVILLE AND JEFFERSON COUNTY M.S.D. P.O. BOX 740011 LOUISVILLE, KY 40201	MS. KAREN SHORTE LOUISVILLE & JEFFERSON COUNTY M.S.D. PO BOX 740011 LOUISVILLE, KY 40201

Sample Description

CLIENT ID: LLMW05-21 DUP

VOLATILE ORGANICS SW846-8240B

Analyst: R. SHAMP Analysis Date: 22-DEC-97 15:23 Instrument: GC/MS VOA Test: 0510.3.0

Parameter	Result	Det. Limit	Units
ACETONE	BDL	20	ug/L
ACROLEIN	BDL	50	ug/L
ACRYLONITRILE	BDL	70	ug/L
BENZENE	BDL	5	ug/L
BROMODICHLOROMETHANE	BDL	5	ug/L
BROMOFORM	BDL	5	ug/L
BROMOMETHANE	BDL	10	ug/L
CARBON DISULFIDE	BDL	5	ug/L
CARBON TETRACHLORIDE	BDL	5	ug/L
CHLOROBENZENE	BDL	5	ug/L
CHLOROETHANE	BDL	10	ug/L
CHLOROFORM	BDL	5	ug/L
CHLOROMETHANE	BDL	10	ug/L
DIBROMOCHLOROMETHANE	BDL	5	ug/L
CIS-1,3-DICHLOROPROPENE	BDL	5	ug/L
DICHLORODIFLUOROMETHANE	BDL	5	ug/L
1,1-DICHLOROETHANE	BDL	5	ug/L
1,2-DICHLOROETHANE	BDL	5	ug/L
1,1-DICHLOROETHENE	BDL	5	ug/L
1,2-DICHLOROPROPANE	BDL	5	ug/L
ETHYLBENZENE	BDL	5	ug/L
FLUOROTRICHLOROMETHANE	BDL	5	ug/L
2-HEXANONE	BDL	10	ug/L
METHYLENE CHLORIDE	BDL	5	ug/L
METHYL ETHYL KETONE	BDL	10	ug/L
4-METHYL-2-PENTANONE	BDL	10	ug/L
STYRENE	BDL	5	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	5	ug/L
TETRACHLOROETHENE	BDL	5	ug/L
TETRAHYDROFURAN	BDL	25	ug/L
TOLUENE	BDL	5	ug/L
1,2-DICHLOROETHENE (TOTAL)	BDL	5	ug/L
TRANS-1,3-DICHLOROPROPENE	BDL	5	ug/L
1,1,1-TRICHLOROETHANE	BDL	5	ug/L
1,1,2-TRICHLOROETHANE	BDL	5	ug/L

 (continued on next page)

Parameter	Result	Det. Limit	Units
TRICHLOROETHENE	BDL	5	ug/L
VINYL ACETATE	BDL	10	ug/L
VINYL CHLORIDE	BDL	10	ug/L
XYLENE (TOTAL)	BDL	5	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	96		% Rec
TOLUENE-D8	99		% Rec
BROMOFLUOROBENZENE	100		% Rec

On this instrument, packed column has been replaced by capillary column with 82.0 criteria.

GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: P. SIMS Analysis Date: 23-DEC-97 Instrument: PREP Test: P233.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	1.0		mL

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270B

Analyst: L. DOBBINS Analysis Date: 28-DEC-97 22:03 Instrument: GC/MS SVOA Test: 0505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.4.0

Parameter	Result	Det. Limit	Units
ACENAPHTHENE	BDL	10	ug/L
ACENAPHTHYLENE	BDL	10	ug/L
ANTHRACENE	BDL	10	ug/L
BENZ(A)ANTHRACENE	BDL	10	ug/L
BENZO(A)PYRENE	BDL	10	ug/L
BENZO(B)FLUORANTHENE	BDL	10	ug/L
BENZO(G,H,I)PERYLENE	BDL	10	ug/L
BENZO(K)FLUORANTHENE	BDL	10	ug/L
BENZYL ALCOHOL	BDL	10	ug/L
BENZYLBUTYLPHTHALATE	BDL	10	ug/L
BIS(2-CHLOROETHOXY)METHANE	BDL	10	ug/L
BIS(2-CHLOROETHYL)ETHER	BDL	10	ug/L
BIS(2-CHLOROISOPROPYL)ETHER	BDL	10	ug/L
BIS(2-ETHYLHEXYL)PHTHALATE	BDL	10	ug/L
4-BROMOPHENYLPHENYLETHER	BDL	10	ug/L
CARBAZOLE	BDL	10	ug/L
4-CHLOROANILINE	BDL	10	ug/L
2-CHLORONAPHTHALENE	BDL	10	ug/L
4-CHLOROPHENYLPHENYLETHER	BDL	10	ug/L
CHRYSENE	BDL	10	ug/L
DIBENZ(A,H)ANTHRACENE	BDL	10	ug/L
DIBENZOFURAN	BDL	10	ug/L
1,2-DICHLOROBENZENE	BDL	10	ug/L
1,3-DICHLOROBENZENE	BDL	10	ug/L
1,4-DICHLOROBENZENE	BDL	10	ug/L
3,3'-DICHLOROBENZIDINE	BDL	20	ug/L
DIETHYLPHTHALATE	BDL	10	ug/L
DIMETHYLPHTHALATE	BDL	10	ug/L
DI-N-BUTYLPHTHALATE	BDL	10	ug/L
DINITROBENZENES	BDL	50	ug/L
2,4-DINITROTOLUENE	BDL	10	ug/L
2,6-DINITROTOLUENE	BDL	10	ug/L

Parameter	Result	Det. Limit	Units
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L
HEXACHLOROBENZENE	BDL	10	ug/L
HEXACHLOROBUTADIENE	BDL	10	ug/L
HEXACHLOROCYCLOPENTADIENE	BDL	10	ug/L
HEXACHLOROETHANE	BDL	10	ug/L
INDENO(1,2,3-CD)PYRENE	BDL	10	ug/L
ISOPHORONE	BDL	10	ug/L
2-METHYLNAPHTHALENE	BDL	10	ug/L
NAPHTHALENE	BDL	10	ug/L
2-NITROANILINE	BDL	50	ug/L
3-NITROANILINE	BDL	50	ug/L
4-NITROANILINE	BDL	50	ug/L
NITROBENZENE	BDL	10	ug/L
N-NITROSO-DIPHENYLAMINE	BDL	10	ug/L
N-NITROSO-DI-N-PROPYLAMINE	BDL	10	ug/L
PHENANTHRENE	BDL	10	ug/L
2-PICOLINE	BDL	50	ug/L
PYRENE	BDL	10	ug/L
PYRIDINE	BDL	50	ug/L
TETRACHLOROBENZENES	BDL	10	ug/L
TOLUENEDIAMINE	BDL	50	ug/L
1,2,4-TRICHLOROBENZENE	BDL	10	ug/L
BENZOIC ACID	BDL	50	ug/L
4-CHLORO-3-METHYLPHENOL	BDL	10	ug/L
2-CHLOROPHENOL	BDL	10	ug/L
2,4-DICHLOROPHENOL	BDL	10	ug/L
2,4-DIMETHYLPHENOL	BDL	10	ug/L
4,6-DINITRO-2-METHYLPHENOL	BDL	50	ug/L
2,4-DINITROPHENOL	BDL	50	ug/L
2-METHYLPHENOL	BDL	10	ug/L
4-METHYLPHENOL	BDL	10	ug/L
2-NITROPHENOL	BDL	10	ug/L
4-NITROPHENOL	BDL	50	ug/L
PENTACHLOROPHENOL	BDL	50	ug/L
PHENOL	BDL	10	ug/L
TETRACHLOROPHENOL	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
SURROGATE RECOVERY			
2-FLUOROPHENOL	48		% Rec
PHENOL-D5	31		% Rec
NITROBENZENE-D5	92		% Rec
2-FLUOROBIPHENYL	92		% Rec
2,4,6-TRIBROMOPHENOL	97		% Rec
TERPHENYL-D14	71		% Rec

GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: J. GRIFFIN Analysis Date: 22-DEC-97 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	10		mL

PCB/PESTICIDE SCAN GC:ECD SW846-8081

Analyst: M. KEEZER Analysis Date: 24-DEC-97 03:53 Instrument: GC/ECD Test: 0305.1.0

Prep: GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.1.0

Parameter	Result	Det. Limit	Units
ALPHA-BHC	BDL	0.05	ug/L
BETA-BHC	BDL	0.05	ug/L
DELTA-BHC	BDL	0.05	ug/L
GAMMA-BHC (LINDANE)	BDL	0.05	ug/L
HEPTACHLOR	BDL	0.05	ug/L
ALDRIN	BDL	0.05	ug/L
HEPTACHLOR EPOXIDE	BDL	0.05	ug/L
ENDOSULFAN I	BDL	0.05	ug/L
DIELDRIN	BDL	0.1	ug/L
4,4'-DDE	BDL	0.1	ug/L
ENDRIN	BDL	0.1	ug/L
ENDOSULFAN II	BDL	0.1	ug/L
4,4'-DDD	BDL	0.1	ug/L
ENDOSULFAN SULFATE	BDL	0.1	ug/L
4,4'-DDT	BDL	0.1	ug/L
METHOXYCHLOR	BDL	0.5	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ENDRIN KETONE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
PCB AROCLOR 1016	BDL	0.5	ug/L
PCB AROCLOR 1221	BDL	0.5	ug/L
PCB AROCLOR 1232	BDL	0.5	ug/L
PCB AROCLOR 1242	BDL	0.5	ug/L
PCB AROCLOR 1248	BDL	0.5	ug/L
PCB AROCLOR 1254	BDL	1	ug/L
PCB AROCLOR 1260	BDL	1	ug/L
...			
SURROGATE RECOVERY			

TETRACHLORO-M-XYLENE	118.6		% Rec
DECACHLOROBIPHENYL (DCB)	89.2		% Rec

FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: S. PUGH Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P130.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL WEIGHT OR VOLUME	50		mL

ALUMINUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M101.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ALUMINUM	0.68	0.050	mg/L

ANTIMONY ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M102.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ANTIMONY	BDL	0.030	mg/L

BARIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BARIUM	0.48	0.010	mg/L

BERYLLIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M105.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BERYLLIUM	BDL	0.0040	mg/L

CADMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CADMIUM	BDL	0.0050	mg/L

CALCIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M109.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	68.	0.20	mg/L

CHROMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M110.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CHROMIUM	BDL	0.010	mg/L

COBALT ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M111.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COBALT	BDL	0.010	mg/L

COPPER ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M112.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COPPER	BDL	0.020	mg/L

IRON ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M115.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	7.4	0.025	mg/L

 (continued on next page)

MAGNESIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M118.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	22.	0.20	mg/L

MANGANESE ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M119.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	0.72	0.010	mg/L

NICKEL ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M122.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
NICKEL	0.014	0.010	mg/L

POTASSIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M126.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	9.3	0.20	mg/L

SILVER ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M130.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	0.010	mg/L

SODIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M131.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	40.	0.20	mg/L

VANADIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M138.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
VANADIUM	BDL	0.010	mg/L

ZINC ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:34 Instrument: ICP Test: M139.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ZINC	BDL	0.020	mg/L

ARSENIC TRACE ICP SW846-6010A
Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:32 Instrument: TRACE ICP Test: M103.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ARSENIC	0.016	0.0050	mg/L

LEAD TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:32 Instrument: TRACE ICP Test: M116.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
LEAD	0.050	0.0050	mg/L

SELENIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:32 Instrument: TRACE ICP Test: M128.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	0.0050	mg/L

THALLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:32 Instrument: TRACE ICP Test: M134.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
THALLIUM	BDL	0.010	mg/L

MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

Analyst: J. LEAK Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	100		mL
FINAL VOLUME	100		mL

MERCURY CVAA SW846-7470A

Analyst: J. LEAK Analysis Date: 23-DEC-97 09:22 Instrument: CVAA Test: M120.1.0
Prep: MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A P131.6.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.00020	mg/L

CYANIDE DISTILLATION SW846-9010A

Analyst: S. TELLES Analysis Date: 22-DEC-97 14:00 Instrument: PREP Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	250		mL
FINAL VOLUME	250		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012

Analyst: K. WHITFIELD Analysis Date: 23-DEC-97 15:30 Instrument: AUTO-ANALYZER Test: G101.4.0
Prep: CYANIDE DISTILLATION SW846-9010A P101.4.0

Parameter	Result	Det. Limit	Units
CYANIDE	BDL	0.005	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number I-37354.

This Certificate shall not be reproduced, except in full, without the written approval of the lab.

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METROPOLITAN SEWER DISTRICT 700 WEST LIBERTY, LOUISVILLE, KY 40203

Approved : PK Spence

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	18-DEC-97		A428977
	Complete	PO Number	
	30-DEC-97	DP 00151	
	Printed	Sampled	
	31-DEC-97	17-DEC-97 14:56	

Report To	Bill To
DAN SAMMONS, MFWTP IND. WASTE LABORATORY LOUISVILLE AND JEFFERSON COUNTY M.S.D. P.O. BOX 740011 LOUISVILLE, KY 40201	MS. KAREN SHORTE LOUISVILLE & JEFFERSON COUNTY M.S.D. PO BOX 740011 LOUISVILLE, KY 40201

Sample Description

CLIENT ID: LLMWA-21

VOLATILE ORGANICS SW846-8240B

Analyst: R. SHAMP Analysis Date: 23-DEC-97 11:21 Instrument: GC/MS VOA Test: 0510.3.0

Parameter	Result	Det. Limit	Units
ACETONE	BDL	20	ug/L
ACROLEIN	BDL	50	ug/L
ACRYLONITRILE	BDL	70	ug/L
BENZENE	BDL	5	ug/L
BROMODICHLOROMETHANE	BDL	5	ug/L
BROMOFORM	BDL	5	ug/L
BROMOMETHANE	BDL	10	ug/L
CARBON DISULFIDE	BDL	5	ug/L
CARBON TETRACHLORIDE	BDL	5	ug/L
CHLOROBENZENE	BDL	5	ug/L
CHLOROETHANE	BDL	10	ug/L
CHLOROFORM	BDL	5	ug/L
CHLOROMETHANE	BDL	10	ug/L
DIBROMOCHLOROMETHANE	BDL	5	ug/L
CIS-1,3-DICHLOROPROPENE	BDL	5	ug/L
DICHLORODIFLUOROMETHANE	BDL	5	ug/L
1,1-DICHLOROETHANE	BDL	5	ug/L
1,2-DICHLOROETHANE	BDL	5	ug/L
1,1-DICHLOROETHENE	BDL	5	ug/L
1,2-DICHLOROPROPANE	BDL	5	ug/L
ETHYLBENZENE	BDL	5	ug/L
FLUOROTRICHLOROMETHANE	BDL	5	ug/L
2-HEXANONE	BDL	10	ug/L
METHYLENE CHLORIDE	BDL	5	ug/L
METHYL ETHYL KETONE	BDL	10	ug/L
4-METHYL-2-PENTANONE	BDL	10	ug/L
STYRENE	BDL	5	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	5	ug/L
TETRACHLOROETHENE	BDL	5	ug/L
TETRAHYDROFURAN	BDL	25	ug/L
TOLUENE	BDL	5	ug/L
1,2-DICHLOROETHENE (TOTAL)	BDL	5	ug/L
TRANS-1,3-DICHLOROPROPENE	BDL	5	ug/L
1,1,1-TRICHLOROETHANE	BDL	5	ug/L
1,1,2-TRICHLOROETHANE	BDL	5	ug/L

 (continued on next page)

Parameter	Result	Det. Limit	Units
TRICHLOROETHENE	BDL	5	ug/L
VINYL ACETATE	BDL	10	ug/L
VINYL CHLORIDE	BDL	10	ug/L
XYLENE (TOTAL)	BDL	5	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	88		% Rec
TOLUENE-D8	98		% Rec
BROMOFLUOROBENZENE	98		% Rec

On this instrument, packed column has been replaced by capillary column with 8240 criteria.

GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: T. REECE Analysis Date: 23-DEC-97 Instrument: PREP Test: P233.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	1.0		mL

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270B

Analyst: L. DOBBINS Analysis Date: 29-DEC-97 00:34 Instrument: GC/MS SVOA Test: O505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.4.0

Parameter	Result	Det. Limit	Units
ACENAPHTHENE	BDL	10	ug/L
ACENAPHTHYLENE	BDL	10	ug/L
ANTHRACENE	BDL	10	ug/L
BENZ(A)ANTHRACENE	BDL	10	ug/L
BENZO(A)PYRENE	BDL	10	ug/L
BENZO(B)FLUORANTHENE	BDL	10	ug/L
BENZO(G,H,I)PERYLENE	BDL	10	ug/L
BENZO(K)FLUORANTHENE	BDL	10	ug/L
BENZYL ALCOHOL	BDL	10	ug/L
BENZYLBUTYLPHTHALATE	BDL	10	ug/L
BIS(2-CHLOROETHOXY)METHANE	BDL	10	ug/L
BIS(2-CHLOROETHYL)ETHER	BDL	10	ug/L
BIS(2-CHLOROISOPROPYL)ETHER	BDL	10	ug/L
BIS(2-ETHYLHEXYL)PHTHALATE	BDL	10	ug/L
4-BROMOPHENYLPHENYLETHER	BDL	10	ug/L
CARBAZOLE	BDL	10	ug/L
4-CHLOROANILINE	BDL	10	ug/L
2-CHLORONAPHTHALENE	BDL	10	ug/L
4-CHLOROPHENYLPHENYLETHER	BDL	10	ug/L
CHRYSENE	BDL	10	ug/L
DIBENZ(A,H)ANTHRACENE	BDL	10	ug/L
DIBENZOFURAN	BDL	10	ug/L
1,2-DICHLOROBENZENE	BDL	10	ug/L
1,3-DICHLOROBENZENE	BDL	10	ug/L
1,4-DICHLOROBENZENE	BDL	10	ug/L
3,3'-DICHLOROBENZIDINE	BDL	20	ug/L
DIETHYLPHTHALATE	BDL	10	ug/L
DIMETHYLPHTHALATE	BDL	10	ug/L
DI-N-BUTYLPHTHALATE	BDL	10	ug/L
DINITROBENZENES	BDL	50	ug/L
2,4-DINITROTOLUENE	BDL	10	ug/L
2,6-DINITROTOLUENE	BDL	10	ug/L

Parameter	Result	Det. Limit	Units
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L
HEXACHLOROBENZENE	BDL	10	ug/L
HEXACHLOROBUTADIENE	BDL	10	ug/L
HEXACHLOROCYCLOPENTADIENE	BDL	10	ug/L
HEXACHLOROETHANE	BDL	10	ug/L
INDENO(1,2,3-CD)PYRENE	BDL	10	ug/L
ISOPHORONE	BDL	10	ug/L
2-METHYLNAPHTHALENE	BDL	10	ug/L
NAPHTHALENE	BDL	10	ug/L
2-NITROANILINE	BDL	50	ug/L
3-NITROANILINE	BDL	50	ug/L
4-NITROANILINE	BDL	50	ug/L
NITROBENZENE	BDL	10	ug/L
N-NITROSO-DIPHENYLAMINE	BDL	10	ug/L
N-NITROSO-DI-N-PROPYLAMINE	BDL	10	ug/L
PHENANTHRENE	BDL	10	ug/L
2-PICOLINE	BDL	50	ug/L
PYRENE	BDL	10	ug/L
PYRIDINE	BDL	50	ug/L
TETRACHLOROBENZENES	BDL	10	ug/L
TOLUENEDIAMINE	BDL	50	ug/L
1,2,4-TRICHLOROBENZENE	BDL	10	ug/L
BENZOIC ACID	BDL	50	ug/L
4-CHLORO-3-METHYLPHENOL	BDL	10	ug/L
2-CHLOROPHENOL	BDL	10	ug/L
2,4-DICHLOROPHENOL	BDL	10	ug/L
2,4-DIMETHYLPHENOL	BDL	10	ug/L
4,6-DINITRO-2-METHYLPHENOL	BDL	50	ug/L
2,4-DINITROPHENOL	BDL	50	ug/L
2-METHYLPHENOL	BDL	10	ug/L
4-METHYLPHENOL	BDL	10	ug/L
2-NITROPHENOL	BDL	10	ug/L
4-NITROPHENOL	BDL	50	ug/L
PENTACHLOROPHENOL	BDL	50	ug/L
PHENOL	BDL	10	ug/L
TETRACHLOROPHENOL	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
SURROGATE RECOVERY			
2-FLUOROPHENOL	53		% Rec
PHENOL-D5	37		% Rec
NITROBENZENE-D5	95		% Rec
2-FLUOROBIPHENYL	92		% Rec
2,4,6-TRIBROMOPHENOL	78		% Rec
TERPHENYL-D14	61		% Rec

GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: J. GRIFFIN Analysis Date: 22-DEC-97 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	10		mL

PCB/PESTICIDE SCAN GC:ECD SW846-8081

Analyst: M. KEEZER Analysis Date: 24-DEC-97 06:55 Instrument: GC/ECD Test: 0305.1.0

Prep: GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.1.0

Parameter	Result	Det. Limit	Units
ALPHA-BHC	BDL	0.05	ug/L
BETA-BHC	BDL	0.05	ug/L
DELTA-BHC	BDL	0.05	ug/L
GAMMA-BHC (LINDANE)	BDL	0.05	ug/L
HEPTACHLOR	BDL	0.05	ug/L
ALDRIN	BDL	0.05	ug/L
HEPTACHLOR EPOXIDE	BDL	0.05	ug/L
ENDOSULFAN I	BDL	0.05	ug/L
DIELDRIN	BDL	0.1	ug/L
4,4'-DDE	BDL	0.1	ug/L
ENDRIN	BDL	0.1	ug/L
ENDOSULFAN II	BDL	0.1	ug/L
4,4'-DDD	BDL	0.1	ug/L
ENDOSULFAN SULFATE	BDL	0.1	ug/L
4,4'-DDT	BDL	0.1	ug/L
METHOXYCHLOR	BDL	0.5	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ENDRIN KETONE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
PCB AROCLOR 1016	BDL	0.5	ug/L
PCB AROCLOR 1221	BDL	0.5	ug/L
PCB AROCLOR 1232	BDL	0.5	ug/L
PCB AROCLOR 1242	BDL	0.5	ug/L
PCB AROCLOR 1248	BDL	0.5	ug/L
PCB AROCLOR 1254	BDL	1	ug/L
PCB AROCLOR 1260	BDL	1	ug/L
...			
SURROGATE RECOVERY			

TETRACHLORO-M-XYLENE	123.8		% Rec
DECACHLOROBIPHENYL (DCB)	101.4		% Rec

FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: S. PUGH Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P130.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL WEIGHT OR VOLUME	50		mL

ALUMINUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M101.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ALUMINUM	BDL	0.050	mg/L

ANTIMONY ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M102.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ANTIMONY	BDL	0.030	mg/L

BARIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BARIUM	0.020	0.010	mg/L

BERYLLIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M105.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BERYLLIUM	BDL	0.0040	mg/L

CADMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CADMIUM	BDL	0.0050	mg/L

CALCIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M109.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	96.	0.20	mg/L

CHROMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M110.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CHROMIUM	BDL	0.010	mg/L

COBALT ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M111.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COBALT	BDL	0.010	mg/L

COPPER ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M112.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COPPER	BDL	0.020	mg/L

IRON ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M115.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	0.46	0.025	mg/L

 (continued on next page)

MAGNESIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M118.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	35.	0.20	mg/L

MANGANESE ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M119.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	0.018	0.010	mg/L

NICKEL ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M122.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
NICKEL	BDL	0.010	mg/L

POTASSIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M126.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	1.9	0.20	mg/L

SILVER ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M130.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	0.010	mg/L

SODIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M131.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	30.	0.20	mg/L

VANADIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M138.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
VANADIUM	BDL	0.010	mg/L

ZINC ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:47 Instrument: ICP Test: M139.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ZINC	BDL	0.020	mg/L

ARSENIC TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:54 Instrument: TRACE ICP Test: M103.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ARSENIC	BDL	0.0050	mg/L

LEAD TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:54 Instrument: TRACE ICP Test: M116.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

SELENIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:54 Instrument: TRACE ICP Test: M128.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	0.0050	mg/L

THALLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:54 Instrument: TRACE ICP Test: M134.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
THALLIUM	BDL	0.010	mg/L

MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

Analyst: J. LEAK Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	100		mL
FINAL VOLUME	100		mL

MERCURY CVAA SW846-7470A

Analyst: J. LEAK Analysis Date: 23-DEC-97 09:22 Instrument: CVAA Test: M120.1.0
Prep: MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A P131.6.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.00020	mg/L

CYANIDE DISTILLATION SW846-9010A

Analyst: S. TELLES Analysis Date: 22-DEC-97 14:00 Instrument: PREP Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	250		mL
FINAL VOLUME	250		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012

Analyst: K. WHITFIELD Analysis Date: 23-DEC-97 15:30 Instrument: AUTO-ANALYZER Test: G101.4.0
Prep: CYANIDE DISTILLATION SW846-9010A P101.4.0

Parameter	Result	Det. Limit	Units
CYANIDE	BDL	0.005	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number I-37354.

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Approved : P.K. Spence

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	18-DEC-97		A428976
	Complete	PO Number	
	30-DEC-97	DP 00151	
	Printed	Sampled	
	31-DEC-97	17-DEC-97 14:08	

Report To	Bill To
DAN SAMMONS, MFWTP IND. WASTE LABORATORY LOUISVILLE AND JEFFERSON COUNTY M.S.D. P.O. BOX 740011 LOUISVILLE, KY 40201	MS. KAREN SHORTE LOUISVILLE & JEFFERSON COUNTY M.S.D. PO BOX 740011 LOUISVILLE, KY 40201

Sample Description

CLIENT ID: LLMWB-21

VOLATILE ORGANICS SW846-8240B

Analyst: R. SHAMP Analysis Date: 23-DEC-97 10:51 Instrument: GC/MS VOA Test: 0510.3.0

Parameter	Result	Det. Limit	Units
ACETONE	BDL	20	ug/L
ACROLEIN	BDL	50	ug/L
ACRYLONITRILE	BDL	70	ug/L
BENZENE	BDL	5	ug/L
BROMODICHLOROMETHANE	BDL	5	ug/L
BROMOFORM	BDL	5	ug/L
BROMOMETHANE	BDL	10	ug/L
CARBON DISULFIDE	BDL	5	ug/L
CARBON TETRACHLORIDE	BDL	5	ug/L
CHLOROBENZENE	BDL	5	ug/L
CHLOROETHANE	BDL	10	ug/L
CHLOROFORM	BDL	5	ug/L
CHLOROMETHANE	BDL	10	ug/L
DIBROMOCHLOROMETHANE	BDL	5	ug/L
CIS-1,3-DICHLOROPROPENE	BDL	5	ug/L
DICHLORODIFLUOROMETHANE	BDL	5	ug/L
1,1-DICHLOROETHANE	BDL	5	ug/L
1,2-DICHLOROETHANE	BDL	5	ug/L
1,1-DICHLOROETHENE	BDL	5	ug/L
1,2-DICHLOROPROPANE	BDL	5	ug/L
ETHYLBENZENE	BDL	5	ug/L
FLUOROTRICHLOROMETHANE	BDL	5	ug/L
2-HEXANONE	BDL	10	ug/L
METHYLENE CHLORIDE	BDL	5	ug/L
METHYL ETHYL KETONE	BDL	10	ug/L
4-METHYL-2-PENTANONE	BDL	10	ug/L
STYRENE	BDL	5	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	5	ug/L
TETRACHLOROETHENE	BDL	5	ug/L
TETRAHYDROFURAN	BDL	25	ug/L
TOLUENE	BDL	5	ug/L
1,2-DICHLOROETHENE (TOTAL)	BDL	5	ug/L
TRANS-1,3-DICHLOROPROPENE	BDL	5	ug/L
1,1,1-TRICHLOROETHANE	BDL	5	ug/L
1,1,2-TRICHLOROETHANE	BDL	5	ug/L

 (continued on next page)

Parameter	Result	Det. Limit	Units
TRICHLOROETHENE	BDL	5	ug/L
VINYL ACETATE	BDL	10	ug/L
VINYL CHLORIDE	BDL	10	ug/L
XYLENE (TOTAL)	BDL	5	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	94		% Rec
TOLUENE-D8	96		% Rec
BROMOFLUOROBENZENE	97		% Rec

On this instrument, packed column has been replaced by capillary column with 8240 criteria.

GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: T. REECE Analysis Date: 23-DEC-97 Instrument: PREP Test: P233.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	1.0		mL

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270B

Analyst: L. DOBBINS Analysis Date: 28-DEC-97 23:43 Instrument: GC/MS SVOA Test: 0505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.4.0

Parameter	Result	Det. Limit	Units
ACENAPHTHENE	BDL	10	ug/L
ACENAPHTHYLENE	BDL	10	ug/L
ANTHRACENE	BDL	10	ug/L
BENZ(A)ANTHRACENE	BDL	10	ug/L
BENZO(A)PYRENE	BDL	10	ug/L
BENZO(B)FLUORANTHENE	BDL	10	ug/L
BENZO(G,H,I)PERYLENE	BDL	10	ug/L
BENZO(K)FLUORANTHENE	BDL	10	ug/L
BENZYL ALCOHOL	BDL	10	ug/L
BENZYLBUTYLPHTHALATE	BDL	10	ug/L
BIS(2-CHLOROETHOXY)METHANE	BDL	10	ug/L
BIS(2-CHLOROETHYL)ETHER	BDL	10	ug/L
BIS(2-CHLOROISOPROPYL)ETHER	BDL	10	ug/L
BIS(2-ETHYLHEXYL)PHTHALATE	BDL	10	ug/L
4-BROMOPHENYLPHENYLETHER	BDL	10	ug/L
CARBAZOLE	BDL	10	ug/L
4-CHLOROANILINE	BDL	10	ug/L
2-CHLORONAPHTHALENE	BDL	10	ug/L
4-CHLOROPHENYLPHENYLETHER	BDL	10	ug/L
CHRYSENE	BDL	10	ug/L
DIBENZ(A,H)ANTHRACENE	BDL	10	ug/L
DIBENZOFURAN	BDL	10	ug/L
1,2-DICHLOROBENZENE	BDL	10	ug/L
1,3-DICHLOROBENZENE	BDL	10	ug/L
1,4-DICHLOROBENZENE	BDL	10	ug/L
3,3'-DICHLOROBENZIDINE	BDL	20	ug/L
DIETHYLPHTHALATE	BDL	10	ug/L
DIMETHYLPHTHALATE	BDL	10	ug/L
DI-N-BUTYLPHTHALATE	BDL	10	ug/L
DINITROBENZENES	BDL	50	ug/L
2,4-DINITROTOLUENE	BDL	10	ug/L
2,6-DINITROTOLUENE	BDL	10	ug/L

Parameter	Result	Det. Limit	Units
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L
HEXACHLOROBENZENE	BDL	10	ug/L
HEXACHLOROBUTADIENE	BDL	10	ug/L
HEXACHLOROCYCLOPENTADIENE	BDL	10	ug/L
HEXACHLOROETHANE	BDL	10	ug/L
INDENO(1,2,3-CD)PYRENE	BDL	10	ug/L
ISOPHORONE	BDL	10	ug/L
2-METHYLNAPHTHALENE	BDL	10	ug/L
NAPHTHALENE	BDL	10	ug/L
2-NITROANILINE	BDL	50	ug/L
3-NITROANILINE	BDL	50	ug/L
4-NITROANILINE	BDL	50	ug/L
NITROBENZENE	BDL	10	ug/L
N-NITROSO-DIPHENYLAMINE	BDL	10	ug/L
N-NITROSO-DI-N-PROPYLAMINE	BDL	10	ug/L
PHENANTHRENE	BDL	10	ug/L
2-PICOLINE	BDL	50	ug/L
PYRENE	BDL	10	ug/L
PYRIDINE	BDL	50	ug/L
TETRACHLOROBENZENES	BDL	10	ug/L
TOLUENEDIAMINE	BDL	50	ug/L
1,2,4-TRICHLOROBENZENE	BDL	10	ug/L
BENZOIC ACID	BDL	50	ug/L
4-CHLORO-3-METHYLPHENOL	BDL	10	ug/L
2-CHLOROPHENOL	BDL	10	ug/L
2,4-DICHLOROPHENOL	BDL	10	ug/L
2,4-DIMETHYLPHENOL	BDL	10	ug/L
4,6-DINITRO-2-METHYLPHENOL	BDL	50	ug/L
2,4-DINITROPHENOL	BDL	50	ug/L
2-METHYLPHENOL	BDL	10	ug/L
4-METHYLPHENOL	BDL	10	ug/L
2-NITROPHENOL	BDL	10	ug/L
4-NITROPHENOL	BDL	50	ug/L
PENTACHLOROPHENOL	BDL	50	ug/L
PHENOL	BDL	10	ug/L
TETRACHLOROPHENOL	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
SURROGATE RECOVERY			
2-FLUOROPHENOL	52		% Rec
PHENOL-D5	36		% Rec
NITROBENZENE-D5	94		% Rec
2-FLUOROBIPHENYL	92		% Rec
2,4,6-TRIBROMOPHENOL	81		% Rec
TERPHENYL-D14	66		% Rec

GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: J. GRIFFIN Analysis Date: 22-DEC-97 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	10		mL

PCB/PESTICIDE SCAN GC:ECD SW846-8081

Analyst: M. KEEZER Analysis Date: 24-DEC-97 05:06 Instrument: GC/ECD Test: O305.1.0

Prep: GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.1.0

Parameter	Result	Det. Limit	Units
ALPHA-BHC	BDL	0.05	ug/L
BETA-BHC	BDL	0.05	ug/L
DELTA-BHC	BDL	0.05	ug/L
GAMMA-BHC (LINDANE)	BDL	0.05	ug/L
HEPTACHLOR	BDL	0.05	ug/L
ALDRIN	BDL	0.05	ug/L
HEPTACHLOR EPOXIDE	BDL	0.05	ug/L
ENDOSULFAN I	BDL	0.05	ug/L
DIELDRIN	BDL	0.1	ug/L
4,4'-DDE	BDL	0.1	ug/L
ENDRIN	BDL	0.1	ug/L
ENDOSULFAN II	BDL	0.1	ug/L
4,4'-DDD	BDL	0.1	ug/L
ENDOSULFAN SULFATE	BDL	0.1	ug/L
4,4'-DDT	BDL	0.1	ug/L
METHOXYCHLOR	BDL	0.5	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ENDRIN KETONE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
PCB AROCLOR 1016	BDL	0.5	ug/L
PCB AROCLOR 1221	BDL	0.5	ug/L
PCB AROCLOR 1232	BDL	0.5	ug/L
PCB AROCLOR 1242	BDL	0.5	ug/L
PCB AROCLOR 1248	BDL	0.5	ug/L
PCB AROCLOR 1254	BDL	1	ug/L
PCB AROCLOR 1260	BDL	1	ug/L
...			
SURROGATE RECOVERY			

TETRACHLORO-M-XYLENE	126		% Rec
DECACHLOROBIPHENYL (DCB)	108.2		% Rec

FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: S. PUGH Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P130.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL WEIGHT OR VOLUME	50		mL

ALUMINUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M101.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ALUMINUM	BDL	0.050	mg/L

ANTIMONY ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M102.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ANTIMONY	BDL	0.030	mg/L

BARIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BARIUM	BDL	0.010	mg/L

BERYLLIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M105.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BERYLLIUM	BDL	0.0040	mg/L

CADMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CADMIUM	BDL	0.0050	mg/L

CALCIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M109.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	110	0.20	mg/L

CHROMIUM ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M110.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CHROMIUM	BDL	0.010	mg/L

COBALT ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M111.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COBALT	BDL	0.010	mg/L

COPPER ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M112.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COPPER	BDL	0.020	mg/L

IRON ICP SW846-6010A
Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M115.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	0.32	0.025	mg/L

MAGNESIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M118.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	38.	0.20	mg/L

MANGANESE ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M119.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	0.18	0.010	mg/L

NICKEL ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M122.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
NICKEL	BDL	0.010	mg/L

POTASSIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M126.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	2.0	0.20	mg/L

SILVER ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M130.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	0.010	mg/L

SODIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M131.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	32.	0.20	mg/L

VANADIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M138.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
VANADIUM	BDL	0.010	mg/L

ZINC ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:42 Instrument: ICP Test: M139.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ZINC	BDL	0.020	mg/L

ARSENIC TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:50 Instrument: TRACE ICP Test: M103.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ARSENIC	BDL	0.0050	mg/L

LEAD TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:50 Instrument: TRACE ICP Test: M116.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

SELENIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:50 Instrument: TRACE ICP Test: M128.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	0.0050	mg/L

THALLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:50 Instrument: TRACE ICP Test: M134.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
THALLIUM	BDL	0.010	mg/L

MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

Analyst: J. LEAK Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	100		mL
FINAL VOLUME	100		mL

MERCURY CVAA SW846-7470A

Analyst: J. LEAK Analysis Date: 23-DEC-97 09:22 Instrument: CVAA Test: M120.1.0
Prep: MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A P131.6.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.00020	mg/L

CYANIDE DISTILLATION SW846-9010A

Analyst: S. TELLES Analysis Date: 22-DEC-97 14:00 Instrument: PREP Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	250		mL
FINAL VOLUME	250		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012

Analyst: K. WHITFIELD Analysis Date: 23-DEC-97 15:30 Instrument: AUTO-ANALYZER Test: G101.4.0
Prep: CYANIDE DISTILLATION SW846-9010A P101.4.0

Parameter	Result	Det. Limit	Units
CYANIDE	BDL	0.005	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number I-37354.

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METROPOLITAN SEWER DISTRICT 700 WEST LIBERTY, LOUISVILLE, KY 40203

Approved : PK Spence

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	18-DEC-97		A428972
	Complete	PO Number	
	30-DEC-97	DP 00151	
	Printed	Sampled	
	31-DEC-97	17-DEC-97 09:49	

Report To	Bill To
DAN SAMMONS, MFWTP IND. WASTE LABORATORY LOUISVILLE AND JEFFERSON COUNTY M.S.D. P.O. BOX 740011 LOUISVILLE, KY 40201	MS. KAREN SHORTE LOUISVILLE & JEFFERSON COUNTY M.S.D. PO BOX 740011 LOUISVILLE, KY 40201

Sample Description

CLIENT ID: LLMWFB-21

VOLATILE ORGANICS SW846-8240B

Analyst: R. SHAMP Analysis Date: 22-DEC-97 13:24 Instrument: GC/MS VOA Test: 0510.3.0

Parameter	Result	Det. Limit	Units
ACETONE	BDL	20	ug/L
ACROLEIN	BDL	50	ug/L
ACRYLONITRILE	BDL	70	ug/L
BENZENE	BDL	5	ug/L
BROMODICHLOROMETHANE	BDL	5	ug/L
BROMOFORM	BDL	5	ug/L
BROMOMETHANE	BDL	10	ug/L
CARBON DISULFIDE	BDL	5	ug/L
CARBON TETRACHLORIDE	BDL	5	ug/L
CHLOROBENZENE	BDL	5	ug/L
CHLOROETHANE	BDL	10	ug/L
CHLOROFORM	BDL	5	ug/L
CHLOROMETHANE	BDL	10	ug/L
DIBROMOCHLOROMETHANE	BDL	5	ug/L
CIS-1,3-DICHLOROPROPENE	BDL	5	ug/L
DICHLORODIFLUOROMETHANE	BDL	5	ug/L
1,1-DICHLOROETHANE	BDL	5	ug/L
1,2-DICHLOROETHANE	BDL	5	ug/L
1,1-DICHLOROETHENE	BDL	5	ug/L
1,2-DICHLOROPROPANE	BDL	5	ug/L
ETHYLBENZENE	BDL	5	ug/L
FLUOROTRICHLOROMETHANE	BDL	5	ug/L
2-HEXANONE	BDL	10	ug/L
METHYLENE CHLORIDE	BDL	5	ug/L
METHYL ETHYL KETONE	BDL	10	ug/L
4-METHYL-2-PENTANONE	BDL	10	ug/L
STYRENE	BDL	5	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	5	ug/L
TETRACHLOROETHENE	BDL	5	ug/L
TETRAHYDROFURAN	BDL	25	ug/L
TOLUENE	BDL	5	ug/L
1,2-DICHLOROETHENE (TOTAL)	BDL	5	ug/L
TRANS-1,3-DICHLOROPROPENE	BDL	5	ug/L
1,1,1-TRICHLOROETHANE	BDL	5	ug/L
1,1,2-TRICHLOROETHANE	BDL	5	ug/L

 (continued on next page)

Parameter	Result	Det. Limit	Units
TRICHLOROETHENE	BDL	5	ug/L
VINYL ACETATE	BDL	10	ug/L
VINYL CHLORIDE	BDL	10	ug/L
XYLENE (TOTAL)	BDL	5	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	95		% Rec
TOLUENE-D8	97		% Rec
BROMOFLUOROBENZENE	98		% Rec

On this instrument, packed column has been replaced by capillary column with 8240 criteria.

GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: T. REECE Analysis Date: 23-DEC-97 Instrument: PREP Test: P233.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	1.0		mL

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270B

Analyst: G. MCKAIN Analysis Date: 24-DEC-97 19:29 Instrument: GC/MS SVOA Test: O505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.4.0

Parameter	Result	Det. Limit	Units
ACENAPHTHENE	BDL	10	ug/L
ACENAPHTHYLENE	BDL	10	ug/L
ANTHRACENE	BDL	10	ug/L
BENZ(A)ANTHRACENE	BDL	10	ug/L
BENZO(A)PYRENE	BDL	10	ug/L
BENZO(B)FLUORANTHENE	BDL	10	ug/L
BENZO(G,H,I)PERYLENE	BDL	10	ug/L
BENZO(K)FLUORANTHENE	BDL	10	ug/L
BENZYL ALCOHOL	BDL	10	ug/L
BENZYLBUTYLPHTHALATE	BDL	10	ug/L
BIS(2-CHLOROETHOXY)METHANE	BDL	10	ug/L
BIS(2-CHLOROETHYL)ETHER	BDL	10	ug/L
BIS(2-CHLOROISOPROPYL)ETHER	BDL	10	ug/L
BIS(2-ETHYLHEXYL)PHTHALATE	BDL	10	ug/L
4-BROMOPHENYLPHENYLETHER	BDL	10	ug/L
CARBAZOLE	BDL	10	ug/L
4-CHLOROANILINE	BDL	10	ug/L
2-CHLORONAPHTHALENE	BDL	10	ug/L
4-CHLOROPHENYLPHENYLETHER	BDL	10	ug/L
CHRYSENE	BDL	10	ug/L
DIBENZ(A,H)ANTHRACENE	BDL	10	ug/L
DIBENZOFURAN	BDL	10	ug/L
1,2-DICHLOROBENZENE	BDL	10	ug/L
1,3-DICHLOROBENZENE	BDL	10	ug/L
1,4-DICHLOROBENZENE	BDL	10	ug/L
3,3'-DICHLOROBENZIDINE	BDL	20	ug/L
DIETHYLPHTHALATE	BDL	10	ug/L
DIMETHYLPHTHALATE	BDL	10	ug/L
DI-N-BUTYLPHTHALATE	BDL	10	ug/L
DINITROBENZENES	BDL	50	ug/L
2,4-DINITROTOLUENE	BDL	10	ug/L
2,6-DINITROTOLUENE	BDL	10	ug/L

 (continued on next page)

Parameter	Result	Det. Limit	Units
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L
HEXACHLOROBENZENE	BDL	10	ug/L
HEXACHLOROBUTADIENE	BDL	10	ug/L
HEXACHLOROCYCLOPENTADIENE	BDL	10	ug/L
HEXACHLOROETHANE	BDL	10	ug/L
INDENO(1,2,3-CD)PYRENE	BDL	10	ug/L
ISOPHORONE	BDL	10	ug/L
2-METHYLNAPHTHALENE	BDL	10	ug/L
NAPHTHALENE	BDL	10	ug/L
2-NITROANILINE	BDL	50	ug/L
3-NITROANILINE	BDL	50	ug/L
4-NITROANILINE	BDL	50	ug/L
NITROBENZENE	BDL	10	ug/L
N-NITROSO-DIPHENYLAMINE	BDL	10	ug/L
N-NITROSO-DI-N-PROPYLAMINE	BDL	10	ug/L
PHENANTHRENE	BDL	10	ug/L
2-PICOLINE	BDL	50	ug/L
PYRENE	BDL	10	ug/L
PYRIDINE	BDL	50	ug/L
TETRACHLOROBENZENES	BDL	10	ug/L
TOLUENEDIAMINE	BDL	50	ug/L
1,2,4-TRICHLOROBENZENE	BDL	10	ug/L
BENZOIC ACID	BDL	50	ug/L
4-CHLORO-3-METHYLPHENOL	BDL	10	ug/L
2-CHLOROPHENOL	BDL	10	ug/L
2,4-DICHLOROPHENOL	BDL	10	ug/L
2,4-DIMETHYLPHENOL	BDL	10	ug/L
4,6-DINITRO-2-METHYLPHENOL	BDL	50	ug/L
2,4-DINITROPHENOL	BDL	50	ug/L
2-METHYLPHENOL	BDL	10	ug/L
4-METHYLPHENOL	BDL	10	ug/L
2-NITROPHENOL	BDL	10	ug/L
4-NITROPHENOL	BDL	50	ug/L
PENTACHLOROPHENOL	BDL	50	ug/L
PHENOL	BDL	10	ug/L
TETRACHLOROPHENOL	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
SURROGATE RECOVERY			
2-FLUOROPHENOL	52		% Rec
PHENOL-D5	36		% Rec
NITROBENZENE-D5	84		% Rec
2-FLUOROBIPHENYL	101		% Rec
2,4,6-TRIBROMOPHENOL	72		% Rec
TERPHENYL-D14	128		% Rec

GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Analyst: J. GRIFFIN Analysis Date: 22-DEC-97 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	10		mL

PCB/PESTICIDE SCAN GC:ECD SW846-8081

Analyst: M. KEEZER Analysis Date: 23-DEC-97 23:38 Instrument: GC/ECD Test: 0305.1.0

Prep: GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B P233.1.0

Parameter	Result	Det. Limit	Units
ALPHA-BHC	BDL	0.05	ug/L
BETA-BHC	BDL	0.05	ug/L
DELTA-BHC	BDL	0.05	ug/L
GAMMA-BHC (LINDANE)	BDL	0.05	ug/L
HEPTACHLOR	BDL	0.05	ug/L
ALDRIN	BDL	0.05	ug/L
HEPTACHLOR EPOXIDE	BDL	0.05	ug/L
ENDOSULFAN I	BDL	0.05	ug/L
DIELDRIN	BDL	0.1	ug/L
4,4'-DDE	BDL	0.1	ug/L
ENDRIN	BDL	0.1	ug/L
ENDOSULFAN II	BDL	0.1	ug/L
4,4'-DDD	BDL	0.1	ug/L
ENDOSULFAN SULFATE	BDL	0.1	ug/L
4,4'-DDT	BDL	0.1	ug/L
METHOXYCHLOR	BDL	0.5	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ENDRIN KETONE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
PCB AROCLOR 1016	BDL	0.5	ug/L
PCB AROCLOR 1221	BDL	0.5	ug/L
PCB AROCLOR 1232	BDL	0.5	ug/L
PCB AROCLOR 1242	BDL	0.5	ug/L
PCB AROCLOR 1248	BDL	0.5	ug/L
PCB AROCLOR 1254	BDL	1	ug/L
PCB AROCLOR 1260	BDL	1	ug/L
...			
SURROGATE RECOVERY			

TETRACHLORO-M-XYLENE	112.2		% Rec
DECACHLOROBIPHENYL (DCB)	108.8		% Rec

FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: S. PUGH Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P130.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL WEIGHT OR VOLUME	50		mL

ALUMINUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M101.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ALUMINUM	BDL	0.050	mg/L

ANTIMONY ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M102.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ANTIMONY	BDL	0.030	mg/L

BARIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BARIUM	BDL	0.010	mg/L

BERYLLIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M105.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BERYLLIUM	BDL	0.0040	mg/L

CADMIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CADMIUM	BDL	0.0050	mg/L

CALCIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M109.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	BDL	0.20	mg/L

CHROMIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M110.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CHROMIUM	BDL	0.010	mg/L

COBALT ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M111.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COBALT	BDL	0.010	mg/L

COPPER ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M112.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
COPPER	BDL	0.020	mg/L

IRON ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M115.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	0.026	0.025	mg/L

MAGNESIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M118.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	BDL	0.20	mg/L

MANGANESE ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M119.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	BDL	0.010	mg/L

NICKEL ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M122.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
NICKEL	BDL	0.010	mg/L

POTASSIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M126.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	BDL	0.20	mg/L

SILVER ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: [illegible]0.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	0.010	mg/L

SODIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M131.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQU[illegible]S SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	0.28	0.20	mg/L

prep blank was 0.26 mg/l

VANADIUM ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M138.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
VANADIUM	BDL	0.010	mg/L

ZINC ICP SW846-6010A

Analyst: A. HILSCHER Analysis Date: 23-DEC-97 17:25 Instrument: ICP Test: M139.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ZINC	BDL	0.020	mg/L

ARSENIC TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:25 Instrument: TRACE ICP Test: M103.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ARSENIC	BDL	0.0050	mg/L

LEAD TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:25 Instrument: TRACE ICP Test: M116.0.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

SELENIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:25 Instrument: TRACE ICP Test: M128.0.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	0.0050	mg/L

THALLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 23-DEC-97 13:25 Instrument: TRACE ICP Test: M134.0.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
THALLIUM	BDL	0.010	mg/L

MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

Analyst: J. LEAK Analysis Date: 22-DEC-97 12:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	100		mL
FINAL VOLUME	100		mL

MERCURY CVAA SW846-7470A

Analyst: J. LEAK Analysis Date: 23-DEC-97 09:22 Instrument: CVAA Test: M120.1.0

Prep: MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A P131.6.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.00020	mg/L

CYANIDE DISTILLATION SW846-9010A

Analyst: S. TELLES Analysis Date: 21-DEC-97 14:30 Instrument: PREP Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	250		mL
FINAL VOLUME	250		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012

Analyst: K. WHITFIELD Analysis Date: 22-DEC-97 12:45 Instrument: AUTO-ANALYZER Test: G101.4.0

Prep: CYANIDE DISTILLATION SW846-9010A P101.4.0

Parameter	Result	Det. Limit	Units
CYANIDE	BDL	0.005	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number I-37354.

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Additional copies of this report sent to:
JOHN GONZALEZ, LOUISVILLE AND JEFFERSON COUNTY
METROPOLITAN SEWER DISTRICT 700 WEST LIBERTY, LOUISVILLE, KY 40203

Approved : R.K. Spence

QUALITY ASSURANCE REPORT

Service Location
HERITAGE ENVIRONMENTAL SERVICES, INC.
COMMERCIAL LABORATORY OPERATIONS
7901 W. MORRIS ST.
INDIANAPOLIS, IN 46231
(317)243-8304

Report Date
06-JAN-98

Submitter
LOUISVILLE AND JEFFERSON COUNTY M.S.D.
JOHN C. BEYKE
400 SOUTH SIXTH STREET (40202-2397)
P.O. BOX 740011
LOUISVILLE, KY 402012

Client ID	Lab ID	Date-Time Sampled	Date Received	Date Complete	Description
LLMW04-21	A428971	17-DEC-97 09:05	18-DEC-97	30-DEC-97	
LLMWFB-21	A428972	17-DEC-97 09:49	18-DEC-97	30-DEC-97	
LLMW05-21	A428973	17-DEC-97 10:25	18-DEC-97	30-DEC-97	
LLMW05-21 DUP	A428974	17-DEC-97 10:25	18-DEC-97	30-DEC-97	
LLMW02-21	A428975	17-DEC-97 12:53	18-DEC-97	30-DEC-97	
LLMWB-21	A428976	17-DEC-97 14:08	18-DEC-97	30-DEC-97	
LLMWA-21	A428977	17-DEC-97 14:56	18-DEC-97	30-DEC-97	

HERITAGE ENVIRONMENTAL SERVICES, INC.

CYANIDE, TOTAL (AUTOMATED) SW846-9012 G101.4
Prep: CYANIDE DISTILLATION SW846-9010A

Run: R340517 Analyst.: S TELLES Run Date...: 21-DEC-97
PREP Reviewer: B SHRAKE Review Date: 22-DEC-97

QC Type	Lab ID	Source	Anal Run
BLA02	Q782826		R340518
LFB02L	Q782827		R340518
LFB02H	Q782828		R340518
SPI02	Q782829	A428700	R340518
DPS02	Q782830	A428700	R340518
SAMPLE	A428971	Rep: 0	R340518
SAMPLE	A428972	Rep: 0	R340518

Run: R340550 Analyst.: S TELLES Run Date...: 22-DEC-97
PREP Reviewer: B SHRAKE Review Date: 23-DEC-97

BLA02	Q783071		R340552
LFB02H	Q783072		R340552
LFB02L	Q783077		R340552
SPI02	Q783073	A429120	R340552
DPS02	Q783074	A429120	R340552
SAMPLE	A428973	Rep: 0	R340552
SAMPLE	A428974	Rep: 0	R340552
SAMPLE	A428975	Rep: 0	R340552
SAMPLE	A428976	Rep: 0	R340552
SAMPLE	A428977	Rep: 0	R340552

Run: R340518 Analyst.: K WHITFIELD Run Date...: 22-DEC-97 Instrument: AUTO-ANALYZER
ANALYTICAL Reviewer: B SHRAKE Review Date: 23-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
BLA01	Q782823		CYANIDE			-.0007	mg/L		
CDL01	Q782824		CYANIDE	0.02		0.0196	mg/L	98	
ICV01	Q782825		CYANIDE	0.15		0.153	mg/L	102	
BLA02	Q782826		CYANIDE			0.0018	mg/L		
LFB02L	Q782827		CYANIDE	0.05		0.048	mg/L	96	
LFB02H	Q782828		CYANIDE	0.25		0.237	mg/L	94.8	
SPI02	Q782829	A428700	CYANIDE	0	0.1	0.069	mg/L	69	
DPS02	Q782830	A428700	CYANIDE	0	0.1	0.054	mg/L	54	24.4
CCV	Q782831		CYANIDE	0.1		0.098	mg/L	98	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
CCV	Q782833		CYANIDE	0.1		0.1	mg/L	100	
BLA01	Q782834		CYANIDE			-.0007	mg/L		

Run: R340552 Analyst.: K WHITFIELD Run Date...: 23-DEC-97 Instrument: AUTO-ANALYZER
ANALYTICAL Reviewer: C BOYLE Review Date: 23-DEC-97

BLA01	Q783068		CYANIDE			-.0007	mg/L		
CDL01	Q783069		CYANIDE	0.02		0.0198	mg/L	99	
ICV01	Q783070		CYANIDE	0.15		0.162	mg/L	108	
BLA02	Q783071		CYANIDE			0.0014	mg/L		
LFB02H	Q783072		CYANIDE	0.25		0.233	mg/L	93.2	
SPI02	Q783073	A429120	CYANIDE	0	0.1	0.09	mg/L	90	
DPS02	Q783074	A429120	CYANIDE	0	0.1	0.088	mg/L	88	2.2
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
CCV	Q783075		CYANIDE	0.1		0.103	mg/L	103	
BLA01	Q783076		CYANIDE			-.0001	mg/L		
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
LFB02L	Q783077		CYANIDE	0.05		0.0438	mg/L	87.6	
CCV	Q783078		CYANIDE	0.1		0.103	mg/L	103	
BLA01	Q783079		CYANIDE			-.0003	mg/L		

Comments

Q782829 Sample exhibits low spike recovery. Spike analyzed twice.
Q782830 Sample exhibits low spike recovery. Spike analyzed twice.

ALUMINUM ICP SW846-6010A M101.3
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	ALUMINUM	5.00		5.01	mg/L	100	
BLA01	Q782623	NA	ALUMINUM			< 0.0200	mg/L		
ICV01	Q782625	PERKIN	ALUMINUM	1		1.04	mg/L	104	
CDL01	Q782629	INORGAN	ALUMINUM	10		10.2	mg/L	102	
ICS-A	Q782630	PERKIN	ALUMINUM	500		507.	mg/L	101	
BLA02	Q782043	NA	ALUMINUM			< 0.0200	mg/L		
LCS	Q782042	SPEX	ALUMINUM	20.0		20.4	mg/L	102	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	ALUMINUM	0	2.00	2.06	mg/L	103	
DPS02	Q782045	A428971	ALUMINUM	0	2.00	2.02	mg/L	101	2
CCV	Q782647	INORGAN	ALUMINUM	5.00		5.05	mg/L	101	
BLA01	Q782648	NA	ALUMINUM			< 0.0200	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	ALUMINUM	5.00		5.12	mg/L	102	
BLA01	Q782650	NA	ALUMINUM			< 0.0200	mg/L		
ICS-A	Q782652	PERKIN-	ALUMINUM	500		566.	mg/L	113	

HERITAGE ENVIRONMENTAL SERVICES, INC.

ANTIMONY ICP SW846-6010A — M102.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	ANTIMONY	1.00		0.982	mg/L	98	
BLA01	Q782623	NA	ANTIMONY			< 0.0120	mg/L		
ICV01	Q782624	PERKIN	ANTIMONY	1		1.05	mg/L	105	
CDL01	Q782628	PERKIN	ANTIMONY	0.120		0.118	mg/L	98	
ICS-A	Q782630	PERKIN	ANTIMONY	0.6		0.588	mg/L	98	
BLA02	Q782043	NA	ANTIMONY			< 0.0120	mg/L		
LCS	Q782042	SPEX	ANTIMONY	5.00		4.98	mg/L	100	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	ANTIMONY	0	0.500	0.498	mg/L	100	
DPS02	Q782045	A428971	ANTIMONY	0	0.500	0.490	mg/L	98	2
CCV	Q782647	INORGAN	ANTIMONY	1.00		0.974	mg/L	97	
BLA01	Q782648	NA	ANTIMONY			< 0.0120	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	ANTIMONY	1.00		0.980	mg/L	98	
BLA01	Q782650	NA	ANTIMONY			< 0.0120	mg/L		
CDL01	Q782651	PERKIN	ANTIMONY	0.120		0.118	mg/L	98	
ICS-A	Q782653	PERKIN	ANTIMONY	0.6		0.641	mg/L	107	

ARSENIC TRACE ICP SW846-6010A — M103.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
SAMPLE	A428971	Rep: 0	R340491
SAMPLE	A428972	Rep: 0	R340491
SAMPLE	A428973	Rep: 0	R340491
SAMPLE	A428974	Rep: 0	R340491
SAMPLE	A428975	Rep: 0	R340491

QC Type	Lab ID	Source	Anal Run
SAMPLE	A428976	Rep: 0	R340491
SAMPLE	A428977	Rep: 0	R340491
LCS	Q781932	INORGAN	R340491
BLA02	Q781933	NA	R340491
SPI02	Q781934	A428971	R340491
DPS02	Q781935	A428971	R340491

Run: R340491 Analyst.: A ROBERTSON Run Date...: 23-DEC-97 Instrument: TRACE ICP
ANALYTICAL Reviewer: S O'NEAL Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782681	INORGAN	ARSENIC	0.1		0.100	mg/L	100	
BLA01	Q782682	NA	ARSENIC			< 0.00200	mg/L		
ICV01	Q782683	PERKIN-	ARSENIC	0.05		0.0520	mg/L	104	
CDL01	Q782686	PERKIN-	ARSENIC	0.02		0.0197	mg/L	99	
ICS-A	Q782689	PERKIN	ARSENIC	0.1		0.101	mg/L	101	
BLA02	Q781933	NA	ARSENIC			0.00259	mg/L		
LCS	Q781932	INORGAN	ARSENIC	0.5		0.498	mg/L	100	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q781934	A428971	ARSENIC	0.0121	2	2.09	mg/L	104	
DPS02	Q781935	A428971	ARSENIC	0.0121	2	2.11	mg/L	105	1
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
CCV	Q782696	INORGAN	ARSENIC	0.1		0.103	mg/L	103	
BLA01	Q782697	NA	ARSENIC			< 0.00200	mg/L		
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782698	INORGAN	ARSENIC	0.1		0.104	mg/L	104	
BLA01	Q782699	NA	ARSENIC			< 0.00200	mg/L		
CDL01	Q782700	PERKIN-	ARSENIC	0.02		0.0212	mg/L	106	
ICS-A	Q782702	PERKIN	ARSENIC	0.1		0.0976	mg/L	98	

BARIUM ICP SW846-6010A M104.3
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	BARIUM	5.00		5.00	mg/L	100	

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
BLA01	Q782623	NA	BARIUM			< 0.00400	mg/L		
ICV01	Q782625	PERKIN	BARIUM	1		1.04	mg/L	104	
CDL01	Q782629	INORGAN	BARIUM	10		10.3	mg/L	103	
ICS-A	Q782630	PERKIN	BARIUM	0.500		0.484	mg/L	97	
BLA02	Q782043	NA	BARIUM			< 0.00400	mg/L		
LCS	Q782042	SPEX	BARIUM	20.0		19.6	mg/L	98	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	BARIUM	0.114	2.00	2.02	mg/L	95	
DPS02	Q782045	A428971	BARIUM	0.114	2.00	2.02	mg/L	95	0
CCV	Q782647	INORGAN	BARIUM	5.00		4.95	mg/L	99	
BLA01	Q782648	NA	BARIUM			< 0.00400	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	BARIUM	5.00		5.07	mg/L	101	
BLA01	Q782650	NA	BARIUM			< 0.00400	mg/L		
ICS-A	Q782653	PERKIN	BARIUM	0.500		0.544	mg/L	109	

BERYLLIUM ICP SW846-6010A M105.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	BERYLLIUM	5.00		5.06	mg/L	101	
BLA01	Q782623	NA	BERYLLIUM			< 0.00160	mg/L		
ICV01	Q782624	PERKIN	BERYLLIUM	1		1.04	mg/L	104	
CDL01	Q782628	PERKIN	BERYLLIUM	0.010		0.0104	mg/L	104	
ICS-A	Q782630	PERKIN	BERYLLIUM	0.500		0.474	mg/L	95	
BLA02	Q782043	NA	BERYLLIUM			< 0.00160	mg/L		
LCS	Q782042	SPEX	BERYLLIUM	0.500		0.494	mg/L	99	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	BERYLLIUM	0	0.050	0.0473	mg/L	95	
DPS02	Q782045	A428971	BERYLLIUM	0	0.050	0.0479	mg/L	96	1
CCV	Q782647	INORGAN	BERYLLIUM	5.00		4.92	mg/L	98	
BLA01	Q782648	NA	BERYLLIUM			< 0.00160	mg/L		

HERITAGE ENVIRONMENTAL SERVICES, INC.

CALCIUM ICP SW846-6010A — M109.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	CALCIUM	50.0		48.5	mg/L	97	
BLA01	Q782623	NA	CALCIUM			< 0.0800	mg/L		
ICV01	Q782626	SPEX	CALCIUM	20		21.0	mg/L	105	
ICS-A	Q782630	PERKIN	CALCIUM	500		467.	mg/L	93	
BLA02	Q782043	NA	CALCIUM			< 0.0800	mg/L		
LCS	Q782042	SPEX	CALCIUM	100		94.7	mg/L	95	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	CALCIUM	104.	100	198.	mg/L	94	
DPS02	Q782045	A428971	CALCIUM	104.	100	201.	mg/L	97	3
CCV	Q782647	INORGAN	CALCIUM	50.0		48.4	mg/L	97	
BLA01	Q782648	NA	CALCIUM			< 0.0800	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	CALCIUM	50.0		48.9	mg/L	98	
BLA01	Q782650	NA	CALCIUM			< 0.0800	mg/L		
ICS-A	Q782652	PERKIN-	CALCIUM	500		514.	mg/L	103	

CHROMIUM ICP SW846-6010A — M110.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486

QC Type	Lab ID	Source	Anal Run
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	CHROMIUM	5.00		4.93	mg/L	99	
BLA01	Q782623	NA	CHROMIUM			< 0.00400	mg/L		
ICV01	Q782624	PERKIN	CHROMIUM	1		1.05	mg/L	105	
CDL01	Q782628	PERKIN	CHROMIUM	0.020		0.0196	mg/L	98	
ICS-A	Q782630	PERKIN	CHROMIUM	0.500		0.447	mg/L	89	
BLA02	Q782043	NA	CHROMIUM			< 0.00400	mg/L		
LCS	Q782042	SPEX	CHROMIUM	2.00		1.89	mg/L	95	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	CHROMIUM	0	0.200	0.190	mg/L	95	
DPS02	Q782045	A428971	CHROMIUM	0	0.200	0.188	mg/L	94	1
CCV	Q782647	INORGAN	CHROMIUM	5.00		4.92	mg/L	98	
BLA01	Q782648	NA	CHROMIUM			< 0.00400	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	CHROMIUM	5.00		4.98	mg/L	100	
BLA01	Q782650	NA	CHROMIUM			< 0.00400	mg/L		
CDL01	Q782651	PERKIN	CHROMIUM	0.020		0.0215	mg/L	108	
ICS-A	Q782653	PERKIN	CHROMIUM	0.500		0.493	mg/L	99	

COBALT ICP SW846-6010A M111.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	COBALT	5.00		4.94	mg/L	99	
BLA01	Q782623	NA	COBALT			< 0.00400	mg/L		
ICV01	Q782624	PERKIN	COBALT	1		1.06	mg/L	106	

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CDL01	Q782628	PERKIN	COBALT	0.100		0.103	mg/L	103	
ICS-A	Q782630	PERKIN	COBALT	0.500		0.448	mg/L	90	
BLA02	Q782043	NA	COBALT			< 0.00400	mg/L		
LCS	Q782042	SPEX	COBALT	5.00		4.84	mg/L	97	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	COBALT	0	0.500	0.470	mg/L	94	
DPS02	Q782045	A428971	COBALT	0	0.500	0.472	mg/L	94	0
CCV	Q782647	INORGAN	COBALT	5.00		4.91	mg/L	98	
BLA01	Q782648	NA	COBALT			< 0.00400	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	COBALT	5.00		4.97	mg/L	99	
BLA01	Q782650	NA	COBALT			< 0.00400	mg/L		
CDL01	Q782651	PERKIN	COBALT	0.100		0.114	mg/L	114	
ICS-A	Q782653	PERKIN	COBALT	0.500		0.493	mg/L	99	

COPPER ICP SW846-6010A M112.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	COPPER	5.00		5.05	mg/L	101	
BLA01	Q782623	NA	COPPER			< 0.00800	mg/L		
ICV01	Q782624	PERKIN	COPPER	1		1.06	mg/L	106	
CDL01	Q782628	PERKIN	COPPER	0.050		0.0430	mg/L	86	
ICS-A	Q782630	PERKIN	COPPER	0.500		0.494	mg/L	99	
BLA02	Q782043	NA	COPPER			< 0.00800	mg/L		
LCS	Q782042	SPEX	COPPER	2.50		2.48	mg/L	99	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	COPPER	0	0.250	0.239	mg/L	96	
DPS02	Q782045	A428971	COPPER	0	0.250	0.236	mg/L	94	2
CCV	Q782647	INORGAN	COPPER	5.00		4.96	mg/L	99	
BLA01	Q782648	NA	COPPER			< 0.00800	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	COPPER	5.00		5.03	mg/L	101	
BLA01	Q782650	NA	COPPER			< 0.00800	mg/L		
CDL01	Q782651	PERKIN	COPPER	0.050		0.0591	mg/L	118	
ICS-A	Q782653	PERKIN	COPPER	0.500		0.526	mg/L	105	

IRON ICP SW846-6010A M115.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	IRON	5.00		4.93	mg/L	99	
BLA01	Q782623	NA	IRON			< 0.0100	mg/L		
ICV01	Q782624	PERKIN	IRON	1		1.04	mg/L	104	
CDL01	Q782629	INORGAN	IRON	10		10.1	mg/L	101	
ICS-A	Q782630	PERKIN	IRON	200		179.	mg/L	90	
BLA02	Q782043	NA	IRON			< 0.0100	mg/L		
LCS	Q782042	SPEX	IRON	10.0		9.86	mg/L	99	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	IRON	7.43	1.00	8.34	mg/L	91	
DPS02	Q782045	A428971	IRON	7.43	1.00	8.26	mg/L	83	9
CCV	Q782647	INORGAN	IRON	5.00		4.91	mg/L	98	
BLA01	Q782648	NA	IRON			< 0.0100	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	IRON	5.00		4.95	mg/L	99	
BLA01	Q782650	NA	IRON			< 0.0100	mg/L		
ICS-A	Q782652	PERKIN-	IRON	200		196.	mg/L	98	

LEAD TRACE ICP SW846-6010A — M116.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
SAMPLE	A428971	Rep: 0	R340491
SAMPLE	A428972	Rep: 0	R340491
SAMPLE	A428973	Rep: 0	R340491
SAMPLE	A428974	Rep: 0	R340491
SAMPLE	A428975	Rep: 0	R340491
SAMPLE	A428976	Rep: 0	R340491
SAMPLE	A428977	Rep: 0	R340491
LCS	Q781932	INORGAN	R340491
BLA02	Q781933	NA	R340491
SPI02	Q781934	A428971	R340491
DPS02	Q781935	A428971	R340491

Run: R340491 Analyst.: A ROBERTSON Run Date...: 23-DEC-97 Instrument: TRACE ICP
ANALYTICAL Reviewer: S O'NEAL Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782681	INORGAN	LEAD	0.1		0.0991	mg/L	99	
BLA01	Q782682	NA	LEAD			< 0.00200	mg/L		
ICV01	Q782683	PERKIN-	LEAD	0.05		0.0507	mg/L	101	
CDLC1	Q782686	PERKIN-	LEAD	0.006		0.00646	mg/L	108	
ICS-A	Q782689	PERKIN	LEAD	0.05		0.0508	mg/L	102	
BLA02	Q781933	NA	LEAD			< 0.00200	mg/L		
LCS	Q781932	INORGAN	LEAD	0.5		0.495	mg/L	99	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q781934	A428971	LEAD	0.0168	0.5	0.486	mg/L	94	
DPS02	Q781935	A428971	LEAD	0.0168	0.5	0.489	mg/L	94	0
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
CCV	Q782696	INORGAN	LEAD	0.1		0.105	mg/L	105	
BLA01	Q782697	NA	LEAD			< 0.00200	mg/L		
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782698	INORGAN	LEAD	0.1		0.100	mg/L	100	
BLA01	Q782699	NA	LEAD			< 0.00200	mg/L		
CDL01	Q782700	PERKIN-	LEAD	0.006		0.00598	mg/L	100	
ICS-A	Q782702	PERKIN	LEAD	0.05		0.0524	mg/L	105	

MAGNESIUM ICP SW846-6010A — M118.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Anal Run
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	MAGNESIUM	50.0		49.5	mg/L	99	
BLA01	Q782623	NA	MAGNESIUM			< 0.0800	mg/L		
ICV01	Q782626	SPEX	MAGNESIUM	20		21.4	mg/L	107	
ICS-A	Q782630	PERKIN	MAGNESIUM	500		497.	mg/L	99	
BLA02	Q782043	NA	MAGNESIUM			< 0.0800	mg/L		
LCS	Q782042	SPEX	MAGNESIUM	100		96.1	mg/L	96	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	MAGNESIUM	35.3	100	131.	mg/L	96	
DPS02	Q782045	A428971	MAGNESIUM	35.3	100	132.	mg/L	97	1
CCV	Q782647	INORGAN	MAGNESIUM	50.0		49.1	mg/L	98	
BLA01	Q782648	NA	MAGNESIUM			< 0.0800	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	MAGNESIUM	50.0		50.0	mg/L	100	
BLA01	Q782650	NA	MAGNESIUM			< 0.0800	mg/L		
ICS-A	Q782652	PERKIN-	MAGNESIUM	500		552.	mg/L	110	

MANGANESE ICP SW846-6010A M119.3
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	MANGANESE	5.00		4.94	mg/L	99	
BLA01	Q782623	NA	MANGANESE			< 0.00400	mg/L		
ICV01	Q782624	PERKIN	MANGANESE	1		1.05	mg/L	105	

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CDL01	Q782628	PERKIN	MANGANESE	0.030		0.0310	mg/L	103	
ICS-A	Q782630	PERKIN	MANGANESE	0.500		0.460	mg/L	92	
BLA02	Q782043	NA	MANGANESE			< 0.00400	mg/L		
LCS	Q782042	SPEX	MANGANESE	5.00		4.86	mg/L	97	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	MANGANESE	0.162	0.500	0.637	mg/L	95	
DPS02	Q782045	A428971	MANGANESE	0.162	0.500	0.640	mg/L	96	1
CCV	Q782647	INORGAN	MANGANESE	5.00		4.95	mg/L	99	
BLA01	Q782648	NA	MANGANESE			< 0.00400	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	MANGANESE	5.00		5.03	mg/L	101	
BLA01	Q782650	NA	MANGANESE			< 0.00400	mg/L		
CDL01	Q782651	PERKIN	MANGANESE	0.030		0.0339	mg/L	113	
ICS-A	Q782653	PERKIN	MANGANESE	0.500		0.504	mg/L	101	

MERCURY CVAA SW846-7470A — MI20.1

Prep: MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

Run: R340338 Analyst.: J LEAK Run Date...: 22-DEC-97
PREP Reviewer: S O'NEAL Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q781831		R340450
BLA02	Q781832		R340450
SPI02	Q781833	A428977	R340450
DPS02	Q781834	A428977	R340450
SAMPLE	A428971	Rep: 0	R340450
SAMPLE	A428972	Rep: 0	R340450
SAMPLE	A428973	Rep: 0	R340450
SAMPLE	A428974	Rep: 0	R340450
SAMPLE	A428975	Rep: 0	R340450
SAMPLE	A428976	Rep: 0	R340450
SAMPLE	A428977	Rep: 0	R340450

Run: R340450 Analyst.: J LEAK Run Date...: 23-DEC-97 Instrument: CVAA
ANALYTICAL Reviewer: S O'NEAL Review Date: 23-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
ICV01	Q782419		MERCURY	0.002		0.00193	mg/L	96.5	
BLA01	Q782420		MERCURY			< 0.00008	mg/L		
CCV	Q782421		MERCURY	0.003		0.00293	mg/L	97.7	
CDL01	Q782423		MERCURY	0.0002		0.00016	mg/L	80	
LCS	Q781831		MERCURY	0.002		0.00179	mg/L	89.5	
BLA02	Q781832		MERCURY			< 0.00008	mg/L		
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
SPI02	Q781833	A428977	MERCURY	0	0.001	0.00081	mg/L	81	
DPS02	Q781834	A428977	MERCURY	0	0.001	0.00092	mg/L	92	12.7
CDL01	Q782439		MERCURY	0.0002		0.0002	mg/L	100	
CCV	Q782440		MERCURY	0.003		0.00281	mg/L	93.7	
BLA01	Q782441		MERCURY			< 0.00008	mg/L		
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
CDL01	Q782442		MERCURY	0.0002		0.00018	mg/L	90	
CCV	Q782443		MERCURY	0.003		0.00282	mg/L	94	
BLA01	Q782444		MERCURY			< 0.00008	mg/L		

NICKEL ICP SW846-6010A M122.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	NICKEL	5.00		4.92	mg/L	98	
BLA01	Q782623	NA	NICKEL			< 0.00400	mg/L		
ICV01	Q782624	PERKIN	NICKEL	1		1.05	mg/L	105	
CDL01	Q782628	PERKIN	NICKEL	0.080		0.0832	mg/L	104	
ICS-A	Q782630	PERKIN	NICKEL	1.00		0.870	mg/L	87	
BLA02	Q782043	NA	NICKEL			< 0.00400	mg/L		
LCS	Q782042	SPEX	NICKEL	5.00		4.82	mg/L	96	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	NICKEL	0	0.500	0.474	mg/L	95	
DPS02	Q782045	A428971	NICKEL	0	0.500	0.474	mg/L	95	0
CCV	Q782647	INORGAN	NICKEL	5.00		4.90	mg/L	98	
BLA01	Q782648	NA	NICKEL			< 0.00400	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	NICKEL	5.00		4.97	mg/L	99	
BLA01	Q782650	NA	NICKEL			< 0.00400	mg/L		
CDL01	Q782651	PERKIN	NICKEL	0.080		0.0929	mg/L	116	
ICS-A	Q782653	PERKIN	NICKEL	1.00		0.961	mg/L	96	

POTASSIUM ICP SW846-6010A — M126.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 PREP — Analyst.: S PUGH — Reviewer: W WATNESS — Run Date...: 22-DEC-97 — Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 ANALYTICAL — Analyst.: A HILSCHER — Reviewer: S ENDERSON — Run Date...: 23-DEC-97 — Review Date: 24-DEC-97 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	POTASSIUM	50		50.6	mg/L	101	
BLA01	Q782623	NA	POTASSIUM			< 0.0800	mg/L		
ICV01	Q782625	PERKIN	POTASSIUM	10		10.5	mg/L	105	
ICVC1	Q782626	SPEX	POTASSIUM	20		21.7	mg/L	109	
BLA02	Q782043	NA	POTASSIUM			< 0.0800	mg/L		
LCS	Q782042	SPEX	POTASSIUM	100		97.8	mg/L	98	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	POTASSIUM	1.83	100	99.7	mg/L	98	
DPS02	Q782045	A428971	POTASSIUM	1.83	100	99.6	mg/L	98	0
CCV	Q782647	INORGAN	POTASSIUM	50		49.8	mg/L	100	
BLA01	Q782648	NA	POTASSIUM			< 0.0800	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	POTASSIUM	50		50.6	mg/L	101	
BLA01	Q782650	NA	POTASSIUM			< 0.0800	mg/L		

SELENIUM TRACE ICP SW846-6010A — M128.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 PREP — Analyst.: S PUGH — Reviewer: W WATNESS — Run Date...: 22-DEC-97 — Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
SAMPLE	A428971	Rep: 0	R340491
SAMPLE	A428972	Rep: 0	R340491
SAMPLE	A428973	Rep: 0	R340491
SAMPLE	A428974	Rep: 0	R340491
SAMPLE	A428975	Rep: 0	R340491
SAMPLE	A428976	Rep: 0	R340491
SAMPLE	A428977	Rep: 0	R340491
LCS	Q781932	INORGAN	R340491

QC Type	Lab ID	Source	Anal Run
BLA02	Q781933	NA	R340491
SPI02	Q781934	A428971	R340491
DPS02	Q781935	A428971	R340491

Run: R340491 Analyst.: A ROBERTSON Run Date...: 23-DEC-97 Instrument: TRACE ICP
ANALYTICAL Reviewer: S O'NEAL Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782681	INORGAN	SELENIUM	0.1		0.0997	mg/L	100	
BLA01	Q782682	NA	SELENIUM			< 0.00200	mg/L		
ICV01	Q782683	PERKIN-	SELENIUM	0.05		0.0531	mg/L	106	
CDL01	Q782686	PERKIN-	SELENIUM	0.01		0.0112	mg/L	112	
ICS-A	Q782689	PERKIN	SELENIUM	0.05		0.0470	mg/L	94	
BLA02	Q781933	NA	SELENIUM			< 0.00200	mg/L		
LCS	Q781932	INORGAN	SELENIUM	0.5		0.491	mg/L	98	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q781934	A428971	SELENIUM	0	2	2.12	mg/L	106	
DPS02	Q781935	A428971	SELENIUM	0	2	2.13	mg/L	107	1
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
CCV	Q782696	INORGAN	SELENIUM	0.1		0.104	mg/L	104	
BLA01	Q782697	NA	SELENIUM			< 0.00200	mg/L		
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782698	INORGAN	SELENIUM	0.1		0.101	mg/L	101	
BLA01	Q782699	NA	SELENIUM			< 0.00200	mg/L		
CDL01	Q782700	PERKIN-	SELENIUM	0.01		0.0105	mg/L	105	
ICS-A	Q782702	PERKIN	SELENIUM	0.05		0.0558	mg/L	112	

SILVER ICP SW846-6010A M130.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	SILVER	1.00		1.01	mg/L	101	
BLA01	Q782623	NA	SILVER			< 0.00400	mg/L		
ICV01	Q782625	PERKIN	SILVER	0.5		0.529	mg/L	106	
CDL01	Q782628	PERKIN	SILVER	0.020		0.0223	mg/L	112	

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
ICS-A	Q782630	PERKIN	SILVER	0.2		0.202	mg/L	101	
BLA02	Q782043	NA	SILVER			< 0.00400	mg/L		
LCS	Q782042	SPEX	SILVER	0.500		0.488	mg/L	98	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	SILVER	0	0.050	0.0438	mg/L	88	
DPS02	Q782045	A428971	SILVER	0	0.050	0.0431	mg/L	86	2
CCV	Q782647	INORGAN	SILVER	1.00		0.996	mg/L	100	
BLA01	Q782648	NA	SILVER			< 0.00400	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	SILVER	1.00		1.00	mg/L	100	
BLA01	Q782650	NA	SILVER			< 0.00400	mg/L		
CDL01	Q782651	PERKIN	SILVER	0.020		0.0203	mg/L	102	
ICS-A	Q782653	PERKIN	SILVER	0.2		0.218	mg/L	109	

SODIUM ICP SW846-6010A M131.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	SODIUM	50		49.4	mg/L	99	
BLA01	Q782623	NA	SODIUM			< 0.0800	mg/L		
ICV01	Q782625	PERKIN	SODIUM	1		1.05	mg/L	105	
ICV01	Q782626	SPEX	SODIUM	20		21.1	mg/L	106	
BLA02	Q782043	NA	SODIUM			0.264	mg/L		
LCS	Q782042	SPEX	SODIUM	100		107.	mg/L	107	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	SODIUM	25.0	100	133.	mg/L	108	
DPS02	Q782045	A428971	SODIUM	25.0	100	134.	mg/L	109	1
CCV	Q782647	INORGAN	SODIUM	50		49.3	mg/L	99	
BLA01	Q782648	NA	SODIUM			< 0.0800	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	SODIUM	50		50.2	mg/L	100	
BLA01	Q782650	NA	SODIUM			< 0.0800	mg/L		

THALLIUM TRACE ICP SW846-6010A M134.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
SAMPLE	A428971	Rep: 0	R340491
SAMPLE	A428972	Rep: 0	R340491
SAMPLE	A428973	Rep: 0	R340491
SAMPLE	A428974	Rep: 0	R340491
SAMPLE	A428975	Rep: 0	R340491
SAMPLE	A428976	Rep: 0	R340491
SAMPLE	A428977	Rep: 0	R340491
LCS	Q781932	INORGAN	R340491
BLA02	Q781933	NA	R340491
SPI02	Q781934	A428971	R340491
DPS02	Q781935	A428971	R340491

Run: R340491 Analyst.: A ROBERTSON Run Date...: 23-DEC-97 Instrument: TRACE ICP
ANALYTICAL Reviewer: S O'NEAL Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782681	INORGAN	THALLIUM	0.1		0.0970	mg/L	97	
BLA01	Q782682	NA	THALLIUM			< 0.00400	mg/L		
ICV01	Q782683	PERKIN-	THALLIUM	0.05		0.0512	mg/L	102	
CDL01	Q782686	PERKIN-	THALLIUM	0.02		0.0194	mg/L	97	
ICS-A	Q782689	PERKIN	THALLIUM	0.1		0.0960	mg/L	96	
BLA02	Q781933	NA	THALLIUM			< 0.00400	mg/L		
LCS	Q781932	INORGAN	THALLIUM	0.5		0.482	mg/L	96	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q781934	A428971	THALLIUM	0	3	2.85	mg/L	95	
DPS02	Q781935	A428971	THALLIUM	0	3	2.89	mg/L	96	1
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
CCV	Q782696	INORGAN	THALLIUM	0.1		0.101	mg/L	101	
BLA01	Q782697	NA	THALLIUM			< 0.00400	mg/L		
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782698	INORGAN	THALLIUM	0.1		0.0989	mg/L	99	
BLA01	Q782699	NA	THALLIUM			< 0.00400	mg/L		
CDL01	Q782700	PERKIN-	THALLIUM	0.02		0.0198	mg/L	99	
ICS-A	Q782702	PERKIN	THALLIUM	0.1		0.0928	mg/L	93	

VANADIUM ICP SW846-6010A — M138.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	VANADIUM	5.00		5.01	mg/L	100	
BLA01	Q782623	NA	VANADIUM			< 0.00400	mg/L		
ICV01	Q782624	PERKIN	VANADIUM	1		1.04	mg/L	104	
CDL01	Q782628	PERKIN	VANADIUM	0.100		0.100	mg/L	100	
ICS-A	Q782630	PERKIN	VANADIUM	0.500		0.473	mg/L	95	
BLA02	Q782043	NA	VANADIUM			< 0.00400	mg/L		
LCS	Q782042	SPEX	VANADIUM	5.00		4.87	mg/L	97	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	VANADIUM	0	0.500	0.476	mg/L	95	
DPS02	Q782045	A428971	VANADIUM	0	0.500	0.473	mg/L	95	0
CCV	Q782647	INORGAN	VANADIUM	5.00		4.94	mg/L	99	
BLA01	Q782648	NA	VANADIUM			< 0.00400	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	VANADIUM	5.00		5.02	mg/L	100	
BLA01	Q782650	NA	VANADIUM			< 0.00400	mg/L		
CDL01	Q782651	PERKIN	VANADIUM	0.100		0.110	mg/L	110	
ICS-A	Q782653	PERKIN	VANADIUM	0.500		0.523	mg/L	105	

ZINC ICP SW846-6010A — M139.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R340359 Analyst.: S PUGH Run Date...: 22-DEC-97
PREP Reviewer: W WATNESS Review Date: 23-DEC-97

QC Type	Lab ID	Source	Anal Run
LCS	Q782042	SPEX	R340486
BLA02	Q782043	NA	R340486
SPI02	Q782044	A428971	R340486
DPS02	Q782045	A428971	R340486
SAMPLE	A428971	Rep: 0	R340486

QC Type	Lab ID	Source	Anal Run
SAMPLE	A428972	Rep: 0	R340486
SAMPLE	A428973	Rep: 0	R340486
SAMPLE	A428974	Rep: 0	R340486
SAMPLE	A428975	Rep: 0	R340486
SAMPLE	A428976	Rep: 0	R340486
SAMPLE	A428977	Rep: 0	R340486

Run: R340486 Analyst.: A HILSCHER Run Date...: 23-DEC-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782622	INORGAN	ZINC	5.00		4.99	mg/L	100	
BLA01	Q782623	NA	ZINC			< 0.00800	mg/L		
ICV01	Q782624	PERKIN	ZINC	1		1.06	mg/L	106	
CDL01	Q782628	PERKIN	ZINC	0.040		0.0383	mg/L	96	
ICS-A	Q782630	PERKIN	ZINC	1.00		0.969	mg/L	97	
BLA02	Q782043	NA	ZINC			0.0141	mg/L		
LCS	Q782042	SPEX	ZINC	5.00		4.89	mg/L	98	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SPI02	Q782044	A428971	ZINC	0	0.500	0.524	mg/L	105	
DPS02	Q782045	A428971	ZINC	0	0.500	0.500	mg/L	100	5
CCV	Q782647	INORGAN	ZINC	5.00		4.95	mg/L	99	
BLA01	Q782648	NA	ZINC			< 0.00800	mg/L		
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q782649	INORGAN	ZINC	5.00		4.99	mg/L	100	
BLA01	Q782650	NA	ZINC			< 0.00800	mg/L		
ICS-A	Q782653	PERKIN	ZINC	1		1.23	mg/L	123	

PCB/PESTICIDE SCAN GC:ECD SW846-8081 0305.1

Prep: GC SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Run: R340386 Analyst.: J GRIFFIN Run Date...: 22-DEC-97
PREP Reviewer: S BRYAN Review Date: 22-DEC-97

QC Type	Lab ID	Source	Anal Run
BLA02	Q782060		R340588
LCS	Q782061	EMS	R340588
SAMPLE	A428972	Rep: 0	R340588
SPI02	Q782062	A428972	R340588
DPS02	Q782063	A428972	R340588
SAMPLE	A428971	Rep: 0	R340588
SAMPLE	A428973	Rep: 0	R340588
SAMPLE	A428974	Rep: 0	R340588
SAMPLE	A428975	Rep: 0	R340588
SAMPLE	A428976	Rep: 0	R340588
SAMPLE	A428977	Rep: 0	R340588

Run: R340588 Analyst.: M KEEZER Run Date...: 23-DEC-97 Instrument: GC/ECD
ANALYTICAL Reviewer: J DANIELSON Review Date: 29-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
BLA02	Q782060		ALPHA-BHC			BDL 0.05	ug/L		
BLA02	Q782060		BETA-BHC			BDL 0.05	ug/L		

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
BLA02	Q782060		DELTA-BHC			BDL 0.05	ug/L		
BLA02	Q782060		GAMMA-BHC (LINDANE)			BDL 0.05	ug/L		
BLA02	Q782060		HEPTACHLOR			BDL 0.05	ug/L		
BLA02	Q782060		ALDRIN			BDL 0.05	ug/L		
BLA02	Q782060		HEPTACHLOR EPOXIDE			BDL 0.05	ug/L		
BLA02	Q782060		ENDOSULFAN I			BDL 0.05	ug/L		
BLA02	Q782060		DIELDRIN			BDL 0.1	ug/L		
BLA02	Q782060		4,4'-DDE			BDL 0.1	ug/L		
BLA02	Q782060		ENDRIN			BDL 0.1	ug/L		
BLA02	Q782060		ENDOSULFAN II			BDL 0.1	ug/L		
BLA02	Q782060		4,4'-DDD			BDL 0.1	ug/L		
BLA02	Q782060		ENDOSULFAN SULFATE			BDL 0.1	ug/L		
BLA02	Q782060		4,4'-DDT			BDL 0.1	ug/L		
BLA02	Q782060		METHOXYCHLOR			BDL 0.5	ug/L		
BLA02	Q782060		ENDRIN ALDEHYDE			BDL 0.1	ug/L		
BLA02	Q782060		ENDRIN KETONE			BDL 0.1	ug/L		
BLA02	Q782060		ALPHA-CHLORDANE			BDL 0.5	ug/L		
BLA02	Q782060		GAMMA-CHLORDANE			BDL 0.5	ug/L		
BLA02	Q782060		TOXAPHENE			BDL 1	ug/L		
BLA02	Q782060		PCB AROCLOR 1016			BDL 0.5	ug/L		
BLA02	Q782060		PCB AROCLOR 1221			BDL 0.5	ug/L		
BLA02	Q782060		PCB AROCLOR 1232			BDL 0.5	ug/L		
BLA02	Q782060		PCB AROCLOR 1242			BDL 0.5	ug/L		
BLA02	Q782060		PCB AROCLOR 1248			BDL 0.5	ug/L		
BLA02	Q782060		PCB AROCLOR 1254			BDL 1	ug/L		
BLA02	Q782060		PCB AROCLOR 1260			BDL 1	ug/L		
LCS	Q782061	EMS	GAMMA-BHC (LINDANE)	0.5		0.53	ug/L	106	
LCS	Q782061	EMS	HEPTACHLOR	0.5		0.503	ug/L	100.6	
LCS	Q782061	EMS	ALDRIN	0.5		0.535	ug/L	107	
LCS	Q782061	EMS	DIELDRIN	1		1.09	ug/L	109	
LCS	Q782061.	EMS	ENDRIN	1		1.1	ug/L	110	
LCS	Q782061	EMS	4,4'-DDT	1		1.12	ug/L	112	
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SPI02	Q782062	A428972	GAMMA-BHC (LINDANE)	0	1.11	0.422	ug/L	38	
SPI02	Q782062	A428972	HEPTACHLOR	0	1.11	0.42	ug/L	37.8	
SPI02	Q782062	A428972	ALDRIN	0	1.11	0.413	ug/L	37.2	
SPI02	Q782062	A428972	DIELDRIN	0	2.22	0.902	ug/L	40.6	
SPI02	Q782062	A428972	ENDRIN	0	2.22	0.918	ug/L	41.3	
SPI02	Q782062	A428972	4,4'-DDT	0	2.22	0.938	ug/L	42.2	
DPS02	Q782063	A428972	GAMMA-BHC (LINDANE)	0	1.09	1.18	ug/L	109	96.6
DPS02	Q782063	A428972	HEPTACHLOR	0	1.09	1.1	ug/L	100.9	91
DPS02	Q782063	A428972	ALDRIN	0	1.09	1.14	ug/L	104.6	94.6
DPS02	Q782063	A428972	DIELDRIN	0	2.18	2.39	ug/L	109.7	91.9
DPS02	Q782063	A428972	ENDRIN	0	2.18	2.39	ug/L	109.7	90.6
DPS02	Q782063	A428972	4,4'-DDT	0	2.18	2.59	ug/L	118.7	95
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
CCV	Q783345	EMS	ALPHA-BHC	20		19.5	ug/L	97.5	
CCV	Q783345	EMS	GAMMA-BHC (LINDANE)	20		19.7	ug/L	98.5	
CCV	Q783345	EMS	HEPTACHLOR	20		19.9	ug/L	99.5	
CCV	Q783345	EMS	ENDOSULFAN I	20		20	ug/L	100	

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q783345	EMS	DIELDRIN	40		40.8	ug/L	102	
CCV	Q783345	EMS	ENDRIN	40		41.1	ug/L	102.8	
CCV	Q783345	EMS	4,4'-DDD	40		41.8	ug/L	104.5	
CCV	Q783345	EMS	4,4'-DDT	40		42.4	ug/L	106	
CCV	Q783345	EMS	METHOXYCHLOR	200		213	ug/L	106.5	
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
CCV	Q783346		ALPHA-BHC	20		19.9	ug/L	99.5	
CCV	Q783346		BETA-BHC	20		20.1	ug/L	100.5	
CCV	Q783346		DELTA-BHC	20		19.7	ug/L	98.5	
CCV	Q783346		GAMMA-BHC (LINDANE)	20		20.1	ug/L	100.5	
CCV	Q783346		HEPTACHLOR	20		20.3	ug/L	101.5	
CCV	Q783346		ALDRIN	20		20.1	ug/L	100.5	
CCV	Q783346		HEPTACHLOR EPOXIDE	20		20.2	ug/L	101	
CCV	Q783346		ENDOSULFAN I	20		20.4	ug/L	102	
CCV	Q783346		DIELDRIN	40		41.5	ug/L	103.8	
CCV	Q783346		4,4'-DDE	40		40.3	ug/L	100.8	
CCV	Q783346		ENDRIN	40		41.8	ug/L	104.5	
CCV	Q783346		ENDOSULFAN II	40		42.4	ug/L	106	
CCV	Q783346		4,4'-DDD	40		42.2	ug/L	105.5	
CCV	Q783346		ENDOSULFAN SULFATE	40		43.6	ug/L	109	
CCV	Q783346		4,4'-DDT	40		42.5	ug/L	106.3	
CCV	Q783346		METHOXYCHLOR	200		215	ug/L	107.5	
CCV	Q783346		ENDRIN ALDEHYDE	40		43.9	ug/L	109.8	
CCV	Q783346		ENDRIN KETONE	40		42.9	ug/L	107.3	
CCV	Q783346		ALPHA-CHLORDANE	20		20.3	ug/L	101.5	
CCV	Q783346		GAMMA-CHLORDANE	20		20.3	ug/L	101.5	

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS SW846-8270B 0505.3
Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510B

Run: R340562 Analyst.: P SIMS Run Date...: 23-DEC-97
PREP Reviewer: C WILLHITE Review Date: 24-DEC-97

QC Type	Lab ID	Source	Anal Run
BLA02	Q783148		R340699
SAMPLE	A428971	Rep: 0	R340699
SAMPLE	A428972	Rep: 0	R340699
SAMPLE	A428973	Rep: 0	R340699
SAMPLE	A428974	Rep: 0	R340679
SAMPLE	A428975	Rep: 0	R340679
SAMPLE	A428976	Rep: 0	R340679
SAMPLE	A428977	Rep: 0	R340679
LCS	Q783149	HLI	R340699
SPI02	Q783150	A429007	R340679
DPS02	Q783151	A429007	R340679

Run: R340679 Analyst.: L DOBBINS Run Date...: 28-DEC-97 Instrument: GC/MS SVOA
ANALYTICAL Reviewer: A BRADBURN Review Date: 30-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CAL01	Q783927		See Attached Report: g2951t.ind						
SPI02	Q783150	A429007	ACENAPHTHENE	0	200	196	ug/L	98	
SPI02	Q783150	A429007	ACENAPHTHYLENE	0	200	191	ug/L	95.5	
SPI02	Q783150	A429007	ANTHRACENE	0	200	189	ug/L	94.5	
SPI02	Q783150	A429007	BENZO(A)PYRENE	0	200	213	ug/L	106.5	
SPI02	Q783150	A429007	BENZO(B)FLUORANTHENE (3,4-BENZOFLUOR	0	200	202	ug/L	101	

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
SPI02	Q783150	A429007	BENZO(G,H,I)PERYLENE	0	200	258	ug/L	129	
SPI02	Q783150	A429007	BENZO(K)FLUORANTHENE	0	200	201	ug/L	100.5	
SPI02	Q783150	A429007	BENZYL ALCOHOL	0	200	188	ug/L	94	
SPI02	Q783150	A429007	BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHT	0	200	205	ug/L	102.5	
SPI02	Q783150	A429007	BIS(2-CHLOROETHOXY)METHANE	0	200	202	ug/L	101	
SPI02	Q783150	A429007	BIS(2-CHLOROETHYL)ETHER	0	200	185	ug/L	92.5	
SPI02	Q783150	A429007	BIS(2-CHLOROISOPROPYL)ETHER	0	200	204	ug/L	102	
SPI02	Q783150	A429007	BIS(2-ETHYLHEXYL)PHTHALATE	0	200	196	ug/L	98	
SPI02	Q783150	A429007	4-BROMODIPHENYL ETHER	0	200	192	ug/L	96	
SPI02	Q783150	A429007	CARBAZOLE	0	200	200	ug/L	100	
SPI02	Q783150	A429007	4-CHLOROANILINE	0	200	369	ug/L	184.5	
SPI02	Q783150	A429007	2-CHLORONAPHTHALENE	0	200	193	ug/L	96.5	
SPI02	Q783150	A429007	4-CHLOROPHENYL-PHENYLETHER	0	200	178	ug/L	89	
SPI02	Q783150	A429007	CHRYSENE	0	200	234	ug/L	117	
SPI02	Q783150	A429007	DIBENZ(A,H)ANTHRACENE	0	200	260	ug/L	130	
SPI02	Q783150	A429007	DIBENZOFURAN	0	200	187	ug/L	93.5	
SPI02	Q783150	A429007	1,2-DICHLOROBENZENE (O-DICHLOROBENZE	0	200	179	ug/L	89.5	
SPI02	Q783150	A429007	1,3-DICHLOROBENZENE (M-DICHLOROBENZE	0	200	188	ug/L	94	
SPI02	Q783150	A429007	1,4-DICHLOROBENZENE (P-DICHLOROBENZE	0	200	188	ug/L	94	
SPI02	Q783150	A429007	3,3'-DICHLOROBENZIDINE	0	200	388	ug/L	194	
SPI02	Q783150	A429007	DIETHYLPHTHALATE	0	200	196	ug/L	98	
SPI02	Q783150	A429007	DIMETHYLPHTHALATE	0	200	206	ug/L	103	
SPI02	Q783150	A429007	DI-N-BUTYLPHTHALATE	0	200	191	ug/L	95.5	
SPI02	Q783150	A429007	2,4-DINITROTOLUENE	0	200	192	ug/L	96	
SPI02	Q783150	A429007	2,6-DINITROTOLUENE	0	200	208	ug/L	104	
SPI02	Q783150	A429007	DI-N-OCTYLPHTHALATE	0	200	180	ug/L	90	
SPI02	Q783150	A429007	FLUORANTHENE	0	200	194	ug/L	97	
SPI02	Q783150	A429007	FLUORENE	0	200	181	ug/L	90.5	
SPI02	Q783150	A429007	HEXACHLOROBENZENE	0	200	203	ug/L	101.5	
SPI02	Q783150	A429007	HEXACHLOROBUTADIENE	0	200	193	ug/L	96.5	
SPI02	Q783150	A429007	HEXACHLOROCYCLOPENTADIENE	0	200	195	ug/L	97.5	
SPI02	Q783150	A429007	HEXACHLOROETHANE	0	200	187	ug/L	93.5	
SPI02	Q783150	A429007	INDENO(1,2,3-CD)PYRENE	0	200	245	ug/L	122.5	
SPI02	Q783150	A429007	ISOPHORONE	0	200	206	ug/L	103	
SPI02	Q783150	A429007	2-METHYLNAPHTHALENE	0	200	193	ug/L	96.5	
SPI02	Q783150	A429007	NAPHTHALENE	0	200	192	ug/L	96	
SPI02	Q783150	A429007	2-NITROANILINE (O-NITROANILINE)	0	200	226	ug/L	113	
SPI02	Q783150	A429007	3-NITROANILINE (M-NITROANILINE)	0	200	308	ug/L	154	
SPI02	Q783150	A429007	4-NITROANILINE (P-NITROANILINE)	0	200	239	ug/L	119.5	
SPI02	Q783150	A429007	NITROBENZENE	0	200	202	ug/L	101	
SPI02	Q783150	A429007	N-NITROSODIPHENYLAMINE	0	200	196	ug/L	98	
SPI02	Q783150	A429007	N-NITROSO-DI-N-PROPYLAMINE	0	200	206	ug/L	103	
SPI02	Q783150	A429007	PHENANTHRENE	0	200	192	ug/L	96	
SPI02	Q783150	A429007	2-PICOLINE	0	200	158	ug/L	79	
SPI02	Q783150	A429007	PYRENE	0	200	199	ug/L	99.5	
SPI02	Q783150	A429007	PYRIDINE	0	200	157	ug/L	78.5	
SPI02	Q783150	A429007	1,2,4-TRICHLOROBENZENE	0	200	191	ug/L	95.5	
SPI02	Q783150	A429007	BENZOIC ACID	0	200	109	ug/L	54.5	
SPI02	Q783150	A429007	4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-	0	200	199	ug/L	99.5	
SPI02	Q783150	A429007	2-CHLOROPHENOL	0	200	189	ug/L	94.5	
SPI02	Q783150	A429007	2,4-DICHLOROPHENOL	0	200	201	ug/L	100.5	
SPI02	Q783150	A429007	2,4-DIMETHYLPHENOL	0	200	143	ug/L	71.5	
SPI02	Q783150	A429007	2,4-DINITROPHENOL	0	200	226	ug/L	113	
SPI02	Q783150	A429007	2-METHYLPHENOL (O-CRESOL)	0	200	178	ug/L	89	

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
SPI02	Q783150	A429007	4-METHYLPHENOL (P-CRESOL)	0	200	176	ug/L	88	
SPI02	Q783150	A429007	2-NITROPHENOL	0	200	208	ug/L	104	
SPI02	Q783150	A429007	4-NITROPHENOL	0	200	146	ug/L	73	
SPI02	Q783150	A429007	PENTACHLOROPHENOL	0	200	225	ug/L	112.5	
SPI02	Q783150	A429007	PHENOL	0	200	129	ug/L	64.5	
SPI02	Q783150	A429007	2,4,5-TRICHLOROPHENOL	0	200	200	ug/L	100	
SPI02	Q783150	A429007	2,4,6-TRICHLOROPHENOL	0	200	199	ug/L	99.5	
DPS02	Q783151	A429007	ACENAPHTHENE	0	200	200	ug/L	100	2
DPS02	Q783151	A429007	ACENAPHTHYLENE	0	200	195	ug/L	97.5	2.1
DPS02	Q783151	A429007	ANTHRACENE	0	200	189	ug/L	94.5	0
DPS02	Q783151	A429007	BENZO(A)PYRENE	0	200	217	ug/L	108.5	1.9
DPS02	Q783151	A429007	BENZO(B)FLUORANTHENE (3,4-BENZOFLUOR	0	200	201	ug/L	100.5	.5
DPS02	Q783151	A429007	BENZO(G,H,I)PERYLENE	0	200	256	ug/L	128	.8
DPS02	Q783151	A429007	BENZO(K)FLUORANTHENE	0	200	213	ug/L	106.5	5.8
DPS02	Q783151	A429007	BENZYL ALCOHOL	0	200	185	ug/L	92.5	1.6
DPS02	Q783151	A429007	BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHT	0	200	199	ug/L	99.5	3
DPS02	Q783151	A429007	BIS(2-CHLOROETHOXY)METHANE	0	200	203	ug/L	101.5	.5
DPS02	Q783151	A429007	BIS(2-CHLOROETHYL)ETHER	0	200	180	ug/L	90	2.7
DPS02	Q783151	A429007	BIS(2-CHLOROISOPROPYL)ETHER	0	200	205	ug/L	102.5	.5
DPS02	Q783151	A429007	BIS(2-ETHYLHEXYL)PHTHALATE	0	200	184	ug/L	92	6.3
DPS02	Q783151	A429007	4-BROMODIPHENYL ETHER	0	200	196	ug/L	98	2.1
DPS02	Q783151	A429007	CARBAZOLE	0	200	203	ug/L	101.5	1.5
DPS02	Q783151	A429007	4-CHLOROANILINE	0	200	372	ug/L	186	.8
DPS02	Q783151	A429007	2-CHLORONAPHTHALENE	0	200	193	ug/L	96.5	0
DPS02	Q783151	A429007	4-CHLOROPHENYL-PHENYLETHER	0	200	180	ug/L	90	1.1
DPS02	Q783151	A429007	CHRYSENE	0	200	234	ug/L	117	0
DPS02	Q783151	A429007	DIBENZ(A,H)ANTHRACENE	0	200	258	ug/L	129	.8
DPS02	Q783151	A429007	DIBENZOFURAN	0	200	188	ug/L	94	.5
DPS02	Q783151	A429007	1,2-DICHLOROBENZENE (O-DICHLOROBENZE	0	200	174	ug/L	87	2.8
DPS02	Q783151	A429007	1,3-DICHLOROBENZENE (M-DICHLOROBENZE	0	200	188	ug/L	94	0
DPS02	Q783151	A429007	1,4-DICHLOROBENZENE (P-DICHLOROBENZE	0	200	187	ug/L	93.5	.5
DPS02	Q783151	A429007	3,3'-DICHLOROBENZIDINE	0	200	338	ug/L	169	13.8
DPS02	Q783151	A429007	DIETHYLPHTHALATE	0	200	201	ug/L	100.5	2.5
DPS02	Q783151	A429007	DIMETHYLPHTHALATE	0	200	210	ug/L	105	1.9
DPS02	Q783151	A429007	DI-N-BUTYLPHTHALATE	0	200	193	ug/L	96.5	1
DPS02	Q783151	A429007	2,4-DINITROTOLUENE	0	200	196	ug/L	98	2.1
DPS02	Q783151	A429007	2,6-DINITROTOLUENE	0	200	211	ug/L	105.5	1.4
DPS02	Q783151	A429007	DI-N-OCTYLPHTHALATE	0	200	184	ug/L	92	2.2
DPS02	Q783151	A429007	FLUORANTHENE	0	200	199	ug/L	99.5	2.5
DPS02	Q783151	A429007	FLUORENE	0	200	182	ug/L	91	.6
DPS02	Q783151	A429007	HEXACHLOROBENZENE	0	200	209	ug/L	104.5	2.9
DPS02	Q783151	A429007	HEXACHLOROBUTADIENE	0	200	201	ug/L	100.5	4.1
DPS02	Q783151	A429007	HEXACHLOROCYCLOPENTADIENE	0	200	203	ug/L	101.5	4
DPS02	Q783151	A429007	HEXACHLOROETHANE	0	200	187	ug/L	93.5	0
DPS02	Q783151	A429007	INDENO(1,2,3-CD)PYRENE	0	200	244	ug/L	122	.4
DPS02	Q783151	A429007	ISOPHORONE	0	200	203	ug/L	101.5	1.5
DPS02	Q783151	A429007	2-METHYLNAPHTHALENE	0	200	196	ug/L	98	1.5
DPS02	Q783151	A429007	NAPHTHALENE	0	200	194	ug/L	97	1
DPS02	Q783151	A429007	2-NITROANILINE (O-NITROANILINE)	0	200	224	ug/L	112	.9
DPS02	Q783151	A429007	3-NITROANILINE (M-NITROANILINE)	0	200	313	ug/L	156.5	1.6
DPS02	Q783151	A429007	4-NITROANILINE (P-NITROANILINE)	0	200	240	ug/L	120	.4
DPS02	Q783151	A429007	NITROBENZENE	0	200	199	ug/L	99.5	1.5
DPS02	Q783151	A429007	N-NITROSODIPHENYLAMINE	0	200	197	ug/L	98.5	.5
DPS02	Q783151	A429007	N-NITROSO-DI-N-PROPYLAMINE	0	200	203	ug/L	101.5	1.5

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
DPS02	Q783151	A429007	PHENANTHRENE	0	200	191	ug/L	95.5	.5
DPS02	Q783151	A429007	2-PICOLINE	0	200	80	ug/L	40	65.5
DPS02	Q783151	A429007	PYRENE	0	200	191	ug/L	95.5	4.1
DPS02	Q783151	A429007	PYRIDINE	0	200	84.1	ug/L	42.1	60.4
DPS02	Q783151	A429007	1,2,4-TRICHLOROBENZENE	0	200	195	ug/L	97.5	2.1
DPS02	Q783151	A429007	BENZOIC ACID	0	200	125	ug/L	62.5	13.7
DPS02	Q783151	A429007	4-CHLORO-3-METHYLPHENOL (P-CHLORO-M	0	200	199	ug/L	99.5	0
DPS02	Q783151	A429007	2-CHLOROPHENOL	0	200	183	ug/L	91.5	3.2
DPS02	Q783151	A429007	2,4-DICHLOROPHENOL	0	200	204	ug/L	102	1.5
DPS02	Q783151	A429007	2,4-DIMETHYLPHENOL	0	200	137	ug/L	68.5	4.3
DPS02	Q783151	A429007	2,4-DINITROPHENOL	0	200	245	ug/L	122.5	8.1
DPS02	Q783151	A429007	2-METHYLPHENOL (O-CRESOL)	0	200	176	ug/L	88	1.1
DPS02	Q783151	A429007	4-METHYLPHENOL (P-CRESOL)	0	200	171	ug/L	85.5	2.9
DPS02	Q783151	A429007	2-NITROPHENOL	0	200	212	ug/L	106	1.9
DPS02	Q783151	A429007	4-NITROPHENOL	0	200	149	ug/L	74.5	2
DPS02	Q783151	A429007	PENTACHLOROPHENOL	0	200	240	ug/L	120	6.5
DPS02	Q783151	A429007	PHENOL	0	200	141	ug/L	70.5	8.9
DPS02	Q783151	A429007	2,4,5-TRICHLOROPHENOL	0	200	209	ug/L	104.5	4.4
DPS02	Q783151	A429007	2,4,6-TRICHLOROPHENOL	0	200	205	ug/L	102.5	3
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						

Run: R340699 Analyst.: G MCKAIN Run Date...: 24-DEC-97 Instrument: GC/MS SVOA
ANALYTICAL Reviewer: A BRADBURN Review Date: 30-DEC-97

CCV	Q783968		See Attached Report: g3801f.ind						
BLA02	Q783148		See Attached Report: g3803f.ind						
LCS	Q783149	HLI	ACENAPHTHENE	100		92.8	ug/L	92.8	
LCS	Q783149	HLI	ACENAPHTHYLENE	100		91.8	ug/L	91.8	
LCS	Q783149	HLI	ANTHRACENE	100		81.3	ug/L	81.3	
LCS	Q783149	HLI	BENZO(A)PYRENE	100		105	ug/L	105	
LCS	Q783149	HLI	BENZO(B)FLUORANTHENE (3,4-BENZOFLUOR	100		109	ug/L	109	
LCS	Q783149	HLI	BENZO(G,H,I)PERYLENE	100		104	ug/L	104	
LCS	Q783149	HLI	BENZO(K)FLUORANTHENE	100		107	ug/L	107	
LCS	Q783149	HLI	BENZYL ALCOHOL	100		80.4	ug/L	80.4	
LCS	Q783149	HLI	BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHT	100		96.8	ug/L	96.8	
LCS	Q783149	HLI	BIS(2-CHLOROETHOXY)METHANE	100		87.9	ug/L	87.9	
LCS	Q783149	HLI	BIS(2-CHLOROETHYL)ETHER	100		85.1	ug/L	85.1	
LCS	Q783149	HLI	BIS(2-CHLOROISOPROPYL)ETHER	100		78.4	ug/L	78.4	
LCS	Q783149	HLI	BIS(2-ETHYLHEXYL)PHTHALATE	100		82	ug/L	82	
LCS	Q783149	HLI	4-BROMODIPHENYL ETHER	100		101	ug/L	101	
LCS	Q783149	HLI	CARBAZOLE	100		94.8	ug/L	94.8	
LCS	Q783149	HLI	4-CHLOROANILINE	100		119	ug/L	119	
LCS	Q783149	HLI	2-CHLORONAPHTHALENE	100		116	ug/L	116	
LCS	Q783149	HLI	4-CHLOROPHENYL-PHENYLETHER	100		87	ug/L	87	
LCS	Q783149	HLI	CHRYSENE	100		95.8	ug/L	95.8	
LCS	Q783149	HLI	DIBENZ(A,H)ANTHRACENE	100		97.6	ug/L	97.6	
LCS	Q783149	HLI	DIBENZOFURAN	100		86.6	ug/L	86.6	
LCS	Q783149	HLI	1,2-DICHLOROBENZENE (O-DICHLOROBENZE	100		88.4	ug/L	88.4	
LCS	Q783149	HLI	1,3-DICHLOROBENZENE (M-DICHLOROBENZE	100		86	ug/L	86	
LCS	Q783149	HLI	1,4-DICHLOROBENZENE (P-DICHLOROBENZE	100		87.1	ug/L	87.1	
LCS	Q783149	HLI	3,3'-DICHLOROBENZIDINE	100		125	ug/L	125	
LCS	Q783149	HLI	DIETHYLPHTHALATE	100		96.1	ug/L	96.1	
LCS	Q783149	HLI	DIMETHYLPHTHALATE	100		105	ug/L	105	

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
LCS	Q783149	HLI	DI-N-BUTYLPHTHALATE	100		90.1	ug/L	90.1	
LCS	Q783149	HLI	2,4-DINITROTOLUENE	100		95.3	ug/L	95.3	
LCS	Q783149	HLI	2,6-DINITROTOLUENE	100		103	ug/L	103	
LCS	Q783149	HLI	DI-N-OCTYLPHTHALATE	100		101	ug/L	101	
LCS	Q783149	HLI	FLUORANTHENE	100		92.6	ug/L	92.6	
LCS	Q783149	HLI	FLUORENE	100		89	ug/L	89	
LCS	Q783149	HLI	HEXACHLOROBENZENE	100		100	ug/L	100	
LCS	Q783149	HLI	HEXACHLOROBUTADIENE	100		96	ug/L	96	
LCS	Q783149	HLI	HEXACHLOROCYCLOPENTADIENE	100		76.1	ug/L	76.1	
LCS	Q783149	HLI	HEXACHLOROETHANE	100		88.4	ug/L	88.4	
LCS	Q783149	HLI	INDENO(1,2,3-CD)PYRENE	100		101	ug/L	101	
LCS	Q783149	HLI	ISOPHORONE	100		90.3	ug/L	90.3	
LCS	Q783149	HLI	2-METHYLNAPHTHALENE	100		93.3	ug/L	93.3	
LCS	Q783149	HLI	NAPHTHALENE	100		90.7	ug/L	90.7	
LCS	Q783149	HLI	2-NITROANILINE (O-NITROANILINE)	100		92.1	ug/L	92.1	
LCS	Q783149	HLI	3-NITROANILINE (M-NITROANILINE)	100		132	ug/L	132	
LCS	Q783149	HLI	4-NITROANILINE (P-NITROANILINE)	100		114	ug/L	114	
LCS	Q783149	HLI	NITROBENZENE	100		83.4	ug/L	83.4	
LCS	Q783149	HLI	N-NITROSODIPHENYLAMINE	200		157	ug/L	78.5	
LCS	Q783149	HLI	N-NITROSO-DI-N-PROPYLAMINE	100		80.6	ug/L	80.6	
LCS	Q783149	HLI	PHENANTHRENE	100		92.4	ug/L	92.4	
LCS	Q783149	HLI	2-PICOLINE	100		66.2	ug/L	66.2	
LCS	Q783149	HLI	PYRENE	100		107	ug/L	107	
LCS	Q783149	HLI	PYRIDINE	100		53.4	ug/L	53.4	
LCS	Q783149	HLI	1,2,4-TRICHLOROBENZENE	100		96.2	ug/L	96.2	
LCS	Q783149	HLI	BENZOIC ACID	100		25.1	ug/L	25.1	
LCS	Q783149	HLI	4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-	100		99.2	ug/L	99.2	
LCS	Q783149	HLI	2-CHLOROPHENOL	100		88.7	ug/L	88.7	
LCS	Q783149	HLI	2,4-DICHLOROPHENOL	100		102	ug/L	102	
LCS	Q783149	HLI	2,4-DIMETHYLPHENOL	100		76.4	ug/L	76.4	
LCS	Q783149	HLI	2,4-DINITROPHENOL	100		102	ug/L	102	
LCS	Q783149	HLI	2-METHYLPHENOL (O-CRESOL)	100		85.9	ug/L	85.9	
LCS	Q783149	HLI	4-METHYLPHENOL (P-CRESOL)	100		64.2	ug/L	64.2	
LCS	Q783149	HLI	2-NITROPHENOL	100		102	ug/L	102	
LCS	Q783149	HLI	4-NITROPHENOL	100		55.6	ug/L	55.6	
LCS	Q783149	HLI	PENTACHLOROPHENOL	100		110	ug/L	110	
LCS	Q783149	HLI	PHENOL	100		54.5	ug/L	54.5	
LCS	Q783149	HLI	2,4,5-TRICHLOROPHENOL	100		99	ug/L	99	
LCS	Q783149	HLI	2,4,6-TRICHLOROPHENOL	100		101	ug/L	101	
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						

VOLATILE ORGANICS SW846-8240B 0510.3

Run: R340536 Analyst.: R SHAMP Run Date...: 22-DEC-97 Instrument: GC/MS VOA
ANALYTICAL Reviewer: H WILLIAMS Review Date: 24-DEC-97

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
CCV	Q782963		See Attached Report: g2250j.ind						
BLA01	Q782964		See Attached Report: g2251j.ind						
SAMPLE	A428971		See Cert. of Analysis, Rep: 0						
SAMPLE	A428972		See Cert. of Analysis, Rep: 0						
SPI01	Q782965	A428972	1,1-DICHLOROETHENE	0	50	57.5	ug/L	115	

HERITAGE ENVIRONMENTAL SERVICES, INC.

QC Type	Lab ID	Source	Parameter	True/Sampl	Spike Val	Observed	Units	% Rec	RPD
SPI01	Q782965	A428972	TRICHLOROETHENE	0	50	52.5	ug/L	105	
SPI01	Q782965	A428972	BENZENE	0	50	45	ug/L	90	
SPI01	Q782965	A428972	TOLUENE	0	50	50.8	ug/L	101.6	
SPI01	Q782965	A428972	CHLOROBENZENE	0	50	48.6	ug/L	97.2	
DPS01	Q782966	A428972	1,1-DICHLOROETHENE	0	50	56	ug/L	112	2.6
DPS01	Q782966	A428972	TRICHLOROETHENE	0	50	50.9	ug/L	101.8	3.1
DPS01	Q782966	A428972	BENZENE	0	50	43.3	ug/L	86.6	3.9
DPS01	Q782966	A428972	TOLUENE	0	50	48.6	ug/L	97.2	4.4
DPS01	Q782966	A428972	CHLOROBENZENE	0	50	45.2	ug/L	90.4	7.2
SAMPLE	A428973		See Cert. of Analysis, Rep: 0						
SAMPLE	A428974		See Cert. of Analysis, Rep: 0						

Run: R340572 Analyst.: R SHAMP Run Date...: 23-DEC-97 Instrument: GC/MS VOA
ANALYTICAL Reviewer: A BRADBURN Review Date: 29-DEC-97

CCV	Q783242		See Attached Report: g2280j.ind						
BLA01	Q783243		See Attached Report: g2281j.ind						
LCS01	Q783244		BENZENE	20		20.7	ug/L	103.5	
LCS01	Q783244		ETHYL BENZENE	20		19.5	ug/L	97.5	
LCS01	Q783244		TOLUENE	20		22.2	ug/L	111	
LCS01	Q783244		XYLENES (O/M/P-XYLENE)	60		59.7	ug/L	99.5	
SAMPLE	A428975		See Cert. of Analysis, Rep: 0						
SAMPLE	A428976		See Cert. of Analysis, Rep: 0						
SAMPLE	A428977		See Cert. of Analysis, Rep: 0						
SPI01	Q783246	A428866	1,1-DICHLOROETHENE	0	50	57.6	ug/L	115.2	
SPI01	Q783246	A428866	TRICHLOROETHENE	0	50	48.9	ug/L	97.8	
SPI01	Q783246	A428866	BENZENE	2600	50	* 2770	ug/L		
SPI01	Q783246	A428866	TOLUENE	1300	50	* 1270	ug/L		
SPI01	Q783246	A428866	CHLOROBENZENE	0	50	49.9	ug/L	99.8	
DPS01	Q783249	A428866	1,1-DICHLOROETHENE	0	50	65.1	ug/L	130.2	12.2
DPS01	Q783249	A428866	TRICHLOROETHENE	0	50	51.8	ug/L	103.6	5.8
DPS01	Q783249	A428866	BENZENE	2600	50	* 2500	ug/L		
DPS01	Q783249	A428866	TOLUENE	1300	50	* 1220	ug/L		
DPS01	Q783249	A428866	CHLOROBENZENE	0	50	50.8	ug/L	101.6	1.8

Comments

Q782965 NOTE: LCS NOT REQUIRED BECAUSE MS/MSD PASSED METHOD CRITERIA.
Q782966 NOTE: LCS NOT REQUIRED BECAUSE MS/MSD PASSED METHOD CRITERIA.
*Q783246 * concentration in sample exceeds linear range.*
*Q783249 * concentration in sample exceeds linear range.*

Approved by: P.K Spence

Continuing Calibration Report

Data File : C:\J122297\2250J.D
Acq On : 22 Dec 97 5:10
Sample : VSTD050
Misc : CALIBRATION CHECK 12/22/97
MS Integration Params: RTEINT.P

Vial: 1
Operator: REGI
Inst : GCMS#9
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240J.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1725J.D cal 50 = 1726J.D cal100 = 1727J.D
cal150 = 1728J.D cal200 = 1729J.D

		Compound	AvgRF	CCRF	%Dev
1	I	BROMOCHLOROMETHANE	1.00000	1.00000	0.0
2	T	Dichlorodifluoromethane	1.45636	1.02561	29.6#
3	P	Chloromethane	1.21506	0.75798	37.6#
4	C	VINYL CHLORIDE	1.30660	1.07032	18.1
5		1,3-Butadiene	0.01159	0.00354	69.5#
6		Bromomethane	0.60558	0.82408	36.1#
7		Chloroethane	0.56833	0.65845	15.9
8		Trichlorofluoromethane	2.12099	2.06191	2.8
9		Diethyl ether	0.75522	0.70433	6.7
10		Acrolein	0.08020	0.15868	97.9#
11		Acetone	0.33754	0.46859	38.8#
12		Trichlorotrifluoroethane	2.99906	2.83328	5.5
13	CM	1,1-DICHLOROETHENE	1.04694	1.24174	18.6
14		Methylene Chloride	1.48800	1.53174	2.9
15		Acrylonitrile	0.32238	0.31873	1.1
16		Carbon Disulfide	4.56923	4.41598	3.4
17		Vinyl acetate	0.21861	0.48474	121.7#
18		Methyl-t-butyl ether	3.20618	2.94192	8.2
19		1,2-Dichloroethene(trans)	1.61173	1.56585	2.8
20		Diisopropyl ether	5.96926	5.17706	13.3
21	P	1,1-Dichloroethane	2.90927	3.19929	10.0
22		2-Butanone	0.63493	0.52581	17.2
23		Ethyl acetate	1.36016	1.08868	20.0
24		1,2-Dichloroethene(cis)	1.89821	1.89753	0.0
25	C	CHLOROFORM	3.07700	3.08567	0.3
26		Tetrahydrofuran	0.35762	0.29242	18.2
27		Cyclohexane	0.00914	0.00000	100.0#
28	S	1,2-Dichloroethane-d4	1.49704	1.61274	7.7
29	I	1,4-DIFLUOROBENZENE	1.00000	1.00000	0.0
30		1,1,1-Trichloroethane	0.38980	0.41802	7.2
31		Carbon Tetrachloride	0.34512	0.37182	7.7
32		1,2-Dichloroethane	0.27919	0.32878	17.8
33	M	Benzene	1.03614	1.01440	2.1
34	M	Trichloroethene	0.36824	0.38410	4.3
35	C	1,2-DICHLOROPROPANE	0.49012	0.51700	5.5
36		Bromodichloromethane	0.63268	0.67292	6.4
37		1,4-Dioxane	0.00002	0.00000	100.0#
38		2-Chloroethylvinylether	0.21718	0.15942	26.6#
39		4-Methyl-2-Pentanone	0.30938	0.30802	0.4

(#) = Out of Range (Advisory for non CCC, SPCC)

Continuing Calibration Report

Data File : C:\J122297\2250J.D
Acq On : 22 Dec 97 5:10
Sample : VSTD050
Misc : CALIBRATION CHECK 12/22/97
MS Integration Params: RTEINT.P

Vial: 1
Operator: REGI
Inst : GCMS#9
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240J.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1725J.D cal 50 = 1726J.D cal100 = 1727J.D
cal150 = 1728J.D cal200 = 1729J.D

		Compound	AvgRF	CCRF	%Dev
40		cis-1,3-Dichloropropene	0.66035	0.64116	2.9
41	S	Toluene-d8	0.97714	0.96431	1.3
42	CM	TOLUENE	0.68436	0.70076	2.4
43		trans-1,3-Dichloropropene	0.50779	0.48212	5.1
44	I	CHLOROBENZENE-d5	1.00000	1.00000	0.0
45		2-Hexanone	0.24162	0.23368	3.3
46		1,1,2-Trichloroethane	0.48308	0.48431	0.3
47		Tetrachloroethene	0.38385	0.38247	0.4
48		Dibromochloromethane	0.60101	0.59698	0.7
49		4-Vinylcyclohexene	0.02078	0.00934	55.1#
50		1,2-Dibromoethane	0.00000	0.00000	0.0
51	PM	Chlorobenzene	1.08125	1.02050	5.6
52	C	ETHYLBENZENE	0.51102	0.48325	5.4
53		Xylene(m,p)	0.62492	0.60359	3.4
54		Xylene(o)	0.60432	0.57811	4.3
55		Styrene	1.04354	1.00858	3.4
56	P	Bromoform	0.39413	0.37483	4.9
57	P	1,1,2,2-Tetrachloroethane	0.78995	0.73188	7.4
58	S	Bromofluorobenzene	0.77810	0.78408	0.8
59		1,3-Dichlorobenzene	0.74772	0.73491	1.7
60		1,4-Dichlorobenzene	0.79061	0.78955	0.1
61		1,2-Dichlorobenzene	0.71486	0.70288	1.7

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Continuing Calibration Report

Data File : C:\J122397\2280J.D
Acq On : 23 Dec 97 4:27
Sample : VSTD050
Misc : CALIBRATION CHECK 12/23/97
MS Integration Params: RTEINT.P

Vial: 19
Operator: REGI
Inst : GCMS#9
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240J.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1725J.D cal 50 = 1726J.D cal100 = 1727J.D
cal150 = 1728J.D cal200 = 1729J.D

		Compound	AvgRF	CCRF	%Dev
1	I	BROMOCHLOROMETHANE	1.00000	1.00000	0.0
2	T	Dichlorodifluoromethane	1.45636	1.23580	15.1
3	P	Chloromethane	1.21506	0.91519	24.7
4	C	VINYL CHLORIDE	1.30660	1.11077	15.0
5		1,3-Butadiene	0.01159	0.00742	36.0#
6		Bromomethane	0.60558	0.89188	47.3#
7		Chloroethane	0.56833	0.65289	14.9
8		Trichlorofluoromethane	2.12099	1.78923	15.6
9		Diethyl ether	0.75522	0.66465	12.0
10		Acrolein	0.08020	0.07793	2.8
11		Acetone	0.33754	0.21131	37.4#
12		Trichlorotrifluoroethane	2.99906	2.69726	10.1
13	CM	1,1-DICHLOROETHENE	1.04694	1.20712	15.3
14		Methylene Chloride	1.48800	1.37145	7.8
15		Acrylonitrile	0.32238	0.17752	44.9#
16		Carbon Disulfide	4.56923	4.11525	9.9
17		Vinyl acetate	0.21861	0.38681	76.9#
18		Methyl-t-butyl ether	3.20618	2.72187	15.1
19		1,2-Dichloroethene(trans)	1.61173	1.46304	9.2
20		Diisopropyl ether	5.96926	4.75639	20.3
21	P	1,1-Dichloroethane	2.90927	3.08971	6.2
22		2-Butanone	0.63493	0.38186	39.9#
23		Ethyl acetate	1.36016	1.07726	20.8
24		1,2-Dichloroethene(cis)	1.89821	1.78498	6.0
25	C	CHLOROFORM	3.07700	2.88080	6.4
26		Tetrahydrofuran	0.35762	0.28905	19.2
27		Cyclohexane	0.00914	0.00000	100.0#
28	S	1,2-Dichloroethane-d4	1.49704	1.47001	1.8
29	I	1,4-DIFLUOROBENZENE	1.00000	1.00000	0.0
30		1,1,1-Trichloroethane	0.38980	0.38229	1.9
31		Carbon Tetrachloride	0.34512	0.33339	3.4
32		1,2-Dichloroethane	0.27919	0.29309	5.0
33	M	Benzene	1.03614	0.93041	10.2
34	M	Trichloroethene	0.36824	0.36597	0.6
35	C	1,2-DICHLOROPROPANE	0.49012	0.50385	2.8
36		Bromodichloromethane	0.63268	0.62011	2.0
37		1,4-Dioxane	0.00002	0.00000	100.0#
38		2-Chloroethylvinylether	0.21718	0.14650	32.5#
39		4-Methyl-2-Pentanone	0.30938	0.26824	13.3

Continuing Calibration Report

Data File : C:\J122397\2280J.D
Acq On : 23 Dec 97 4:27
Sample : VSTD050
Misc : CALIBRATION CHECK 12/23/97
MS Integration Params: RTEINT.P

Vial: 19
Operator: REGI
Inst : GCMS#9
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240J.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1725J.D cal 50 = 1726J.D cal100 = 1727J.D
cal150 = 1728J.D cal200 = 1729J.D

		Compound	AvgRF	CCRF	%Dev
40		cis-1,3-Dichloropropene	0.66035	0.58751	11.0
41	S	Toluene-d8	0.97714	0.90086	7.8
42	CM	TOLUENE	0.68436	0.65434	4.4
43		trans-1,3-Dichloropropene	0.50779	0.44991	11.4
44	I	CHLOROBENZENE-d5	1.00000	1.00000	0.0
45		2-Hexanone	0.24162	0.21996	9.0
46		1,1,2-Trichloroethane	0.48308	0.45522	5.8
47		Tetrachloroethene	0.38385	0.38395	0.0
48		Dibromochloromethane	0.60101	0.57431	4.4
49		4-Vinylcyclohexene	0.02078	0.01888	9.1
50		1,2-Dibromoethane	0.00000	0.00000	0.0
51	PM	Chlorobenzene	1.08125	0.98869	8.6
52	C	ETHYLBENZENE	0.51102	0.46845	8.3
53		Xylene(m,p)	0.62492	0.58933	5.7
54		Xylene(o)	0.60432	0.55006	9.0
55		Styrene	1.04354	1.01605	2.6
56	P	Bromoform	0.39413	0.36942	6.3
57	P	1,1,2,2-Tetrachloroethane	0.78995	0.70126	11.2
58	S	Bromofluorobenzene	0.77810	0.76715	1.4
59		1,3-Dichlorobenzene	0.74772	0.74490	0.4
60		1,4-Dichlorobenzene	0.79061	0.78137	1.2
61		1,2-Dichlorobenzene	0.71486	0.70761	1.0

(#) = Out of Range SPCC's out = 0 CCC's out = 0

HERITAGE
SW846-8240 MATRIX METHOD BLANK
VOLATILE ORGANICS FOR GC/MS, PACKED COLUMN TECHNIQUE

GC/MS VOA Data File:>2251j

Date/Time of Analysis:12/22/97 5:50

Analyte List	Result	Units	Limit
Acetone	BDL	uG/L	20
Acrolein	BDL	uG/L	50
Acrylonitrile	BDL	uG/L	70
Benzene	BDL	uG/L	5
Bromodichloromethane	BDL	uG/L	5
Bromoform	BDL	uG/L	5
Bromomethane	BDL	uG/L	10
Carbon Disulfide	BDL	uG/L	5
Carbon Tetrachloride	BDL	uG/L	5
Chlorobenzene	BDL	uG/L	5
Chloroethane	BDL	uG/L	10
Chloroform	BDL	uG/L	5
Chloromethane	BDL	uG/L	10
Dibromochloromethane	BDL	uG/L	5
Cis-1,3-Dichloropropene	BDL	uG/L	5
Dichlorodifluoromethane	BDL	uG/L	5
1,1-Dichloroethane	BDL	uG/L	5
1,2-Dichloroethane	BDL	uG/L	5
1,1-Dichloroethene	BDL	uG/L	5
1,2-Dichloropropane	BDL	uG/L	5
Ethylbenzene	BDL	uG/L	5
Fluorotrichloromethane	BDL	uG/L	5
2-Hexanone	BDL	uG/L	10
Methylene Chloride	BDL	uG/L	5
Methyl Ethyl Ketone	BDL	uG/L	10
4-Methyl-2-Pentanone	BDL	uG/L	10
Styrene	BDL	uG/L	5
1,1,2,2-Tetrachloroethane	BDL	uG/L	5
Tetrachloroethene	BDL	uG/L	5
Tetrahydrofuran	BDL	uG/L	25
Toluene	BDL	uG/L	5
1,2-Dichloroethene	BDL	uG/L	5
Trans-1,3-Dichloropropene	BDL	uG/L	5
1,1,1-Trichloroethane	BDL	uG/L	5
1,1,2-Trichloroethane	BDL	uG/L	5
Trichloroethene	BDL	uG/L	5
Vinyl Acetate	BDL	uG/L	10
Vinyl Chloride	BDL	uG/L	10
Xylene	BDL	uG/L	5

Surrogate Recovery		
Dichloroethane-D4	98	% Recovery
Toluene-D8	100	% Recovery
Bromofluorobenzene	97	% Recovery

Note: On this instrument, packed column has been replaced by capillary column with 8240 criteria.

HERITAGE
SW846-8240 MATRIX METHOD BLANK
VOLATILE ORGANICS FOR GC/MS, PACKED COLUMN TECHNIQUE

GC/MS VOA Data File: >2281j

Date/Time of Analysis: 12/23/97 5:06

Analyte List	Result	Units	Limit
Acetone	BDL	uG/L	20
Acrolein	BDL	uG/L	50
Acrylonitrile	BDL	uG/L	70
Benzene	BDL	uG/L	5
Bromodichloromethane	BDL	uG/L	5
Bromoform	BDL	uG/L	5
Bromomethane	BDL	uG/L	10
Carbon Disulfide	BDL	uG/L	5
Carbon Tetrachloride	BDL	uG/L	5
Chlorobenzene	BDL	uG/L	5
Chloroethane	BDL	uG/L	10
Chloroform	BDL	uG/L	5
Chloromethane	BDL	uG/L	10
Dibromochloromethane	BDL	uG/L	5
Cis-1,3-Dichloropropene	BDL	uG/L	5
Dichlorodifluoromethane	BDL	uG/L	5
1,1-Dichloroethane	BDL	uG/L	5
1,2-Dichloroethane	BDL	uG/L	5
1,1-Dichloroethene	BDL	uG/L	5
1,2-Dichloropropane	BDL	uG/L	5
Ethylbenzene	BDL	uG/L	5
Fluorotrichloromethane	BDL	uG/L	5
2-Hexanone	BDL	uG/L	10
Methylene Chloride	BDL	uG/L	5
Methyl Ethyl Ketone	BDL	uG/L	10
4-Methyl-2-Pentanone	BDL	uG/L	10
Styrene	BDL	uG/L	5
1,1,2,2-Tetrachloroethane	BDL	uG/L	5
Tetrachloroethene	BDL	uG/L	5
Tetrahydrofuran	BDL	uG/L	25
Toluene	BDL	uG/L	5
1,2-Dichloroethene	BDL	uG/L	5
Trans-1,3-Dichloropropene	BDL	uG/L	5
1,1,1-Trichloroethane	BDL	uG/L	5
1,1,2-Trichloroethane	BDL	uG/L	5
Trichloroethene	BDL	uG/L	5
Vinyl Acetate	BDL	uG/L	10
Vinyl Chloride	BDL	uG/L	10
Xylene	BDL	uG/L	5

Surrogate Recovery		
Dichloroethane-D4	100	% Recovery
Toluene-D8	92	% Recovery
Bromofluorobenzene	94	% Recovery

Note: On this instrument, packed column has been replaced by capillary column with 8240 criteria.

Heritage Laboratory, Indianapolis
Semi-volatile Continuing Calibration Report

Operator ID: GAYE/2286 Date Acquired: 24 Dec 97 9:16 am
Data File: C:\F122497\3801F.D 5970 - MS Misc. 50 PT
Method: NEWBNA.M Title: CLP BNA Calibration

C = CCC Max Diff = 30% P = SPCC Min RF = 0.05
S = Surrogate I = ISTD M = Matrix Spike Compound

cal50 = 3761F.D cal20 = 3763F.D cal80 = 3764F.D
cal120 = 3765F.D cal160 = 3766F.D

PK#		Compound	AvgRRF	CCRRF	%Diff
1	I	1,4-Dichlorobenzene-d4	1.00000	1.00000	0.0
2		N-nitroso-dimethylamine	0.69156	0.50322	27.2
3		Pyridine	1.09515	0.75498	31.1
4		2-Picoline	1.26518	1.05744	16.4
5	S	2-Fluorophenol	1.19659	1.08763	9.1
6		Aniline	2.10829	1.99477	5.4
7	S	Phenol-d5	1.68560	1.58021	6.3
8	MC	Phenol	1.77756	1.71171	3.7
9		bis(2-Chloroethyl)ether	1.48595	1.34238	9.7
10	S	2-Chlorophenol-d4	1.28685	1.20525	6.3
11	MC	2-Chlorophenol	1.36315	1.30538	4.2
12		1,3-Dichlorobenzene	1.39219	1.38709	0.4
13	MC	1,4-Dichlorobenzene	1.41485	1.41893	0.3
14	S	1,2-Dichlorobenzene-d4	1.44516	1.46014	1.0
15		1,2-Dichlorobenzene	1.30448	1.31834	1.1
16		Benzyl alcohol	0.83683	0.84156	0.6
17		2-Methylphenol	1.16917	1.15124	1.5
18		bis(2-chloroisopropyl)ether	3.04897	2.73169	10.4
19	MP	n-Nitroso-di-n-propylamine	1.07730	0.99585	7.6
20		4-Methylphenol	1.16249	1.14823	1.2
21		Hexachloroethane	0.60507	0.61547	1.7
22	I	Naphthalene-d8	1.00000	1.00000	0.0
23	S	Nitrobenzene-d5	0.38405	0.37057	3.5
24		Nitrobenzene	0.38866	0.35964	7.5
25		Isophorone	0.72831	0.67935	6.7
26	C	2-Nitrophenol	0.20184	0.20948	3.8
27		2,4-Dimethylphenol	0.33541	0.33644	0.3
28		bis(2-Chloroethoxy)methane	0.45595	0.43686	4.2
29	C	2,4-Dichlorophenol	0.27027	0.28174	4.2
30		Benzoic acid	0.26308	0.24619	6.4
31	M	1,2,4-Trichlorobenzene	0.30563	0.31680	3.7
32		Naphthalene	0.94983	0.97244	2.4
33		4-Chloroaniline	0.30745	0.41352	34.5
34		Toluenediamine	0.38619	0.29395	23.9
35	C	Hexachlorobutadiene	0.14880	0.14960	0.5
36	MC	4-Chloro-3-methylphenol	0.30646	0.32961	7.6
37		2-Methylnaphthalene	0.62260	0.63069	1.3
38	I	Acenaphthene-d10	1.00000	1.00000	0.0
39	P	Hexachlorocyclopentadiene	0.23892	0.20669	13.5
40		1,2,4,5-Tetrachlorobenzene	0.43087	0.42384	1.6
41	C	2,4,6-Trichlorophenol	0.31549	0.32113	1.8
42		2,4,5-Trichlorophenol	0.35262	0.36016	2.1
43	S	2-Fluorobiphenyl	1.04011	1.06207	2.1

(#) = Out of Range (Advisory for non-CCC)

Heritage Laboratory, Indianapolis
Semi-volatile Continuing Calibration Report

Operator ID: GAYE/2286 Date Acquired: 24 Dec 97 9:16 am
Data File: C:\F122497\3801F.D 5970 - MS Misc. 50 PT
Method: NEWBNA.M Title: CLP BNA Calibration

C = CCC Max Diff = 30% P = SPCC Min RF = 0.05
S = Surrogate I = ISTD M = Matrix Spike Compound

cal50 = 3761F.D cal20 = 3763F.D cal80 = 3764F.D
cal120 = 3765F.D cal160 = 3766F.D

PK#		Compound	AvgRRF	CCRRF	%Diff
44		2-Chloronaphthalene	0.95574	0.96947	1.4
45		2-Nitroaniline	0.39594	0.39173	1.1
46		Dimethylphthalate	1.17989	1.20284	1.9
47		1,3-Dinitrobenzene	0.19426	0.21954	13.0
48		2,6-Dinitrotoluene	0.31668	0.33751	6.6
49		Acenaphthylene	1.67026	1.69301	1.4
50		3-Nitroaniline	0.28786	0.34982	21.5
51	MC	Acenaphthene	1.07352	1.11737	4.1
52	P	2,4-Dinitrophenol	0.17117	0.11729	31.5
53	MP	4-Nitrophenol	0.14528	0.13284	8.6
54		Dibenzofuran	1.43004	1.42843	0.1
55	M	2,4-Dinitrotoluene	0.42939	0.45930	7.0
56		2,3,4,6-Tetrachlorophenol	0.24131	0.25933	7.5
57		Diethylphthalate	1.24940	1.32718	6.2
58		Fluorene	1.13631	1.19057	4.8
59		4-Chlorophenyl-phenylether	0.54417	0.55932	2.8
60		4-Nitroaniline	0.37588	0.42947	14.3
61	I	Phenanthrene-d10	1.00000	1.00000	0.0
62		4,6-Dinitro-2-methylphenol	0.13272	0.10735	19.1
63	C	n-Nitrosodiphenylamine	0.48398	0.49324	1.9
64	S	2,4,6-Tribromophenol	0.11707	0.12003	2.5
65		Azobenzene	1.41423	1.27168	10.1
66		alpha-BHC	0.12293	0.12341	0.4
67		4-Bromophenyl-phenylether	0.17275	0.18817	8.9
68		Hexachlorobenzene	0.20676	0.21228	2.7
69		beta-BHC	0.09536	0.09756	2.3
70	MC	Pentachlorophenol	0.12465	0.12195	2.2
71		gamma-BHC	0.10539	0.10405	1.3
72		Phenanthrene	0.98970	1.01546	2.6
73		Anthracene	0.96842	0.98509	1.7
74		delta-BHC	0.08581	0.08816	2.7
75		Carbazole	0.99190	1.02484	3.3
76		Heptachlor	0.08569	0.09674	12.9
77		Di-n-butylphthalate	1.27132	1.35369	6.5
78		Aldrin	0.06677	0.07518	12.6
79		Heptachlor epoxide	0.08719	0.08589	1.5
80	C	Fluoranthene	0.99367	1.02636	3.3
81	I	Chrysene-d12	1.00000	1.00000	0.0
82		Benzidine	0.41697	0.35384	15.1
83	M	Pyrene	1.36871	1.48227	8.3
84		alpha-Endosulfan	0.03368	0.03549	5.4
85		p,p'-DDE	0.25324	0.26490	4.6
86	S	Terphenyl-d14	0.98956	1.07404	8.5

(#) = Out of Range (Advisory for non-CCC)

Heritage Laboratory, Indianapolis
Semi-volatile Continuing Calibration Report

Operator ID: GAYE/2286 Date Acquired: 24 Dec 97 9:16 am
Data File: C:\F122497\3801F.D 5970 - MS Misc. 50 PT
Method: NEWBNA.M Title: CLP BNA Calibration

C = CCC Max Diff = 30% P = SPCC Min RF = 0.05
S = Surrogate I = ISTD M = Matrix Spike Compound

cal50 = 3761F.D cal20 = 3763F.D cal80 = 3764F.D
cal120 = 3765F.D cal160 = 3766F.D

PK#	Compound	AvgRRF	CCRRF	%Diff
87	Dieldrin	0.24230	0.24381	0.6
88	Endrin	0.01228	0.01312	6.8
89	Endrin aldehyde	0.04182	0.03576	14.5
90	beta-Endosulfan	0.04756	0.05052	6.2
91	p,p'-DDD	0.43195	0.46534	7.7
92	Butylbenzylphthalate	0.74782	0.73290	2.0
93	Endosulfan sulfate	0.07479	0.08050	7.6
94	p,p'-DDT	0.35502	0.36450	2.7
95	Methoxychlor	0.61956	0.57432	7.3
96	Benzo[a]anthracene	1.07097	1.05602	1.4
97	3,3'-Dichlorobenzidine	0.27254	0.28173	3.4
98	Chrysene	1.01112	1.00434	0.7
99	bis(2-Ethylhexyl)phthalate	1.01074	0.87798	13.1
100 I	Perylene-d12	1.00000	1.00000	0.0
101 C	Di-n-octylphthalate	2.27598	2.00566	11.9
102	Benzo[b]fluoranthene	1.20465	1.24951	3.7
103	Benzo[k]fluoranthene	1.18484	1.28612	8.5
104 C	Benzo[a]pyrene	1.08334	1.10253	1.8
105	Indeno[1,2,3-cd]pyrene	0.78444	0.79446	1.3
106	Dibenz[a,h]anthracene	0.63997	0.65906	3.0
107	Benzo[g,h,i]perylene	0.59243	0.59870	1.1

(#) = Out of Range (Advisory for non-CCC)

HERITAGE
SEMI-VOLATILES Analysis-WATER METHOD BLANK
Analysis METHOD: SW846-8270

Mass Spec File:3803f SVL#1591-975

Analysis Date/Time:12-24-97 11:02

Prep Date:12-23-97

Target Compound List	Result	Units	Det. Limit
Acenaphthene	BDL	uG/L	10
Acenapthylene	BDL	uG/L	10
Anthracene	BDL	uG/L	10
Benz(a)anthracene	BDL	uG/L	10
Benzo(a)pyrene	BDL	uG/L	10
Benzo(b)fluoranthene	BDL	uG/L	10
Benzo(ghi)perylene	BDL	uG/L	10
Benzo(k)fluoranthene	BDL	uG/L	10
Benzyl Alcohol	BDL	uG/L	10
Benzylbutylphthalate	BDL	uG/L	10
Bis(2-chloroethoxy)methane	BDL	uG/L	10
Bis(2-chloroethyl)ether	BDL	uG/L	10
Bis(2-chloroisopropyl)ether	BDL	uG/L	10
Bis(2-ethylhexyl)phthalate	BDL	uG/L	10
4-Bromophenylphenylether	BDL	uG/L	10
Carbazole	BDL	uG/L	10
4-Chloroaniline	BDL	uG/L	10
2-Chloronaphthalene	BDL	uG/L	10
4-Chlorophenylphenylether	BDL	uG/L	10
Chrysene	BDL	uG/L	10
Dibenz(a,h)anthracene	BDL	uG/L	10
Dibenzofuran	BDL	uG/L	10
1,2-Dichlorobenzene	BDL	uG/L	10
1,3-Dichlorobenzene	BDL	uG/L	10
1,4-Dichlorobenzene	BDL	uG/L	10
3,3′ -Dichlorobenzidine	BDL	uG/L	20
Diethylphthalate	BDL	uG/L	10
Dimethylphthalate	BDL	uG/L	10
Di-n-butylphthalate	BDL	uG/L	10
Dinitrobenzenes	BDL	uG/L	50
2,4-Dinitrotoluene	BDL	uG/L	10
2,6-Dinitrotoluene	BDL	uG/L	10
Di-n-octylphthalate	BDL	uG/L	10
Fluoranthene	BDL	uG/L	10
Fluorene	BDL	uG/L	10
Hexachlorobenzene	BDL	uG/L	10
Hexachlorobutadiene	BDL	uG/L	10
Hexachlorocyclopentadiene	BDL	uG/L	10
Hexachloroethane	BDL	uG/L	10
Indeno(1,2,3-cd)pyrene	BDL	uG/L	10
Isophorone	BDL	uG/L	10
2-Methylnaphthalene	BDL	uG/L	10
Naphthalene	BDL	uG/L	10

Mass Spec File:3803f

2-Nitroaniline.....	BDL	uG/L	50
3-Nitroaniline.....	BDL	uG/L	50
4-Nitroaniline.....	BDL	uG/L	50
Nitrobenzene.....	BDL	uG/L	10
N-Nitroso-diphenylamine.....	BDL	uG/L	10
N-Nitroso-di-n-propylamine.....	BDL	uG/L	10
Phenanthrene.....	BDL	uG/L	10
2-Picoline.....	BDL	uG/L	50
Pyrene.....	BDL	uG/L	10
Pyridine.....	BDL	uG/L	50
Tetrachlorobenzenes.....	BDL	uG/L	10
Toluenediamine.....	BDL	uG/L	50
1,2,4-Trichlorobenzene.....	BDL	uG/L	10
Benzoic Acid.....	BDL	uG/L	50
4-Chloro-3-methylphenol.....	BDL	uG/L	10
2-Chlorophenol.....	BDL	uG/L	10
2,4-Dichlorophenol.....	BDL	uG/L	10
2,4-Dimethylphenol.....	BDL	uG/L	10
4,6-Dinitro-2-methylphenol.....	BDL	uG/L	50
2,4-Dinitrophenol.....	BDL	uG/L	50
2-Methylphenol.....	BDL	uG/L	10
4-Methylphenol.....	BDL	uG/L	10
2-Nitrophenol.....	BDL	uG/L	10
4-Nitrophenol.....	BDL	uG/L	50
Pentachlorophenol.....	BDL	uG/L	50
Phenol.....	BDL	uG/L	10
Tetrachlorophenol.....	BDL	uG/L	10
2,4,5-Trichlorophenol.....	BDL	uG/L	50
2,4,6-Trichlorophenol.....	BDL	uG/L	10

Surrogate List

2-Fluorophenol.....	44 % Recovery
Phenol-d5.....	29 % Recovery
Nitrobenzene-d5.....	85 % Recovery
2-Fluorobiphenyl.....	88 % Recovery
2,4,6-Tribromophenol.....	77 % Recovery
Terphenyl-d14.....	99 % Recovery

( ) = ESTIMATED CONCENTRATION