MSD
Metropolitan Sewer District

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

November 16, 2012

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

Re: Sampling Event # 38, Result of Groundwater Quality Monitoring - FY 13, Second Quarter (FY13-2Q), Lees Lane Superfund Site, Jefferson County, Kentucky, Administrative Order on Consent, USEPA Docket No-91-32-C

Dear Mr. Akindele

In accordance with paragraph 11, under Reporting Requirements, 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., 7901 W. Morris Street, Indianapolis, Indiana 46231 for MSD.

The data package contains all of the analytical results and Quality Assurance reports for samples relating to the event.

Certificate of Analysis

WELL LOCATION	SAMPLE DESCRIPTION	LAB ID	REPORT LENGTH
MW-04	LL-MW-04-38	A964289	11 pages (duplex)
MW-04 Duplicate	LL-MW-04-38 DUP	A964290	11 pages (duplex)
MW-05 FB	LL-MW-05-38 FB	A964292	10 pages (duplex)
MW-05	LL-MW-05-38	A964291	11 pages (duplex)

10929648

Louisville Green
Beneficial Use of Louisville's Biosolids
www.louisvillegreen.com

Quality Assurance Reports

DESCRIPTION	REPORT LENGTH
Chain of Custody (COPY)	1 page
Quality Assurance Report	60 pages (duplex)

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

Sincerely,

Richard H. Watkins, Sr.
Sewer Maintenance Supervisor
RHW/rw
Lees-13-2Qtr

Enc.

cc: Kentucky National Resource Environment Protection Cabinet
Mr. Daniel Phelps, Division of Waste Management
Anthony Marconi, Preventive Maintenance & Support Manager
Lees Lane File

HERITAGE
ENVIRONMENTAL SERVICES

Quality Assurance Report # 63741

Heritage Environmental Services, LLC

Commercial Laboratory Operations
7901 W. Morris St.
Indianapolis, IN 46231
(317)243-8304

Visit us at : www.heritage-enviro.com
Review your results at : www.accessheritage.com

Report To:

LOUISVILLE AND JEFFERSON COUNTY MSD

3050 Commerce Center Place

Louisville, KY 40211

Attn : Richard H. Watkin Sr.

Submitter/Project Information

Submitter : LOUISVILLE AND JEFFERSON COUNTY MSD

Kurt Maines - Project Manager
kurt.maines@heritage-enviro.com
(317)390-3131

NELAP ACCREDITED TNI LABORATORY

People providing solutions

HERITAGE
ENVIRONMENTAL SERVICES

Sample Summary

COC ID# : 12031

COC Doc # : 01056054

Date/Time Sampled	Date Complete	LabSampleID	Client SampleID
10/15/2012 10:25:00	11/01/2012	A964289	MW04-38
10/15/2012 10:25:00	11/01/2012	A964290	MW04-38 DUP
10/15/2012 11:58:00	11/01/2012	A964291	MW05-38
10/15/2012 11:05:00	11/01/2012	A964292	MW05-38 FB

HERITAGE ENVIRONMENTAL SERVICES

CERTIFICATE OF ANALYSIS

Service Location	Received	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, LLC COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	15-OCT-12	A964289
	Completed	**PO Number**
	01-NOV-12	..
	Printed	**Sampled**
	01-NOV-12	15-OCT-12 10:25

Report To	Bill To
RICHARD H. WATKIN SR. LOUISVILLE AND JEFFERSON COUNTY MSD 3050 COMMERCE CENTER PLACE LOUISVILLE, KY 40211	RICK WATKINS LOUISVILLE & JEFFERSON COUNTY M.S.D. 3050 COMMERCE CENTER PLACE LOUISVILLE, KY 40211

Sample Description

CLIENT ID: MW04-38
MATRIX TYPE: NON-SPECIFIC WATER
SUBMITTER: 4217 - LOUISVILLE AND JEFFERSON COUNTY MSD
DATA PACKAGE #: 63741
LOCATION: LEES LANE - ANNUAL EVENT
WELL NUMBER: GROUNDWATER

HEXAVALENT CHROMIUM SW846-7196A NELAC:Y

Analyst: J. SMITH Analysis Date: 15-OCT-12 10:45 Test: M110.6.0

Parameter	Result	Det. Limit	Units
HEXAVALENT CHROMIUM	BDL	0.050	mg/L

1:5 Dilution.

Dilution due to color interference.

GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

Analyst: T. WATSON Analysis Date: 16-OCT-12 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	960		mL
FINAL VOLUME	10		mL

ORGANOCHLORINE PESTICIDES BY GC:ECD SW846-8081 NELAC:Y

Analyst: T. WATSON Analysis Date: 16-OCT-12 23:53 Instrument: GC/ECD Test: O164.1.0

Prep: GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C 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

Sample ID: A964289 MW04-38

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 KETONE	BDL	0.1	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
...			
SURROGATE RECOVERY			

DECACHLOROBIPHENYL (DCB)	101.1		% Rec

PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

Analyst: B. WOOD Analysis Date: 16-OCT-12 Instrument: PREP Test: P230.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	1000		mL
FINAL VOLUME	5		mL

PCB AROCLORS BY GAS CHROMATOGRAPHY/ECD SW846-8082A NELAC:Y

Analyst: C. HIPSKIND Analysis Date: 17-OCT-12 12:12 Instrument: GC/ECD Test: O301.7.0

Prep: PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C P230.1.0

Parameter	Result	Det. Limit	Units
PCB AROCLOR 1016	BDL	0.50	ug/L
PCB AROCLOR 1221	BDL	0.50	ug/L
PCB AROCLOR 1232	BDL	0.50	ug/L
PCB AROCLOR 1242	BDL	0.50	ug/L
PCB AROCLOR 1248	BDL	0.50	ug/L
PCB AROCLOR 1254	BDL	0.50	ug/L
PCB AROCLOR 1260	BDL	0.50	ug/L
PCB AROCLOR 1262	BDL	0.50	ug/L
...			
SURROGATE RECOVERY			

DECACHLOROBIPHENYL (DCB)	90.0		% Rec

Sample ID: A964289 MW04-38

CYANIDE DISTILLATION SW846-9012B

Analyst: S. BOXUM | Analysis Date: 16-OCT-12 11:40 | Instrument: PREP | Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	6		mL
FINAL VOLUME	6		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012B NELAC:Y

Analyst: S. BOXUM | Analysis Date: 16-OCT-12 14:41 | Instrument: AUTO-ANALYZER | Test: G101.4.0

Prep: CYANIDE DISTILLATION SW846-9012B P101.4.0

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

FIELD FILTRATION SAS

Analysis Date: | Instrument: FIELD | Test: P110.0.0

Parameter	Result	Det. Limit	Units

LEAD TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 24-OCT-12 00:48 | Instrument: TRACE ICP | Test: M116.0.1

Prep: FIELD FILTRATION SAS P110.0.0

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

FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

Analyst: K. KAMARA | Analysis Date: 16-OCT-12 09:00 | 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 SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 17-OCT-12 00:44 | Instrument: ICP | Test: M101.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

ANTIMONY ICP SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 17-OCT-12 00:44 | Instrument: ICP | Test: M102.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

BARIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 17-OCT-12 00:44 | Instrument: ICP | Test: M104.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units

Sample ID: A964289 MW04-38

BARIUM	0.16	0.010	mg/L

BERYLLIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M105.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

CADMIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M108.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

CALCIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M109.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	110	0.10	mg/L

CHROMIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M110.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

COBALT ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M111.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

COPPER ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M112.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

IRON ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M115.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	7.8	0.020	mg/L

Sample ID: A964289 MW04-38

MAGNESIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M118.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	38	0.10	mg/L

MANGANESE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M119.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	0.21	0.010	mg/L

NICKEL ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M122.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

POTASSIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M126.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	3.9	0.10	mg/L

SILVER ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M130.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

SODIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M131.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	33	0.10	mg/L

VANADIUM ICP SW846-6010B NELAC:N

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M138.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

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Sample ID: A964289 MW04-38

ZINC ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: ICP Test: M139.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

ARSENIC TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: TRACE ICP Test: M103.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

LEAD TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: TRACE ICP Test: M116.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

SELENIUM TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: TRACE ICP Test: M128.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

THALLIUM TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:44 Instrument: TRACE ICP Test: M134.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

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

Analyst: W. WATNESS Analysis Date: 29-OCT-12 11:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	40		mL
FINAL VOLUME	40		mL

MERCURY CVAA SW846-7470A NELAC:Y

Analyst: S. O'NEAL Analysis Date: 30-OCT-12 12:32 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

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

Analyst: J. MINNIEAR, II Analysis Date: 17-OCT-12 Instrument: PREP Test: P233.4.0

Sample ID: A964289 MW04-38

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

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C NELAC:Y

Analyst: T. PINCKERT Analysis Date: 18-OCT-12 15:31 Instrument: GC/MS SVOA Test: O505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C 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
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L

Sample ID: A964289 MW04-38

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
1,2,4,5-TETRACHLOROBENZENE	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
1,2,4,5-TETRACHLOROBENZENE	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
.			
SURROGATE RECOVERY			

2-FLUOROPHENOL	46		% Rec

Sample ID: A964289 MW04-38

PHENOL-D5	31		% Rec
NITROBENZENE-D5	79		% Rec
2-FLUOROBIPHENYL	76		% Rec
2,4,6-TRIBROMOPHENOL	84		% Rec
TERPHENYL-D14	68		% Rec

VOLATILE ORGANICS SW846-8260B NELAC:Y

Analyst: H. WILLIAMS Analysis Date: 21-OCT-12 14:27 Instrument: GC/MS VOA Test: O510.7.0

Parameter	Result	Det. Limit	Units
BENZENE	BDL	1.0	ug/L
BROMOBENZENE	BDL	1.0	ug/L
BROMOCHLOROMETHANE	BDL	1.0	ug/L
BROMODICHLOROMETHANE	BDL	1.0	ug/L
BROMOFORM	BDL	1.0	ug/L
BROMOMETHANE	BDL	1.0	ug/L
N-BUTYLBENZENE	BDL	1.0	ug/L
SEC-BUTYLBENZENE	BDL	1.0	ug/L
TERT-BUTYLBENZENE	BDL	1.0	ug/L
CARBON TETRACHLORIDE	BDL	1.0	ug/L
CHLOROBENZENE	BDL	1.0	ug/L
DIBROMOCHLOROMETHANE	BDL	1.0	ug/L
CHLOROETHANE	BDL	1.0	ug/L
CHLOROFORM	BDL	1.0	ug/L
CHLOROMETHANE	BDL	1.0	ug/L
2-CHLOROTOLUENE (O-CHLOROTOLUENE)	BDL	1.0	ug/L
4-CHLOROTOLUENE (P-CHLOROTOLUENE)	BDL	1.0	ug/L
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	BDL	1.0	ug/L
1,2-DIBROMOETHANE (EDB)	BDL	1.0	ug/L
DIBROMOMETHANE	BDL	1.0	ug/L
1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	BDL	1.0	ug/L
1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	BDL	1.0	ug/L
1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	BDL	1.0	ug/L
DICHLORODIFLUOROMETHANE	BDL	1.0	ug/L
1,1-DICHLOROETHANE	BDL	1.0	ug/L
1,2-DICHLOROETHANE	BDL	1.0	ug/L
1,1-DICHLOROETHENE	BDL	1.0	ug/L
CIS-1,2-DICHLOROETHENE	BDL	1.0	ug/L
TRANS-1,2-DICHLOROETHENE	BDL	1.0	ug/L
1,2-DICHLOROPROPANE	BDL	1.0	ug/L
1,3-DICHLOROPROPANE	BDL	1.0	ug/L
2,2-DICHLOROPROPANE	BDL	1.0	ug/L

Sample ID: A964289 MW04-38

1,1-DICHLOROPROPENE	BDL	1.0	ug/L
ETHYL BENZENE	BDL	1.0	ug/L
HEXACHLOROBUTADIENE	BDL	1.0	ug/L
ISOPROPYLBENZENE (CUMENE)	BDL	1.0	ug/L
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	BDL	1.0	ug/L
DICHLOROMETHANE (METHYLENE CHLORIDE)	BDL	1.0	ug/L
METHYL ETHYL KETONE	BDL	5.0	ug/L
NAPHTHALENE	BDL	1.0	ug/L
N-PROPYLBENZENE	BDL	1.0	ug/L
STYRENE	BDL	1.0	ug/L
1,1,1,2-TETRACHLOROETHANE	BDL	1.0	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	1.0	ug/L
TETRACHLOROETHENE	BDL	1.0	ug/L
TOLUENE	BDL	1.0	ug/L
1,2,3-TRICHLOROBENZENE	BDL	1.0	ug/L
1,2,4-TRICHLOROBENZENE	BDL	1.0	ug/L
1,1,1-TRICHLOROETHANE	BDL	1.0	ug/L
1,1,2-TRICHLOROETHANE	BDL	1.0	ug/L
TRICHLOROETHENE	BDL	1.0	ug/L
TRICHLOROFLUOROMETHANE	BDL	1.0	ug/L
1,2,3-TRICHLOROPROPANE	BDL	1.0	ug/L
1,2,4-TRIMETHYLBENZENE	BDL	1.0	ug/L
1,3,5-TRIMETHYLBENZENE	BDL	1.0	ug/L
VINYL CHLORIDE	BDL	1.0	ug/L
METHYL-T-BUTYL ETHER (MTBE)	BDL	1.0	ug/L
N-HEXANE	BDL	1.0	ug/L
O-XYLENE	BDL	1.0	ug/L
M/P-XYLENE	BDL	2.0	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	98		% Rec
TOLUENE-D8	97		% Rec
4-BROMOFLUOROBENZENE	103		% Rec
DIBROMOFLUOROMETHANE	96		% Rec

Prep Method SW846-5030B Purge and Trap

Sample Comments

BDL Below Detection Limit

Sample was received on ice at temperature 5.9 C.
Sample chain of custody number 12031.

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

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Sample ID: A964289 MW04-38

Sample Comments

relate only to the analytes of interest tested or to the sample as received by the lab. Heritage Environmental Services, LLC certifies that the test results indicated as NELAP (National Environmental Laboratory Accreditation Program) accredited (Yes for NELAP) meet all requirements of NELAP and Kansas (KDHE) unless otherwise explained or justified as to the the exact nature of the deviations.
KS ELAP / NELAP Accreditation # E-10177 Indiana SDWA C-49-01

Gary A. Klingler

Approved by: GARY KLINGLER 31-OCT-12

HERITAGE
ENVIRONMENTAL SERVICES

CERTIFICATE OF ANALYSIS

Service Location	Received	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, LLC COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	15-OCT-12	A964290
	Completed	**PO Number**
	01-NOV-12	..
	Printed	**Sampled**
	01-NOV-12	15-OCT-12 10:25

Report To	Bill To
RICHARD H. WATKIN SR. LOUISVILLE AND JEFFERSON COUNTY MSD 3050 COMMERCE CENTER PLACE LOUISVILLE, KY 40211	RICK WATKINS LOUISVILLE & JEFFERSON COUNTY M.S.D. 3050 COMMERCE CENTER PLACE LOUISVILLE, KY 40211

Sample Description

CLIENT ID: MW04-38 DUP
MATRIX TYPE: NON-SPECIFIC WATER
SUBMITTER: 4217 - LOUISVILLE AND JEFFERSON COUNTY MSD
DATA PACKAGE #: 63741
LOCATION: LEES LANE - ANNUAL EVENT
WELL NUMBER: GROUNDWATER

HEXAVALENT CHROMIUM SW846-7196A NELAC:Y

Analyst: J. SMITH Analysis Date: 15-OCT-12 10:45 Test: M110.6.0

Parameter	Result	Det. Limit	Units
HEXAVALENT CHROMIUM	BDL	0.050	mg/L

1:5 Dilution.

Dilution due to color interference.

GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

Analyst: T. WATSON Analysis Date: 16-OCT-12 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	980		mL
FINAL VOLUME	10		mL

ORGANOCHLORINE PESTICIDES BY GC:ECD SW846-8081 NELAC:Y

Analyst: T. WATSON Analysis Date: 17-OCT-12 00:06 Instrument: GC/ECD Test: O164.1.0

Prep: GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C 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

Sample ID: A964290 MW04-38 DUP

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 KETONE	BDL	0.1	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
...			
SURROGATE RECOVERY			

DECACHLOROBIPHENYL (DCB)	100.7		% Rec

PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

Analyst: B. WOOD Analysis Date: 16-OCT-12 Instrument: PREP Test: P230.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	990		mL
FINAL VOLUME	5		mL

PCB AROCLORS BY GAS CHROMATOGRAPHY/ECD SW846-8082A NELAC:Y

Analyst: C. HIPSKIND Analysis Date: 17-OCT-12 12:12 Instrument: GC/ECD Test: O301.7.0

Prep: PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C P230.1.0

Parameter	Result	Det. Limit	Units
PCB AROCLOR 1016	BDL	0.50	ug/L
PCB AROCLOR 1221	BDL	0.50	ug/L
PCB AROCLOR 1232	BDL	0.50	ug/L
PCB AROCLOR 1242	BDL	0.50	ug/L
PCB AROCLOR 1248	BDL	0.50	ug/L
PCB AROCLOR 1254	BDL	0.50	ug/L
PCB AROCLOR 1260	BDL	0.50	ug/L
PCB AROCLOR 1262	BDL	0.50	ug/L
...			
SURROGATE RECOVERY			

DECACHLOROBIPHENYL (DCB)	98.0		% Rec

Sample ID: A964290 MW04-38 DUP

CYANIDE DISTILLATION SW846-9012B

Analyst: S. BOXUM | Analysis Date: 16-OCT-12 11:40 | Instrument: PREP | Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	6		mL
FINAL VOLUME	6		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012B NELAC:Y

Analyst: S. BOXUM | Analysis Date: 16-OCT-12 14:43 | Instrument: AUTO-ANALYZER | Test: G101.4.0

Prep: CYANIDE DISTILLATION SW846-9012B P101.4.0

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

FIELD FILTRATION SAS

Analysis Date: | Instrument: FIELD | Test: P110.0.0

Parameter	Result	Det. Limit	Units

LEAD TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 24-OCT-12 01:14 | Instrument: TRACE ICP | Test: M116.0.1

Prep: FIELD FILTRATION SAS P110.0.0

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

FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

Analyst: K. KAMARA | Analysis Date: 16-OCT-12 09:00 | 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 SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 17-OCT-12 00:47 | Instrument: ICP | Test: M101.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

ANTIMONY ICP SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 17-OCT-12 00:47 | Instrument: ICP | Test: M102.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

BARIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 17-OCT-12 00:47 | Instrument: ICP | Test: M104.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units

Sample ID: A964290 MW04-38 DUP

BARIUM	0.16	0.010	mg/L

BERYLLIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M105.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

CADMIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M108.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

CALCIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M109.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	100	0.10	mg/L

CHROMIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M110.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

COBALT ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M111.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

COPPER ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M112.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

IRON ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M115.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	7.6	0.020	mg/L

HERITAGE ENVIRONMENTAL SERVICES

Sample ID: A964290 MW04-38 DUP

MAGNESIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M118.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	36	0.10	mg/L

MANGANESE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M119.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	0.19	0.010	mg/L

NICKEL ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M122.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

POTASSIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M126.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	3.8	0.10	mg/L

SILVER ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M130.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

SODIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M131.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	31	0.10	mg/L

VANADIUM ICP SW846-6010B NELAC:N

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M138.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

Sample ID: A964290 MW04-38 DUP

ZINC ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: ICP Test: M139.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

ARSENIC TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: TRACE ICP Test: M103.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

LEAD TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: TRACE ICP Test: M116.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
LEAD	0.0075	0.0050	mg/L

SELENIUM TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: TRACE ICP Test: M128.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

THALLIUM TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:47 Instrument: TRACE ICP Test: M134.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

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

Analyst: W. WATNESS Analysis Date: 29-OCT-12 11:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	40		mL
FINAL VOLUME	40		mL

MERCURY CVAA SW846-7470A NELAC:Y

Analyst: S. O'NEAL Analysis Date: 30-OCT-12 12:44 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

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

Analyst: J. MINNIEAR, II Analysis Date: 17-OCT-12 Instrument: PREP Test: P233.4.0

Sample ID: A964290 MW04-38 DUP

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

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C NELAC:Y

Analyst: T. PINCKERT Analysis Date: 18-OCT-12 16:09 Instrument: GC/MS SVOA Test: O505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C 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
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L

Sample ID: A964290 MW04-38 DUP

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
1,2,4,5-TETRACHLOROBENZENE	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
1,2,4,5-TETRACHLOROBENZENE	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
.			
SURROGATE RECOVERY			

2-FLUOROPHENOL	47		% Rec

Sample ID: A964290 MW04-38 DUP

PHENOL-D5	33		% Rec
NITROBENZENE-D5	76		% Rec
2-FLUOROBIPHENYL	74		% Rec
2,4,6-TRIBROMOPHENOL	81		% Rec
TERPHENYL-D14	74		% Rec

VOLATILE ORGANICS SW846-8260B NELAC:Y

Analyst: H. WILLIAMS Analysis Date: 21-OCT-12 14:53 Instrument: GC/MS VOA Test: O510.7.0

Parameter	Result	Det. Limit	Units
BENZENE	BDL	1.0	ug/L
BROMOBENZENE	BDL	1.0	ug/L
BROMOCHLOROMETHANE	BDL	1.0	ug/L
BROMODICHLOROMETHANE	BDL	1.0	ug/L
BROMOFORM	BDL	1.0	ug/L
BROMOMETHANE	BDL	1.0	ug/L
N-BUTYLBENZENE	BDL	1.0	ug/L
SEC-BUTYLBENZENE	BDL	1.0	ug/L
TERT-BUTYLBENZENE	BDL	1.0	ug/L
CARBON TETRACHLORIDE	BDL	1.0	ug/L
CHLOROBENZENE	BDL	1.0	ug/L
DIBROMOCHLOROMETHANE	BDL	1.0	ug/L
CHLOROETHANE	BDL	1.0	ug/L
CHLOROFORM	BDL	1.0	ug/L
CHLOROMETHANE	BDL	1.0	ug/L
2-CHLOROTOLUENE (O-CHLOROTOLUENE)	BDL	1.0	ug/L
4-CHLOROTOLUENE (P-CHLOROTOLUENE)	BDL	1.0	ug/L
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	BDL	1.0	ug/L
1,2-DIBROMOETHANE (EDB)	BDL	1.0	ug/L
DIBROMOMETHANE	BDL	1.0	ug/L
1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	BDL	1.0	ug/L
1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	BDL	1.0	ug/L
1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	BDL	1.0	ug/L
DICHLORODIFLUOROMETHANE	BDL	1.0	ug/L
1,1-DICHLOROETHANE	BDL	1.0	ug/L
1,2-DICHLOROETHANE	BDL	1.0	ug/L
1,1-DICHLOROETHENE	BDL	1.0	ug/L
CIS-1,2-DICHLOROETHENE	BDL	1.0	ug/L
TRANS-1,2-DICHLOROETHENE	BDL	1.0	ug/L
1,2-DICHLOROPROPANE	BDL	1.0	ug/L
1,3-DICHLOROPROPANE	BDL	1.0	ug/L
2,2-DICHLOROPROPANE	BDL	1.0	ug/L

Sample ID: A964290 MW04-38 DUP

1,1-DICHLOROPROPENE	BDL	1.0	ug/L
ETHYL BENZENE	BDL	1.0	ug/L
HEXACHLOROBUTADIENE	BDL	1.0	ug/L
ISOPROPYLBENZENE (CUMENE)	BDL	1.0	ug/L
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	BDL	1.0	ug/L
DICHLOROMETHANE (METHYLENE CHLORIDE)	BDL	1.0	ug/L
METHYL ETHYL KETONE	BDL	5.0	ug/L
NAPHTHALENE	BDL	1.0	ug/L
N-PROPYLBENZENE	BDL	1.0	ug/L
STYRENE	BDL	1.0	ug/L
1,1,1,2-TETRACHLOROETHANE	BDL	1.0	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	1.0	ug/L
TETRACHLOROETHENE	BDL	1.0	ug/L
TOLUENE	BDL	1.0	ug/L
1,2,3-TRICHLOROBENZENE	BDL	1.0	ug/L
1,2,4-TRICHLOROBENZENE	BDL	1.0	ug/L
1,1,1-TRICHLOROETHANE	BDL	1.0	ug/L
1,1,2-TRICHLOROETHANE	BDL	1.0	ug/L
TRICHLOROETHENE	BDL	1.0	ug/L
TRICHLOROFLUOROMETHANE	BDL	1.0	ug/L
1,2,3-TRICHLOROPROPANE	BDL	1.0	ug/L
1,2,4-TRIMETHYLBENZENE	BDL	1.0	ug/L
1,3,5-TRIMETHYLBENZENE	BDL	1.0	ug/L
VINYL CHLORIDE	BDL	1.0	ug/L
METHYL-T-BUTYL ETHER (MTBE)	BDL	1.0	ug/L
N-HEXANE	BDL	1.0	ug/L
O-XYLENE	BDL	1.0	ug/L
M/P-XYLENE	BDL	2.0	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	101		% Rec
TOLUENE-D8	95		% Rec
4-BROMOFLUOROBENZENE	103		% Rec
DIBROMOFLUOROMETHANE	91		% Rec

Prep Method SW846-5030B Purge and Trap

Sample Comments

BDL Below Detection Limit

Sample was received on ice at temperature 5.9 C.
Sample chain of custody number 12031.

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

HERITAGE
ENVIRONMENTAL SERVICES

Sample ID: A964290 MW04-38 DUP

Sample Comments

relate only to the analytes of interest tested or to the sample as received by the lab. Heritage Environmental Services, LLC certifies that the test results indicated as NELAP (National Environmental Laboratory Accreditation Program) accredited (Yes for NELAP) meet all requirements of NELAP and Kansas (KDHE) unless otherwise explained or justified as to the the exact nature of the deviations.
KS ELAP / NELAP Accreditation # E-10177 Indiana SDWA C-49-01

Gary A. Klingler

Approved by: GARY KLINGLER 31-OCT-12

HERITAGE ENVIRONMENTAL SERVICES

CERTIFICATE OF ANALYSIS

Service Location	Received	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, LLC COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	15-OCT-12	A964291
	Completed	**PO Number**
	01-NOV-12	..
	Printed	**Sampled**
	01-NOV-12	15-OCT-12 11:58

Report To	Bill To
RICHARD H. WATKIN SR. LOUISVILLE AND JEFFERSON COUNTY MSD 3050 COMMERCE CENTER PLACE LOUISVILLE, KY 40211	RICK WATKINS LOUISVILLE & JEFFERSON COUNTY M.S.D. 3050 COMMERCE CENTER PLACE LOUISVILLE, KY 40211

Sample Description

CLIENT ID: MW05-38
MATRIX TYPE: NON-SPECIFIC WATER
SUBMITTER: 4217 - LOUISVILLE AND JEFFERSON COUNTY MSD
DATA PACKAGE #: 63741
LOCATION: LEES LANE - ANNUAL EVENT
WELL NUMBER: GROUNDWATER

HEXAVALENT CHROMIUM SW846-7196A NELAC:Y

Analyst: J. SMITH Analysis Date: 15-OCT-12 10:45 Test: M110.6.0

Parameter	Result	Det. Limit	Units
HEXAVALENT CHROMIUM	BDL	0.050	mg/L

1:5 Dilution.

Dilution due to color interference.

GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

Analyst: T. WATSON Analysis Date: 16-OCT-12 Instrument: PREP Test: P233.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	950		mL
FINAL VOLUME	10		mL

ORGANOCHLORINE PESTICIDES BY GC:ECD SW846-8081 NELAC:Y

Analyst: T. WATSON Analysis Date: 17-OCT-12 00:20 Instrument: GC/ECD Test: O164.1.0

Prep: GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C 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

Sample ID: A964291 MW05-38

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 KETONE	BDL	0.1	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
...			
SURROGATE RECOVERY			

DECACHLOROBIPHENYL (DCB)	90.5		% Rec

PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

Analyst: B. WOOD Analysis Date: 16-OCT-12 Instrument: PREP Test: P230.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	990		mL
FINAL VOLUME	5		mL

PCB AROCLORS BY GAS CHROMATOGRAPHY/ECD SW846-8082A NELAC:Y

Analyst: C. HIPSKIND Analysis Date: 17-OCT-12 12:12 Instrument: GC/ECD Test: O301.7.0

Prep: PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C P230.1.0

Parameter	Result	Det. Limit	Units
PCB AROCLOR 1016	BDL	0.50	ug/L
PCB AROCLOR 1221	BDL	0.50	ug/L
PCB AROCLOR 1232	BDL	0.50	ug/L
PCB AROCLOR 1242	BDL	0.50	ug/L
PCB AROCLOR 1248	BDL	0.50	ug/L
PCB AROCLOR 1254	BDL	0.50	ug/L
PCB AROCLOR 1260	BDL	0.50	ug/L
PCB AROCLOR 1262	BDL	0.50	ug/L
...			
SURROGATE RECOVERY			

DECACHLOROBIPHENYL (DCB)	74.0		% Rec

Sample ID: A964291 MW05-38

Matrix interference may mask low level analytes.

CYANIDE DISTILLATION SW846-9012B

Analyst: S. BOXUM | Analysis Date: 16-OCT-12 11:40 | Instrument: PREP | Test: P101.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	6		mL
FINAL VOLUME	6		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012B NELAC:Y

Analyst: S. BOXUM | Analysis Date: 16-OCT-12 14:43 | Instrument: AUTO-ANALYZER | Test: G101.4.0

Prep: CYANIDE DISTILLATION SW846-9012B P101.4.0

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

FIELD FILTRATION SAS

Analysis Date: | Instrument: FIELD | Test: P110.0.0

Parameter	Result	Det. Limit	Units

LEAD TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 24-OCT-12 01:20 | Instrument: TRACE ICP | Test: M116.0.1

Prep: FIELD FILTRATION SAS P110.0.0

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

FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

Analyst: K. KAMARA | Analysis Date: 16-OCT-12 09:00 | 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 SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 17-OCT-12 00:51 | Instrument: ICP | Test: M101.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

ANTIMONY ICP SW846-6010B NELAC:Y

Analyst: V. PATEL | Analysis Date: 17-OCT-12 00:51 | Instrument: ICP | Test: M102.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

Sample ID: A964291 MW05-38

BARIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M104.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
BARIUM	1.9	0.010	mg/L

BERYLLIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M105.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

CADMIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M108.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

CALCIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M109.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	140	0.10	mg/L

CHROMIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M110.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

COBALT ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M111.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

COPPER ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M112.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

Sample ID: A964291 MW05-38

IRON ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M115.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
IRON	13	0.020	mg/L

MAGNESIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M118.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	48	0.10	mg/L

MANGANESE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M119.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MANGANESE	0.40	0.010	mg/L

NICKEL ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M122.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
NICKEL	0.018	0.0050	mg/L

POTASSIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M126.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	23	0.10	mg/L

SILVER ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M130.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

SODIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M131.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	76	0.10	mg/L

Sample ID: A964291 MW05-38

VANADIUM ICP SW846-6010B NELAC:N

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M138.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

ZINC ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: ICP Test: M139.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

ARSENIC TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: TRACE ICP Test: M103.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
ARSENIC	0.045	0.0050	mg/L

LEAD TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: TRACE ICP Test: M116.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

SELENIUM TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: TRACE ICP Test: M128.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

THALLIUM TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:51 Instrument: TRACE ICP Test: M134.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

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

Analyst: W. WATNESS Analysis Date: 29-OCT-12 11:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	40		mL
FINAL VOLUME	40		mL

Sample ID: A964291 MW05-38

MERCURY CVAA SW846-7470A NELAC:Y

Analyst: S. O'NEAL Analysis Date: 30-OCT-12 12:46 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

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

Analyst: J. MINNIEAR, II Analysis Date: 17-OCT-12 Instrument: PREP Test: P233.4.0

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

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C NELAC:Y

Analyst: T. PINCKERT Analysis Date: 18-OCT-12 16:48 Instrument: GC/MS SVOA Test: O505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C 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

Sample ID: A964291 MW05-38

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
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
1,2,4,5-TETRACHLOROBENZENE	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

Sample ID: A964291 MW05-38

PHENOL	BDL	10	ug/L
1,2,4,5-TETRACHLOROBENZENE	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
.			
SURROGATE RECOVERY			

2-FLUOROPHENOL	46		% Rec
PHENOL-D5	33		% Rec
NITROBENZENE-D5	77		% Rec
2-FLUOROBIPHENYL	76		% Rec
2,4,6-TRIBROMOPHENOL	88		% Rec
TERPHENYL-D14	! 246		% Rec

Surrogate recovery was above laboratory and method acceptance limits. No target analytes were detected in the sample.

VOLATILE ORGANICS SW846-8260B NELAC:Y

Analyst: H. WILLIAMS Analysis Date: 21-OCT-12 15:18 Instrument: GC/MS VOA Test: O510.7.0

Parameter	Result	Det. Limit	Units
BENZENE	BDL	1.0	ug/L
BROMOBENZENE	BDL	1.0	ug/L
BROMOCHLOROMETHANE	BDL	1.0	ug/L
BROMODICHLOROMETHANE	BDL	1.0	ug/L
BROMOFORM	BDL	1.0	ug/L
BROMOMETHANE	BDL	1.0	ug/L
N-BUTYLBENZENE	BDL	1.0	ug/L
SEC-BUTYLBENZENE	BDL	1.0	ug/L
TERT-BUTYLBENZENE	BDL	1.0	ug/L
CARBON TETRACHLORIDE	BDL	1.0	ug/L
CHLOROBENZENE	BDL	1.0	ug/L
DIBROMOCHLOROMETHANE	BDL	1.0	ug/L
CHLOROETHANE	BDL	1.0	ug/L
CHLOROFORM	BDL	1.0	ug/L
CHLOROMETHANE	BDL	1.0	ug/L
2-CHLOROTOLUENE (O-CHLOROTOLUENE)	BDL	1.0	ug/L
4-CHLOROTOLUENE (P-CHLOROTOLUENE)	BDL	1.0	ug/L
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	BDL	1.0	ug/L
1,2-DIBROMOETHANE (EDB)	BDL	1.0	ug/L
DIBROMOMETHANE	BDL	1.0	ug/L
1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	BDL	1.0	ug/L
1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	BDL	1.0	ug/L

Sample ID: A964291 MW05-38

1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	BDL	1.0	ug/L
DICHLORODIFLUOROMETHANE	BDL	1.0	ug/L
1,1-DICHLOROETHANE	BDL	1.0	ug/L
1,2-DICHLOROETHANE	BDL	1.0	ug/L
1,1-DICHLOROETHENE	BDL	1.0	ug/L
CIS-1,2-DICHLOROETHENE	BDL	1.0	ug/L
TRANS-1,2-DICHLOROETHENE	BDL	1.0	ug/L
1,2-DICHLOROPROPANE	BDL	1.0	ug/L
1,3-DICHLOROPROPANE	BDL	1.0	ug/L
2,2-DICHLOROPROPANE	BDL	1.0	ug/L
1,1-DICHLOROPROPENE	BDL	1.0	ug/L
ETHYL BENZENE	BDL	1.0	ug/L
HEXACHLOROBUTADIENE	BDL	1.0	ug/L
ISOPROPYLBENZENE (CUMENE)	BDL	1.0	ug/L
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	BDL	1.0	ug/L
DICHLOROMETHANE (METHYLENE CHLORIDE)	BDL	1.0	ug/L
METHYL ETHYL KETONE	BDL	5.0	ug/L
NAPHTHALENE	BDL	1.0	ug/L
N-PROPYLBENZENE	BDL	1.0	ug/L
STYRENE	BDL	1.0	ug/L
1,1,1,2-TETRACHLOROETHANE	BDL	1.0	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	1.0	ug/L
TETRACHLOROETHENE	BDL	1.0	ug/L
TOLUENE	BDL	1.0	ug/L
1,2,3-TRICHLOROBENZENE	BDL	1.0	ug/L
1,2,4-TRICHLOROBENZENE	BDL	1.0	ug/L
1,1,1-TRICHLOROETHANE	BDL	1.0	ug/L
1,1,2-TRICHLOROETHANE	BDL	1.0	ug/L
TRICHLOROETHENE	BDL	1.0	ug/L
TRICHLOROFLUOROMETHANE	BDL	1.0	ug/L
1,2,3-TRICHLOROPROPANE	BDL	1.0	ug/L
1,2,4-TRIMETHYLBENZENE	BDL	1.0	ug/L
1,3,5-TRIMETHYLBENZENE	BDL	1.0	ug/L
VINYL CHLORIDE	BDL	1.0	ug/L
METHYL-T-BUTYL ETHER (MTBE)	BDL	1.0	ug/L
N-HEXANE	BDL	1.0	ug/L
O-XYLENE	BDL	1.0	ug/L
M/P-XYLENE	BDL	2.0	ug/L
...			
SURROGATE RECOVERY			

Sample ID: A964291 MW05-38

DICHLOROETHANE-D4	102		% Rec
TOLUENE-D8	98		% Rec
4-BROMOFLUOROBENZENE	106		% Rec
DIBROMOFLUOROMETHANE	94		% Rec

Prep Method SW846-5030B Purge and Trap

Sample Comments

! Outside Lab Generated Control Limits
BDL Below Detection Limit

Sample was received on ice at temperature 5.9 C.
Sample chain of custody number 12031.

This Certificate shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested or to the sample as received by the lab. Heritage Environmental Services, LLC certifies that the test results indicated as NELAP (National Environmental Laboratory Accreditation Program) accredited (Yes for NELAP) meet all requirements of NELAP and Kansas (KDHE) unless otherwise explained or justified as to the the exact nature of the deviations.
KS ELAP / NELAP Accreditation # E-10177 Indiana SDWA C-49-01

Gary A. Klingler

Approved by: GARY KLINGLER 31-OCT-12

HERITAGE
ENVIRONMENTAL SERVICES

CERTIFICATE OF ANALYSIS

Service Location	Received	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, LLC COMMERCIAL LABORATORY OPERATIONS 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8304	15-OCT-12	A964292
	Completed	**PO Number**
	01-NOV-12	..
	Printed	**Sampled**
	01-NOV-12	15-OCT-12 11:05

Report To	Bill To
RICHARD H. WATKIN SR. LOUISVILLE AND JEFFERSON COUNTY MSD 3050 COMMERCE CENTER PLACE LOUISVILLE, KY 40211	RICK WATKINS LOUISVILLE & JEFFERSON COUNTY M.S.D. 3050 COMMERCE CENTER PLACE LOUISVILLE, KY 40211

Sample Description

CLIENT ID: MW05-38 FB
MATRIX TYPE: NON-SPECIFIC WATER
SUBMITTER: 4217 - LOUISVILLE AND JEFFERSON COUNTY MSD
DATA PACKAGE #: 63741
LOCATION: LEES LANE - ANNUAL EVENT
WELL NUMBER: GROUNDWATER

HEXAVALENT CHROMIUM SW846-7196A NELAC:Y

Analyst: J. SMITH Analysis Date: 15-OCT-12 10:45 Test: M110.6.0

Parameter	Result	Det. Limit	Units
HEXAVALENT CHROMIUM	BDL	0.01	mg/L

GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

Analyst: T. WATSON Analysis Date: 16-OCT-12 Instrument: PREP Test: P233.1.0

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

ORGANOCHLORINE PESTICIDES BY GC:ECD SW846-8081 NELAC:Y

Analyst: T. WATSON Analysis Date: 17-OCT-12 00:34 Instrument: GC/ECD Test: O164.1.0

Prep: GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C 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

Sample ID: A964292 MW05-38 FB

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 KETONE	BDL	0.1	ug/L
ENDRIN ALDEHYDE	BDL	0.1	ug/L
ALPHA-CHLORDANE	BDL	0.5	ug/L
GAMMA-CHLORDANE	BDL	0.5	ug/L
TOXAPHENE	BDL	1	ug/L
...			
SURROGATE RECOVERY			

DECACHLOROBIPHENYL (DCB)	70.7		% Rec

PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

Analyst: B. WOOD Analysis Date: 16-OCT-12 Instrument: PREP Test: P230.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	990		mL
FINAL VOLUME	5		mL

PCB AROCLORS BY GAS CHROMATOGRAPHY/ECD SW846-8082A NELAC:Y

Analyst: C. HIPSKIND Analysis Date: 17-OCT-12 12:12 Instrument: GC/ECD Test: O301.7.0

Prep: PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C P230.1.0

Parameter	Result	Det. Limit	Units
PCB AROCLOR 1016	BDL	0.50	ug/L
PCB AROCLOR 1221	BDL	0.50	ug/L
PCB AROCLOR 1232	BDL	0.50	ug/L
PCB AROCLOR 1242	BDL	0.50	ug/L
PCB AROCLOR 1248	BDL	0.50	ug/L
PCB AROCLOR 1254	BDL	0.50	ug/L
PCB AROCLOR 1260	BDL	0.50	ug/L
PCB AROCLOR 1262	BDL	0.50	ug/L
...			
SURROGATE RECOVERY			

DECACHLOROBIPHENYL (DCB)	80.0		% Rec

CYANIDE DISTILLATION SW846-9012B

Analyst: S. BOXUM Analysis Date: 16-OCT-12 11:40 Instrument: PREP Test: P101.4.0

Parameter	Result	Det. Limit	Units

Sample ID: A964292 MW05-38 FB

INITIAL WEIGHT OR VOLUME	6		mL
FINAL VOLUME	6		mL

CYANIDE, TOTAL (AUTOMATED) SW846-9012B NELAC:Y

Analyst: S. BOXUM Analysis Date: 16-OCT-12 14:45 Instrument: AUTO-ANALYZER Test: G101.4.0

Prep: CYANIDE DISTILLATION SW846-9012B P101.4.0

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

FIELD FILTRATION SAS

Analysis Date: Instrument: FIELD Test: P110.0.0

Parameter	Result	Det. Limit	Units

LEAD TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 24-OCT-12 01:25 Instrument: TRACE ICP Test: M116.0.1

Prep: FIELD FILTRATION SAS P110.0.0

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

FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

Analyst: K. KAMARA Analysis Date: 16-OCT-12 09:00 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 SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M101.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

ANTIMONY ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M102.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

BARIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M104.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

Sample ID: A964292 MW05-38 FB

BERYLLIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M105.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

CADMIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M108.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

CALCIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M109.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
CALCIUM	0.12	0.10	mg/L

CHROMIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M110.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

COBALT ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M111.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

COPPER ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M112.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

IRON ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M115.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

Sample ID: A964292 MW05-38 FB

MAGNESIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M118.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
MAGNESIUM	BDL	0.10	mg/L

MANGANESE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M119.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

NICKEL ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M122.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

POTASSIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M126.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
POTASSIUM	BDL	0.10	mg/L

SILVER ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M130.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

SODIUM ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M131.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

Parameter	Result	Det. Limit	Units
SODIUM	0.22	0.10	mg/L

VANADIUM ICP SW846-6010B NELAC:N

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M138.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

Sample ID: A964292 MW05-38 FB

ZINC ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: ICP Test: M139.3.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

ARSENIC TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: TRACE ICP Test: M103.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

LEAD TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: TRACE ICP Test: M116.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

SELENIUM TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: TRACE ICP Test: M128.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

THALLIUM TRACE ICP SW846-6010B NELAC:Y

Analyst: V. PATEL Analysis Date: 17-OCT-12 00:54 Instrument: TRACE ICP Test: M134.0.0

Prep: FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A P130.4.0

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

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

Analyst: W. WATNESS Analysis Date: 29-OCT-12 11:00 Instrument: PREP Test: P131.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	40		mL
FINAL VOLUME	40		mL

MERCURY CVAA SW846-7470A NELAC:Y

Analyst: S. O'NEAL Analysis Date: 30-OCT-12 12:48 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

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

Analyst: J. MINNIEAR, II Analysis Date: 17-OCT-12 Instrument: PREP Test: P233.4.0

Sample ID: A964292 MW05-38 FB

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

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C NELAC:Y

Analyst: T. PINCKERT Analysis Date: 18-OCT-12 17:26 Instrument: GC/MS SVOA Test: O505.3.0

Prep: GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C 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
DI-N-OCTYLPHTHALATE	BDL	10	ug/L
FLUORANTHENE	BDL	10	ug/L
FLUORENE	BDL	10	ug/L

Sample ID: A964292 MW05-38 FB

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
1,2,4,5-TETRACHLOROBENZENE	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
1,2,4,5-TETRACHLOROBENZENE	BDL	10	ug/L
2,4,5-TRICHLOROPHENOL	BDL	50	ug/L
2,4,6-TRICHLOROPHENOL	BDL	10	ug/L
SURROGATE RECOVERY			

2-FLUOROPHENOL	46		% Rec

Sample ID: A964292 MW05-38 FB

PHENOL-D5	31		% Rec
NITROBENZENE-D5	78		% Rec
2-FLUOROBIPHENYL	76		% Rec
2,4,6-TRIBROMOPHENOL	84		% Rec
TERPHENYL-D14	! 153		% Rec

Surrogate recovery was above laboratory and method acceptance limits. No target analytes were detected in the sample.

VOLATILE ORGANICS SW846-8260B NELAC:Y

Analyst: H. WILLIAMS Analysis Date: 21-OCT-12 15:44 Instrument: GC/MS VOA Test: O510.7.0

Parameter	Result	Det. Limit	Units
BENZENE	BDL	1.0	ug/L
BROMOBENZENE	BDL	1.0	ug/L
BROMOCHLOROMETHANE	BDL	1.0	ug/L
BROMODICHLOROMETHANE	BDL	1.0	ug/L
BROMOFORM	BDL	1.0	ug/L
BROMOMETHANE	BDL	1.0	ug/L
N-BUTYLBENZENE	BDL	1.0	ug/L
SEC-BUTYLBENZENE	BDL	1.0	ug/L
TERT-BUTYLBENZENE	BDL	1.0	ug/L
CARBON TETRACHLORIDE	BDL	1.0	ug/L
CHLOROBENZENE	BDL	1.0	ug/L
DIBROMOCHLOROMETHANE	BDL	1.0	ug/L
CHLOROETHANE	BDL	1.0	ug/L
CHLOROFORM	BDL	1.0	ug/L
CHLOROMETHANE	BDL	1.0	ug/L
2-CHLOROTOLUENE (O-CHLOROTOLUENE)	BDL	1.0	ug/L
4-CHLOROTOLUENE (P-CHLOROTOLUENE)	BDL	1.0	ug/L
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	BDL	1.0	ug/L
1,2-DIBROMOETHANE (EDB)	BDL	1.0	ug/L
DIBROMOMETHANE	BDL	1.0	ug/L
1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	BDL	1.0	ug/L
1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	BDL	1.0	ug/L
1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	BDL	1.0	ug/L
DICHLORODIFLUOROMETHANE	BDL	1.0	ug/L
1,1-DICHLOROETHANE	BDL	1.0	ug/L
1,2-DICHLOROETHANE	BDL	1.0	ug/L
1,1-DICHLOROETHENE	BDL	1.0	ug/L
CIS-1,2-DICHLOROETHENE	BDL	1.0	ug/L
TRANS-1,2-DICHLOROETHENE	BDL	1.0	ug/L
1,2-DICHLOROPROPANE	BDL	1.0	ug/L

Sample ID: A964292 MW05-38 FB

1,3-DICHLOROPROPANE	BDL	1.0	ug/L
2,2-DICHLOROPROPANE	BDL	1.0	ug/L
1,1-DICHLOROPROPENE	BDL	1.0	ug/L
ETHYL BENZENE	BDL	1.0	ug/L
HEXACHLOROBUTADIENE	BDL	1.0	ug/L
ISOPROPYLBENZENE (CUMENE)	BDL	1.0	ug/L
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	BDL	1.0	ug/L
DICHLOROMETHANE (METHYLENE CHLORIDE)	BDL	1.0	ug/L
METHYL ETHYL KETONE	BDL	5.0	ug/L
NAPHTHALENE	BDL	1.0	ug/L
N-PROPYLBENZENE	BDL	1.0	ug/L
STYRENE	BDL	1.0	ug/L
1,1,1,2-TETRACHLOROETHANE	BDL	1.0	ug/L
1,1,2,2-TETRACHLOROETHANE	BDL	1.0	ug/L
TETRACHLOROETHENE	BDL	1.0	ug/L
TOLUENE	BDL	1.0	ug/L
1,2,3-TRICHLOROBENZENE	BDL	1.0	ug/L
1,2,4-TRICHLOROBENZENE	BDL	1.0	ug/L
1,1,1-TRICHLOROETHANE	BDL	1.0	ug/L
1,1,2-TRICHLOROETHANE	BDL	1.0	ug/L
TRICHLOROETHENE	BDL	1.0	ug/L
TRICHLOROFLUOROMETHANE	BDL	1.0	ug/L
1,2,3-TRICHLOROPROPANE	BDL	1.0	ug/L
1,2,4-TRIMETHYLBENZENE	BDL	1.0	ug/L
1,3,5-TRIMETHYLBENZENE	BDL	1.0	ug/L
VINYL CHLORIDE	BDL	1.0	ug/L
METHYL-T-BUTYL ETHER (MTBE)	BDL	1.0	ug/L
N-HEXANE	BDL	1.0	ug/L
O-XYLENE	BDL	1.0	ug/L
M/P-XYLENE	BDL	2.0	ug/L
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	100		% Rec
TOLUENE-D8	97		% Rec
4-BROMOFLUOROBENZENE	99		% Rec
DIBROMOFLUOROMETHANE	95		% Rec

Prep Method SW846-5030B Purge and Trap

Sample Comments

! Outside Lab Generated Control Limits
BDL Below Detection Limit

HERITAGE
ENVIRONMENTAL SERVICES

Sample ID: A964292 MW05-38 FB

Sample Comments

Sample was received on ice at temperature 5.9 C.
Sample chain of custody number 12031.

This Certificate shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested or to the sample as received by the lab. Heritage Environmental Services, LLC certifies that the test results indicated as NELAP (National Environmental Laboratory Accreditation Program) accredited (Yes for NELAP) meet all requirements of NELAP and Kansas (KDHE) unless otherwise explained or justified as to the the exact nature of the deviations.
KS ELAP / NELAP Accreditation # E-10177 Indiana SDWA C-49-01

Gary A. Klingler

Approved by: GARY KLINGLER 31-OCT-12

Package # 63741

Package # 63741

01056054

HERITAGE ENVIRONMENTAL SERVICES, LLC.
COMMERCIAL LABORATORY OPERATIONS
7901 W Morris St Indianapolis, IN 46231
www.heritage-enviro.com (800)827-4374 Fax:(317)486-5095

12031

Submitter Name: LOUISVILLE AND JEFFERSON COUNTY MSD (4217)

Project Name: MSD

Z Quote No: Z127569

PO No: Lee's-Lane – Project 38

Heritage Contact KURT MAINES (317)390-3131

Sample Turn Around Time Accelerated TAT subject to Additional Charge.

Standard:_____ Rush Date ~~10/15/12~~ D22 (Mo Day Yr) Date must be Accepted and Approved by Lab.

Sampled By: RF, DM, JF, JGA

Analyses Requested (Note special detection limits or methods)

Comments:
- one field blank water bottle was busted
- only 4 of 1 liter field blanks were collected
- ~~Field blank [illegible]~~ DM
FB Pb sample was xit
F. Neal

Date Sampled	Time Sampled	Comp	Grab	Sample ID and/or Location where your sample was taken	Sample Type (Matrix): Water, Soil, Oil, Sludge, Swipe, Other	Number of Containers	PCB/PEST SCAN, SVL BNA	CN(T)	Cr+6	VOL	Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Na, Ni, Pb, Sb, Se, Tl, V, Zn	Pb	Remarks:	Lab use only Sample No.
10/15/12	10:25 AM/PM			MW04-38	WW	12	✓	✓	✓	✓	✓	✓		A964289
10/15/12	10:25 AM/PM			MW04-38 DUP	WW	12	✓	✓	✓	✓	✓	✓		290
10/15/12	11:08 AM/PM			MW05-38	WW	12	✓	✓	✓	✓	✓	✓		291
10/15/12	11:05 AM/PM			MW05-38 FB	DW	12	✓	✓	✓	✓	✓	✓		292
10/15/12	11:05 AM/PM			Trip Blank	DW	2				✓				293
	AM/PM													
	AM/PM													
	AM/PM													
	AM/PM													
	AM/PM													

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	10/15/12 15:42	[signature]
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Received for Lab by: (Signature)	Date 10/15/12	Temperature 5.9 (6.2) °C
	Time 1610	Received On Ice Yes / No

Laboratory use only	Yes	No	NA
Custody seals intact on cooler?	–		
C. seals intact on containers?			–
Broken containers?		–	
COC agree with sample labels?	–		
Correct containers for testing?	✓		
Headspace issues acceptable?	–		
Holding time(s) acceptable?	–		
Preservative pH's acceptable?	✓		
Was pH left unadjusted?	✓		

Send Report To:

Co: LOUISVILLE AND JEFFERSON COUN
Addr: 3050 COMMERCE CENTER PLACE
LOUISVILLE, KY 40211
Attn: RICHARD H. WATKIN SR.
Phone: (502)540-6828
Fax:
email: watkinsr@msdlouky.org

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report

63741

01-NOV-12

Service Location	Submitter
Heritage Environmental Services, LLC Commercial Laboratory Operations 7901 West Morris Street Indianapolis, IN 46231 (317) 243-8304	RICHARD H. WATKIN SR. LOUISVILLE AND JEFFERSON COUNTY MSD 3050 COMMERCE CENTER PLACE LOUISVILLE, KY 40211

Sample ID	Client ID	Date/Time Sampled	Date Received	Date Released
A964289	MW04-38	15-Oct-12 10:25	15-Oct-12	31-Oct-2012
	WELL NUMBER :	GROUNDWATER		
	LOCATION :	LEES LANE - ANNUAL EVENT		
A964290	MW04-38 DUP	15-Oct-12 10:25	15-Oct-12	31-Oct-2012
	WELL NUMBER :	GROUNDWATER		
	LOCATION :	LEES LANE - ANNUAL EVENT		
A964291	MW05-38	15-Oct-12 11:58	15-Oct-12	31-Oct-2012
	WELL NUMBER :	GROUNDWATER		
	LOCATION :	LEES LANE - ANNUAL EVENT		
A964292	MW05-38 FB	15-Oct-12 11:05	15-Oct-12	31-Oct-2012
	WELL NUMBER :	GROUNDWATER		
	LOCATION :	LEES LANE - ANNUAL EVENT		

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602659 Analyst: J MINNIEAR, II Run Date: 17-Oct-12 Instrument: PREP
Prep Reviewer: L SMITH Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2616389		Analytical Run: R602697							
LCS	Q2616390		Analytical Run: R602697							
SPI02	Q2616393		Analytical Run: R602697							
DPS02	Q2616394		Analytical Run: R602697							
SAMPLE	A964289	Rep: 0	Analytical Run: R602728							
SAMPLE	A964290	Rep: 0	Analytical Run: R602728							
SAMPLE	A964291	Rep: 0	Analytical Run: R602728							
SAMPLE	A964292	Rep: 0	Analytical Run: R602728							

R602697 Analyst: T PINCKERT Run Date: 17-Oct-12 Instrument: GC/MS SVOA
Analytical Reviewer: L SMITH Review Date: 18-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2616389		Analysis Date/Time: 17-Oct-12 15:55							
BLA02	Q2616389		ACENAPHTHYLENE			BDL	1.1	ug/L		
BLA02	Q2616389		ANTHRACENE			BDL	1.2	ug/L		
BLA02	Q2616389		BENZO(A)ANTHRACENE [(BENZO(A)ANTHRACENE]			BDL	1.1	ug/L		
BLA02	Q2616389		BENZO(A)PYRENE			BDL	2.6	ug/L		
BLA02	Q2616389		BENZO(B)FLUORANTHENE (3,4-BENZOFLUORANTHENE)			BDL	5.4	ug/L		
BLA02	Q2616389		BENZO(G,H,I)PERYLENE			BDL	3.7	ug/L		
BLA02	Q2616389		BENZO(K)FLUORANTHENE			BDL	2.5	ug/L		
BLA02	Q2616389		BENZYL ALCOHOL			BDL	2.1	ug/L		
BLA02	Q2616389		BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHTHALATE)			BDL	2.6	ug/L		
BLA02	Q2616389		BIS(2-CHLOROETHOXY)METHANE			BDL	1.4	ug/L		
BLA02	Q2616389		BIS(2-CHLOROETHYL)ETHER			BDL	1.4	ug/L		
BLA02	Q2616389		BIS(2-CHLOROISOPROPYL)ETHER			BDL	1.7	ug/L		
BLA02	Q2616389		BIS(2-ETHYLHEXYL)PHTHALATE			BDL	2.8	ug/L		
BLA02	Q2616389		4-BROMODIPHENYL ETHER			BDL	2.6	ug/L		
BLA02	Q2616389		CARBAZOLE			BDL	1.3	ug/L		
BLA02	Q2616389		4-CHLOROANILINE			BDL	4.2	ug/L		
BLA02	Q2616389		2-CHLORONAPHTHALENE			BDL	2.6	ug/L		
BLA02	Q2616389		4-CHLOROPHENYL-PHENYLETHER			BDL	1.8	ug/L		
BLA02	Q2616389		CHRYSENE			BDL	1.2	ug/L		
BLA02	Q2616389		DIBENZ(A,H)ANTHRACENE			BDL	5.6	ug/L		
BLA02	Q2616389		DIBENZOFURAN			BDL	1.2	ug/L		
BLA02	Q2616389		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)			BDL	1.3	ug/L		
BLA02	Q2616389		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)			BDL	1.4	ug/L		
BLA02	Q2616389		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)			BDL	1.4	ug/L		
BLA02	Q2616389		3,3'-DICHLOROBENZIDINE			BDL	3.3	ug/L		
BLA02	Q2616389		DIETHYLPHTHALATE			BDL	1.2	ug/L		
BLA02	Q2616389		DIMETHYLPHTHALATE			BDL	1.1	ug/L		
BLA02	Q2616389		DI-N-BUTYLPHTHALATE			BDL	1.7	ug/L		
BLA02	Q2616389		2,4-DINITROTOLUENE			BDL	1.4	ug/L		
BLA02	Q2616389		2,6-DINITROTOLUENE			BDL	1.2	ug/L		
BLA02	Q2616389		DI-N-OCTYLPHTHALATE			BDL	3.0	ug/L		

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602697 Analyst: T PINCKERT Run Date: 17-Oct-12
Analytical Reviewer: L SMITH Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2616389		FLUORANTHENE			BDL	1.6	ug/L		
BLA02	Q2616389		FLUORENE			BDL	1.3	ug/L		
BLA02	Q2616389		HEXACHLOROBENZENE			BDL	3.2	ug/L		
BLA02	Q2616389		HEXACHLOROBUTADIENE			BDL	3.4	ug/L		
BLA02	Q2616389		HEXACHLOROCYCLOPENTADIENE			BDL	2.0	ug/L		
BLA02	Q2616389		HEXACHLOROETHANE			BDL	1.3	ug/L		
BLA02	Q2616389		INDENO(1,2,3-CD)PYRENE			BDL	3.6	ug/L		
BLA02	Q2616389		ISOPHORONE			BDL	1.4	ug/L		
BLA02	Q2616389		2-METHYLNAPHTHALENE			BDL	1.6	ug/L		
BLA02	Q2616389		NAPHTHALENE			BDL	1.5	ug/L		
BLA02	Q2616389		2-NITROANILINE (O-NITROANILINE)			BDL	1.4	ug/L		
BLA02	Q2616389		3-NITROANILINE (M-NITROANILINE)			BDL	3.3	ug/L		
BLA02	Q2616389		4-NITROANILINE (P-NITROANILINE)			BDL	2.2	ug/L		
BLA02	Q2616389		NITROBENZENE			BDL	1.6	ug/L		
BLA02	Q2616389		N-NITROSODIPHENYLAMINE			BDL	2.0	ug/L		
BLA02	Q2616389		N-NITROSO-DI-N-PROPYLAMINE			BDL	2.1	ug/L		
BLA02	Q2616389		PHENANTHRENE			BDL	1.2	ug/L		
BLA02	Q2616389		2-PICOLINE (2-METHYLPYRIDINE)			BDL	3.4	ug/L		
BLA02	Q2616389		PYRENE			BDL	2.2	ug/L		
BLA02	Q2616389		PYRIDINE			BDL	3.0	ug/L		
BLA02	Q2616389		1,2,4,5-TETRACHLOROBENZENE			BDL	2.1	ug/L		
BLA02	Q2616389		1,2,4-TRICHLOROBENZENE			BDL	1.6	ug/L		
BLA02	Q2616389		BENZOIC ACID			BDL	16	ug/L		
BLA02	Q2616389		4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-CRESOL)			BDL	1.7	ug/L		
BLA02	Q2616389		2-CHLOROPHENOL			BDL	1.5	ug/L		
BLA02	Q2616389		2,4-DICHLOROPHENOL			BDL	8.4	ug/L		
BLA02	Q2616389		2,4-DIMETHYLPHENOL			BDL	2.4	ug/L		
BLA02	Q2616389		4,6-DINITRO-O-CRESOL(2-METHYL-4,6-DINITROPHEN			BDL	1.2	ug/L		
BLA02	Q2616389		2,4-DINITROPHENOL			BDL	11	ug/L		
BLA02	Q2616389		2-METHYLPHENOL (O-CRESOL)			BDL	2.0	ug/L		
BLA02	Q2616389		4-METHYLPHENOL (P-CRESOL)			BDL	2.2	ug/L		
BLA02	Q2616389		2-NITROPHENOL			BDL	1.3	ug/L		
BLA02	Q2616389		4-NITROPHENOL			BDL	11	ug/L		
BLA02	Q2616389		PENTACHLOROPHENOL			BDL	8.4	ug/L		
BLA02	Q2616389		PHENOL			BDL	1.5	ug/L		
BLA02	Q2616389		2,3,4,6-TETRACHLOROPHENOL			BDL	2.4	ug/L		
BLA02	Q2616389		2,4,5-TRICHLOROPHENOL			BDL	1.3	ug/L		
BLA02	Q2616389		2,4,6-TRICHLOROPHENOL			BDL	1.2	ug/L		
BLA02	Q2616389		...					ug/L		
BLA02	Q2616389		----------					ug/L		
BLA02	Q2616389		2-FLUOROPHENOL						69	
BLA02	Q2616389		PHENOL-D5						54	
BLA02	Q2616389		NITROBENZENE-D5						93	
BLA02	Q2616389		2-FLUOROBIPHENYL						84	
BLA02	Q2616389		2,4,6-TRIBROMOPHENOL						109	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602697 Analyst: T PINCKERT Run Date: 17-Oct-12
Analytical Reviewer: L SMITH Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2616389		TERPHENYL-D14						95	
LCS	Q2616390		Analysis Date/Time: 17-Oct-12 16:34							
LCS	Q2616390		ACENAPHTHENE	50.0			49.2	ug/L	98.4	
LCS	Q2616390		ACENAPHTHYLENE	50.0			47.3	ug/L	94.6	
LCS	Q2616390		ANTHRACENE	50.0			50.6	ug/L	101.2	
LCS	Q2616390		BENZO(A)ANTHRACENE [(BENZO(A)ANTHRACENE]	50.0			49.6	ug/L	99.2	
LCS	Q2616390		BENZO(A)PYRENE	50.0			57.4	ug/L	114.8	
LCS	Q2616390		BENZO(B)FLUORANTHENE (3,4-BENZOFLUORANTHENE)	50.0			52.9	ug/L	105.8	
LCS	Q2616390		BENZO(G,H,I)PERYLENE	50.0			58.5	ug/L	117	
LCS	Q2616390		BENZO(K)FLUORANTHENE	50.0			50.6	ug/L	101.2	
LCS	Q2616390		BENZYL ALCOHOL	50.0			46.3	ug/L	92.6	
LCS	Q2616390		BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHTHALATE)	50.0			49.1	ug/L	98.2	
LCS	Q2616390		BIS(2-CHLOROETHOXY)METHANE	50.0			48.8	ug/L	97.6	
LCS	Q2616390		BIS(2-CHLOROETHYL)ETHER	50.0			37.1	ug/L	74.2	
LCS	Q2616390		BIS(2-CHLOROISOPROPYL)ETHER	50.0			40.9	ug/L	81.8	
LCS	Q2616390		BIS(2-ETHYLHEXYL)PHTHALATE	50.0			48.6	ug/L	97.2	
LCS	Q2616390		4-BROMODIPHENYL ETHER	50.0			50.4	ug/L	100.8	
LCS	Q2616390		CARBAZOLE	50.0			55.4	ug/L	110.8	
LCS	Q2616390		4-CHLOROANILINE	50.0			47.3	ug/L	94.6	
LCS	Q2616390		2-CHLORONAPHTHALENE	50.0			57.8	ug/L	115.6	
LCS	Q2616390		4-CHLOROPHENYL-PHENYLETHER	50.0			47.9	ug/L	95.8	
LCS	Q2616390		CHRYSENE	50.0			49.8	ug/L	99.6	
LCS	Q2616390		DIBENZ(A,H)ANTHRACENE	50.0			57.6	ug/L	115.2	
LCS	Q2616390		DIBENZOFURAN	50.0			49.4	ug/L	98.8	
LCS	Q2616390		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	50.0			38.8	ug/L	77.6	
LCS	Q2616390		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	50.0			38.3	ug/L	76.6	
LCS	Q2616390		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	50.0			39	ug/L	78	
LCS	Q2616390		3,3'-DICHLOROBENZIDINE	50.0			63	ug/L	126	
LCS	Q2616390		DIETHYLPHTHALATE	50.0			48.7	ug/L	97.4	
LCS	Q2616390		DIMETHYLPHTHALATE	50.0			40.1	ug/L	80.2	
LCS	Q2616390		DI-N-BUTYLPHTHALATE	50.0			46.4	ug/L	92.8	
LCS	Q2616390		2,4-DINITROTOLUENE	50.0			48.1	ug/L	96.2	
LCS	Q2616390		2,6-DINITROTOLUENE	50.0			48.7	ug/L	97.4	
LCS	Q2616390		DI-N-OCTYLPHTHALATE	50.0			51.5	ug/L	103	
LCS	Q2616390		FLUORANTHENE	50.0			45.7	ug/L	91.4	
LCS	Q2616390		FLUORENE	50.0			48.2	ug/L	96.4	
LCS	Q2616390		HEXACHLOROBENZENE	50.0			50.5	ug/L	101	
LCS	Q2616390		HEXACHLOROBUTADIENE	50.0			42.3	ug/L	84.6	
LCS	Q2616390		HEXACHLOROCYCLOPENTADIENE	50.0			26.7	ug/L	53.4	
LCS	Q2616390		HEXACHLOROETHANE	50.0			36.5	ug/L	73	
LCS	Q2616390		INDENO(1,2,3-CD)PYRENE	50.0			55.5	ug/L	111	
LCS	Q2616390		ISOPHORONE	50.0			47.9	ug/L	95.8	
LCS	Q2616390		2-METHYLNAPHTHALENE	50.0			51.4	ug/L	102.8	
LCS	Q2616390		NAPHTHALENE	50.0			46.6	ug/L	93.2	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602697 Analyst: T PINCKERT Run Date: 17-Oct-12
Analytical Reviewer: L SMITH Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LCS	Q2616390		2-NITROANILINE (O-NITROANILINE)	50.0			50.2	ug/L	100.4	
LCS	Q2616390		3-NITROANILINE (M-NITROANILINE)	50.0			55.9	ug/L	111.8	
LCS	Q2616390		4-NITROANILINE (P-NITROANILINE)	50.0			38.1	ug/L	76.2	
LCS	Q2616390		NITROBENZENE	50.0			47.2	ug/L	94.4	
LCS	Q2616390		N-NITROSODIPHENYLAMINE	100			88.6	ug/L	88.6	
LCS	Q2616390		N-NITROSO-DI-N-PROPYLAMINE	50.0			48.6	ug/L	97.2	
LCS	Q2616390		PHENANTHRENE	50.0			49.5	ug/L	99	
LCS	Q2616390		2-PICOLINE (2-METHYLPYRIDINE)	50.0			27.3	ug/L	54.6	
LCS	Q2616390		PYRENE	50.0			52.5	ug/L	105	
LCS	Q2616390		PYRIDINE	50.0			28.1	ug/L	56.2	
LCS	Q2616390		1,2,4,5-TETRACHLOROBENZENE	50.0			50.1	ug/L	100.2	
LCS	Q2616390		1,2,4-TRICHLOROBENZENE	50.0			44.9	ug/L	89.8	
LCS	Q2616390		BENZOIC ACID	50.0			10.7	ug/L	21.4	
LCS	Q2616390		4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-CRESOL)	50.0			47.6	ug/L	95.2	
LCS	Q2616390		2-CHLOROPHENOL	50.0			43.6	ug/L	87.2	
LCS	Q2616390		2,4-DICHLOROPHENOL	50.0			47.4	ug/L	94.8	
LCS	Q2616390		2,4-DIMETHYLPHENOL	50.0			35.9	ug/L	71.8	
LCS	Q2616390		4,6-DINITRO-O-CRESOL(2-METHYL-4,6-DINITROPHEN	50.0			38.7	ug/L	77.4	
LCS	Q2616390		2,4-DINITROPHENOL	50.0			47.5	ug/L	95	
LCS	Q2616390		2-METHYLPHENOL (O-CRESOL)	50.0			46.6	ug/L	93.2	
LCS	Q2616390		4-METHYLPHENOL (P-CRESOL)	50.0			41.7	ug/L	83.4	
LCS	Q2616390		2-NITROPHENOL	50.0			47.9	ug/L	95.8	
LCS	Q2616390		4-NITROPHENOL	50.0			32.8	ug/L	65.6	
LCS	Q2616390		PENTACHLOROPHENOL	50.0			47.9	ug/L	95.8	
LCS	Q2616390		PHENOL	50.0			28.6	ug/L	57.2	
LCS	Q2616390		2,3,4,6-TETRACHLOROPHENOL	50.0			54.2	ug/L	108.4	
LCS	Q2616390		2,4,5-TRICHLOROPHENOL	50.0			50	ug/L	100	
LCS	Q2616390		2,4,6-TRICHLOROPHENOL	50.0			49.1	ug/L	98.2	
SPI02	Q2616393	A963806	Analysis Date/Time: 17-Oct-12 17:50							
SPI02	Q2616393	A963806	ACENAPHTHENE	0	50.0		40.8	ug/L	81.6	
SPI02	Q2616393	A963806	ACENAPHTHYLENE	0	50.0		40.2	ug/L	80.4	
SPI02	Q2616393	A963806	ANTHRACENE	0	50.0		41.7	ug/L	83.4	
SPI02	Q2616393	A963806	BENZO(A)ANTHRACENE [(BENZO(A)ANTHRACENE]	0	50.0		39.3	ug/L	78.6	
SPI02	Q2616393	A963806	BENZO(A)PYRENE	0	50.0		41.9	ug/L	83.8	
SPI02	Q2616393	A963806	BENZO(B)FLUORANTHENE (3,4-BENZOFLUORANTHENE)	0	50.0		38.8	ug/L	77.6	
SPI02	Q2616393	A963806	BENZO(G,H,I)PERYLENE	0	50.0		53.2	ug/L	106.4	
SPI02	Q2616393	A963806	BENZO(K)FLUORANTHENE	0	50.0		45.2	ug/L	90.4	
SPI02	Q2616393	A963806	BENZYL ALCOHOL	0	50.0		32.8	ug/L	65.6	
SPI02	Q2616393	A963806	BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHTHALATE)	0	50.0		40.1	ug/L	80.2	
SPI02	Q2616393	A963806	BIS(2-CHLOROETHOXY)METHANE	0	50.0		40.2	ug/L	80.4	
SPI02	Q2616393	A963806	BIS(2-CHLOROETHYL)ETHER	0	50.0		34.3	ug/L	68.6	
SPI02	Q2616393	A963806	BIS(2-CHLOROISOPROPYL)ETHER	0	50.0		40.7	ug/L	81.4	
SPI02	Q2616393	A963806	BIS(2-ETHYLHEXYL)PHTHALATE	0	50.0		42.9	ug/L	85.8	
SPI02	Q2616393	A963806	4-BROMODIPHENYL ETHER	0	50.0		40.9	ug/L	81.8	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602697 Analyst: T PINCKERT Run Date: 17-Oct-12
Analytical Reviewer: L SMITH Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SPI02	Q2616393	A963806	CARBAZOLE	0	50.0		41.8	ug/L	83.6	
SPI02	Q2616393	A963806	4-CHLOROANILINE	0	50.0		32.4	ug/L	64.8	
SPI02	Q2616393	A963806	2-CHLORONAPHTHALENE	0	50.0		39	ug/L	78	
SPI02	Q2616393	A963806	4-CHLOROPHENYL-PHENYLETHER	0	50.0		41.4	ug/L	82.8	
SPI02	Q2616393	A963806	CHRYSENE	0	50.0		40.3	ug/L	80.6	
SPI02	Q2616393	A963806	DIBENZ(A,H)ANTHRACENE	0	50.0		48.4	ug/L	96.8	
SPI02	Q2616393	A963806	DIBENZOFURAN	0	50.0		40.8	ug/L	81.6	
SPI02	Q2616393	A963806	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	0	50.0		38	ug/L	76	
SPI02	Q2616393	A963806	1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	0	50.0		37.8	ug/L	75.6	
SPI02	Q2616393	A963806	1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	0	50.0		39	ug/L	78	
SPI02	Q2616393	A963806	3,3'-DICHLOROBENZIDINE	0	50.0		4.11	ug/L	8.2	
SPI02	Q2616393	A963806	DIETHYLPHTHALATE	0	50.0		43.2	ug/L	86.4	
SPI02	Q2616393	A963806	DIMETHYLPHTHALATE	0	50.0		40.6	ug/L	81.2	
SPI02	Q2616393	A963806	DI-N-BUTYLPHTHALATE	0	50.0		41.5	ug/L	83	
SPI02	Q2616393	A963806	2,4-DINITROTOLUENE	0	50.0		42.3	ug/L	84.6	
SPI02	Q2616393	A963806	2,6-DINITROTOLUENE	0	50.0		40.1	ug/L	80.2	
SPI02	Q2616393	A963806	DI-N-OCTYLPHTHALATE	0	50.0		45.3	ug/L	90.6	
SPI02	Q2616393	A963806	FLUORANTHENE	0	50.0		42	ug/L	84	
SPI02	Q2616393	A963806	FLUORENE	0	50.0		42.2	ug/L	84.4	
SPI02	Q2616393	A963806	HEXACHLOROBENZENE	0	50.0		41.1	ug/L	82.2	
SPI02	Q2616393	A963806	HEXACHLOROBUTADIENE	0	50.0		38.2	ug/L	76.4	
SPI02	Q2616393	A963806	HEXACHLOROCYCLOPENTADIENE	0	50.0		32.1	ug/L	64.2	
SPI02	Q2616393	A963806	HEXACHLOROETHANE	0	50.0		36.7	ug/L	73.4	
SPI02	Q2616393	A963806	INDENO(1,2,3-CD)PYRENE	0	50.0		46.4	ug/L	92.8	
SPI02	Q2616393	A963806	ISOPHORONE	0	50.0		38.6	ug/L	77.2	
SPI02	Q2616393	A963806	2-METHYLNAPHTHALENE	0	50.0		42.8	ug/L	85.6	
SPI02	Q2616393	A963806	NAPHTHALENE	0	50.0		40.1	ug/L	80.2	
SPI02	Q2616393	A963806	2-NITROANILINE (O-NITROANILINE)	0	50.0		39.4	ug/L	78.8	
SPI02	Q2616393	A963806	3-NITROANILINE (M-NITROANILINE)	0	50.0		36.5	ug/L	73	
SPI02	Q2616393	A963806	4-NITROANILINE (P-NITROANILINE)	0	50.0		24.2	ug/L	48.4	
SPI02	Q2616393	A963806	NITROBENZENE	0	50.0		39.4	ug/L	78.8	
SPI02	Q2616393	A963806	N-NITROSODIPHENYLAMINE	0	50.0		40.2	ug/L	80.4	
SPI02	Q2616393	A963806	N-NITROSO-DI-N-PROPYLAMINE	0	50.0		40.3	ug/L	80.6	
SPI02	Q2616393	A963806	PHENANTHRENE	0	50.0		41.8	ug/L	83.6	
SPI02	Q2616393	A963806	2-PICOLINE (2-METHYLPYRIDINE)	0	50.0		18.2	ug/L	36.4	
SPI02	Q2616393	A963806	PYRENE	0	50.0		43.1	ug/L	86.2	
SPI02	Q2616393	A963806	PYRIDINE	0	50.0		14.9	ug/L	29.8	
SPI02	Q2616393	A963806	1,2,4,5-TETRACHLOROBENZENE	0	50.0		40.5	ug/L	81	
SPI02	Q2616393	A963806	1,2,4-TRICHLOROBENZENE	0	50.0		39.6	ug/L	79.2	
SPI02	Q2616393	A963806	BENZOIC ACID	0	50.0		19.7	ug/L	39.4	
SPI02	Q2616393	A963806	4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-CRESOL)	0	50.0		40.7	ug/L	81.4	
SPI02	Q2616393	A963806	2-CHLOROPHENOL	0	50.0		36.8	ug/L	73.6	
SPI02	Q2616393	A963806	2,4-DICHLOROPHENOL	0	50.0		38.9	ug/L	77.8	
SPI02	Q2616393	A963806	2,4-DIMETHYLPHENOL	0	50.0		40	ug/L	80	
SPI02	Q2616393	A963806	4,6-DINITRO-O-CRESOL(2-	0	50.0		31.2	ug/L	62.4	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602697 Analyst: T PINCKERT Run Date: 17-Oct-12
Analytical Reviewer: L SMITH Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
			METHYL-4,6-DINITROPHEN							
SPI02	Q2616393	A963806	2,4-DINITROPHENOL	0	50.0		45.4	ug/L	90.8	
SPI02	Q2616393	A963806	2-METHYLPHENOL (O-CRESOL)	0	50.0		39.4	ug/L	78.8	
SPI02	Q2616393	A963806	4-METHYLPHENOL (P-CRESOL)	0	50.0		36.3	ug/L	72.6	
SPI02	Q2616393	A963806	2-NITROPHENOL	0	50.0		39.9	ug/L	79.8	
SPI02	Q2616393	A963806	4-NITROPHENOL	0	50.0		26.1	ug/L	52.2	
SPI02	Q2616393	A963806	PENTACHLOROPHENOL	0	50.0		43.9	ug/L	87.8	
SPI02	Q2616393	A963806	PHENOL	0	50.0		21	ug/L	42	
SPI02	Q2616393	A963806	2,3,4,6-TETRACHLOROPHENOL	0	50.0		45.4	ug/L	90.8	
SPI02	Q2616393	A963806	2,4,5-TRICHLOROPHENOL	0	50.0		39.6	ug/L	79.2	
SPI02	Q2616393	A963806	2,4,6-TRICHLOROPHENOL	0	50.0		39.8	ug/L	79.6	
DPS02	Q2616394	A963806	Analysis Date/Time: 17-Oct-12 18:29							
DPS02	Q2616394	A963806	ACENAPHTHENE	0	50.0		43.1	ug/L	86.2	5.5
DPS02	Q2616394	A963806	ACENAPHTHYLENE	0	50.0		42.9	ug/L	85.8	6.5
DPS02	Q2616394	A963806	ANTHRACENE	0	50.0		43.9	ug/L	87.8	5.1
DPS02	Q2616394	A963806	BENZO(A)ANTHRACENE [(BENZO(A)ANTHRACENE]	0	50.0		42.1	ug/L	84.2	6.9
DPS02	Q2616394	A963806	BENZO(A)PYRENE	0	50.0		44.4	ug/L	88.8	5.8
DPS02	Q2616394	A963806	BENZO(B)FLUORANTHENE (3,4-BENZOFLUORANTHENE)	0	50.0		43.6	ug/L	87.2	11.7
DPS02	Q2616394	A963806	BENZO(G,H,I)PERYLENE	0	50.0		61.1	ug/L	122.2	13.8
DPS02	Q2616394	A963806	BENZO(K)FLUORANTHENE	0	50.0		43.4	ug/L	86.8	4.1
DPS02	Q2616394	A963806	BENZYL ALCOHOL	0	50.0		34.3	ug/L	68.6	4.5
DPS02	Q2616394	A963806	BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHTHALATE)	0	50.0		42.1	ug/L	84.2	4.9
DPS02	Q2616394	A963806	BIS(2-CHLOROETHOXY)METHANE	0	50.0		41.8	ug/L	83.6	3.9
DPS02	Q2616394	A963806	BIS(2-CHLOROETHYL)ETHER	0	50.0		36.4	ug/L	72.8	5.9
DPS02	Q2616394	A963806	BIS(2-CHLOROISOPROPYL)ETHER	0	50.0		43	ug/L	86	5.5
DPS02	Q2616394	A963806	BIS(2-ETHYLHEXYL)PHTHALATE	0	50.0		44.5	ug/L	89	3.7
DPS02	Q2616394	A963806	4-BROMODIPHENYL ETHER	0	50.0		44.6	ug/L	89.2	8.7
DPS02	Q2616394	A963806	CARBAZOLE	0	50.0		42.1	ug/L	84.2	0.7
DPS02	Q2616394	A963806	4-CHLOROANILINE	0	50.0		34.2	ug/L	68.4	5.4
DPS02	Q2616394	A963806	2-CHLORONAPHTHALENE	0	50.0		42	ug/L	84	7.4
DPS02	Q2616394	A963806	4-CHLOROPHENYL-PHENYLETHER	0	50.0		44	ug/L	88	6.1
DPS02	Q2616394	A963806	CHRYSENE	0	50.0		43.1	ug/L	86.2	6.7
DPS02	Q2616394	A963806	DIBENZ(A,H)ANTHRACENE	0	50.0		55.9	ug/L	111.8	14.4
DPS02	Q2616394	A963806	DIBENZOFURAN	0	50.0		42.5	ug/L	85	4.1
DPS02	Q2616394	A963806	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	0	50.0		41.1	ug/L	82.2	7.8
DPS02	Q2616394	A963806	1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	0	50.0		40.6	ug/L	81.2	7.1
DPS02	Q2616394	A963806	1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	0	50.0		42	ug/L	84	7.4
DPS02	Q2616394	A963806	3,3'-DICHLOROBENZIDINE	0	50.0		5.72	ug/L	11.4	32.7
DPS02	Q2616394	A963806	DIETHYLPHTHALATE	0	50.0		43.3	ug/L	86.6	0.2
DPS02	Q2616394	A963806	DIMETHYLPHTHALATE	0	50.0		37	ug/L	74	9.3
DPS02	Q2616394	A963806	DI-N-BUTYLPHTHALATE	0	50.0		42	ug/L	84	1.2
DPS02	Q2616394	A963806	2,4-DINITROTOLUENE	0	50.0		42.5	ug/L	85	0.5
DPS02	Q2616394	A963806	2,6-DINITROTOLUENE	0	50.0		41.4	ug/L	82.8	3.2
DPS02	Q2616394	A963806	DI-N-OCTYLPHTHALATE	0	50.0		44.2	ug/L	88.4	2.5

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602697 Analyst: T PINCKERT Run Date: 17-Oct-12
Analytical Reviewer: L SMITH Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
DPS02	Q2616394	A963806	FLUORANTHENE	0	50.0		41.7	ug/L	83.4	0.7
DPS02	Q2616394	A963806	FLUORENE	0	50.0		43	ug/L	86	1.9
DPS02	Q2616394	A963806	HEXACHLOROBENZENE	0	50.0		45.7	ug/L	91.4	10.6
DPS02	Q2616394	A963806	HEXACHLOROBUTADIENE	0	50.0		41.7	ug/L	83.4	8.8
DPS02	Q2616394	A963806	HEXACHLOROCYCLOPENTADIENE	0	50.0		36.3	ug/L	72.6	12.3
DPS02	Q2616394	A963806	HEXACHLOROETHANE	0	50.0		39.3	ug/L	78.6	6.8
DPS02	Q2616394	A963806	INDENO(1,2,3-CD)PYRENE	0	50.0		53.2	ug/L	106.4	13.7
DPS02	Q2616394	A963806	ISOPHORONE	0	50.0		39.6	ug/L	79.2	2.6
DPS02	Q2616394	A963806	2-METHYLNAPHTHALENE	0	50.0		45	ug/L	90	5
DPS02	Q2616394	A963806	NAPHTHALENE	0	50.0		42.6	ug/L	85.2	6
DPS02	Q2616394	A963806	2-NITROANILINE (O-NITROANILINE)	0	50.0		39.7	ug/L	79.4	0.8
DPS02	Q2616394	A963806	3-NITROANILINE (M-NITROANILINE)	0	50.0		36.5	ug/L	73	0
DPS02	Q2616394	A963806	4-NITROANILINE (P-NITROANILINE)	0	50.0		23.5	ug/L	47	2.9
DPS02	Q2616394	A963806	NITROBENZENE	0	50.0		41.1	ug/L	82.2	4.2
DPS02	Q2616394	A963806	N-NITROSODIPHENYLAMINE	0	50.0		44	ug/L	88	9
DPS02	Q2616394	A963806	N-NITROSO-DI-N-PROPYLAMINE	0	50.0		41.9	ug/L	83.8	3.9
DPS02	Q2616394	A963806	PHENANTHRENE	0	50.0		44.4	ug/L	88.8	6
DPS02	Q2616394	A963806	2-PICOLINE (2-METHYLPYRIDINE)	0	50.0		23.2	ug/L	46.4	24.2
DPS02	Q2616394	A963806	PYRENE	0	50.0		44.7	ug/L	89.4	3.6
DPS02	Q2616394	A963806	PYRIDINE	0	50.0		17.8	ug/L	35.6	17.7
DPS02	Q2616394	A963806	1,2,4,5-TETRACHLOROBENZENE	0	50.0		44.2	ug/L	88.4	8.7
DPS02	Q2616394	A963806	1,2,4-TRICHLOROBENZENE	0	50.0		42	ug/L	84	5.9
DPS02	Q2616394	A963806	BENZOIC ACID	0	50.0		18.4	ug/L	36.8	6.8
DPS02	Q2616394	A963806	4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-CRESOL)	0	50.0		40.8	ug/L	81.6	0.2
DPS02	Q2616394	A963806	2-CHLOROPHENOL	0	50.0		38.2	ug/L	76.4	3.7
DPS02	Q2616394	A963806	2,4-DICHLOROPHENOL	0	50.0		40.3	ug/L	80.6	3.5
DPS02	Q2616394	A963806	2,4-DIMETHYLPHENOL	0	50.0		41.6	ug/L	83.2	3.9
DPS02	Q2616394	A963806	4,6-DINITRO-O-CRESOL(2-METHYL-4,6-DINITROPHEN	0	50.0		32.7	ug/L	65.4	4.7
DPS02	Q2616394	A963806	2,4-DINITROPHENOL	0	50.0		41.9	ug/L	83.8	8
DPS02	Q2616394	A963806	2-METHYLPHENOL (O-CRESOL)	0	50.0		40.9	ug/L	81.8	3.7
DPS02	Q2616394	A963806	4-METHYLPHENOL (P-CRESOL)	0	50.0		37.2	ug/L	74.4	2.4
DPS02	Q2616394	A963806	2-NITROPHENOL	0	50.0		41.9	ug/L	83.8	4.9
DPS02	Q2616394	A963806	4-NITROPHENOL	0	50.0		23.6	ug/L	47.2	10.1
DPS02	Q2616394	A963806	PENTACHLOROPHENOL	0	50.0		44.4	ug/L	88.8	1.1
DPS02	Q2616394	A963806	PHENOL	0	50.0		20.9	ug/L	41.8	0.5
DPS02	Q2616394	A963806	2,3,4,6-TETRACHLOROPHENOL	0	50.0		45.8	ug/L	91.6	0.9
DPS02	Q2616394	A963806	2,4,5-TRICHLOROPHENOL	0	50.0		41.2	ug/L	82.4	4
DPS02	Q2616394	A963806	2,4,6-TRICHLOROPHENOL	0	50.0		42.2	ug/L	84.4	5.9

Q2616615 Value reported for analytes calibrated by linear (LIN) or
Q2616615 quadratic (QDR) equations is r2 (Coef. of Determination).

R602728 Analyst: T PINCKERT Run Date: 18-Oct-12 Instrument: GC/MS SVOA
Analytical Reviewer: R SHAMP Review Date: 19-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CAL01	Q2616615		Analysis Date/Time: 17-Oct-12 10:50							

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602728 Analytical — Analyst: T PINCKERT — Reviewer: R SHAMP — Run Date: 18-Oct-12 — Review Date: 19-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CAL01	Q2616615		ACENAPHTHENE	1.0356						7.9
CAL01	Q2616615		ACENAPHTHYLENE	1.7123						9
CAL01	Q2616615		ANTHRACENE	1.0815						7.3
CAL01	Q2616615		BENZO(A)ANTHRACENE [(BENZO(A)ANTHRACENE]	1.3832						5.6
CAL01	Q2616615		BENZO(A)PYRENE	0.9278						2.8
CAL01	Q2616615		BENZO(B)FLUORANTHENE (3,4-BENZOFLUORANTHENE)	1.2274						1.8
CAL01	Q2616615		BENZO(G,H,I)PERYLENE	0.4967						10.1
CAL01	Q2616615		BENZO(K)FLUORANTHENE	0.9885						8.7
CAL01	Q2616615		BENZYL ALCOHOL	0.7803						10
CAL01	Q2616615		BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHTHALATE)	0.6509						5.1
CAL01	Q2616615		BIS(2-CHLOROETHOXY)METHANE	0.4366						8.9
CAL01	Q2616615		BIS(2-CHLOROETHYL)ETHER	1.4996						4.7
CAL01	Q2616615		BIS(2-CHLOROISOPROPYL)ETHER	2.2163						12.2
CAL01	Q2616615		BIS(2-ETHYLHEXYL)PHTHALATE	0.8868						4.7
CAL01	Q2616615		4-BROMODIPHENYL ETHER	0.2213						6.5
CAL01	Q2616615		CARBAZOLE	0.8480						5.7
CAL01	Q2616615		4-CHLOROANILINE	0.3748						11.6
CAL01	Q2616615		2-CHLORONAPHTHALENE	1.1452						10.4
CAL01	Q2616615		4-CHLOROPHENYL-PHENYLETHER	0.5805						5.2
CAL01	Q2616615		CHRYSENE	0.9918						5.3
CAL01	Q2616615		DIBENZ(A,H)ANTHRACENE	0.5528						13.7
CAL01	Q2616615		DIBENZOFURAN	1.4253						6.7
CAL01	Q2616615		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	1.4799						10.4
CAL01	Q2616615		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	1.6325						7.6
CAL01	Q2616615		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	1.5904						8.3
CAL01	Q2616615		3,3'-DICHLOROBENZIDINE	0.2379						8.1
CAL01	Q2616615		DIETHYLPHTHALATE	1.0903						9
CAL01	Q2616615		DIMETHYLPHTHALATE	1.1669						7.2
CAL01	Q2616615		DI-N-BUTYLPHTHALATE	1.2257						9.3
CAL01	Q2616615		2,4-DINITROTOLUENE	0.3460						5.9
CAL01	Q2616615		2,6-DINITROTOLUENE	0.2868						4.5
CAL01	Q2616615		DI-N-OCTYLPHTHALATE	1.8325						5
CAL01	Q2616615		FLUORANTHENE	1.0441						8.7
CAL01	Q2616615		FLUORENE	1.1120						8.1
CAL01	Q2616615		HEXACHLOROBENZENE	0.2169						4.9
CAL01	Q2616615		HEXACHLOROBUTADIENE	0.2064						4
CAL01	Q2616615		HEXACHLOROCYCLOPENTADIENE	0.4408						5.2
CAL01	Q2616615		HEXACHLOROETHANE	0.6148						10.9
CAL01	Q2616615		INDENO(1,2,3-CD)PYRENE	0.6822						10.5
CAL01	Q2616615		ISOPHORONE	0.6963						8.3
CAL01	Q2616615		2-METHYLNAPHTHALENE	0.5950						9.6
CAL01	Q2616615		NAPHTHALENE	0.9857						9.5
CAL01	Q2616615		2-NITROANILINE (O-NITROANILINE)	0.3435						3.6
CAL01	Q2616615		3-NITROANILINE (M-NITROANILINE)	0.2233						14.5

HERITAGE ENVIRONMENTAL SERVICES

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8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602728 Analyst: T PINCKERT Run Date: 18-Oct-12
Analytical Reviewer: R SHAMP Review Date: 19-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CAL01	Q2616615		4-NITROANILINE (P-NITROANILINE)	0.2188						8.6
CAL01	Q2616615		NITROBENZENE	0.3998						9.2
CAL01	Q2616615		N-NITROSODIPHENYLAMINE	0.5583						8.9
CAL01	Q2616615		N-NITROSO-DI-N-PROPYLAMINE	0.9459						12.5
CAL01	Q2616615		PHENANTHRENE	1.0866						3.8
CAL01	Q2616615		2-PICOLINE (2-METHYLPYRIDINE)	1.6276						8.2
CAL01	Q2616615		PYRENE	1.4936						8
CAL01	Q2616615		PYRIDINE	1.5614						6.5
CAL01	Q2616615		1,2,4,5-TETRACHLOROBENZENE	0.5756						9
CAL01	Q2616615		TOLUENEDIAMINE	0.0088						11.9
CAL01	Q2616615		1,2,4-TRICHLOROBENZENE	0.3475						5.2
CAL01	Q2616615		BENZOIC ACID	0.2103						13.6
CAL01	Q2616615		4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-CRESOL)	0.2828						5.7
CAL01	Q2616615		2-CHLOROPHENOL	1.3835						9
CAL01	Q2616615		2,4-DICHLOROPHENOL	0.3076						7.1
CAL01	Q2616615		2,4-DIMETHYLPHENOL	0.3592						8.5
CAL01	Q2616615		4,6-DINITRO-O-CRESOL(2-METHYL-4,6-DINITROPHEN	0.1566						4.2
CAL01	Q2616615		2,4-DINITROPHENOL	0.1527						14.3
CAL01	Q2616615		2-METHYLPHENOL (O-CRESOL)	1.1211						11.7
CAL01	Q2616615		4-METHYLPHENOL (P-CRESOL)	1.1044						14.8
CAL01	Q2616615		2-NITROPHENOL	0.2139						5.7
CAL01	Q2616615		4-NITROPHENOL	0.1199						13.7
CAL01	Q2616615		PENTACHLOROPHENOL	0.1417						6.1
CAL01	Q2616615		PHENOL	1.6264						7.2
CAL01	Q2616615		2,3,4,6-TETRACHLOROPHENOL	0.2713						6
CAL01	Q2616615		2,4,5-TRICHLOROPHENOL	0.3777						2.3
CAL01	Q2616615		2,4,6-TRICHLOROPHENOL	0.3947						3.5
CAL01	Q2616615		2-FLUOROPHENOL	1.3917						5.2
CAL01	Q2616615		PHENOL-D5	1.5447						13.2
CAL01	Q2616615		NITROBENZENE-D5	0.4163						8.1
CAL01	Q2616615		2-FLUOROBIPHENYL	1.3141						8.1
CAL01	Q2616615		2,4,6-TRIBROMOPHENOL	0.1020						4.3
CAL01	Q2616615		TERPHENYL-D14	1.0611						7.6
ICV01	Q2616616		Analysis Date/Time: 17-Oct-12 15:17							
ICV01	Q2616616		ACENAPHTHENE	50.0			52.8	ug/L	105.6	
ICV01	Q2616616		ACENAPHTHYLENE	50.0			51.6	ug/L	103.2	
ICV01	Q2616616		ANTHRACENE	50.0			52.3	ug/L	104.6	
ICV01	Q2616616		BENZO(A)ANTHRACENE [(BENZO(A)ANTHRACENE]	50.0			46	ug/L	92	
ICV01	Q2616616		BENZO(A)PYRENE	50.0			59	ug/L	118	
ICV01	Q2616616		BENZO(B)FLUORANTHENE (3,4-BENZOFLUORANTHENE)	50.0			57.2	ug/L	114.4	
ICV01	Q2616616		BENZO(G,H,I)PERYLENE	50.0			54.1	ug/L	108.2	
ICV01	Q2616616		BENZO(K)FLUORANTHENE	50.0			58.4	ug/L	116.8	
ICV01	Q2616616		BENZYL ALCOHOL	50.0			57	ug/L	114	
ICV01	Q2616616		BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHTHALATE)	50.0			54.3	ug/L	108.6	
ICV01	Q2616616		BIS(2-CHLOROETHOXY)METHANE	50.0			51	ug/L	102	

HERITAGE ENVIRONMENTAL SERVICES

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8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602728 Analyst: T PINCKERT Run Date: 18-Oct-12
Analytical Reviewer: R SHAMP Review Date: 19-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICV01	Q2616616		BIS(2-CHLOROETHYL)ETHER	50.0			50.4	ug/L	100.8	
ICV01	Q2616616		BIS(2-CHLOROISOPROPYL)ETHER	50.0			45.4	ug/L	90.8	
ICV01	Q2616616		BIS(2-ETHYLHEXYL)PHTHALATE	50.0			53.2	ug/L	106.4	
ICV01	Q2616616		4-BROMODIPHENYL ETHER	50.0			51.9	ug/L	103.8	
ICV01	Q2616616		CARBAZOLE	50.0			59.3	ug/L	118.6	
ICV01	Q2616616		4-CHLOROANILINE	50.0			50.9	ug/L	101.8	
ICV01	Q2616616		2-CHLORONAPHTHALENE	50.0			62.5	ug/L	125	
ICV01	Q2616616		4-CHLOROPHENYL-PHENYLETHER	50.0			51.1	ug/L	102.2	
ICV01	Q2616616		CHRYSENE	50.0			51.7	ug/L	103.4	
ICV01	Q2616616		DIBENZ(A,H)ANTHRACENE	50.0			56.6	ug/L	113.2	
ICV01	Q2616616		DIBENZOFURAN	50.0			52.7	ug/L	105.4	
ICV01	Q2616616		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	50.0			52.7	ug/L	105.4	
ICV01	Q2616616		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	50.0			52.4	ug/L	104.8	
ICV01	Q2616616		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	50.0			53.3	ug/L	106.6	
ICV01	Q2616616		3,3'-DICHLOROBENZIDINE	50.0			60.9	ug/L	121.8	
ICV01	Q2616616		DIETHYLPHTHALATE	50.0			50.9	ug/L	101.8	
ICV01	Q2616616		DIMETHYLPHTHALATE	50.0			42.9	ug/L	85.8	
ICV01	Q2616616		DI-N-BUTYLPHTHALATE	50.0			48.7	ug/L	97.4	
ICV01	Q2616616		2,4-DINITROTOLUENE	50.0			51.7	ug/L	103.4	
ICV01	Q2616616		2,6-DINITROTOLUENE	50.0			41.8	ug/L	83.6	
ICV01	Q2616616		DI-N-OCTYLPHTHALATE	50.0			58.5	ug/L	117	
ICV01	Q2616616		FLUORANTHENE	50.0			47.6	ug/L	95.2	
ICV01	Q2616616		FLUORENE	50.0			51.4	ug/L	102.8	
ICV01	Q2616616		HEXACHLOROBENZENE	50.0			52	ug/L	104	
ICV01	Q2616616		HEXACHLOROBUTADIENE	50.0			51.6	ug/L	103.2	
ICV01	Q2616616		HEXACHLOROCYCLOPENTADIENE	50.0		!	34.4	ug/L	68.8	
ICV01	Q2616616		HEXACHLOROETHANE	50.0			50.6	ug/L	101.2	
ICV01	Q2616616		INDENO(1,2,3-CD)PYRENE	50.0			53.8	ug/L	107.6	
ICV01	Q2616616		ISOPHORONE	50.0			49.6	ug/L	99.2	
ICV01	Q2616616		2-METHYLNAPHTHALENE	50.0			55.2	ug/L	110.4	
ICV01	Q2616616		NAPHTHALENE	50.0			51.7	ug/L	103.4	
ICV01	Q2616616		2-NITROANILINE (O-NITROANILINE)	50.0			52.1	ug/L	104.2	
ICV01	Q2616616		3-NITROANILINE (M-NITROANILINE)	50.0			60.6	ug/L	121.2	
ICV01	Q2616616		4-NITROANILINE (P-NITROANILINE)	50.0			52.9	ug/L	105.8	
ICV01	Q2616616		NITROBENZENE	50.0			52.4	ug/L	104.8	
ICV01	Q2616616		N-NITROSODIPHENYLAMINE	100			92.1	ug/L	92.1	
ICV01	Q2616616		N-NITROSO-DI-N-PROPYLAMINE	50.0			49.7	ug/L	99.4	
ICV01	Q2616616		PHENANTHRENE	50.0			51	ug/L	102	
ICV01	Q2616616		2-PICOLINE (2-METHYLPYRIDINE)	50.0			43.8	ug/L	87.6	
ICV01	Q2616616		PYRENE	50.0			58.9	ug/L	117.8	
ICV01	Q2616616		PYRIDINE	50.0			52.4	ug/L	104.8	
ICV01	Q2616616		1,2,4,5-TETRACHLOROBENZENE	50.0			55.7	ug/L	111.4	
ICV01	Q2616616		TOLUENEDIAMINE	50.0			50.3	ug/L	100.6	
ICV01	Q2616616		1,2,4-TRICHLOROBENZENE	50.0			52.2	ug/L	104.4	
ICV01	Q2616616		BENZOIC ACID	50.0			58.4	ug/L	116.8	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602728 Analyst: T PINCKERT Run Date: 18-Oct-12
Analytical Reviewer: R SHAMP Review Date: 19-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICV01	Q2616616		4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-CRESOL)	50.0			49.7	ug/L	99.4	
ICV01	Q2616616		2-CHLOROPHENOL	50.0			52.6	ug/L	105.2	
ICV01	Q2616616		2,4-DICHLOROPHENOL	50.0			49.9	ug/L	99.8	
ICV01	Q2616616		2,4-DIMETHYLPHENOL	50.0			49.8	ug/L	99.6	
ICV01	Q2616616		4,6-DINITRO-O-CRESOL(2-METHYL-4,6-DINITROPHEN	50.0			51.5	ug/L	103	
ICV01	Q2616616		2,4-DINITROPHENOL	50.0			56.6	ug/L	113.2	
ICV01	Q2616616		2-METHYLPHENOL (O-CRESOL)	50.0			54.7	ug/L	109.4	
ICV01	Q2616616		4-METHYLPHENOL (P-CRESOL)	50.0			52.3	ug/L	104.6	
ICV01	Q2616616		2-NITROPHENOL	50.0			50.9	ug/L	101.8	
ICV01	Q2616616		4-NITROPHENOL	50.0			58.2	ug/L	116.4	
ICV01	Q2616616		PENTACHLOROPHENOL	50.0			51.6	ug/L	103.2	
ICV01	Q2616616		PHENOL	50.0			53.5	ug/L	107	
ICV01	Q2616616		2,3,4,6-TETRACHLOROPHENOL	50.0			58.4	ug/L	116.8	
ICV01	Q2616616		2,4,5-TRICHLOROPHENOL	50.0			54.4	ug/L	108.8	
ICV01	Q2616616		2,4,6-TRICHLOROPHENOL	50.0			52.8	ug/L	105.6	
CCVD	Q2616817		Analysis Date/Time: 18-Oct-12 14:53							
CCVD	Q2616817		ACENAPHTHENE	1.0356			0.9944			4
CCVD	Q2616817		ACENAPHTHYLENE	1.7123			1.6198			5.4
CCVD	Q2616817		ANTHRACENE	1.0815			1.0377			4
CCVD	Q2616817		BENZO(A)ANTHRACENE [(BENZO(A)ANTHRACENE]	1.3832			1.3139			5
CCVD	Q2616817		BENZO(A)PYRENE	0.9278			0.9213			0.7
CCVD	Q2616817		BENZO(B)FLUORANTHENE (3,4-BENZOFLUORANTHENE)	1.2274			1.1814			3.7
CCVD	Q2616817		BENZO(G,H,I)PERYLENE	0.4967			0.5931			19.4
CCVD	Q2616817		BENZO(K)FLUORANTHENE	0.9885			0.9673			2.1
CCVD	Q2616817		BENZYL ALCOHOL	0.7803			0.7860			0.7
CCVD	Q2616817		BENZYLBUTYLPHTHALATE (BUTYLBENZYLPHTHALATE)	0.6509			0.6181			5
CCVD	Q2616817		BIS(2-CHLOROETHOXY)METHANE	0.4366			0.4221			3.3
CCVD	Q2616817		BIS(2-CHLOROETHYL)ETHER	1.4996			1.4211			5.2
CCVD	Q2616817		BIS(2-CHLOROISOPROPYL)ETHER	2.2163			2.1306			3.9
CCVD	Q2616817		BIS(2-ETHYLHEXYL)PHTHALATE	0.8868			0.8356			5.8
CCVD	Q2616817		4-BROMODIPHENYL ETHER	0.2213			0.2262			2.2
CCVD	Q2616817		CARBAZOLE	0.8480			0.7540			11.1
CCVD	Q2616817		4-CHLOROANILINE	0.3748			0.3674			2
CCVD	Q2616817		2-CHLORONAPHTHALENE	1.1452			1.1059			3.4
CCVD	Q2616817		4-CHLOROPHENYL-PHENYLETHER	0.5805			0.5689			2
CCVD	Q2616817		CHRYSENE	0.9918			0.9126			8
CCVD	Q2616817		DIBENZ(A,H)ANTHRACENE	0.5528			0.6488			17.4
CCVD	Q2616817		DIBENZOFURAN	1.4253			1.3782			3.3
CCVD	Q2616817		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	1.4799			1.3896			6.1
CCVD	Q2616817		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	1.6325			1.5803			3.2
CCVD	Q2616817		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	1.5904			1.5273			4
CCVD	Q2616817		3,3'-DICHLOROBENZIDINE	0.2379			0.2339			1.7
CCVD	Q2616817		DIETHYLPHTHALATE	1.0903			1.0375			4.8

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8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602728 Analytical — Analyst: T PINCKERT — Reviewer: R SHAMP — Run Date: 18-Oct-12 — Review Date: 19-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CCVD	Q2616817		DIMETHYLPHTHALATE	1.1669			0.9477			18.8
CCVD	Q2616817		DI-N-BUTYLPHTHALATE	1.2257			1.0971			10.5
CCVD	Q2616817		2,4-DINITROTOLUENE	0.3460			0.3427			1
CCVD	Q2616817		2,6-DINITROTOLUENE	0.2868			0.2940			2.5
CCVD	Q2616817		DI-N-OCTYLPHTHALATE	1.8325			1.7658			3.6
CCVD	Q2616817		FLUORANTHENE	1.0441			0.9019			13.6
CCVD	Q2616817		FLUORENE	1.1120			1.0670			4
CCVD	Q2616817		HEXACHLOROBENZENE	0.2169			0.2218			2.3
CCVD	Q2616817		HEXACHLOROBUTADIENE	0.2064			0.2042			1.1
CCVD	Q2616817		HEXACHLOROCYCLOPENTADIENE	0.4408			0.4131			6.3
CCVD	Q2616817		HEXACHLOROETHANE	0.6148			0.5796			5.7
CCVD	Q2616817		INDENO(1,2,3-CD)PYRENE	0.6822			0.7861			15.2
CCVD	Q2616817		ISOPHORONE	0.6963			0.6649			4.5
CCVD	Q2616817		2-METHYLNAPHTHALENE	0.5950			0.5653			5
CCVD	Q2616817		NAPHTHALENE	0.9857			0.9290			5.8
CCVD	Q2616817		2-NITROANILINE (O-NITROANILINE)	0.3435			0.3383			1.5
CCVD	Q2616817		3-NITROANILINE (M-NITROANILINE)	0.2233			0.2188			2
CCVD	Q2616817		4-NITROANILINE (P-NITROANILINE)	0.2188			0.2094			4.3
CCVD	Q2616817		NITROBENZENE	0.3998			0.3886			2.8
CCVD	Q2616817		N-NITROSODIPHENYLAMINE	0.5583			0.5597			0.3
CCVD	Q2616817		N-NITROSO-DI-N-PROPYLAMINE	0.9459			0.9072			4.1
CCVD	Q2616817		PHENANTHRENE	1.0866			1.0574			2.7
CCVD	Q2616817		2-PICOLINE (2-METHYLPYRIDINE)	1.6276			1.6702			2.6
CCVD	Q2616817		PYRENE	1.4936			1.4812			0.8
CCVD	Q2616817		PYRIDINE	1.5614			1.4275			8.6
CCVD	Q2616817		1,2,4,5-TETRACHLOROBENZENE	0.5756			0.5619			2.4
CCVD	Q2616817		TOLUENEDIAMINE	0.0088			0.0083			5.7
CCVD	Q2616817		1,2,4-TRICHLOROBENZENE	0.3475			0.3438			1.1
CCVD	Q2616817		BENZOIC ACID	0.2103			0.1833			12.8
CCVD	Q2616817		4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-CRESOL)	0.2828			0.2722			3.7
CCVD	Q2616817		2-CHLOROPHENOL	1.3835			1.3727			0.8
CCVD	Q2616817		2,4-DICHLOROPHENOL	0.3076			0.2955			3.9
CCVD	Q2616817		2,4-DIMETHYLPHENOL	0.3592			0.3448			4
CCVD	Q2616817		4,6-DINITRO-O-CRESOL(2-METHYL-4,6-DINITROPHEN	0.1566			0.1523			2.7
CCVD	Q2616817		2,4-DINITROPHENOL	0.1527			0.1381			9.6
CCVD	Q2616817		2-METHYLPHENOL (O-CRESOL)	1.1211			1.1065			1.3
CCVD	Q2616817		4-METHYLPHENOL (P-CRESOL)	1.1044			1.0348			6.3
CCVD	Q2616817		2-NITROPHENOL	0.2139			0.2129			0.5
CCVD	Q2616817		4-NITROPHENOL	0.1199			0.1134			5.4
CCVD	Q2616817		PENTACHLOROPHENOL	0.1417			0.1369			3.4
CCVD	Q2616817		PHENOL	1.6264			1.5762			3.1
CCVD	Q2616817		2,3,4,6-TETRACHLOROPHENOL	0.2713			0.2632			3
CCVD	Q2616817		2,4,5-TRICHLOROPHENOL	0.3777			0.3742			0.9
CCVD	Q2616817		2,4,6-TRICHLOROPHENOL	0.3947			0.3864			2.1
CCVD	Q2616817		2-FLUOROPHENOL	1.3917			1.3829			0.6
CCVD	Q2616817		PHENOL-D5	1.5447			1.5409			0.2

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8270 SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270C **O505.3**
Prep : GC/MS SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602728 Analyst: T PINCKERT Run Date: 18-Oct-12
Analytical Reviewer: R SHAMP Review Date: 19-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CCVD	Q2616817		NITROBENZENE-D5	0.4163			0.4094			1.7
CCVD	Q2616817		2-FLUOROBIPHENYL	1.3141			1.2866			2.1
CCVD	Q2616817		2,4,6-TRIBROMOPHENOL	0.1020			0.1077			5.6
CCVD	Q2616817		TERPHENYL-D14	1.0611			1.0812			1.9
SAMPLE	A964289		Analysis Date/Time: 18-Oct-12 15:31							
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		Analysis Date/Time: 18-Oct-12 16:09							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		Analysis Date/Time: 18-Oct-12 16:48							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		Analysis Date/Time: 18-Oct-12 17:26							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							

Q2616615 Value reported for analytes calibrated by linear (LIN) or
Q2616615 quadratic (QDR) equations is r2 (Coef. of Determination).
Q2616817 Value reported for analytes calibrated by linear (LIN) or quadratic (QDR)
Q2616817 equations is concentration.

ALUMINUM ICP SW846-6010B **M101.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		ALUMINUM	0.0500			0.0494	mg/L	98.8	
ICV01	Q2616103		ALUMINUM	1			1.01	mg/L	101.0	
CDL01	Q2616098		ALUMINUM	10			10.0	mg/L	100.0	
ICS-A	Q2616099		ALUMINUM	500			517	mg/L	103.4	
ICS-AB	Q2616091		ALUMINUM	500			518	mg/L	103.6	
LCCV	Q2616106		ALUMINUM	0.0500			0.0482	mg/L	96.4	
SER01	Q2616100	A963923	ALUMINUM	0.208		CNA	0.166	mg/L		

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ALUMINUM ICP SW846-6010B **M101.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CCV	Q2616121		ALUMINUM	5.00			5.10	mg/L	102.0	
BLA01	Q2616108		ALUMINUM			<	0.0200	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		ALUMINUM	5.00			5.15	mg/L	103.0	
BLA01	Q2616109		ALUMINUM			<	0.0200	mg/L		
SER01	Q2616136	A963938	ALUMINUM	1.04		CNA	1.04	mg/L		
CDL01	Q2616133		ALUMINUM	0.0500			0.0487	mg/L	97.4	
ICS-A	Q2616134		ALUMINUM	500			523	mg/L	104.6	
ICS-AB	Q2616119		ALUMINUM	500			516	mg/L	103.2	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		ALUMINUM			<	0.00288	mg/L		
LCS	Q2615742		ALUMINUM	2			1.94	mg/L	97.0	
SPI02	Q2615743	A964188	ALUMINUM	0.662	2.00		2.58	mg/L	95.9	
DPS02	Q2615744	A964188	ALUMINUM	0.662	2.00		2.37	mg/L	85.4	11.6

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

ANTIMONY ICP SW846-6010B **M102.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Prep — Analyst: K KAMARA — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 16-Oct-12 — Instrument: PREP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were

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Quality Assurance Report **63741**

ANTIMONY ICP SW846-6010B **M102.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		ANTIMONY	0.01			0.00905	mg/L	90.5	
ICV01	Q2616103		ANTIMONY	0.5			0.500	mg/L	100.0	
CDL01	Q2616096		ANTIMONY	0.120			0.120	mg/L	100.0	
ICS-AB	Q2616091		ANTIMONY	0.6			0.627	mg/L	104.5	
LCCV	Q2616106		ANTIMONY	0.01			0.00946	mg/L	94.6	
SER01	Q2616100	A963923	ANTIMONY	0		BDL		mg/L		
CCV	Q2616121		ANTIMONY	1			1.02	mg/L	102.0	
BLA01	Q2616108		ANTIMONY			<	0.00400	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		ANTIMONY	1			1.03	mg/L	103.0	
BLA01	Q2616109		ANTIMONY			<	0.00400	mg/L		
SER01	Q2616136	A963938	ANTIMONY	0		BDL		mg/L		
CDL01	Q2616133		ANTIMONY	0.01			0.00880	mg/L	88.0	
ICS-AB	Q2616119		ANTIMONY	0.6			0.620	mg/L	103.3	
Q2616100	1:5 Dilution.									
Q2616100	There was possible matrix interference for K and Na									
Q2616100	as indicated by the serial dilution results.									
Q2616136	1:5 Dilution.									
Q2616136	There was possible matrix interference for K									
Q2616136	as indicated by the serial dilution results.									

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		ANTIMONY			<	0.00288	mg/L		
LCS	Q2615742		ANTIMONY	0.5			0.477	mg/L	95.4	
SPI02	Q2615743	A964188	ANTIMONY	0	0.500		0.490	mg/L	98.0	
DPS02	Q2615744	A964188	ANTIMONY	0	0.500		0.449	mg/L	89.8	8.7
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

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ARSENIC TRACE ICP SW846-6010B **M103.0**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Prep — Analyst: K KAMARA — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 16-Oct-12 — Instrument: PREP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: TRACE ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICV01	Q2616103		ARSENIC	1			0.984	mg/L	98.4	
CDL01	Q2616098		ARSENIC	10			10.00	mg/L	100.0	
ICS-AB	Q2616091		ARSENIC	0.1			0.0981	mg/L	98.1	
SER01	Q2616100	A963923	ARSENIC	0		BDL		mg/L		
CCV	Q2616121		ARSENIC	2			2.00	mg/L	100.0	
BLA01	Q2616108		ARSENIC			<	0.00200	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		ARSENIC	2			2.01	mg/L	100.5	
BLA01	Q2616109		ARSENIC			<	0.00200	mg/L		
SER01	Q2616136	A963938	ARSENIC	0		CNA	0.00896	mg/L		
CDL01	Q2616132		ARSENIC	0.02			0.0108	mg/L	54.0	
ICS-AB	Q2616119		ARSENIC	0.1			0.0932	mg/L	93.2	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: TRACE ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		ARSENIC			<	0.000920	mg/L		
LCS	Q2615742		ARSENIC	2			1.90	mg/L	95.0	
SPI02	Q2615743	A964188	ARSENIC	0	2		1.96	mg/L	98.0	
DPS02	Q2615744	A964188	ARSENIC	0	2		1.79	mg/L	89.5	9.1

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ARSENIC TRACE ICP SW846-6010B **M103.0**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602629 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

BARIUM ICP SW846-6010B **M104.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		BARIUM	0.0100			0.0104	mg/L	104.0	
ICV01	Q2616103		BARIUM	1			1.03	mg/L	103.0	
CDL01	Q2616098		BARIUM	10			10.1	mg/L	101.0	
ICS-AB	Q2616091		BARIUM	0.500			0.516	mg/L	103.2	
LCCV	Q2616106		BARIUM	0.0100			0.0103	mg/L	103.0	
SER01	Q2616100	A963923	BARIUM	0.115			0.104	mg/L		10.0
CCV	Q2616121		BARIUM	5.00			5.07	mg/L	101.4	
BLA01	Q2616108		BARIUM			<	0.000800	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		BARIUM	5.00			5.12	mg/L	102.4	
BLA01	Q2616109		BARIUM			<	0.000800	mg/L		
SER01	Q2616136	A963938	BARIUM	0.227			0.234	mg/L		3.0
CDL01	Q2616133		BARIUM	0.0100			0.0102	mg/L	102.0	
ICS-AB	Q2616119		BARIUM	0.500			0.510	mg/L	102.0	

Q2616100 1:5 Dilution.

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

BARIUM ICP SW846-6010B **M104.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2616100	There was possible matrix interference for K and Na									
Q2616100	as indicated by the serial dilution results.									
Q2616136	1:5 Dilution.									
Q2616136	There was possible matrix interference for K									
Q2616136	as indicated by the serial dilution results.									

R602629 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		BARIUM			<	0.000038	mg/L		
LCS	Q2615742		BARIUM	2			1.88	mg/L	94.0	
SPI02	Q2615743	A964188	BARIUM	0.135	2.00		2.01	mg/L	93.8	
DPS02	Q2615744	A964188	BARIUM	0.135	2.00		1.84	mg/L	85.2	9.6
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

BERYLLIUM ICP SW846-6010B **M105.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Prep — Analyst: K KAMARA — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 16-Oct-12 — Instrument: PREP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		BERYLLIUM	0.004			0.00392	mg/L	98.0	
ICV01	Q2616103		BERYLLIUM	1			1.02	mg/L	102.0	
CDL01	Q2616098		BERYLLIUM	10			10.1	mg/L	101.0	
ICS-AB	Q2616091		BERYLLIUM	0.500			0.545	mg/L	109.0	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

BERYLLIUM ICP SW846-6010B **M105.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LCCV	Q2616106		BERYLLIUM	0.004			0.00390	mg/L	97.5	
SER01	Q2616100	A963923	BERYLLIUM	0		BDL		mg/L		
CCV	Q2616121		BERYLLIUM	2			2.05	mg/L	102.5	
BLA01	Q2616108		BERYLLIUM			<	0.000400	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		BERYLLIUM	2			2.07	mg/L	103.5	
BLA01	Q2616109		BERYLLIUM			<	0.000400	mg/L		
SER01	Q2616136	A963938	BERYLLIUM	0		BDL		mg/L		
CDL01	Q2616133		BERYLLIUM	0.004			0.00390	mg/L	97.5	
ICS-AB	Q2616119		BERYLLIUM	0.500			0.545	mg/L	109.0	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		BERYLLIUM			<	0.000024	mg/L		
LCS	Q2615742		BERYLLIUM	0.05			0.0490	mg/L	98.0	
SPI02	Q2615743	A964188	BERYLLIUM	0	0.050		0.0505	mg/L	101.0	
DPS02	Q2615744	A964188	BERYLLIUM	0	0.050		0.0462	mg/L	92.4	8.9

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

CADMIUM ICP SW846-6010B **M108.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

CADMIUM ICP SW846-6010B **M108.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		CADMIUM	0.0050			0.00515	mg/L	103.0	
ICV01	Q2616103		CADMIUM	1			1.02	mg/L	102.0	
CDL01	Q2616098		CADMIUM	10			10.1	mg/L	101.0	
ICS-AB	Q2616091		CADMIUM	1.00			1.08	mg/L	108.0	
LCCV	Q2616106		CADMIUM	0.0050			0.00484	mg/L	96.8	
SER01	Q2616100	A963923	CADMIUM	0		BDL		mg/L		
CCV	Q2616121		CADMIUM	5.00			5.08	mg/L	101.6	
BLA01	Q2616108		CADMIUM			<	0.000400	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		CADMIUM	5.00			5.12	mg/L	102.4	
BLA01	Q2616109		CADMIUM			<	0.000400	mg/L		
SER01	Q2616136	A963938	CADMIUM	0		BDL		mg/L		
CDL01	Q2616133		CADMIUM	0.0050			0.00501	mg/L	100.2	
ICS-AB	Q2616119		CADMIUM	1.00			1.06	mg/L	106.0	
Q2616100	1:5 Dilution.									
Q2616100	There was possible matrix interference for K and Na									
Q2616100	as indicated by the serial dilution results.									
Q2616136	1:5 Dilution.									
Q2616136	There was possible matrix interference for K									
Q2616136	as indicated by the serial dilution results.									

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		CADMIUM			<	0.000156	mg/L		
LCS	Q2615742		CADMIUM	0.05			0.0485	mg/L	97.0	
SPI02	Q2615743	A964188	CADMIUM	0	0.050		0.0502	mg/L	100.4	
DPS02	Q2615744	A964188	CADMIUM	0	0.050		0.0457	mg/L	91.4	9.4
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

CALCIUM ICP SW846-6010B **M109.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		CALCIUM	0.1			0.102	mg/L	102.0	
ICV01	Q2616103		CALCIUM	20			21.0	mg/L	105.0	
CDL01	Q2616097		CALCIUM	0.1			0.102	mg/L	102.0	
ICS-A	Q2616099		CALCIUM	500			481	mg/L	96.2	
ICS-AB	Q2616091		CALCIUM	500			480	mg/L	96.0	
LCCV	Q2616106		CALCIUM	0.1			0.116	mg/L	116.0	
SER01	Q2616100	A963923	CALCIUM	244			224	mg/L		8.5
CCV	Q2616121		CALCIUM	50.0			50.0	mg/L	100.0	
BLA01	Q2616108		CALCIUM			<	0.0400	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		CALCIUM	50.0			50.4	mg/L	100.8	
BLA01	Q2616109		CALCIUM			<	0.0400	mg/L		
SER01	Q2616136	A963938	CALCIUM	165			170	mg/L		3.0
CDL01	Q2616133		CALCIUM	0.1			0.0948	mg/L	94.8	
ICS-A	Q2616134		CALCIUM	500			474	mg/L	94.8	
ICS-AB	Q2616119		CALCIUM	500			471	mg/L	94.2	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

CALCIUM ICP SW846-6010B **M109.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602629 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		CALCIUM			<	0.00364	mg/L		
LCS	Q2615742		CALCIUM	100			90.9	mg/L	90.9	
SPI02	Q2615743	A964188	CALCIUM	153	100		232	mg/L	79.0	
DPS02	Q2615744	A964188	CALCIUM	153	100		210	mg/L	57.0	32.4

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

CHROMIUM ICP SW846-6010B **M110.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		CHROMIUM	0.0100			0.0106	mg/L	106.0	
ICV01	Q2616103		CHROMIUM	1			0.994	mg/L	99.4	
CDL01	Q2616098		CHROMIUM	10			10.0	mg/L	100.0	
ICS-AB	Q2616091		CHROMIUM	0.500			0.478	mg/L	95.6	
LCCV	Q2616106		CHROMIUM	0.0100			0.0113	mg/L	113.0	
SER01	Q2616100	A963923	CHROMIUM	0		BDL		mg/L		
CCV	Q2616121		CHROMIUM	5.00			4.90	mg/L	98.0	
BLA01	Q2616108		CHROMIUM				0.00110	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		CHROMIUM	5.00			4.93	mg/L	98.6	
BLA01	Q2616109		CHROMIUM			<	0.000800	mg/L		

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

CHROMIUM ICP SW846-6010B **M110.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SER01	Q2616136	A963938	CHROMIUM	0		CNA	0.00397	mg/L		
CDL01	Q2616133		CHROMIUM	0.0100			0.00876	mg/L	87.6	
ICS-AB	Q2616119		CHROMIUM	0.500			0.468	mg/L	93.6	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		CHROMIUM				0.000155	mg/L		
LCS	Q2615742		CHROMIUM	0.2			0.182	mg/L	91.0	
SPI02	Q2615743	A964188	CHROMIUM	0.00182	0.200		0.183	mg/L	90.6	
DPS02	Q2615744	A964188	CHROMIUM	0.00182	0.200		0.168	mg/L	83.1	8.6

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

COBALT ICP SW846-6010B **M111.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD

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Quality Assurance Report 63741

COBALT ICP SW846-6010B **M111.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		COBALT	0.0100			0.00984	mg/L	98.4	
ICV01	Q2616103		COBALT	1			1.00	mg/L	100.0	
CDL01	Q2616098		COBALT	10			10.0	mg/L	100.0	
ICS-AB	Q2616091		COBALT	0.500			0.465	mg/L	93.0	
LCCV	Q2616106		COBALT	0.0100			0.00953	mg/L	95.3	
SER01	Q2616100	A963923	COBALT	0		BDL		mg/L		
CCV	Q2616121		COBALT	5.00			4.87	mg/L	97.4	
BLA01	Q2616108		COBALT			<	0.000800	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		COBALT	5.00			4.91	mg/L	98.2	
BLA01	Q2616109		COBALT			<	0.000800	mg/L		
SER01	Q2616136	A963938	COBALT	0		BDL		mg/L		
CDL01	Q2616133		COBALT	0.0100			0.00985	mg/L	98.5	
ICS-AB	Q2616119		COBALT	0.500			0.455	mg/L	91.0	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		COBALT				0.000240	mg/L		
LCS	Q2615742		COBALT	0.5			0.455	mg/L	91.0	
SPI02	Q2615743	A964188	COBALT	0.00164	0.500		0.455	mg/L	90.7	
DPS02	Q2615744	A964188	COBALT	0.00164	0.500		0.417	mg/L	83.1	8.7

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

COPPER ICP SW846-6010B **M112.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

COPPER ICP SW846-6010B **M112.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		COPPER	0.01			0.0104	mg/L	104.0	
ICV01	Q2616103		COPPER	1			1.02	mg/L	102.0	
CDL01	Q2616098		COPPER	10			10.0	mg/L	100.0	
ICS-AB	Q2616091		COPPER	0.500			0.562	mg/L	112.4	
LCCV	Q2616106		COPPER	0.01			0.0104	mg/L	104.0	
SER01	Q2616100	A963923	COPPER	0		BDL		mg/L		
CCV	Q2616121		COPPER	5.00			5.14	mg/L	102.8	
BLA01	Q2616108		COPPER			<	0.00400	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		COPPER	5.00			5.20	mg/L	104.0	
BLA01	Q2616109		COPPER			<	0.00400	mg/L		
SER01	Q2616136	A963938	COPPER	0		BDL		mg/L		
CDL01	Q2616133		COPPER	0.01			0.0104	mg/L	104.0	
ICS-AB	Q2616119		COPPER	0.500			0.563	mg/L	112.6	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		COPPER			<	0.000188	mg/L		
LCS	Q2615742		COPPER	0.25			0.243	mg/L	97.2	
SPI02	Q2615743	A964188	COPPER	0.00409	0.250		0.250	mg/L	98.4	
DPS02	Q2615744	A964188	COPPER	0.00409	0.250		0.229	mg/L	90.0	8.9

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,

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COPPER ICP SW846-6010B **M112.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602629 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

CYANIDE, TOTAL (AUTOMATED) SW846-9012B **G101.4**
Prep : CYANIDE DISTILLATION SW846-9012B

R602711 Analytical — Analyst: S BOXUM — Reviewer: P SPENCE — Run Date: 16-Oct-12 — Review Date: 19-Oct-12 — Instrument: AUTO-ANALYZER

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CDL01	Q2616706		CYANIDE	0.00500			0.00620	mg/L	124.0	
ICV01	Q2616707		CYANIDE	0.150			0.136	mg/L	90.7	
BLA02	Q2616715		CYANIDE			BDL	0.005	mg/L		
LFB02L	Q2616716		CYANIDE	0.100			0.0935	mg/L	93.5	
LFB02H	Q2616717		CYANIDE	0.25			0.246	mg/L	98.4	
SPI02	Q2616718	A963938	CYANIDE	0	0.25		0.252	mg/L	100.8	
DPS02	Q2616719	A963938	CYANIDE	0	0.25		0.248	mg/L	99.2	1.6
CCV	Q2616720		CYANIDE	0.100			0.0983	mg/L	98.3	
BLA01	Q2616721		CYANIDE			BDL	0.005	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616722		CYANIDE	0.100			0.0957	mg/L	95.7	
BLA01	Q2616723		CYANIDE			BDL	0.005	mg/L		

R602753 Prep — Analyst: S BOXUM — Reviewer: P SPENCE — Run Date: 16-Oct-12 — Review Date: 19-Oct-12 — Instrument: PREP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2616715		Analytical Run: R602711							
LFB02L	Q2616716		Analytical Run: R602711							
LFB02H	Q2616717		Analytical Run: R602711							
SPI02	Q2616718		Analytical Run: R602711							
DPS02	Q2616719		Analytical Run: R602711							
SAMPLE	A964289	Rep: 0	Analytical Run: R602711							
SAMPLE	A964290	Rep: 0	Analytical Run: R602711							
SAMPLE	A964291	Rep: 0	Analytical Run: R602711							
SAMPLE	A964292	Rep: 0	Analytical Run: R602711							

HEXAVALENT CHROMIUM SW846-7196A **M110.6**

R602535 Analytical — Analyst: J SMITH — Reviewer: P SPENCE — Run Date: 15-Oct-12 — Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CDL01	Q2615268		HEXAVALENT CHROMIUM	0.00500			0.00466	mg/L	93.2	
ICV01	Q2615269		HEXAVALENT CHROMIUM	0.250			0.249	mg/L	99.6	

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Quality Assurance Report 63741

HEXAVALENT CHROMIUM SW846-7196A M110.6

R602535 Analyst: J SMITH Run Date: 15-Oct-12
Analytical Reviewer: P SPENCE Review Date: 16-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SPI01	Q2615270	A964206	HEXAVALENT CHROMIUM	0	1.00		0.948	mg/L	94.8	
DPS01	Q2615271	A964206	HEXAVALENT CHROMIUM	0	1.00		0.981	mg/L	98.1	3.4
BLA01	Q2615488		HEXAVALENT CHROMIUM			BDL	0.01	mg/L		
CCV	Q2615489		HEXAVALENT CHROMIUM	0.250			0.253	mg/L	101.2	
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
CCV	Q2615490		HEXAVALENT CHROMIUM	0.250			0.244	mg/L	97.6	
BLA01	Q2615491		HEXAVALENT CHROMIUM			BDL	0.01	mg/L		

Q2615270 1:5 Dilution.
Q2615270 Dilution due to suspected matrix interference.
Q2615271 1:5 Dilution.
Q2615271 Dilution due to suspected matrix interference.

IRON ICP SW846-6010B M115.3
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		IRON	0.02			0.0201	mg/L	100.5	
ICV01	Q2616103		IRON	1			1.00	mg/L	100.0	
CDL01	Q2616098		IRON	10			10.0	mg/L	100.0	
ICS-A	Q2616099		IRON	200			189	mg/L	94.5	
ICS-AB	Q2616091		IRON	200			189	mg/L	94.5	
LCCV	Q2616106		IRON	0.02			0.0198	mg/L	99.0	
SER01	Q2616100	A963923	IRON	0.370		CNA	0.335	mg/L		
CCV	Q2616121		IRON	5.00			4.90	mg/L	98.0	
BLA01	Q2616108		IRON			<	0.00800	mg/L		

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IRON ICP SW846-6010B **M115.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		IRON	5.00			4.95	mg/L	99.0	
BLA01	Q2616109		IRON			<	0.00800	mg/L		
SER01	Q2616136	A963938	IRON	3.93			4.07	mg/L		3.5
CDL01	Q2616133		IRON	0.02			0.0194	mg/L	97.0	
ICS-A	Q2616134		IRON	200			189	mg/L	94.5	
ICS-AB	Q2616119		IRON	200			187	mg/L	93.5	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		IRON			<	0.00120	mg/L		
LCS	Q2615742		IRON	1			0.922	mg/L	92.2	
SPI02	Q2615743	A964188	IRON	1.20	1.00		2.02	mg/L	82.0	
DPS02	Q2615744	A964188	IRON	1.20	1.00		1.83	mg/L	63.0	26.2

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

LEAD TRACE ICP SW846-6010B **M116.0**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Prep — Analyst: K KAMARA — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 16-Oct-12 — Instrument: PREP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

LEAD TRACE ICP SW846-6010B **M116.0**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: TRACE ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		LEAD	0.01			0.00942	mg/L	94.2	
ICV01	Q2616103		LEAD	1			1.01	mg/L	101.0	
CDL01	Q2616098		LEAD	10			10.1	mg/L	101.0	
ICS-AB	Q2616091		LEAD	1.00			0.976	mg/L	97.6	
LCCV	Q2616106		LEAD	0.01			0.0101	mg/L	101.0	
SER01	Q2616100	A963923	LEAD	0		BDL		mg/L		
CCV	Q2616121		LEAD	5.00			4.85	mg/L	97.0	
BLA01	Q2616108		LEAD			<	0.00200	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		LEAD	5.00			4.88	mg/L	97.6	
BLA01	Q2616109		LEAD			<	0.00200	mg/L		
SER01	Q2616136	A963938	LEAD	0		BDL		mg/L		
CDL01	Q2616133		LEAD	0.01			0.00961	mg/L	96.1	
ICS-AB	Q2616119		LEAD	1.00			0.955	mg/L	95.5	
Q2616100	1:5 Dilution.									
Q2616100	There was possible matrix interference for K and Na									
Q2616100	as indicated by the serial dilution results.									
Q2616136	1:5 Dilution.									
Q2616136	There was possible matrix interference for K									
Q2616136	as indicated by the serial dilution results.									

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: TRACE ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		LEAD			<	0.000720	mg/L		
LCS	Q2615742		LEAD	0.5			0.456	mg/L	91.2	
SPI02	Q2615743	A964188	LEAD	0.00231	0.500		0.454	mg/L	90.3	
DPS02	Q2615744	A964188	LEAD	0.00231	0.500		0.419	mg/L	83.3	8.1
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

LEAD TRACE ICP SW846-6010B **M116.0**
Prep : FIELD FILTRATION SAS

R602910 Analyst: V PATEL Run Date: 23-Oct-12 Instrument: TRACE ICP
Analytical Reviewer: S ENDERSEN Review Date: 24-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2618291		LEAD	0.005			0.00529	mg/L	105.8	
ICV01	Q2618290		LEAD	1			1.01	mg/L	101.0	
CDL01	Q2618284		LEAD	10			10.0	mg/L	100.0	
ICS-AB	Q2618279		LEAD	1.00			0.998	mg/L	99.8	
DPS01	Q2618286	A964495	LEAD	0	0.5		0.475	mg/L	95.0	1.9
LCCV	Q2618293		LEAD	0.005			0.00411	mg/L	82.2	
CCV	Q2618305		LEAD	5.00			4.99	mg/L	99.8	
BLA01	Q2618294		LEAD			<	0.00200	mg/L		
SER01	Q2618319	A964289	LEAD	0		BDL		mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 1							
DUP01	Q2618304	A964289	LEAD	0		BDL		mg/L		
SPI01	Q2618314	A964289	LEAD	0	0.500		0.488	mg/L	97.6	
CCV	Q2618306		LEAD	5.00			5.00	mg/L	100.0	
BLA01	Q2618295		LEAD			<	0.00200	mg/L		
SAMPLE	A964290		See Certificate of Analysis, Rep: 1							
SAMPLE	A964291		See Certificate of Analysis, Rep: 1							
SAMPLE	A964292		See Certificate of Analysis, Rep: 1							
CCV	Q2618307		LEAD	5.00			5.02	mg/L	100.4	
BLA01	Q2618296		LEAD			<	0.00200	mg/L		
SER01	Q2618318	A963779	LEAD	0		BDL		mg/L		
DUP02	Q2615351	A963779	LEAD	0		BDL		mg/L		
SPI02	Q2615352	A963779	LEAD	0	0.5		0.496	mg/L	99.2	
DPS02	Q2616325	A964349	LEAD	5.79	50		51.0	mg/L	90.4	0
CDL01	Q2618316		LEAD	0.005			0.00405	mg/L	81.0	
ICS-AB	Q2618303		LEAD	1.00			0.993	mg/L	99.3	

Q2616325 1:100 Dilution.

MAGNESIUM ICP SW846-6010B **M118.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

MAGNESIUM ICP SW846-6010B **M118.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		MAGNESIUM	0.1			0.100	mg/L	100.0	
ICV01	Q2616103		MAGNESIUM	20			20.9	mg/L	104.5	
CDL01	Q2616097		MAGNESIUM	0.1			0.102	mg/L	102.0	
ICS-A	Q2616099		MAGNESIUM	500			506	mg/L	101.2	
ICS-AB	Q2616091		MAGNESIUM	500			505	mg/L	101.0	
LCCV	Q2616106		MAGNESIUM	0.1			0.0995	mg/L	99.5	
SER01	Q2616100	A963923	MAGNESIUM	62.7			55.9	mg/L		11.5
CCV	Q2616121		MAGNESIUM	50.0			48.5	mg/L	97.0	
BLA01	Q2616108		MAGNESIUM			<	0.0400	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		MAGNESIUM	50.0			48.8	mg/L	97.6	
BLA01	Q2616109		MAGNESIUM			<	0.0400	mg/L		
SER01	Q2616136	A963938	MAGNESIUM	52.0			52.8	mg/L		1.5
CDL01	Q2616133		MAGNESIUM	0.1			0.0962	mg/L	96.2	
ICS-A	Q2616134		MAGNESIUM	500			500	mg/L	100.0	
ICS-AB	Q2616119		MAGNESIUM	500			495	mg/L	99.0	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		MAGNESIUM				0.00190	mg/L		
LCS	Q2615742		MAGNESIUM	100			92.7	mg/L	92.7	
SPI02	Q2615743	A964188	MAGNESIUM	43.4	100		135	mg/L	91.6	
DPS02	Q2615744	A964188	MAGNESIUM	43.4	100		123	mg/L	79.6	14.0

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

MANGANESE ICP SW846-6010B **M119.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		MANGANESE	0.0100			0.00989	mg/L	98.9	
ICV01	Q2616103		MANGANESE	1			0.996	mg/L	99.6	
CDL01	Q2616098		MANGANESE	10			10.0	mg/L	100.0	
ICS-AB	Q2616091		MANGANESE	0.500			0.479	mg/L	95.8	
LCCV	Q2616106		MANGANESE	0.0100			0.00977	mg/L	97.7	
SER01	Q2616100	A963923	MANGANESE	0.0712			0.0649	mg/L		9.2
CCV	Q2616121		MANGANESE	5.00			4.89	mg/L	97.8	
BLA01	Q2616108		MANGANESE			<	0.000800	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		MANGANESE	5.00			4.93	mg/L	98.6	
BLA01	Q2616109		MANGANESE			<	0.000800	mg/L		
SER01	Q2616136	A963938	MANGANESE	0.155			0.158	mg/L		1.9
CDL01	Q2616133		MANGANESE	0.0100			0.00958	mg/L	95.8	
ICS-AB	Q2616119		MANGANESE	0.500			0.473	mg/L	94.6	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		MANGANESE			<	0.000140	mg/L		
LCS	Q2615742		MANGANESE	0.5			0.451	mg/L	90.2	

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Quality Assurance Report **63741**

MANGANESE ICP SW846-6010B **M119.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602629 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SPI02	Q2615743	A964188	MANGANESE	0.479	0.500		0.894	mg/L	83.0	
DPS02	Q2615744	A964188	MANGANESE	0.479	0.500		0.813	mg/L	66.8	21.6

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

MERCURY CVAA SW846-7470A **M120.1**
Prep : MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

R603096 Analyst: W WATNESS Run Date: 29-Oct-12 Instrument: PREP
Prep Reviewer: S O'NEAL Review Date: 30-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LCS	Q2619643		Analytical Run: R603194							
BLA02	Q2619644		Analytical Run: R603194							
SAMPLE	A964289	Rep: 0	Analytical Run: R603194							
SPI02	Q2619645		Analytical Run: R603194							
DPS02	Q2619646		Analytical Run: R603194							
SPI01	Q2619648		Analytical Run: R603194							
SAMPLE	A964290	Rep: 0	Analytical Run: R603194							
SAMPLE	A964291	Rep: 0	Analytical Run: R603194							
SAMPLE	A964292	Rep: 0	Analytical Run: R603194							
SPI03	Q2619649		Analytical Run: R603194							
DPS03	Q2619650		Analytical Run: R603194							

R603194 Analyst: S O'NEAL Run Date: 30-Oct-12 Instrument: CVAA
Analytical Reviewer: S ENDERSEN Review Date: 31-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICV01	Q2620510		MERCURY	0.002			0.00199	mg/L	99.5	
CCV	Q2620511		MERCURY	0.003			0.00294	mg/L	98.0	
BLA01	Q2620526		MERCURY			<	0.000080	mg/L		
CDL01	Q2620540		MERCURY	0.0002			0.000201	mg/L	100.5	
LCS	Q2619643		MERCURY	0.002			0.00194	mg/L	97.0	
BLA02	Q2619644		MERCURY			<	0.000080	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SPI02	Q2619645	A964289	MERCURY	0	0.001		0.000987	mg/L	98.7	
DPS02	Q2619646	A964289	MERCURY	0	0.001		0.000974	mg/L	97.4	1.3
SER01	Q2619647	A964289	MERCURY	0		BDL		mg/L		
SPI01	Q2619648	A964289	MERCURY	0	0.002		0.00193	mg/L	96.5	
CCV	Q2620512		MERCURY	0.003			0.00300	mg/L	100.0	
BLA01	Q2620527		MERCURY			<	0.000080	mg/L		
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2620513		MERCURY	0.003			0.00291	mg/L	97.0	
BLA01	Q2620528		MERCURY			<	0.000080	mg/L		

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

MERCURY CVAA SW846-7470A **M120.1**
Prep : MERCURY CVAA ACID DIGESTION OF AQUEOUS SAMPLES SW846-7470A

R603194 Analytical — Analyst: S O'NEAL — Reviewer: S ENDERSEN — Run Date: 30-Oct-12 — Review Date: 31-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SPI03	Q2619649	A965224	MERCURY	0	0.02		0.0154	mg/L	77.0	
DPS03	Q2619650	A965224	MERCURY	0	0.02		0.0158	mg/L	79.0	2.6
CDL01	Q2620541		MERCURY	0.0002			0.000228	mg/L	114.0	
SER01	Q2619620	A963891	MERCURY	0		BDL		mg/L		

Q2619620 1:5 Dilution.

NICKEL ICP SW846-6010B **M122.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Prep — Analyst: K KAMARA — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 16-Oct-12 — Instrument: PREP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		NICKEL	0.005			0.00493	mg/L	98.6	
ICV01	Q2616103		NICKEL	1			1.01	mg/L	101.0	
CDL01	Q2616098		NICKEL	10			10.1	mg/L	101.0	
ICS-AB	Q2616091		NICKEL	1.00			0.927	mg/L	92.7	
LCCV	Q2616106		NICKEL	0.005			0.00510	mg/L	102.0	
SER01	Q2616100	A963923	NICKEL	0.00591		CNA	0.00798	mg/L		
CCV	Q2616121		NICKEL	5.00			4.88	mg/L	97.6	
BLA01	Q2616108		NICKEL			<	0.00200	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		NICKEL	5.00			4.91	mg/L	98.2	
BLA01	Q2616109		NICKEL			<	0.00200	mg/L		
SER01	Q2616136	A963938	NICKEL	0		BDL		mg/L		
CDL01	Q2616133		NICKEL	0.005			0.00499	mg/L	99.8	
ICS-AB	Q2616119		NICKEL	1.00			0.906	mg/L	90.6	

Q2616100 1:5 Dilution.

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

NICKEL ICP SW846-6010B **M122.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2616100	There was possible matrix interference for K and Na									
Q2616100	as indicated by the serial dilution results.									
Q2616136	1:5 Dilution.									
Q2616136	There was possible matrix interference for K									
Q2616136	as indicated by the serial dilution results.									

R602629 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		NICKEL			<	0.000264	mg/L		
LCS	Q2615742		NICKEL	0.5			0.458	mg/L	91.6	
SPI02	Q2615743	A964188	NICKEL	0.00655	0.500		0.460	mg/L	90.7	
DPS02	Q2615744	A964188	NICKEL	0.00655	0.500		0.422	mg/L	83.1	8.7
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

ORGANOCHLORINE PESTICIDES BY GC:ECD SW846-8081 **O164.1**
Prep : GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602615 Prep — Analyst: T WATSON — Reviewer: E WERNZ — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: PREP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2616059		Analytical Run: R602656							
LCS	Q2616060		Analytical Run: R602656							
DLCS	Q2616061		Analytical Run: R602656							
SAMPLE	A964289	Rep: 0	Analytical Run: R602656							
SAMPLE	A964290	Rep: 0	Analytical Run: R602656							
SAMPLE	A964291	Rep: 0	Analytical Run: R602656							
SAMPLE	A964292	Rep: 0	Analytical Run: R602656							

R602656 Analytical — Analyst: T WATSON — Reviewer: E WERNZ — Run Date: 16-Oct-12 — Review Date: 18-Oct-12 — Instrument: GC/ECD

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CAL01	Q2616349		ALPHA-BHC							8.14
CAL01	Q2616349		BETA-BHC							8.18
CAL01	Q2616349		DELTA-BHC							9.62
CAL01	Q2616349		GAMMA-BHC (LINDANE)							8.54
CAL01	Q2616349		HEPTACHLOR							8.43
CAL01	Q2616349		ALDRIN							3.75
CAL01	Q2616349		HEPTACHLOR EPOXIDE							4.47
CAL01	Q2616349		ENDOSULFAN I							4.89
CAL01	Q2616349		DIELDRIN							5.13
CAL01	Q2616349		4,4'-DDE							2.92

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

ORGANOCHLORINE PESTICIDES BY GC:ECD SW846-8081 **O164.1**
Prep : GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602656 Analyst: T WATSON Run Date: 16-Oct-12
Analytical Reviewer: E WERNZ Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CAL01	Q2616349		ENDRIN							5.15
CAL01	Q2616349		ENDOSULFAN II							5.85
CAL01	Q2616349		4,4'-DDD							8.34
CAL01	Q2616349		ENDOSULFAN SULFATE							5.60
CAL01	Q2616349		4,4'-DDT			LIN				1.00
CAL01	Q2616349		METHOXYCHLOR							12.84
CAL01	Q2616349		ENDRIN KETONE							9.02
CAL01	Q2616349		ENDRIN ALDEHYDE							8.95
CAL01	Q2616349		ALPHA-CHLORDANE							6.17
CAL01	Q2616349		GAMMA-CHLORDANE							7.14
CAL01	Q2616349		DECACHLOROBIPHENYL (DCB)							3.83
ICV01	Q2616350		ALPHA-BHC	50.0			49.6	ug/L	99.2	
ICV01	Q2616350		BETA-BHC	50.0			50.1	ug/L	100.2	
ICV01	Q2616350		DELTA-BHC	50.0			51.3	ug/L	102.6	
ICV01	Q2616350		GAMMA-BHC (LINDANE)	50.0			52.6	ug/L	105.2	
ICV01	Q2616350		HEPTACHLOR	50.0			54.3	ug/L	108.6	
ICV01	Q2616350		ALDRIN	50.0			50.2	ug/L	100.4	
ICV01	Q2616350		HEPTACHLOR EPOXIDE	50.0			51.4	ug/L	102.8	
ICV01	Q2616350		ENDOSULFAN I	50.0			50.1	ug/L	100.2	
ICV01	Q2616350		DIELDRIN	50.0			51.5	ug/L	103.0	
ICV01	Q2616350		4,4'-DDE	50.0			51.1	ug/L	102.2	
ICV01	Q2616350		ENDRIN	50.0			48.4	ug/L	96.8	
ICV01	Q2616350		ENDOSULFAN II	50.0			53.2	ug/L	106.4	
ICV01	Q2616350		4,4'-DDD	50.0			51.8	ug/L	103.6	
ICV01	Q2616350		ENDOSULFAN SULFATE	50.0			53.4	ug/L	106.8	
ICV01	Q2616350		4,4'-DDT	50.0			50.2	ug/L	100.4	
ICV01	Q2616350		METHOXYCHLOR	50.0			52.5	ug/L	105.0	
ICV01	Q2616350		ENDRIN KETONE	50.0			50.8	ug/L	101.6	
ICV01	Q2616350		ENDRIN ALDEHYDE	50.0			50.1	ug/L	100.2	
ICV01	Q2616350		ALPHA-CHLORDANE	50.0			54.2	ug/L	108.4	
ICV01	Q2616350		GAMMA-CHLORDANE	50.0			52.6	ug/L	105.2	
ICV01	Q2616350		DECACHLOROBIPHENYL (DCB)	50.0			50.4		100.8	
BLA02	Q2616059		ALPHA-BHC			BDL	0.05	ug/L		
BLA02	Q2616059		BETA-BHC			BDL	0.05	ug/L		
BLA02	Q2616059		DELTA-BHC			BDL	0.05	ug/L		
BLA02	Q2616059		GAMMA-BHC (LINDANE)			BDL	0.05	ug/L		
BLA02	Q2616059		HEPTACHLOR			BDL	0.05	ug/L		
BLA02	Q2616059		ALDRIN			BDL	0.05	ug/L		
BLA02	Q2616059		HEPTACHLOR EPOXIDE			BDL	0.05	ug/L		
BLA02	Q2616059		ENDOSULFAN I			BDL	0.05	ug/L		
BLA02	Q2616059		DIELDRIN			BDL	0.1	ug/L		
BLA02	Q2616059		4,4'-DDE			BDL	0.1	ug/L		
BLA02	Q2616059		ENDRIN			BDL	0.1	ug/L		
BLA02	Q2616059		ENDOSULFAN II			BDL	0.1	ug/L		
BLA02	Q2616059		4,4'-DDD			BDL	0.1	ug/L		
BLA02	Q2616059		ENDOSULFAN SULFATE			BDL	0.1	ug/L		
BLA02	Q2616059		4,4'-DDT			BDL	0.1	ug/L		

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

ORGANOCHLORINE PESTICIDES BY GC:ECD SW846-8081 **O164.1**
Prep : GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602656 Analyst: T WATSON Run Date: 16-Oct-12
Analytical Reviewer: E WERNZ Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2616059		METHOXYCHLOR			BDL	0.5	ug/L		
BLA02	Q2616059		ENDRIN KETONE			BDL	0.1	ug/L		
BLA02	Q2616059		ENDRIN ALDEHYDE			BDL	0.1	ug/L		
BLA02	Q2616059		ALPHA-CHLORDANE			BDL	0.5	ug/L		
BLA02	Q2616059		GAMMA-CHLORDANE			BDL	0.5	ug/L		
BLA02	Q2616059		TOXAPHENE			BDL	1	ug/L		
BLA02	Q2616059		DECACHLOROBIPHENYL (DCB)						84.0	
LCS	Q2616060		ALPHA-BHC	0.200			0.227	ug/L	113.5	
LCS	Q2616060		BETA-BHC	0.200			0.205	ug/L	102.5	
LCS	Q2616060		DELTA-BHC	0.200			0.201	ug/L	100.5	
LCS	Q2616060		GAMMA-BHC (LINDANE)	0.200			0.208	ug/L	104.0	
LCS	Q2616060		HEPTACHLOR	0.200			0.213	ug/L	106.5	
LCS	Q2616060		ALDRIN	0.200			0.209	ug/L	104.5	
LCS	Q2616060		HEPTACHLOR EPOXIDE	0.200			0.221	ug/L	110.5	
LCS	Q2616060		ENDOSULFAN I	0.200			0.216	ug/L	108.0	
LCS	Q2616060		DIELDRIN	0.400			0.445	ug/L	111.2	
LCS	Q2616060		4,4'-DDE	0.400			0.489	ug/L	122.2	
LCS	Q2616060		ENDRIN	0.400			0.487	ug/L	121.8	
LCS	Q2616060		ENDOSULFAN II	0.400			0.437	ug/L	109.2	
LCS	Q2616060		4,4'-DDD	0.400			0.426	ug/L	106.5	
LCS	Q2616060		ENDOSULFAN SULFATE	0.400			0.442	ug/L	110.5	
LCS	Q2616060		4,4'-DDT	0.400			0.501	ug/L	125.2	
LCS	Q2616060		METHOXYCHLOR	2.00			2.69	ug/L	134.5	
LCS	Q2616060		ENDRIN KETONE	0.400			0.443	ug/L	110.8	
LCS	Q2616060		ENDRIN ALDEHYDE	0.400			0.421	ug/L	105.2	
LCS	Q2616060		ALPHA-CHLORDANE	0.200			0.212	ug/L	106.0	
LCS	Q2616060		GAMMA-CHLORDANE	0.200			0.214	ug/L	107.0	
DLCS	Q2616061		ALPHA-BHC	0.200			0.202	ug/L	101.0	11.6
DLCS	Q2616061		BETA-BHC	0.200			0.202	ug/L	101.0	1.5
DLCS	Q2616061		DELTA-BHC	0.200			0.200	ug/L	100.0	0.5
DLCS	Q2616061		GAMMA-BHC (LINDANE)	0.200			0.204	ug/L	102.0	1.9
DLCS	Q2616061		HEPTACHLOR	0.200			0.195	ug/L	97.5	8.8
DLCS	Q2616061		ALDRIN	0.200			0.201	ug/L	100.5	3.9
DLCS	Q2616061		HEPTACHLOR EPOXIDE	0.200			0.219	ug/L	109.5	0.9
DLCS	Q2616061		ENDOSULFAN I	0.200			0.213	ug/L	106.5	1.4
DLCS	Q2616061		DIELDRIN	0.400			0.442	ug/L	110.5	0.6
DLCS	Q2616061		4,4'-DDE	0.400			0.433	ug/L	108.2	12.2
DLCS	Q2616061		ENDRIN	0.400			0.432	ug/L	108.0	12.0
DLCS	Q2616061		ENDOSULFAN II	0.400			0.429	ug/L	107.2	1.8
DLCS	Q2616061		4,4'-DDD	0.400			0.423	ug/L	105.8	0.6
DLCS	Q2616061		ENDOSULFAN SULFATE	0.400			0.437	ug/L	109.2	1.2
DLCS	Q2616061		4,4'-DDT	0.400			0.457	ug/L	114.2	9.2
DLCS	Q2616061		METHOXYCHLOR	2.00			2.46	ug/L	123.0	8.9
DLCS	Q2616061		ENDRIN KETONE	0.400			0.437	ug/L	109.2	1.4
DLCS	Q2616061		ENDRIN ALDEHYDE	0.400			0.409	ug/L	102.2	2.9
DLCS	Q2616061		ALPHA-CHLORDANE	0.200			0.215	ug/L	107.5	1.4
DLCS	Q2616061		GAMMA-CHLORDANE	0.200			0.210	ug/L	105.0	1.9

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

ORGANOCHLORINE PESTICIDES BY GC:ECD SW846-8081 **O164.1**
Prep : GC PESTICIDE SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602656 Analyst: T WATSON Run Date: 16-Oct-12
Analytical Reviewer: E WERNZ Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616351		ALPHA-BHC	20.0			20.8	ug/L	104.0	
CCV	Q2616351		BETA-BHC	20.0			20.9	ug/L	104.5	
CCV	Q2616351		DELTA-BHC	20.0			21.3	ug/L	106.5	
CCV	Q2616351		GAMMA-BHC (LINDANE)	20.0			21.4	ug/L	107.0	
CCV	Q2616351		HEPTACHLOR	20.0			22.6	ug/L	113.0	
CCV	Q2616351		ALDRIN	20.0			20.7	ug/L	103.5	
CCV	Q2616351		HEPTACHLOR EPOXIDE	20.0			21.4	ug/L	107.0	
CCV	Q2616351		ENDOSULFAN I	20.0			21.2	ug/L	106.0	
CCV	Q2616351		DIELDRIN	40.0			42.8	ug/L	107.0	
CCV	Q2616351		4,4'-DDE	40.0			41.9	ug/L	104.8	
CCV	Q2616351		ENDRIN	40.0			44.6	ug/L	111.5	
CCV	Q2616351		ENDOSULFAN II	40.0			43.3	ug/L	108.2	
CCV	Q2616351		4,4'-DDD	40.0			43.5	ug/L	108.8	
CCV	Q2616351		ENDOSULFAN SULFATE	40.0			42.4	ug/L	106.0	
CCV	Q2616351		4,4'-DDT	40.0			41.8	ug/L	104.5	
CCV	Q2616351		METHOXYCHLOR	200			225	ug/L	112.5	
CCV	Q2616351		ENDRIN KETONE	40.0			43.7	ug/L	109.2	
CCV	Q2616351		ENDRIN ALDEHYDE	40.0			42.9	ug/L	107.2	
CCV	Q2616351		ALPHA-CHLORDANE	20.0			21.0	ug/L	105.0	
CCV	Q2616351		GAMMA-CHLORDANE	20.0			21.2	ug/L	106.0	
CCV	Q2616351		DECACHLOROBIPHENYL (DCB)	40.0			41.6		104.0	

PCB AROCLORS BY GAS CHROMATOGRAPHY/ECD SW846-8082A **O301.7**
Prep : PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602613 Analyst: B WOOD Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: E WERNZ Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2616051		Analytical Run: R602677							
LCS	Q2616052		Analytical Run: R602677							
SPI02	Q2616053		Analytical Run: R602677							
DPS02	Q2616054		Analytical Run: R602677							
SAMPLE	A964289	Rep: 0	Analytical Run: R602677							
SAMPLE	A964290	Rep: 0	Analytical Run: R602677							
SAMPLE	A964291	Rep: 0	Analytical Run: R602677							
SAMPLE	A964292	Rep: 0	Analytical Run: R602677							

R602677 Analyst: C HIPSKIND Run Date: 17-Oct-12 Instrument: GC/ECD
Analytical Reviewer: E WERNZ Review Date: 18-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CAL01	Q2616485		PCB AROCLOR 1016							13.8
CAL01	Q2616485		PCB AROCLOR 1260							9.17
CAL01	Q2616485		DECACHLOROBIPHENYL (DCB)							16.0

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

PCB AROCLORS BY GAS CHROMATOGRAPHY/ECD SW846-8082A **O301.7**
Prep : PCB SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION SW846-3510C

R602677 Analyst: C HIPSKIND Run Date: 17-Oct-12
Analytical Reviewer: E WERNZ Review Date: 18-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICV01	Q2616486		PCB AROCLOR 1016	0.450			0.417	mg/L	92.7	
ICV01	Q2616486		PCB AROCLOR 1260	0.450			0.406	mg/L	90.2	
ICV01	Q2616486		DECACHLOROBIPHENYL (DCB)						102.0	
BLA02	Q2616051		PCB AROCLOR 1016			BDL	0.10	ug/L		
BLA02	Q2616051		PCB AROCLOR 1221			BDL	0.20	ug/L		
BLA02	Q2616051		PCB AROCLOR 1232			BDL	0.10	ug/L		
BLA02	Q2616051		PCB AROCLOR 1242			BDL	0.10	ug/L		
BLA02	Q2616051		PCB AROCLOR 1248			BDL	0.10	ug/L		
BLA02	Q2616051		PCB AROCLOR 1254			BDL	0.10	ug/L		
BLA02	Q2616051		PCB AROCLOR 1260			BDL	0.10	ug/L		
BLA02	Q2616051		PCB AROCLOR 1262			BDL	0.10	ug/L		
BLA02	Q2616051		DECACHLOROBIPHENYL (DCB)						90.0	
LCS	Q2616052		PCB AROCLOR 1016	0.500			0.535	ug/L	107.0	
LCS	Q2616052		PCB AROCLOR 1260	0.500			0.585	ug/L	117.0	
SPI02	Q2616053	A963798	PCB AROCLOR 1016	0	0.500		0.645	ug/L	129.0	
SPI02	Q2616053	A963798	PCB AROCLOR 1260	0	0.500		0.545	ug/L	109.0	
DPS02	Q2616054	A963798	PCB AROCLOR 1016	0	0.500		0.685	ug/L	137.0	6.0
DPS02	Q2616054	A963798	PCB AROCLOR 1260	0	0.500		0.585	ug/L	117.0	7.1
CCV	Q2616487		PCB AROCLOR 1016	0.500			0.502	mg/L	100.4	
CCV	Q2616487		PCB AROCLOR 1260	0.500			0.503	mg/L	100.6	
CCV	Q2616487		DECACHLOROBIPHENYL (DCB)						98.0	
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616488		PCB AROCLOR 1016	0.500			0.505	mg/L	101.0	
CCV	Q2616488		PCB AROCLOR 1260	0.500			0.479	mg/L	95.8	
CCV	Q2616488		DECACHLOROBIPHENYL (DCB)						84.0	

POTASSIUM ICP SW846-6010B **M126.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

POTASSIUM ICP SW846-6010B **M126.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		POTASSIUM	0.1			0.0748	mg/L	74.8	
ICV01	Q2616103		POTASSIUM	20			20.0	mg/L	100.0	
CDL01	Q2616097		POTASSIUM	0.1			0.0752	mg/L	75.2	
LCCV	Q2616106		POTASSIUM	0.1			0.0755	mg/L	75.5	
SER01	Q2616100	A963923	POTASSIUM	25.2			14.7	mg/L		52.6
CCV	Q2616121		POTASSIUM	50			51.3	mg/L	102.6	
BLA01	Q2616108		POTASSIUM			<	0.0400	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		POTASSIUM	50			51.7	mg/L	103.4	
BLA01	Q2616109		POTASSIUM			<	0.0400	mg/L		
SER01	Q2616136	A963938	POTASSIUM	2.35			1.76	mg/L		28.7
CDL01	Q2616133		POTASSIUM	0.1			0.0756	mg/L	75.6	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		POTASSIUM				0.00109	mg/L		
LCS	Q2615742		POTASSIUM	100			96.1	mg/L	96.1	
SPI02	Q2615743	A964188	POTASSIUM	4.80	100		114	mg/L	109.2	
DPS02	Q2615744	A964188	POTASSIUM	4.80	100		105	mg/L	100.2	8.6

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

SELENIUM TRACE ICP SW846-6010B **M128.0**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: TRACE ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICV01	Q2616103		SELENIUM	1			0.945	mg/L	94.5	
CDL01	Q2616098		SELENIUM	10			10.0	mg/L	100.0	
ICS-AB	Q2616091		SELENIUM	0.05			0.0470	mg/L	94.0	
SER01	Q2616100	A963923	SELENIUM	0		CNA	0.0584	mg/L		
CCV	Q2616121		SELENIUM	2			1.99	mg/L	99.5	
BLA01	Q2616108		SELENIUM				0.0166	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		SELENIUM	2			1.98	mg/L	99.0	
BLA01	Q2616109		SELENIUM				0.0121	mg/L		
SER01	Q2616136	A963938	SELENIUM	0		CNA	0.0505	mg/L		
ICS-AB	Q2616119		SELENIUM	0.05			0.0447	mg/L	89.4	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: TRACE ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		SELENIUM			<	0.00204	mg/L		
LCS	Q2615742		SELENIUM	2			1.87	mg/L	93.5	
SPI02	Q2615743	A964188	SELENIUM	0	2		1.92	mg/L	96.0	
DPS02	Q2615744	A964188	SELENIUM	0	2		1.78	mg/L	89.0	7.6

Q2615744 Suspected matrix interference for this element. The matrix spike results were

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

SELENIUM TRACE ICP SW846-6010B **M128.0**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602629 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

SILVER ICP SW846-6010B **M130.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Prep — Analyst: K KAMARA — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 16-Oct-12 — Instrument: PREP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		SILVER	0.0100			0.0102	mg/L	102.0	
ICV01	Q2616103		SILVER	0.5			0.511	mg/L	102.2	
CDL01	Q2616098		SILVER	2			2.01	mg/L	100.5	
ICS-AB	Q2616091		SILVER	0.2			0.227	mg/L	113.5	
LCCV	Q2616106		SILVER	0.0100			0.0101	mg/L	101.0	
SER01	Q2616100	A963923	SILVER	0		BDL		mg/L		
CCV	Q2616121		SILVER	1.00			1.02	mg/L	102.0	
BLA01	Q2616108		SILVER			<	0.000800	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		SILVER	1.00			1.03	mg/L	103.0	
BLA01	Q2616109		SILVER			<	0.000800	mg/L		
SER01	Q2616136	A963938	SILVER	0		BDL		mg/L		
CDL01	Q2616133		SILVER	0.0100			0.00987	mg/L	98.7	
ICS-AB	Q2616119		SILVER	0.2			0.225	mg/L	112.5	
Q2616100	1:5 Dilution.									
Q2616100	There was possible matrix interference for K and Na									

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

SILVER ICP SW846-6010B **M130.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2616100	as indicated by the serial dilution results.									
Q2616136	1:5 Dilution.									
Q2616136	There was possible matrix interference for K									
Q2616136	as indicated by the serial dilution results.									

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		SILVER			<	0.000132	mg/L		
LCS	Q2615742		SILVER	0.05			0.0487	mg/L	97.4	
SPI02	Q2615743	A964188	SILVER	0	0.050		0.0500	mg/L	100.0	
DPS02	Q2615744	A964188	SILVER	0	0.050		0.0460	mg/L	92.0	8.3
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

SODIUM ICP SW846-6010B **M131.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		SODIUM	0.1			0.0874	mg/L	87.4	
ICV01	Q2616103		SODIUM	20			21.0	mg/L	105.0	
CDL01	Q2616097		SODIUM	0.1			0.0879	mg/L	87.9	
LCCV	Q2616106		SODIUM	0.1			0.0884	mg/L	88.4	
SER01	Q2616100	A963923	SODIUM	656			507	mg/L		25.6

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

SODIUM ICP SW846-6010B **M131.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CCV	Q2616121		SODIUM	50			51.0	mg/L	102.0	
BLA01	Q2616108		SODIUM			<	0.0400	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		SODIUM	50			51.2	mg/L	102.4	
BLA01	Q2616109		SODIUM			<	0.0400	mg/L		
SER01	Q2616136	A963938	SODIUM	75.8			73.0	mg/L		3.8
CDL01	Q2616133		SODIUM	0.1			0.0865	mg/L	86.5	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		SODIUM			<	0.00212	mg/L		
LCS	Q2615742		SODIUM	100			96.3	mg/L	96.3	
SPI02	Q2615743	A964188	SODIUM	110	100		204	mg/L	94.0	
DPS02	Q2615744	A964188	SODIUM	110	100		186	mg/L	76.0	21.2

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

THALLIUM TRACE ICP SW846-6010B **M134.0**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Prep — Analyst: K KAMARA — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 16-Oct-12 — Instrument: PREP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: TRACE ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICV01	Q2616103		THALLIUM	1			0.977	mg/L	97.7	
CDL01	Q2616098		THALLIUM	10			10.0	mg/L	100.0	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report 63741

THALLIUM TRACE ICP SW846-6010B **M134.0**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICS-AB	Q2616091		THALLIUM	0.1			0.0833	mg/L	83.3	
LCCV	Q2616106		THALLIUM	0.01			0.00853	mg/L	85.3	
SER01	Q2616100	A963923	THALLIUM	0		CNA	0.0308	mg/L		
CCV	Q2616121		THALLIUM	2			1.94	mg/L	97.0	
BLA01	Q2616108		THALLIUM				0.00954	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		THALLIUM	2			1.92	mg/L	96.0	
BLA01	Q2616109		THALLIUM				0.00629	mg/L		
SER01	Q2616136	A963938	THALLIUM	0		CNA	0.0392	mg/L		
CDL01	Q2616133		THALLIUM	0.01			0.00925	mg/L	92.5	
ICS-AB	Q2616119		THALLIUM	0.1			0.0764	mg/L	76.4	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

VANADIUM ICP SW846-6010B **M138.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		VANADIUM	0.0100			0.0104	mg/L	104.0	
ICV01	Q2616103		VANADIUM	1			1.000	mg/L	100.0	
CDL01	Q2616098		VANADIUM	10			10.0	mg/L	100.0	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

VANADIUM ICP SW846-6010B **M138.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICS-AB	Q2616091		VANADIUM	0.500			0.504	mg/L	100.8	
LCCV	Q2616106		VANADIUM	0.0100			0.0107	mg/L	107.0	
SER01	Q2616100	A963923	VANADIUM	0		BDL		mg/L		
CCV	Q2616121		VANADIUM	2			2.00	mg/L	100.0	
BLA01	Q2616108		VANADIUM			<	0.00400	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		VANADIUM	2			2.02	mg/L	101.0	
BLA01	Q2616109		VANADIUM			<	0.00400	mg/L		
SER01	Q2616136	A963938	VANADIUM	0		BDL		mg/L		
CDL01	Q2616133		VANADIUM	0.0100			0.0101	mg/L	101.0	
ICS-AB	Q2616119		VANADIUM	0.500			0.497	mg/L	99.4	

Q2616100 1:5 Dilution.
Q2616100 There was possible matrix interference for K and Na
Q2616100 as indicated by the serial dilution results.
Q2616136 1:5 Dilution.
Q2616136 There was possible matrix interference for K
Q2616136 as indicated by the serial dilution results.

R602629 Analytical — Analyst: V PATEL — Reviewer: S ENDERSEN — Run Date: 16-Oct-12 — Review Date: 17-Oct-12 — Instrument: ICP

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		VANADIUM				0.000223	mg/L		
LCS	Q2615742		VANADIUM	0.5			0.470	mg/L	94.0	
SPI02	Q2615743	A964188	VANADIUM	0.00200	0.500		0.474	mg/L	94.4	
DPS02	Q2615744	A964188	VANADIUM	0.00200	0.500		0.434	mg/L	86.4	8.8

Q2615744 Suspected matrix interference for this element. The matrix spike results were
Q2615744 outside control limit criteria. Results for this sample are estimated. (Ca, Fe,
Q2615744 Mg, Mn, Na)
Q2615744 QC sample not homogeneous for this element. Matrix spikes had high RPD.
Q2615744 Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)

VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analytical — Analyst: H WILLIAMS — Reviewer: R SHAMP — Run Date: 21-Oct-12 — Review Date: 24-Oct-12 — Instrument: GC/MS VOA

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CAL01	Q2617494		Analysis Date/Time: 18-Oct-12 08:25							
CAL01	Q2617494		BENZENE	1.1152						4.2
CAL01	Q2617494		BROMOBENZENE	1.4261						3.1
CAL01	Q2617494		BROMOCHLOROMETHANE	0.1322						4.8
CAL01	Q2617494		BROMODICHLOROMETHANE	0.3278						10
CAL01	Q2617494		BROMOFORM	0.5031						12.1
CAL01	Q2617494		BROMOMETHANE	0.1347						13.8

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CAL01	Q2617494		N-BUTYLBENZENE	1.3208						7.5
CAL01	Q2617494		SEC-BUTYLBENZENE	3.0031						5.4
CAL01	Q2617494		TERT-BUTYLBENZENE	1.4293						3
CAL01	Q2617494		CARBON TETRACHLORIDE	0.3161						5.5
CAL01	Q2617494		CHLOROBENZENE	1.9330						3.4
CAL01	Q2617494		DIBROMOCHLOROMETHANE	0.6636						8.6
CAL01	Q2617494		CHLOROETHANE	0.1638						12.6
CAL01	Q2617494		CHLOROFORM	0.4867						3.8
CAL01	Q2617494		CHLOROMETHANE	0.3031						6.8
CAL01	Q2617494		2-CHLOROTOLUENE (O-CHLOROTOLUENE)	0.7665						4.3
CAL01	Q2617494		4-CHLOROTOLUENE (P-CHLOROTOLUENE)	0.7665						4
CAL01	Q2617494		1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	0.1759						5.8
CAL01	Q2617494		1,2-DIBROMOETHANE (EDB)	0.2517						5.1
CAL01	Q2617494		DIBROMOMETHANE	0.1676						4.9
CAL01	Q2617494		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	1.5553						6
CAL01	Q2617494		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	1.6196						6.4
CAL01	Q2617494		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	1.7618						4.7
CAL01	Q2617494		DICHLORODIFLUOROMETHANE	0.1658						8
CAL01	Q2617494		1,1-DICHLOROETHANE	0.4920						3.5
CAL01	Q2617494		1,2-DICHLOROETHANE	0.4065						5
CAL01	Q2617494		1,1-DICHLOROETHENE	0.2223						5.2
CAL01	Q2617494		CIS-1,2-DICHLOROETHENE	0.2852						3.5
CAL01	Q2617494		TRANS-1,2-DICHLOROETHENE	0.2625						3
CAL01	Q2617494		1,2-DICHLOROPROPANE	0.2752						5.4
CAL01	Q2617494		1,3-DICHLOROPROPANE	1.2709						2
CAL01	Q2617494		2,2-DICHLOROPROPANE	0.2366						4.4
CAL01	Q2617494		1,1-DICHLOROPROPENE	0.1242						3.8
CAL01	Q2617494		ETHYL BENZENE	1.0597						5.1
CAL01	Q2617494		HEXACHLOROBUTADIENE			LIN				0.996
CAL01	Q2617494		ISOPROPYLBENZENE (CUMENE)	3.1012						5.7
CAL01	Q2617494		4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	2.6565						4.2
CAL01	Q2617494		DICHLOROMETHANE (METHYLENE CHLORIDE)			LIN				1.000
CAL01	Q2617494		METHYL ETHYL KETONE	0.0413						4.9
CAL01	Q2617494		NAPHTHALENE	2.0110						13.5
CAL01	Q2617494		N-PROPYLBENZENE	0.3683						9.1
CAL01	Q2617494		STYRENE	2.2240						7.9
CAL01	Q2617494		1,1,1,2-TETRACHLOROETHANE	0.7016						5.6
CAL01	Q2617494		1,1,2,2-TETRACHLOROETHANE	1.0658						4.7
CAL01	Q2617494		TETRACHLOROETHENE	0.8375						4.8
CAL01	Q2617494		TOLUENE	1.1227						5
CAL01	Q2617494		1,2,3-TRICHLOROBENZENE			QDR				0.998
CAL01	Q2617494		1,2,4-TRICHLOROBENZENE	0.9820						14.1
CAL01	Q2617494		1,1,1-TRICHLOROETHANE	0.3552						2.9

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CAL01	Q2617494		1,1,2-TRICHLOROETHANE	0.2442						4
CAL01	Q2617494		TRICHLOROETHENE	0.2752						1.9
CAL01	Q2617494		TRICHLOROFLUOROMETHANE	0.3298						6.2
CAL01	Q2617494		1,2,3-TRICHLOROPROPANE	0.3218						8.3
CAL01	Q2617494		1,2,4-TRIMETHYLBENZENE	2.9427						3.6
CAL01	Q2617494		1,3,5-TRIMETHYLBENZENE	2.8766						5.5
CAL01	Q2617494		VINYL CHLORIDE	0.2965						3.3
CAL01	Q2617494		N-HEXANE	0.4342						3.3
CAL01	Q2617494		O-XYLENE	1.2192						5.1
CAL01	Q2617494		M/P-XYLENE	1.3031						3.2
CAL01	Q2617494		DICHLOROETHANE-D4	0.2968						1.1
CAL01	Q2617494		TOLUENE-D8	0.8986						0.9
CAL01	Q2617494		4-BROMOFLUOROBENZENE	0.8861						4.4
CAL01	Q2617494		DIBROMOFLUOROMETHANE	0.2240						1.7
ICV01	Q2617495		Analysis Date/Time: 18-Oct-12 10:58							
ICV01	Q2617495		BENZENE	10			11.9	ug/L	119	
ICV01	Q2617495		BROMOBENZENE	10			11.4	ug/L	114	
ICV01	Q2617495		BROMOCHLOROMETHANE	10			12.4	ug/L	124	
ICV01	Q2617495		BROMODICHLOROMETHANE	10			12.1	ug/L	121	
ICV01	Q2617495		BROMOFORM	10			10.2	ug/L	102	
ICV01	Q2617495		BROMOMETHANE	10			12	ug/L	120	
ICV01	Q2617495		N-BUTYLBENZENE	10			11.5	ug/L	115	
ICV01	Q2617495		SEC-BUTYLBENZENE	10			12.5	ug/L	125	
ICV01	Q2617495		TERT-BUTYLBENZENE	10			12.6	ug/L	126	
ICV01	Q2617495		CARBON TETRACHLORIDE	10			11.6	ug/L	116	
ICV01	Q2617495		CHLOROBENZENE	10			12.4	ug/L	124	
ICV01	Q2617495		DIBROMOCHLOROMETHANE	10			11.5	ug/L	115	
ICV01	Q2617495		CHLOROETHANE	10			12	ug/L	120	
ICV01	Q2617495		CHLOROFORM	10			11.8	ug/L	118	
ICV01	Q2617495		CHLOROMETHANE	10			11.3	ug/L	113	
ICV01	Q2617495		2-CHLOROTOLUENE (O-CHLOROTOLUENE)	10			12.4	ug/L	124	
ICV01	Q2617495		4-CHLOROTOLUENE (P-CHLOROTOLUENE)	10			12.4	ug/L	124	
ICV01	Q2617495		1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	10			11	ug/L	110	
ICV01	Q2617495		1,2-DIBROMOETHANE (EDB)	10			12.2	ug/L	122	
ICV01	Q2617495		DIBROMOMETHANE	10			12.1	ug/L	121	
ICV01	Q2617495		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	10			12.3	ug/L	123	
ICV01	Q2617495		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	10			12.1	ug/L	121	
ICV01	Q2617495		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	10			11.6	ug/L	116	
ICV01	Q2617495		DICHLORODIFLUOROMETHANE	10			9.52	ug/L	95.2	
ICV01	Q2617495		1,1-DICHLOROETHANE	10			11.8	ug/L	118	
ICV01	Q2617495		1,2-DICHLOROETHANE	10			11.9	ug/L	119	
ICV01	Q2617495		1,1-DICHLOROETHENE	10			12.9	ug/L	129	
ICV01	Q2617495		CIS-1,2-DICHLOROETHENE	10			11.9	ug/L	119	
ICV01	Q2617495		TRANS-1,2-DICHLOROETHENE	10			11.6	ug/L	116	

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VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
ICV01	Q2617495		1,2-DICHLOROPROPANE	10			12.1	ug/L	121	
ICV01	Q2617495		1,3-DICHLOROPROPANE	10			11.4	ug/L	114	
ICV01	Q2617495		2,2-DICHLOROPROPANE	10			11.4	ug/L	114	
ICV01	Q2617495		1,1-DICHLOROPROPENE	10			12.3	ug/L	123	
ICV01	Q2617495		ETHYL BENZENE	10			11.9	ug/L	119	
ICV01	Q2617495		HEXACHLOROBUTADIENE	10			11.9	ug/L	119	
ICV01	Q2617495		ISOPROPYLBENZENE (CUMENE)	10			12.7	ug/L	127	
ICV01	Q2617495		4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	10			11.8	ug/L	118	
ICV01	Q2617495		DICHLOROMETHANE (METHYLENE CHLORIDE)	10			11.3	ug/L	113	
ICV01	Q2617495		METHYL ETHYL KETONE	50			54.1	ug/L	108.2	
ICV01	Q2617495		NAPHTHALENE	10			11.2	ug/L	112	
ICV01	Q2617495		N-PROPYLBENZENE	10		!	13.1	ug/L	131	
ICV01	Q2617495		STYRENE	10			11.8	ug/L	118	
ICV01	Q2617495		1,1,1,2-TETRACHLOROETHANE	10			11.6	ug/L	116	
ICV01	Q2617495		1,1,2,2-TETRACHLOROETHANE	10			11.4	ug/L	114	
ICV01	Q2617495		TETRACHLOROETHENE	10			12	ug/L	120	
ICV01	Q2617495		TOLUENE	10			12.2	ug/L	122	
ICV01	Q2617495		1,2,3-TRICHLOROBENZENE	10			10.3	ug/L	103	
ICV01	Q2617495		1,2,4-TRICHLOROBENZENE	10			11.6	ug/L	116	
ICV01	Q2617495		1,1,1-TRICHLOROETHANE	10			11.9	ug/L	119	
ICV01	Q2617495		1,1,2-TRICHLOROETHANE	10			12	ug/L	120	
ICV01	Q2617495		TRICHLOROETHENE	10			12	ug/L	120	
ICV01	Q2617495		TRICHLOROFLUOROMETHANE	10			11.2	ug/L	112	
ICV01	Q2617495		1,2,3-TRICHLOROPROPANE	10			11.3	ug/L	113	
ICV01	Q2617495		1,2,4-TRIMETHYLBENZENE	10			11.1	ug/L	111	
ICV01	Q2617495		1,3,5-TRIMETHYLBENZENE	10			11.4	ug/L	114	
ICV01	Q2617495		VINYL CHLORIDE	10			10.9	ug/L	109	
ICV01	Q2617495		METHYL-T-BUTYL ETHER (MTBE)	10			10.8	ug/L	108	
ICV01	Q2617495		N-HEXANE	10			10.1	ug/L	101	
ICV01	Q2617495		O-XYLENE	10			12.7	ug/L	127	
ICV01	Q2617495		M/P-XYLENE	20			24.6	ug/L	123	
CCVD	Q2618270		Analysis Date/Time: 21-Oct-12 07:55							
CCVD	Q2618270		BENZENE	1.1152			1.1492			3
CCVD	Q2618270		BROMOBENZENE	1.4261			1.5333			7.5
CCVD	Q2618270		BROMOCHLOROMETHANE	0.1322			0.1399			5.8
CCVD	Q2618270		BROMODICHLOROMETHANE	0.3278			0.3393			3.5
CCVD	Q2618270		BROMOFORM	0.5031			0.4899			2.6
CCVD	Q2618270		BROMOMETHANE	0.1347			0.1354			0.5
CCVD	Q2618270		N-BUTYLBENZENE	1.3208			1.4195			7.5
CCVD	Q2618270		SEC-BUTYLBENZENE	3.0031			3.2070			6.8
CCVD	Q2618270		TERT-BUTYLBENZENE	1.4293			1.5204			6.4
CCVD	Q2618270		CARBON TETRACHLORIDE	0.3161			0.3185			0.8
CCVD	Q2618270		CHLOROBENZENE	1.9330			2.1088			9.1
CCVD	Q2618270		DIBROMOCHLOROMETHANE	0.6636			0.6802			2.5
CCVD	Q2618270		CHLOROETHANE	0.1638			0.1628			0.6
CCVD	Q2618270		CHLOROFORM	0.4867			0.4864			0.1

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R602909 Analytical
Analyst: H WILLIAMS
Reviewer: R SHAMP
Run Date: 21-Oct-12
Review Date: 24-Oct-12
Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CCVD	Q2618270		CHLOROMETHANE	0.3031			0.2755			9.1
CCVD	Q2618270		2-CHLOROTOLUENE (O-CHLOROTOLUENE)	0.7665			0.8976			17.1
CCVD	Q2618270		4-CHLOROTOLUENE (P-CHLOROTOLUENE)	0.7665			0.8485			10.7
CCVD	Q2618270		1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	0.1759			0.1869			6.3
CCVD	Q2618270		1,2-DIBROMOETHANE (EDB)	0.2517			0.2721			8.1
CCVD	Q2618270		DIBROMOMETHANE	0.1676			0.1729			3.2
CCVD	Q2618270		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	1.5553			1.6293			4.8
CCVD	Q2618270		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	1.6196			1.7085			5.5
CCVD	Q2618270		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	1.7618			1.8617			5.7
CCVD	Q2618270		DICHLORODIFLUOROMETHANE	0.1658			0.1492			10
CCVD	Q2618270		1,1-DICHLOROETHANE	0.4920			0.5075			3.2
CCVD	Q2618270		1,2-DICHLOROETHANE	0.4065			0.4269			5
CCVD	Q2618270		1,1-DICHLOROETHENE	0.2223			0.2472			11.2
CCVD	Q2618270		CIS-1,2-DICHLOROETHENE	0.2852			0.2923			2.5
CCVD	Q2618270		TRANS-1,2-DICHLOROETHENE	0.2625			0.2711			3.3
CCVD	Q2618270		1,2-DICHLOROPROPANE	0.2752			0.2934			6.6
CCVD	Q2618270		1,3-DICHLOROPROPANE	1.2709			1.3445			5.8
CCVD	Q2618270		2,2-DICHLOROPROPANE	0.2366			0.2686			13.5
CCVD	Q2618270		1,1-DICHLOROPROPENE	0.1242			0.1300			4.7
CCVD	Q2618270		ETHYL BENZENE	1.0597			1.1628			9.7
CCVD	Q2618270		HEXACHLOROBUTADIENE	10.0		LIN	9.80			2
CCVD	Q2618270		ISOPROPYLBENZENE (CUMENE)	3.1012			3.3496			8
CCVD	Q2618270		4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	2.6565			2.8379			6.8
CCVD	Q2618270		DICHLOROMETHANE (METHYLENE CHLORIDE)	10.0		LIN	9.78			2.2
CCVD	Q2618270		METHYL ETHYL KETONE	0.0413			0.0460			11.4
CCVD	Q2618270		NAPHTHALENE	2.0110			2.3422			16.5
CCVD	Q2618270		N-PROPYLBENZENE	0.3683			0.4110			11.6
CCVD	Q2618270		STYRENE	2.2240			2.3951			7.7
CCVD	Q2618270		1,1,1,2-TETRACHLOROETHANE	0.7016			0.7396			5.4
CCVD	Q2618270		1,1,2,2-TETRACHLOROETHANE	1.0658			1.1245			5.5
CCVD	Q2618270		TETRACHLOROETHENE	0.8375			0.8934			6.7
CCVD	Q2618270		TOLUENE	1.1227			1.1918			6.2
CCVD	Q2618270		1,2,3-TRICHLOROBENZENE	10.0		QDR	10.4			4
CCVD	Q2618270		1,2,4-TRICHLOROBENZENE	0.9820			1.0979			11.8
CCVD	Q2618270		1,1,1-TRICHLOROETHANE	0.3552			0.3415			3.9
CCVD	Q2618270		1,1,2-TRICHLOROETHANE	0.2442			0.2611			6.9
CCVD	Q2618270		TRICHLOROETHENE	0.2752			0.2901			5.4
CCVD	Q2618270		TRICHLOROFLUOROMETHANE	0.3298			0.3422			3.8
CCVD	Q2618270		1,2,3-TRICHLOROPROPANE	0.3218			0.3363			4.5
CCVD	Q2618270		1,2,4-TRIMETHYLBENZENE	2.9427			3.1788			8
CCVD	Q2618270		1,3,5-TRIMETHYLBENZENE	2.8766			3.1141			8.3
CCVD	Q2618270		VINYL CHLORIDE	0.2965			0.2779			6.3
CCVD	Q2618270		N-HEXANE	0.4342			0.4714			8.6

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R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
CCVD	Q2618270		O-XYLENE	1.2192			1.3510			10.8
CCVD	Q2618270		M/P-XYLENE	1.3031			1.4204			9
CCVD	Q2618270		DICHLOROETHANE-D4	0.2968			0.2931			1.2
CCVD	Q2618270		TOLUENE-D8	0.8986			0.9087			1.1
CCVD	Q2618270		4-BROMOFLUOROBENZENE	0.8861			0.8953			1
CCVD	Q2618270		DIBROMOFLUOROMETHANE	0.2240			0.2197			1.9
BLA01	Q2618271		Analysis Date/Time: 21-Oct-12 08:20							
BLA01	Q2618271		BENZENE			BDL	0.48	ug/L		
BLA01	Q2618271		BROMOBENZENE			BDL	1.0	ug/L		
BLA01	Q2618271		BROMOCHLOROMETHANE			BDL	0.55	ug/L		
BLA01	Q2618271		BROMODICHLOROMETHANE			BDL	0.42	ug/L		
BLA01	Q2618271		BROMOFORM			BDL	0.42	ug/L		
BLA01	Q2618271		BROMOMETHANE			BDL	0.58	ug/L		
BLA01	Q2618271		N-BUTYLBENZENE			BDL	1.0	ug/L		
BLA01	Q2618271		SEC-BUTYLBENZENE			BDL	1.0	ug/L		
BLA01	Q2618271		TERT-BUTYLBENZENE			BDL	1.0	ug/L		
BLA01	Q2618271		CARBON TETRACHLORIDE			BDL	0.46	ug/L		
BLA01	Q2618271		CHLOROBENZENE			BDL	0.53	ug/L		
BLA01	Q2618271		DIBROMOCHLOROMETHANE			BDL	0.46	ug/L		
BLA01	Q2618271		CHLOROETHANE			BDL	0.80	ug/L		
BLA01	Q2618271		CHLOROFORM			BDL	0.45	ug/L		
BLA01	Q2618271		CHLOROMETHANE			BDL	1.0	ug/L		
BLA01	Q2618271		2-CHLOROTOLUENE (O-CHLOROTOLUENE)			BDL	1.0	ug/L		
BLA01	Q2618271		4-CHLOROTOLUENE (P-CHLOROTOLUENE)			BDL	1.0	ug/L		
BLA01	Q2618271		1,2-DIBROMO-3-CHLOROPROPANE (DBCP)			BDL	1.0	ug/L		
BLA01	Q2618271		1,2-DIBROMOETHANE (EDB)			BDL	1.0	ug/L		
BLA01	Q2618271		DIBROMOMETHANE			BDL	0.51	ug/L		
BLA01	Q2618271		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)			BDL	0.61	ug/L		
BLA01	Q2618271		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)			BDL	1.0	ug/L		
BLA01	Q2618271		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)			BDL	0.66	ug/L		
BLA01	Q2618271		DICHLORODIFLUOROMETHANE			BDL	0.49	ug/L		
BLA01	Q2618271		1,1-DICHLOROETHANE			BDL	0.41	ug/L		
BLA01	Q2618271		1,2-DICHLOROETHANE			BDL	0.56	ug/L		
BLA01	Q2618271		1,1-DICHLOROETHENE			BDL	0.49	ug/L		
BLA01	Q2618271		CIS-1,2-DICHLOROETHENE			BDL	0.52	ug/L		
BLA01	Q2618271		TRANS-1,2-DICHLOROETHENE			BDL	0.45	ug/L		
BLA01	Q2618271		1,2-DICHLOROPROPANE			BDL	0.49	ug/L		
BLA01	Q2618271		1,3-DICHLOROPROPANE			BDL	1.0	ug/L		
BLA01	Q2618271		2,2-DICHLOROPROPANE			BDL	1.0	ug/L		
BLA01	Q2618271		1,1-DICHLOROPROPENE			BDL	1.0	ug/L		
BLA01	Q2618271		ETHYL BENZENE			BDL	0.56	ug/L		
BLA01	Q2618271		HEXACHLOROBUTADIENE			BDL	1.0	ug/L		
BLA01	Q2618271		ISOPROPYLBENZENE (CUMENE)			BDL	1.0	ug/L		
BLA01	Q2618271		4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)			BDL	1.0	ug/L		

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VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA01	Q2618271		DICHLOROMETHANE (METHYLENE CHLORIDE)			BDL	1.0	ug/L		
BLA01	Q2618271		METHYL ETHYL KETONE			BDL	3.0	ug/L		
BLA01	Q2618271		NAPHTHALENE			BDL	1.0	ug/L		
BLA01	Q2618271		N-PROPYLBENZENE			BDL	1.0	ug/L		
BLA01	Q2618271		STYRENE			BDL	0.53	ug/L		
BLA01	Q2618271		1,1,1,2-TETRACHLOROETHANE			BDL	0.51	ug/L		
BLA01	Q2618271		1,1,2,2-TETRACHLOROETHANE			BDL	0.50	ug/L		
BLA01	Q2618271		TETRACHLOROETHENE			BDL	0.57	ug/L		
BLA01	Q2618271		TOLUENE			BDL	0.45	ug/L		
BLA01	Q2618271		1,2,3-TRICHLOROBENZENE			BDL	1.0	ug/L		
BLA01	Q2618271		1,2,4-TRICHLOROBENZENE			BDL	1.0	ug/L		
BLA01	Q2618271		1,1,1-TRICHLOROETHANE			BDL	0.49	ug/L		
BLA01	Q2618271		1,1,2-TRICHLOROETHANE			BDL	0.54	ug/L		
BLA01	Q2618271		TRICHLOROETHENE			BDL	0.55	ug/L		
BLA01	Q2618271		TRICHLOROFLUOROMETHANE			BDL	0.73	ug/L		
BLA01	Q2618271		1,2,3-TRICHLOROPROPANE			BDL	0.55	ug/L		
BLA01	Q2618271		1,2,4-TRIMETHYLBENZENE			BDL	1.0	ug/L		
BLA01	Q2618271		1,3,5-TRIMETHYLBENZENE			BDL	1.0	ug/L		
BLA01	Q2618271		VINYL CHLORIDE			BDL	0.46	ug/L		
BLA01	Q2618271		METHYL-T-BUTYL ETHER (MTBE)			BDL	1.0	ug/L		
BLA01	Q2618271		N-HEXANE			BDL	1.0	ug/L		
BLA01	Q2618271		O-XYLENE			BDL	0.57	ug/L		
BLA01	Q2618271		M/P-XYLENE			BDL	1.2	ug/L		
BLA01	Q2618271		DICHLOROETHANE-D4						101	
BLA01	Q2618271		TOLUENE-D8						99	
BLA01	Q2618271		4-BROMOFLUOROBENZENE						100	
BLA01	Q2618271		DIBROMOFLUOROMETHANE						94	
LCS01	Q2618272		Analysis Date/Time: 21-Oct-12 08:50							
LCS01	Q2618272		BENZENE	10			10.2	ug/L	102	
LCS01	Q2618272		BROMOBENZENE	10			10.3	ug/L	103	
LCS01	Q2618272		BROMOCHLOROMETHANE	10			10.8	ug/L	108	
LCS01	Q2618272		BROMODICHLOROMETHANE	10			10.2	ug/L	102	
LCS01	Q2618272		BROMOFORM	10			8.96	ug/L	89.6	
LCS01	Q2618272		BROMOMETHANE	10			9.42	ug/L	94.2	
LCS01	Q2618272		N-BUTYLBENZENE	10			10.4	ug/L	104	
LCS01	Q2618272		SEC-BUTYLBENZENE	10			11	ug/L	110	
LCS01	Q2618272		TERT-BUTYLBENZENE	10			10.6	ug/L	106	
LCS01	Q2618272		CARBON TETRACHLORIDE	10			9.87	ug/L	98.7	
LCS01	Q2618272		CHLOROBENZENE	10			11.3	ug/L	113	
LCS01	Q2618272		DIBROMOCHLOROMETHANE	10			9.96	ug/L	99.6	
LCS01	Q2618272		CHLOROETHANE	10			9.98	ug/L	99.8	
LCS01	Q2618272		CHLOROFORM	10			10.2	ug/L	102	
LCS01	Q2618272		CHLOROMETHANE	10			8.33	ug/L	83.3	
LCS01	Q2618272		2-CHLOROTOLUENE (O-CHLOROTOLUENE)	10			11.5	ug/L	115	
LCS01	Q2618272		4-CHLOROTOLUENE (P-CHLOROTOLUENE)	10			11.5	ug/L	115	
LCS01	Q2618272		1,2-DIBROMO-3-	10			9.6	ug/L	96	

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VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
			CHLOROPROPANE (DBCP)							
LCS01	Q2618272		1,2-DIBROMOETHANE (EDB)	10			10.5	ug/L	105	
LCS01	Q2618272		DIBROMOMETHANE	10			10.6	ug/L	106	
LCS01	Q2618272		1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	10			11.4	ug/L	114	
LCS01	Q2618272		1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	10			11.2	ug/L	112	
LCS01	Q2618272		1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	10			10.9	ug/L	109	
LCS01	Q2618272		DICHLORODIFLUOROMETHANE	10			6.34	ug/L	63.4	
LCS01	Q2618272		1,1-DICHLOROETHANE	10			10.2	ug/L	102	
LCS01	Q2618272		1,2-DICHLOROETHANE	10			10.4	ug/L	104	
LCS01	Q2618272		1,1-DICHLOROETHENE	10			10.3	ug/L	103	
LCS01	Q2618272		CIS-1,2-DICHLOROETHENE	10			10.3	ug/L	103	
LCS01	Q2618272		TRANS-1,2-DICHLOROETHENE	10			9.87	ug/L	98.7	
LCS01	Q2618272		1,2-DICHLOROPROPANE	10			10.4	ug/L	104	
LCS01	Q2618272		1,3-DICHLOROPROPANE	10			10.2	ug/L	102	
LCS01	Q2618272		2,2-DICHLOROPROPANE	10			9.93	ug/L	99.3	
LCS01	Q2618272		1,1-DICHLOROPROPENE	10			9.97	ug/L	99.7	
LCS01	Q2618272		ETHYL BENZENE	10			10.6	ug/L	106	
LCS01	Q2618272		HEXACHLOROBUTADIENE	10			10.6	ug/L	106	
LCS01	Q2618272		ISOPROPYLBENZENE (CUMENE)	10			11	ug/L	110	
LCS01	Q2618272		4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	10			10.6	ug/L	106	
LCS01	Q2618272		DICHLOROMETHANE (METHYLENE CHLORIDE)	10			9.48	ug/L	94.8	
LCS01	Q2618272		METHYL ETHYL KETONE	50			47.9	ug/L	95.8	
LCS01	Q2618272		NAPHTHALENE	10			11.4	ug/L	114	
LCS01	Q2618272		N-PROPYLBENZENE	10			11.3	ug/L	113	
LCS01	Q2618272		STYRENE	10			10.6	ug/L	106	
LCS01	Q2618272		1,1,1,2-TETRACHLOROETHANE	10			10.2	ug/L	102	
LCS01	Q2618272		1,1,2,2-TETRACHLOROETHANE	10			10.3	ug/L	103	
LCS01	Q2618272		TETRACHLOROETHENE	10			10.4	ug/L	104	
LCS01	Q2618272		TOLUENE	10			10.3	ug/L	103	
LCS01	Q2618272		1,2,3-TRICHLOROBENZENE	10			11.6	ug/L	116	
LCS01	Q2618272		1,2,4-TRICHLOROBENZENE	10			11.2	ug/L	112	
LCS01	Q2618272		1,1,1-TRICHLOROETHANE	10			10.2	ug/L	102	
LCS01	Q2618272		1,1,2-TRICHLOROETHANE	10			10.6	ug/L	106	
LCS01	Q2618272		TRICHLOROETHENE	10			10.2	ug/L	102	
LCS01	Q2618272		TRICHLOROFLUOROMETHANE	10			9.37	ug/L	93.7	
LCS01	Q2618272		1,2,3-TRICHLOROPROPANE	10			10.2	ug/L	102	
LCS01	Q2618272		1,2,4-TRIMETHYLBENZENE	10			10	ug/L	100	
LCS01	Q2618272		1,3,5-TRIMETHYLBENZENE	10			10.1	ug/L	101	
LCS01	Q2618272		VINYL CHLORIDE	10			8.01	ug/L	80.1	
LCS01	Q2618272		METHYL-T-BUTYL ETHER (MTBE)	10			9.31	ug/L	93.1	
LCS01	Q2618272		N-HEXANE	10			8.8	ug/L	88	
LCS01	Q2618272		O-XYLENE	10			11.4	ug/L	114	
LCS01	Q2618272		M/P-XYLENE	20			21.8	ug/L	109	
SPI01	Q2618273	A964149	Analysis Date/Time: 21-Oct-12 11:29							
SPI01	Q2618273	A964149	BENZENE	0	10		11.5	ug/L	115	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SPI01	Q2618273	A964149	BROMOBENZENE	0	10		11.3	ug/L	113	
SPI01	Q2618273	A964149	BROMOCHLOROMETHANE	0	10		11.4	ug/L	114	
SPI01	Q2618273	A964149	BROMODICHLOROMETHANE	0	10		10.3	ug/L	103	
SPI01	Q2618273	A964149	BROMOFORM	0	10		8.41	ug/L	84.1	
SPI01	Q2618273	A964149	BROMOMETHANE	0	10		10.9	ug/L	109	
SPI01	Q2618273	A964149	N-BUTYLBENZENE	0	10		11.6	ug/L	116	
SPI01	Q2618273	A964149	SEC-BUTYLBENZENE	0	10		11.4	ug/L	114	
SPI01	Q2618273	A964149	TERT-BUTYLBENZENE	0	10		11.4	ug/L	114	
SPI01	Q2618273	A964149	CARBON TETRACHLORIDE	0	10		10.6	ug/L	106	
SPI01	Q2618273	A964149	CHLOROBENZENE	0	10		11.6	ug/L	116	
SPI01	Q2618273	A964149	DIBROMOCHLOROMETHANE	0	10		9.88	ug/L	98.8	
SPI01	Q2618273	A964149	CHLOROETHANE	0	10		11	ug/L	110	
SPI01	Q2618273	A964149	CHLOROFORM	0	10		10.6	ug/L	106	
SPI01	Q2618273	A964149	CHLOROMETHANE	0	10		9.53	ug/L	95.3	
SPI01	Q2618273	A964149	2-CHLOROTOLUENE (O-CHLOROTOLUENE)	0	10		11.8	ug/L	118	
SPI01	Q2618273	A964149	4-CHLOROTOLUENE (P-CHLOROTOLUENE)	0	10		11.7	ug/L	117	
SPI01	Q2618273	A964149	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	0	10		10.6	ug/L	106	
SPI01	Q2618273	A964149	1,2-DIBROMOETHANE (EDB)	0	10		11	ug/L	110	
SPI01	Q2618273	A964149	DIBROMOMETHANE	0	10		11.1	ug/L	111	
SPI01	Q2618273	A964149	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	0	10		11.2	ug/L	112	
SPI01	Q2618273	A964149	1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	0	10		11.1	ug/L	111	
SPI01	Q2618273	A964149	1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	0	10		11.3	ug/L	113	
SPI01	Q2618273	A964149	DICHLORODIFLUOROMETHANE	0	10		9.79	ug/L	97.9	
SPI01	Q2618273	A964149	1,1-DICHLOROETHANE	0	10		10.7	ug/L	107	
SPI01	Q2618273	A964149	1,2-DICHLOROETHANE	0	10		10.8	ug/L	108	
SPI01	Q2618273	A964149	1,1-DICHLOROETHENE	0	10		11.8	ug/L	118	
SPI01	Q2618273	A964149	CIS-1,2-DICHLOROETHENE	0	10		11.2	ug/L	112	
SPI01	Q2618273	A964149	TRANS-1,2-DICHLOROETHENE	0	10		11.2	ug/L	112	
SPI01	Q2618273	A964149	1,2-DICHLOROPROPANE	0	10		11.1	ug/L	111	
SPI01	Q2618273	A964149	1,3-DICHLOROPROPANE	0	10		11.5	ug/L	115	
SPI01	Q2618273	A964149	2,2-DICHLOROPROPANE	0	10		10.5	ug/L	105	
SPI01	Q2618273	A964149	1,1-DICHLOROPROPENE	0	10		11.7	ug/L	117	
SPI01	Q2618273	A964149	ETHYL BENZENE	0	10		11.8	ug/L	118	
SPI01	Q2618273	A964149	HEXACHLOROBUTADIENE	0	10		11.3	ug/L	113	
SPI01	Q2618273	A964149	ISOPROPYLBENZENE (CUMENE)	0	10		11.5	ug/L	115	
SPI01	Q2618273	A964149	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	0	10		11.2	ug/L	112	
SPI01	Q2618273	A964149	DICHLOROMETHANE (METHYLENE CHLORIDE)	0	10		9.78	ug/L	97.8	
SPI01	Q2618273	A964149	METHYL ETHYL KETONE	0	50		52.5	ug/L	105	
SPI01	Q2618273	A964149	NAPHTHALENE	0	10		11.6	ug/L	116	
SPI01	Q2618273	A964149	N-PROPYLBENZENE	0	10		11.8	ug/L	118	
SPI01	Q2618273	A964149	STYRENE	0	10		2.35	ug/L	23.5	
SPI01	Q2618273	A964149	1,1,1,2-TETRACHLOROETHANE	0	10		10.9	ug/L	109	
SPI01	Q2618273	A964149	1,1,2,2-TETRACHLOROETHANE	0	10		10.8	ug/L	108	

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
SPI01	Q2618273	A964149	TETRACHLOROETHENE	0	10		11.5	ug/L	115	
SPI01	Q2618273	A964149	TOLUENE	0	10		11.6	ug/L	116	
SPI01	Q2618273	A964149	1,2,3-TRICHLOROBENZENE	0	10		11.8	ug/L	118	
SPI01	Q2618273	A964149	1,2,4-TRICHLOROBENZENE	0	10		11.7	ug/L	117	
SPI01	Q2618273	A964149	1,1,1-TRICHLOROETHANE	0	10		11.1	ug/L	111	
SPI01	Q2618273	A964149	1,1,2-TRICHLOROETHANE	0	10		11.3	ug/L	113	
SPI01	Q2618273	A964149	TRICHLOROETHENE	0	10		11.5	ug/L	115	
SPI01	Q2618273	A964149	TRICHLOROFLUOROMETHANE	0	10		11.5	ug/L	115	
SPI01	Q2618273	A964149	1,2,3-TRICHLOROPROPANE	0	10		10.9	ug/L	109	
SPI01	Q2618273	A964149	1,2,4-TRIMETHYLBENZENE	0	10		11.1	ug/L	111	
SPI01	Q2618273	A964149	1,3,5-TRIMETHYLBENZENE	0	10		11.4	ug/L	114	
SPI01	Q2618273	A964149	VINYL CHLORIDE	0	10		10.6	ug/L	106	
SPI01	Q2618273	A964149	METHYL-T-BUTYL ETHER (MTBE)	0	10		10.4	ug/L	104	
SPI01	Q2618273	A964149	N-HEXANE	0	10		11.3	ug/L	113	
SPI01	Q2618273	A964149	O-XYLENE	0	10		11.5	ug/L	115	
SPI01	Q2618273	A964149	M/P-XYLENE	0	20		23.3	ug/L	116.5	
DPS01	Q2618274	A964149	Analysis Date/Time: 21-Oct-12 11:54							
DPS01	Q2618274	A964149	BENZENE	0	10		10.5	ug/L	105.2	8.9
DPS01	Q2618274	A964149	BROMOBENZENE	0	10		10.3	ug/L	103.4	8.4
DPS01	Q2618274	A964149	BROMOCHLOROMETHANE	0	10		10.1	ug/L	100.8	12.6
DPS01	Q2618274	A964149	BROMODICHLOROMETHANE	0	10		9.25	ug/L	92.5	10.5
DPS01	Q2618274	A964149	BROMOFORM	0	10		7.52	ug/L	75.2	11.2
DPS01	Q2618274	A964149	BROMOMETHANE	0	10		10.3	ug/L	102.9	5.9
DPS01	Q2618274	A964149	N-BUTYLBENZENE	0	10		11	ug/L	109.8	5.1
DPS01	Q2618274	A964149	SEC-BUTYLBENZENE	0	10		10.6	ug/L	106.1	7.2
DPS01	Q2618274	A964149	TERT-BUTYLBENZENE	0	10		10.6	ug/L	105.8	7.7
DPS01	Q2618274	A964149	CARBON TETRACHLORIDE	0	10		9.73	ug/L	97.3	8.3
DPS01	Q2618274	A964149	CHLOROBENZENE	0	10		10.6	ug/L	106.3	8.6
DPS01	Q2618274	A964149	DIBROMOCHLOROMETHANE	0	10		9.07	ug/L	90.7	8.5
DPS01	Q2618274	A964149	CHLOROETHANE	0	10		10.5	ug/L	105.1	4.4
DPS01	Q2618274	A964149	CHLOROFORM	0	10		9.77	ug/L	97.7	7.8
DPS01	Q2618274	A964149	CHLOROMETHANE	0	10		8.67	ug/L	86.7	9.5
DPS01	Q2618274	A964149	2-CHLOROTOLUENE (O-CHLOROTOLUENE)	0	10		10.7	ug/L	107.3	9.8
DPS01	Q2618274	A964149	4-CHLOROTOLUENE (P-CHLOROTOLUENE)	0	10		10.7	ug/L	106.9	9
DPS01	Q2618274	A964149	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	0	10		9.1	ug/L	91	14.9
DPS01	Q2618274	A964149	1,2-DIBROMOETHANE (EDB)	0	10		10	ug/L	100.4	9.1
DPS01	Q2618274	A964149	DIBROMOMETHANE	0	10		10.2	ug/L	102.1	8.1
DPS01	Q2618274	A964149	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	0	10		10.4	ug/L	103.8	7.7
DPS01	Q2618274	A964149	1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	0	10		10.3	ug/L	103.3	7.5
DPS01	Q2618274	A964149	1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	0	10		10.4	ug/L	103.8	8.8
DPS01	Q2618274	A964149	DICHLORODIFLUOROMETHANE	0	10		8.92	ug/L	89.2	9.3
DPS01	Q2618274	A964149	1,1-DICHLOROETHANE	0	10		9.95	ug/L	99.5	7.6
DPS01	Q2618274	A964149	1,2-DICHLOROETHANE	0	10		10.3	ug/L	102.8	5.2
DPS01	Q2618274	A964149	1,1-DICHLOROETHENE	0	10		10.4	ug/L	104.3	12.4

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
DPS01	Q2618274	A964149	CIS-1,2-DICHLOROETHENE	0	10		10.3	ug/L	103	8
DPS01	Q2618274	A964149	TRANS-1,2-DICHLOROETHENE	0	10		10.2	ug/L	102.3	8.9
DPS01	Q2618274	A964149	1,2-DICHLOROPROPANE	0	10		10.4	ug/L	103.5	7.2
DPS01	Q2618274	A964149	1,3-DICHLOROPROPANE	0	10		10.5	ug/L	105.3	8.9
DPS01	Q2618274	A964149	2,2-DICHLOROPROPANE	0	10		9.55	ug/L	95.5	9.2
DPS01	Q2618274	A964149	1,1-DICHLOROPROPENE	0	10		10.2	ug/L	102	14
DPS01	Q2618274	A964149	ETHYL BENZENE	0	10		10.6	ug/L	106.2	10.7
DPS01	Q2618274	A964149	HEXACHLOROBUTADIENE	0	10		11.8	ug/L	117.7	3.7
DPS01	Q2618274	A964149	ISOPROPYLBENZENE (CUMENE)	0	10		10.7	ug/L	106.7	7.4
DPS01	Q2618274	A964149	4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	0	10		10.4	ug/L	104.5	7.3
DPS01	Q2618274	A964149	DICHLOROMETHANE (METHYLENE CHLORIDE)	0	10		9.17	ug/L	91.7	6.4
DPS01	Q2618274	A964149	METHYL ETHYL KETONE	0	50		50	ug/L	100	4.9
DPS01	Q2618274	A964149	NAPHTHALENE	0	10		10.9	ug/L	109.1	6.3
DPS01	Q2618274	A964149	N-PROPYLBENZENE	0	10		11	ug/L	110.1	7.1
DPS01	Q2618274	A964149	STYRENE	0	10		2.08	ug/L	20.8	12.2
DPS01	Q2618274	A964149	1,1,1,2-TETRACHLOROETHANE	0	10		10.2	ug/L	102	6.2
DPS01	Q2618274	A964149	1,1,2,2-TETRACHLOROETHANE	0	10		10.2	ug/L	102.1	5.8
DPS01	Q2618274	A964149	TETRACHLOROETHENE	0	10		10.7	ug/L	106.9	7.1
DPS01	Q2618274	A964149	TOLUENE	0	10		10.6	ug/L	106.2	8.6
DPS01	Q2618274	A964149	1,2,3-TRICHLOROBENZENE	0	10		10.6	ug/L	105.5	10.9
DPS01	Q2618274	A964149	1,2,4-TRICHLOROBENZENE	0	10		10.8	ug/L	107.8	7.9
DPS01	Q2618274	A964149	1,1,1-TRICHLOROETHANE	0	10		9.98	ug/L	99.8	10.6
DPS01	Q2618274	A964149	1,1,2-TRICHLOROETHANE	0	10		10.5	ug/L	104.8	7.3
DPS01	Q2618274	A964149	TRICHLOROETHENE	0	10		10.9	ug/L	108.5	6.2
DPS01	Q2618274	A964149	TRICHLOROFLUOROMETHANE	0	10		10.3	ug/L	103.2	10.6
DPS01	Q2618274	A964149	1,2,3-TRICHLOROPROPANE	0	10		10.3	ug/L	102.8	6.3
DPS01	Q2618274	A964149	1,2,4-TRIMETHYLBENZENE	0	10		10.1	ug/L	100.5	10.3
DPS01	Q2618274	A964149	1,3,5-TRIMETHYLBENZENE	0	10		10.6	ug/L	106.1	7.4
DPS01	Q2618274	A964149	VINYL CHLORIDE	0	10		9.5	ug/L	95	11.2
DPS01	Q2618274	A964149	METHYL-T-BUTYL ETHER (MTBE)	0	10		9.7	ug/L	97	7.1
DPS01	Q2618274	A964149	N-HEXANE	0	10		10.3	ug/L	103.2	9
DPS01	Q2618274	A964149	O-XYLENE	0	10		10.5	ug/L	104.7	9.7
DPS01	Q2618274	A964149	M/P-XYLENE	0	20		21.6	ug/L	108.1	7.4
SAMPLE	A964289		Analysis Date/Time: 21-Oct-12 14:27							
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		Analysis Date/Time: 21-Oct-12 14:53							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		Analysis Date/Time: 21-Oct-12 15:18							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		Analysis Date/Time: 21-Oct-12 15:44							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							

Q2617494 Value reported for analytes calibrated by linear (LIN) or
Q2617494 quadratic (QDR) equations is r2 (Coef. of Determination).
Q2617495 ! COMPOUND FAILS QC CRITERIA HIGH.
Q2618270 Value reported for analytes calibrated by linear (LIN) or quadratic (QDR)
Q2618270 equations is concentration.(UG/L)

HERITAGE ENVIRONMENTAL SERVICES

Quality Assurance Report **63741**

VOLATILE ORGANICS SW846-8260B **O510.7**

R602909 Analyst: H WILLIAMS Run Date: 21-Oct-12
Analytical Reviewer: R SHAMP Review Date: 24-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2618273	2-Chloroethyl vinyl ether degrades under acidic conditions. No recovery									
Q2618273	possible. Unacidified sample not available.									
Q2618274	2-Chloroethyl vinyl ether degrades under acidic conditions. No recovery									
Q2618274	possible. Unacidified sample not available.									

ZINC ICP SW846-6010B **M139.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602586 Analyst: K KAMARA Run Date: 16-Oct-12 Instrument: PREP
Prep Reviewer: S ENDERSEN Review Date: 16-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		Analytical Run: R602629							
LCS	Q2615742		Analytical Run: R602629							
SPI02	Q2615743		Analytical Run: R602629							
DPS02	Q2615744		Analytical Run: R602629							
SAMPLE	A964289	Rep: 0	Analytical Run: R602626							
SAMPLE	A964290	Rep: 0	Analytical Run: R602626							
SAMPLE	A964291	Rep: 0	Analytical Run: R602626							
SAMPLE	A964292	Rep: 0	Analytical Run: R602626							
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

R602626 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
LICV01	Q2616104		ZINC	0.0200			0.0185	mg/L	92.5	
ICV01	Q2616103		ZINC	1			1.01	mg/L	101.0	
CDL01	Q2616098		ZINC	10			10.2	mg/L	102.0	
ICS-AB	Q2616091		ZINC	1.00			0.946	mg/L	94.6	
LCCV	Q2616106		ZINC	0.0200			0.0198	mg/L	99.0	
SER01	Q2616100	A963923	ZINC	0		BDL		mg/L		
CCV	Q2616121		ZINC	5.00			4.80	mg/L	96.0	
BLA01	Q2616108		ZINC			<	0.00800	mg/L		
SAMPLE	A964289		See Certificate of Analysis, Rep: 0							
SAMPLE	A964290		See Certificate of Analysis, Rep: 0							
SAMPLE	A964291		See Certificate of Analysis, Rep: 0							
SAMPLE	A964292		See Certificate of Analysis, Rep: 0							
CCV	Q2616122		ZINC	5.00			4.79	mg/L	95.8	
BLA01	Q2616109		ZINC			<	0.00800	mg/L		
SER01	Q2616136	A963938	ZINC	0		BDL		mg/L		
CDL01	Q2616133		ZINC	0.0200			0.0176	mg/L	88.0	
ICS-AB	Q2616119		ZINC	1.00			0.902	mg/L	90.2	
Q2616100	1:5 Dilution.									
Q2616100	There was possible matrix interference for K and Na									

HERITAGE ENVIRONMENTAL SERVICES

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ZINC ICP SW846-6010B **M139.3**
Prep : FAA/ ICP ACID DIGESTION OF AQUEOUS SAMPLES, TOTAL RECOVERABLE SW846-3005A

R602626 Analyst: V PATEL Run Date: 16-Oct-12
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12 Continued

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
Q2616100	as indicated by the serial dilution results.									
Q2616136	1:5 Dilution.									
Q2616136	There was possible matrix interference for K									
Q2616136	as indicated by the serial dilution results.									

R602629 Analyst: V PATEL Run Date: 16-Oct-12 Instrument: ICP
Analytical Reviewer: S ENDERSEN Review Date: 17-Oct-12

QC Type	Lab ID	Source	Parameter	True / Sample	Spike Value	RQL	Observed	Units	Rec	RPD
BLA02	Q2615741		ZINC				0.00132	mg/L		
LCS	Q2615742		ZINC	0.5			0.455	mg/L	91.0	
SPI02	Q2615743	A964188	ZINC	0.0119	0.500		0.466	mg/L	90.8	
DPS02	Q2615744	A964188	ZINC	0.0119	0.500		0.424	mg/L	82.4	9.7
Q2615744	Suspected matrix interference for this element. The matrix spike results were									
Q2615744	outside control limit criteria. Results for this sample are estimated. (Ca, Fe,									
Q2615744	Mg, Mn, Na)									
Q2615744	QC sample not homogeneous for this element. Matrix spikes had high RPD.									
Q2615744	Results are estimated for this sample. (Ca, Fe, Mg, Mn, Na)									

RQL	Result Qualifier Definition
!	Outside Lab Generated Control Limits
<	Less Than
BDL	Below Detection Limit
CNA	RPD Calculation Not Applicable, < DL
LIN	Linear Regression Used
QDR	Quadratic Equation Used

QC Type	Definition
BLA01	CALIBRATION (INSTRUMENT) BLANK
BLA02	PREPPED (CALIBRATION) BLANK OR METHOD BLANK
CAL01	INITIAL CALIBRATION
CCV	CONTINUING CALIBRATION VERIFICATION
CCVD	CONTINUING CALIBRATION VERIFICATION (USING %D)
CDL01	DETECTION LIMIT STANDARD
DLCS	DUPLICATE LABORATORY CONTROL STANDARD PREPPED
DPS01	DUPLICATE MATRIX SPIKE
DPS02	PREPPED DUPLICATE MATRIX SPIKE
DPS03	DUPLICATE TCLP MATRIX SPIKE
DUP01	DUPLICATE SAMPLE ANALYSIS
DUP02	PREPPED DUPLICATE SAMPLE ANALYSIS
ICS-A	INTERFERENCE CHECK SAMPLE A
ICS-AB	INTERFERENCE CHECK SAMPLE AB
ICV01	INITIAL CALIBRATION VERIFICATION DIFFERENT SOURCE
LCCV	LOW LEVEL CONTINUING CALIBRATION VERIFICATION
LCS	LABORATORY CONTROL SAMPLE PREPPED
LCS01	LABORATORY CONTROL SAMPLE
LFB02H	HIGH LABORATORY FORTIFIED BLANK PREPPED
LFB02L	LOW LABORATORY FORTIFIED BLANK PREPPED
LICV01	LOW LEVEL CALIBRATION VERIFICATION DIFFERENT SOURCE
SER01	ICP SERIAL DILUTION
SPI01	MATRIX SPIKE

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QC Type	Definition
SPI02	PREPPED MATRIX SPIKE
SPI03	TCLP MATRIX SPIKE

Kurt J Maines

Approved By : KURT MAINES