

US EPA ARCHIVE DOCUMENT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-3110-1
Client Project/Site: West Lake Landfill

For:
Engineering Management Support, Inc.
7220 W. Jefferson AVE
Suite 406
Lakewood, Colorado 80235

Attn: Mr. Paul Rosasco

Rhonda Ridenhower

Authorized for release by:
8/7/2013 1:04:21 PM

Rhonda Ridenhower, Customer Service Manager
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Job ID: 160-3110-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Engineering Management Support, Inc.

Project: West Lake Landfill

Report Number: 160-3110-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 07/24/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.0 C.

VOLATILE ORGANIC COMPOUNDS (GC MS)

Samples PURGE TANK (160-3110-1) and TRIP BLANK (160-3110-2) were analyzed for volatile organic compounds (GC MS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 07/25/2013.

No difficulties were encountered during the VOCs analysis.

All quality control parameters were within the acceptance limits.

METALS (ICP)-Dissolved and Total

Sample PURGE TANK (160-3110-1) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 07/29/2013 and analyzed on 07/30/2013.

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Case Narrative

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Job ID: 160-3110-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Due to the high concentration of sodium, the matrix spike / matrix spike duplicate (MS/MSD) for prep batch 63421 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

The following samples were diluted to bring the concentration of target analytes (calcium and sodium) within the calibration range: PURGE TANK (160-3110-1). Elevated reporting limits (RLs) are provided.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

DISSOLVED MERCURY (CVAA)

Sample PURGE TANK (160-3110-1) was analyzed for dissolved mercury (CVAA) in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 07/31/2013.

No difficulties were encountered during the mercury analysis.

All quality control parameters were within the acceptance limits.

TOTAL MERCURY

Sample PURGE TANK (160-3110-1) was analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 07/31/2013.

No difficulties were encountered during the mercury analysis.

All quality control parameters were within the acceptance limits.

ANIONS

Sample PURGE TANK (160-3110-1) was analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 07/24/2013 and 07/26/2013.

The following samples were diluted to bring the concentrations of Chloride, Bromide, and Sulfate within the calibration range in IC batch 64071: PURGE TANK (160-3110-1). Elevated reporting limits (RLs) are provided.

The following sample was diluted to bring the concentration of Chloride within the calibration range in IC batch 64282: PURGE TANK (160-3110-1). An elevated reporting limit (RL) is provided.

No difficulties were encountered during the anions analysis.

All quality control parameters were within the acceptance limits.

ALKALINITY

Sample PURGE TANK (160-3110-1) was analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 07/31/2013.

No difficulties were encountered during the alkalinity analysis.

All quality control parameters were within the acceptance limits.

TestAmerica St. Louis

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 Earth City, MO 63045
 Phone (314) 298-8566 Fax (314) 298-8757

Chain of Custody Record



Client Information Client Contact: Mr. Paul Rosasco Company: Engineering Management Support, Inc. Address: 7220 W. Jefferson AVE Suite 406 City: Lakewood State, Zip: CO, 80235 Phone: Email: paulrosasco@emsdenver.com Project Name: West Lake Landfill- July Site:		Sampler: <i>Jon V. Kravits / Hest + Assoc.</i> Lab PM: Ridenhower, Rhonda E E-Mail: rhonda.ridenhower@testamericainc.com Carrier Tracking No(s): COC No: 160-499-253.1 Page: Page 1 of 10 Job #:	Analysis Requested Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2SO3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:	
Due Date Requested: TAT Requested (days): PO #: Purchase Order not required WO #: Project #: 16002280 SSOW#:		Field Filtered Sample (Yes or No) Perform MS/MS (Yes or No) 310.1 - Alkalinity - 310.0 300 - Anions- 8010 C, 7470A 8280 C - VOA 8280 C - Standard List Disposal - GPC, 7470A		
Sample Identification Sample Date Sample Time Sample Type (C=comp, G=grab) Matrix (Water, Solid, Sewage, BT=Issue, Air)		Total Number of containers		
Preservation Code:		Special Instructions/Note:		
Purge Tank	7/24/2013 1225	G Water		Y N N D A A
Top Blank	7/24/2013 N/A	G Water		N A
		Water		
		Water		
		Water		
		Water		
		Water		
		Water		
		Water		
		Water		
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:		
Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____				
Relinquished by: <i>Jon V. Kravits / Hest + Associates, Inc.</i> Date/Time: <i>7/21/2013 1245</i> Company: <i>Hest + Assoc.</i>		Received by: <i>[Signature]</i> Date/Time: <i>7/24/13 1245</i> Company: <i>JA</i>		
Relinquished by: _____ Date/Time: _____ Company: _____		Received by: _____ Date/Time: _____ Company: _____		
Relinquished by: _____ Date/Time: _____ Company: _____		Received by: _____ Date/Time: _____ Company: _____		
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:		

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Login Sample Receipt Checklist

Client: Engineering Management Support, Inc.

Job Number: 160-3110-1

Login Number: 3110

List Source: TestAmerica St. Louis

List Number: 1

Creator: Daniels, Brian J

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
E	Result exceeded calibration range.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

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Method Summary

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SL
6010C	Metals (ICP)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL SL
300.0	Anions, Ion Chromatography	MCAWW	TAL SL
310.1	Alkalinity	MCAWW	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-3110-1	PURGE TANK	Water	07/24/13 12:25	07/24/13 12:45
160-3110-2	TRIP BLANK	Water	07/24/13 00:00	07/24/13 12:45

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Detection Summary

Client: Engineering Management Support, Inc.
 Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Client Sample ID: PURGE TANK

Lab Sample ID: 160-3110-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.3	J	5.0	0.25	ug/L		1	8260C	Total/NA
Arsenic	4.0	J	10	2.0	ug/L		1	6010C	Total/NA
Barium	260		50	4.0	ug/L		1	6010C	Total/NA
Cadmium	1.2	J	5.0	0.91	ug/L		1	6010C	Total/NA
Calcium	50000	E	1000	110	ug/L		1	6010C	Total/NA
Calcium	56000		10000	1100	ug/L		10	6010C	Total/NA
Chromium	4.5	J	10	3.1	ug/L		1	6010C	Total/NA
Cobalt	5.5	J	50	4.0	ug/L		1	6010C	Total/NA
Iron	1000		100	28	ug/L		1	6010C	Total/NA
Magnesium	43000		1000	130	ug/L		1	6010C	Total/NA
Manganese	75		15	3.3	ug/L		1	6010C	Total/NA
Nickel	13	J	40	13	ug/L		1	6010C	Total/NA
Potassium	12000		5000	1700	ug/L		1	6010C	Total/NA
Selenium	2.9	J	15	2.7	ug/L		1	6010C	Total/NA
Sodium	140000	E	1000	320	ug/L		1	6010C	Total/NA
Sodium	140000		10000	3200	ug/L		10	6010C	Total/NA
Zinc	17	J	20	5.2	ug/L		1	6010C	Total/NA
Arsenic	2.1	J	10	2.0	ug/L		1	6010C	Dissolved
Barium	210		50	4.0	ug/L		1	6010C	Dissolved
Calcium	40000		1000	110	ug/L		1	6010C	Dissolved
Chromium	5.0	J	10	3.1	ug/L		1	6010C	Dissolved
Cobalt	5.5	J	50	4.0	ug/L		1	6010C	Dissolved
Magnesium	43000		1000	130	ug/L		1	6010C	Dissolved
Manganese	27		15	3.3	ug/L		1	6010C	Dissolved
Potassium	12000		5000	1700	ug/L		1	6010C	Dissolved
Sodium	140000	E	1000	320	ug/L		1	6010C	Dissolved
Sodium	130000		10000	3200	ug/L		10	6010C	Dissolved
Zinc	7.1	J	20	5.2	ug/L		1	6010C	Dissolved
Nitrate as N	0.39		0.020	0.0040	mg/L		1	300.0	Total/NA
Bromide	1.4		0.25	0.025	mg/L		1	300.0	Total/NA
Iodide	0.13	J	1.0	0.10	mg/L		1	300.0	Total/NA
Alkalinity	340	B	5.0	0.54	mg/L		1	310.1	Total/NA
Sulfate - DL	57		10	1.0	mg/L		20	300.0	Total/NA
Chloride - RADL	130		20	2.0	mg/L		100	300.0	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 160-3110-2

No Detections.

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This Detection Summary does not include radiochemical test results.

TestAmerica St. Louis

Client Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Client Sample ID: PURGE TANK

Lab Sample ID: 160-3110-1

Date Collected: 07/24/13 12:25

Matrix: Water

Date Received: 07/24/13 12:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			07/25/13 10:34	1
1,1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			07/25/13 10:34	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			07/25/13 10:34	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			07/25/13 10:34	1
1,1-Dichloroethene	ND		5.0	0.37	ug/L			07/25/13 10:34	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			07/25/13 10:34	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			07/25/13 10:34	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			07/25/13 10:34	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			07/25/13 10:34	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			07/25/13 10:34	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			07/25/13 10:34	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			07/25/13 10:34	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			07/25/13 10:34	1
2-Butanone (MEK)	ND		20	0.39	ug/L			07/25/13 10:34	1
2-Hexanone	ND		20	0.59	ug/L			07/25/13 10:34	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			07/25/13 10:34	1
Acetone	ND		20	6.7	ug/L			07/25/13 10:34	1
Benzene	1.3	J	5.0	0.25	ug/L			07/25/13 10:34	1
Bromodichloromethane	ND		5.0	0.25	ug/L			07/25/13 10:34	1
Bromoform	ND		5.0	0.37	ug/L			07/25/13 10:34	1
Bromomethane	ND		10	0.40	ug/L			07/25/13 10:34	1
Carbon disulfide	ND		5.0	0.37	ug/L			07/25/13 10:34	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			07/25/13 10:34	1
Chlorobenzene	ND		5.0	0.38	ug/L			07/25/13 10:34	1
Chloroethane	ND		10	0.38	ug/L			07/25/13 10:34	1
Chloroform	ND		5.0	0.15	ug/L			07/25/13 10:34	1
Chloromethane	ND		10	0.55	ug/L			07/25/13 10:34	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			07/25/13 10:34	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			07/25/13 10:34	1
Cyclohexane	ND		10	0.36	ug/L			07/25/13 10:34	1
Dibromochloromethane	ND		5.0	0.33	ug/L			07/25/13 10:34	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			07/25/13 10:34	1
Ethylbenzene	ND		5.0	0.30	ug/L			07/25/13 10:34	1
Isopropylbenzene	ND		5.0	0.26	ug/L			07/25/13 10:34	1
Methyl acetate	ND		25	2.3	ug/L			07/25/13 10:34	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			07/25/13 10:34	1
Methylcyclohexane	ND		10	0.26	ug/L			07/25/13 10:34	1
Methylene Chloride	ND		5.0	1.7	ug/L			07/25/13 10:34	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			07/25/13 10:34	1
o-Xylene	ND		5.0	0.32	ug/L			07/25/13 10:34	1
Styrene	ND		5.0	0.35	ug/L			07/25/13 10:34	1
Tetrachloroethene	ND		5.0	0.28	ug/L			07/25/13 10:34	1
Toluene	ND		5.0	1.0	ug/L			07/25/13 10:34	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			07/25/13 10:34	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			07/25/13 10:34	1
Trichloroethene	ND		5.0	0.29	ug/L			07/25/13 10:34	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			07/25/13 10:34	1
Vinyl chloride	ND		5.0	0.43	ug/L			07/25/13 10:34	1
Xylenes, Total	ND		10	0.85	ug/L			07/25/13 10:34	1

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TestAmerica St. Louis

Client Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Client Sample ID: PURGE TANK

Lab Sample ID: 160-3110-1

Date Collected: 07/24/13 12:25

Matrix: Water

Date Received: 07/24/13 12:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		82 - 132		07/25/13 10:34	1
4-Bromofluorobenzene (Surr)	106		82 - 121		07/25/13 10:34	1
Dibromofluoromethane (Surr)	100		85 - 119		07/25/13 10:34	1
Toluene-d8 (Surr)	100		85 - 115		07/25/13 10:34	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		200	80	ug/L		07/29/13 11:34	07/30/13 16:19	1
Antimony	ND		10	4.0	ug/L		07/29/13 11:34	07/30/13 16:19	1
Arsenic	4.0	J	10	2.0	ug/L		07/29/13 11:34	07/30/13 16:19	1
Barium	260		50	4.0	ug/L		07/29/13 11:34	07/30/13 16:19	1
Beryllium	ND		5.0	0.61	ug/L		07/29/13 11:34	07/30/13 16:19	1
Cadmium	1.2	J	5.0	0.91	ug/L		07/29/13 11:34	07/30/13 16:19	1
Calcium	50000	E	1000	110	ug/L		07/29/13 11:34	07/30/13 16:19	1
Calcium	56000		10000	1100	ug/L		07/29/13 11:34	07/30/13 16:45	10
Chromium	4.5	J	10	3.1	ug/L		07/29/13 11:34	07/30/13 16:19	1
Cobalt	5.5	J	50	4.0	ug/L		07/29/13 11:34	07/30/13 16:19	1
Copper	ND		25	4.6	ug/L		07/29/13 11:34	07/30/13 16:19	1
Iron	1000		100	28	ug/L		07/29/13 11:34	07/30/13 16:19	1
Lead	ND		10	1.5	ug/L		07/29/13 11:34	07/30/13 16:19	1
Magnesium	43000		1000	130	ug/L		07/29/13 11:34	07/30/13 16:19	1
Manganese	75		15	3.3	ug/L		07/29/13 11:34	07/30/13 16:19	1
Nickel	13	J	40	13	ug/L		07/29/13 11:34	07/30/13 16:19	1
Potassium	12000		5000	1700	ug/L		07/29/13 11:34	07/30/13 16:19	1
Selenium	2.9	J	15	2.7	ug/L		07/29/13 11:34	07/30/13 16:19	1
Silver	ND		10	6.0	ug/L		07/29/13 11:34	07/30/13 16:19	1
Sodium	140000	E	1000	320	ug/L		07/29/13 11:34	07/30/13 16:19	1
Sodium	140000		10000	3200	ug/L		07/29/13 11:34	07/30/13 16:45	10
Thallium	ND		20	4.0	ug/L		07/29/13 11:34	07/30/13 16:19	1
Vanadium	ND		50	4.1	ug/L		07/29/13 11:34	07/30/13 16:19	1
Zinc	17	J	20	5.2	ug/L		07/29/13 11:34	07/30/13 16:19	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		200	80	ug/L		07/29/13 11:34	07/30/13 16:22	1
Antimony	ND		10	4.0	ug/L		07/29/13 11:34	07/30/13 16:22	1
Arsenic	2.1	J	10	2.0	ug/L		07/29/13 11:34	07/30/13 16:22	1
Barium	210		50	4.0	ug/L		07/29/13 11:34	07/30/13 16:22	1
Beryllium	ND		5.0	0.61	ug/L		07/29/13 11:34	07/30/13 16:22	1
Cadmium	ND		5.0	0.91	ug/L		07/29/13 11:34	07/30/13 16:22	1
Calcium	40000		1000	110	ug/L		07/29/13 11:34	07/30/13 16:22	1
Chromium	5.0	J	10	3.1	ug/L		07/29/13 11:34	07/30/13 16:22	1
Cobalt	5.5	J	50	4.0	ug/L		07/29/13 11:34	07/30/13 16:22	1
Copper	ND		25	4.6	ug/L		07/29/13 11:34	07/30/13 16:22	1
Iron	ND		100	28	ug/L		07/29/13 11:34	07/30/13 16:22	1
Lead	ND		10	1.5	ug/L		07/29/13 11:34	07/30/13 16:22	1
Magnesium	43000		1000	130	ug/L		07/29/13 11:34	07/30/13 16:22	1
Manganese	27		15	3.3	ug/L		07/29/13 11:34	07/30/13 16:22	1
Nickel	ND		40	13	ug/L		07/29/13 11:34	07/30/13 16:22	1
Potassium	12000		5000	1700	ug/L		07/29/13 11:34	07/30/13 16:22	1

TestAmerica St. Louis

Client Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Client Sample ID: PURGE TANK

Lab Sample ID: 160-3110-1

Date Collected: 07/24/13 12:25

Matrix: Water

Date Received: 07/24/13 12:45

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		15	2.7	ug/L		07/29/13 11:34	07/30/13 16:22	1
Silver	ND		10	6.0	ug/L		07/29/13 11:34	07/30/13 16:22	1
Sodium	140000	E	1000	320	ug/L		07/29/13 11:34	07/30/13 16:22	1
Sodium	130000		10000	3200	ug/L		07/29/13 11:34	07/30/13 16:49	10
Thallium	ND		20	4.0	ug/L		07/29/13 11:34	07/30/13 16:22	1
Vanadium	ND		50	4.1	ug/L		07/29/13 11:34	07/30/13 16:22	1
Zinc	7.1	J	20	5.2	ug/L		07/29/13 11:34	07/30/13 16:22	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.060	ug/L		07/31/13 12:58	07/31/13 14:26	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.060	ug/L		07/31/13 13:01	07/31/13 13:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.39		0.020	0.0040	mg/L			07/24/13 19:37	1
Bromide	1.4		0.25	0.025	mg/L			07/24/13 19:37	1
Iodide	0.13	J	1.0	0.10	mg/L			07/24/13 21:17	1
Alkalinity	340	B	5.0	0.54	mg/L			07/31/13 09:58	1

General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	57		10	1.0	mg/L			07/24/13 19:53	20

General Chemistry - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	130		20	2.0	mg/L			07/26/13 21:37	100

Client Sample ID: TRIP BLANK

Lab Sample ID: 160-3110-2

Date Collected: 07/24/13 00:00

Matrix: Water

Date Received: 07/24/13 12:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			07/25/13 10:08	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			07/25/13 10:08	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			07/25/13 10:08	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			07/25/13 10:08	1
1,1-Dichloroethene	ND		5.0	0.37	ug/L			07/25/13 10:08	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			07/25/13 10:08	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			07/25/13 10:08	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			07/25/13 10:08	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			07/25/13 10:08	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			07/25/13 10:08	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			07/25/13 10:08	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			07/25/13 10:08	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			07/25/13 10:08	1
2-Butanone (MEK)	ND		20	0.39	ug/L			07/25/13 10:08	1

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Client Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 160-3110-2

Date Collected: 07/24/13 00:00

Matrix: Water

Date Received: 07/24/13 12:45

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Hexanone	ND		20	0.59	ug/L			07/25/13 10:08	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			07/25/13 10:08	1
Acetone	ND		20	6.7	ug/L			07/25/13 10:08	1
Benzene	ND		5.0	0.25	ug/L			07/25/13 10:08	1
Bromodichloromethane	ND		5.0	0.25	ug/L			07/25/13 10:08	1
Bromoform	ND		5.0	0.37	ug/L			07/25/13 10:08	1
Bromomethane	ND		10	0.40	ug/L			07/25/13 10:08	1
Carbon disulfide	ND		5.0	0.37	ug/L			07/25/13 10:08	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			07/25/13 10:08	1
Chlorobenzene	ND		5.0	0.38	ug/L			07/25/13 10:08	1
Chloroethane	ND		10	0.38	ug/L			07/25/13 10:08	1
Chloroform	ND		5.0	0.15	ug/L			07/25/13 10:08	1
Chloromethane	ND		10	0.55	ug/L			07/25/13 10:08	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			07/25/13 10:08	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			07/25/13 10:08	1
Cyclohexane	ND		10	0.36	ug/L			07/25/13 10:08	1
Dibromochloromethane	ND		5.0	0.33	ug/L			07/25/13 10:08	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			07/25/13 10:08	1
Ethylbenzene	ND		5.0	0.30	ug/L			07/25/13 10:08	1
Isopropylbenzene	ND		5.0	0.26	ug/L			07/25/13 10:08	1
Methyl acetate	ND		25	2.3	ug/L			07/25/13 10:08	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			07/25/13 10:08	1
Methylcyclohexane	ND		10	0.26	ug/L			07/25/13 10:08	1
Methylene Chloride	ND		5.0	1.7	ug/L			07/25/13 10:08	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			07/25/13 10:08	1
o-Xylene	ND		5.0	0.32	ug/L			07/25/13 10:08	1
Styrene	ND		5.0	0.35	ug/L			07/25/13 10:08	1
Tetrachloroethene	ND		5.0	0.28	ug/L			07/25/13 10:08	1
Toluene	ND		5.0	1.0	ug/L			07/25/13 10:08	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			07/25/13 10:08	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			07/25/13 10:08	1
Trichloroethene	ND		5.0	0.29	ug/L			07/25/13 10:08	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			07/25/13 10:08	1
Vinyl chloride	ND		5.0	0.43	ug/L			07/25/13 10:08	1
Xylenes, Total	ND		10	0.85	ug/L			07/25/13 10:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		82 - 132					07/25/13 10:08	1
4-Bromofluorobenzene (Surr)	103		82 - 121					07/25/13 10:08	1
Dibromofluoromethane (Surr)	99		85 - 119					07/25/13 10:08	1
Toluene-d8 (Surr)	98		85 - 115					07/25/13 10:08	1

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QC Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 160-63151/2

Matrix: Water

Analysis Batch: 63151

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			07/25/13 09:16	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			07/25/13 09:16	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			07/25/13 09:16	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			07/25/13 09:16	1
1,1-Dichloroethene	ND		5.0	0.37	ug/L			07/25/13 09:16	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			07/25/13 09:16	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			07/25/13 09:16	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			07/25/13 09:16	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			07/25/13 09:16	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			07/25/13 09:16	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			07/25/13 09:16	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			07/25/13 09:16	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			07/25/13 09:16	1
2-Butanone (MEK)	ND		20	0.39	ug/L			07/25/13 09:16	1
2-Hexanone	ND		20	0.59	ug/L			07/25/13 09:16	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			07/25/13 09:16	1
Acetone	ND		20	6.7	ug/L			07/25/13 09:16	1
Benzene	ND		5.0	0.25	ug/L			07/25/13 09:16	1
Bromodichloromethane	ND		5.0	0.25	ug/L			07/25/13 09:16	1
Bromoform	ND		5.0	0.37	ug/L			07/25/13 09:16	1
Bromomethane	ND		10	0.40	ug/L			07/25/13 09:16	1
Carbon disulfide	ND		5.0	0.37	ug/L			07/25/13 09:16	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			07/25/13 09:16	1
Chlorobenzene	ND		5.0	0.38	ug/L			07/25/13 09:16	1
Chloroethane	ND		10	0.38	ug/L			07/25/13 09:16	1
Chloroform	ND		5.0	0.15	ug/L			07/25/13 09:16	1
Chloromethane	ND		10	0.55	ug/L			07/25/13 09:16	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			07/25/13 09:16	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			07/25/13 09:16	1
Cyclohexane	ND		10	0.36	ug/L			07/25/13 09:16	1
Dibromochloromethane	ND		5.0	0.33	ug/L			07/25/13 09:16	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			07/25/13 09:16	1
Ethylbenzene	ND		5.0	0.30	ug/L			07/25/13 09:16	1
Isopropylbenzene	ND		5.0	0.26	ug/L			07/25/13 09:16	1
Methyl acetate	ND		25	2.3	ug/L			07/25/13 09:16	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			07/25/13 09:16	1
Methylcyclohexane	ND		10	0.26	ug/L			07/25/13 09:16	1
Methylene Chloride	ND		5.0	1.7	ug/L			07/25/13 09:16	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			07/25/13 09:16	1
o-Xylene	ND		5.0	0.32	ug/L			07/25/13 09:16	1
Styrene	ND		5.0	0.35	ug/L			07/25/13 09:16	1
Tetrachloroethene	ND		5.0	0.28	ug/L			07/25/13 09:16	1
Toluene	ND		5.0	1.0	ug/L			07/25/13 09:16	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			07/25/13 09:16	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			07/25/13 09:16	1
Trichloroethene	ND		5.0	0.29	ug/L			07/25/13 09:16	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			07/25/13 09:16	1
Vinyl chloride	ND		5.0	0.43	ug/L			07/25/13 09:16	1

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TestAmerica St. Louis

QC Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 160-63151/2

Matrix: Water

Analysis Batch: 63151

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		10	0.85	ug/L			07/25/13 09:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		82 - 132		07/25/13 09:16	1
4-Bromofluorobenzene (Surr)	109		82 - 121		07/25/13 09:16	1
Dibromofluoromethane (Surr)	104		85 - 119		07/25/13 09:16	1
Toluene-d8 (Surr)	105		85 - 115		07/25/13 09:16	1

Lab Sample ID: LCS 160-63151/4

Matrix: Water

Analysis Batch: 63151

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	50.0	48.7		ug/L		97	85 - 115
1,1,2,2-Tetrachloroethane	50.0	49.4		ug/L		99	84 - 115
1,1,2-Trichloroethane	50.0	48.5		ug/L		97	85 - 115
1,1-Dichloroethane	50.0	49.2		ug/L		98	85 - 115
1,1-Dichloroethene	50.0	45.7		ug/L		91	85 - 118
1,2,4-Trichlorobenzene	50.0	53.2		ug/L		106	75 - 124
1,2-Dibromo-3-Chloropropane	50.0	52.6		ug/L		105	71 - 123
1,2-Dibromoethane (EDB)	50.0	50.2		ug/L		100	85 - 115
1,2-Dichlorobenzene	50.0	51.0		ug/L		102	85 - 115
1,2-Dichloroethane	50.0	48.4		ug/L		97	79 - 122
1,2-Dichloropropane	50.0	46.6		ug/L		93	85 - 115
1,3-Dichlorobenzene	50.0	51.8		ug/L		104	85 - 115
1,4-Dichlorobenzene	50.0	50.6		ug/L		101	85 - 115
2-Butanone (MEK)	50.0	44.7		ug/L		89	71 - 123
2-Hexanone	50.0	46.8		ug/L		94	66 - 121
4-Methyl-2-pentanone (MIBK)	50.0	45.6		ug/L		91	74 - 123
Acetone	50.0	46.8		ug/L		94	51 - 140
Benzene	50.0	49.8		ug/L		100	85 - 115
Bromodichloromethane	50.0	45.7		ug/L		91	85 - 117
Bromoform	50.0	49.4		ug/L		99	85 - 115
Bromomethane	50.0	55.4		ug/L		111	70 - 135
Carbon disulfide	50.0	48.2		ug/L		96	85 - 123
Carbon tetrachloride	50.0	46.5		ug/L		93	85 - 118
Chlorobenzene	50.0	51.8		ug/L		104	85 - 115
Chloroethane	50.0	48.3		ug/L		97	75 - 125
Chloroform	50.0	48.7		ug/L		97	85 - 115
Chloromethane	50.0	47.2		ug/L		94	73 - 132
cis-1,2-Dichloroethene	50.0	49.3		ug/L		99	85 - 115
cis-1,3-Dichloropropene	50.0	49.7		ug/L		99	85 - 127
Cyclohexane	50.0	50.5		ug/L		101	73 - 115
Dibromochloromethane	50.0	49.2		ug/L		98	85 - 115
Dichlorodifluoromethane	50.0	44.5		ug/L		89	62 - 115
Ethylbenzene	50.0	50.4		ug/L		101	85 - 115
Isopropylbenzene	50.0	51.4		ug/L		103	85 - 124
Methyl acetate	250	240		ug/L		96	73 - 135

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QC Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 160-63151/4

Matrix: Water

Analysis Batch: 63151

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	50.0	48.3		ug/L		97	73 - 115
Methylcyclohexane	50.0	48.9		ug/L		98	85 - 134
Methylene Chloride	50.0	48.1		ug/L		96	84 - 115
m-Xylene & p-Xylene	50.0	51.5		ug/L		103	85 - 115
o-Xylene	50.0	50.4		ug/L		101	85 - 115
Styrene	50.0	52.0		ug/L		104	85 - 115
Tetrachloroethene	50.0	51.1		ug/L		102	85 - 115
Toluene	50.0	52.7		ug/L		105	85 - 115
trans-1,2-Dichloroethene	50.0	50.4		ug/L		101	85 - 115
trans-1,3-Dichloropropene	50.0	49.7		ug/L		99	85 - 123
Trichloroethene	50.0	48.4		ug/L		97	85 - 115
Trichlorofluoromethane	50.0	46.7		ug/L		93	85 - 116
Vinyl chloride	50.0	45.6		ug/L		91	68 - 133
Xylenes, Total	100	102		ug/L		102	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		82 - 132
4-Bromofluorobenzene (Surr)	99		82 - 121
Dibromofluoromethane (Surr)	100		85 - 119
Toluene-d8 (Surr)	103		85 - 115

Lab Sample ID: LCSD 160-63151/5

Matrix: Water

Analysis Batch: 63151

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	50.0	49.3		ug/L		99	85 - 115	1	20
1,1,1,2-Tetrachloroethane	50.0	48.0		ug/L		96	84 - 115	3	20
1,1,1,2-Trichloroethane	50.0	49.4		ug/L		99	85 - 115	2	20
1,1-Dichloroethane	50.0	49.9		ug/L		100	85 - 115	1	20
1,1-Dichloroethene	50.0	45.6		ug/L		91	85 - 118	0	20
1,2,4-Trichlorobenzene	50.0	48.4		ug/L		97	75 - 124	9	20
1,2-Dibromo-3-Chloropropane	50.0	49.6		ug/L		99	71 - 123	6	20
1,2-Dibromoethane (EDB)	50.0	50.3		ug/L		101	85 - 115	0	20
1,2-Dichlorobenzene	50.0	51.8		ug/L		104	85 - 115	2	20
1,2-Dichloroethane	50.0	47.9		ug/L		96	79 - 122	1	20
1,2-Dichloropropane	50.0	46.9		ug/L		94	85 - 115	0	20
1,3-Dichlorobenzene	50.0	51.9		ug/L		104	85 - 115	0	20
1,4-Dichlorobenzene	50.0	50.7		ug/L		101	85 - 115	0	20
2-Butanone (MEK)	50.0	43.0		ug/L		86	71 - 123	4	20
2-Hexanone	50.0	47.2		ug/L		94	66 - 121	1	20
4-Methyl-2-pentanone (MIBK)	50.0	47.8		ug/L		96	74 - 123	5	20
Acetone	50.0	43.8		ug/L		88	51 - 140	7	20
Benzene	50.0	49.5		ug/L		99	85 - 115	1	20
Bromodichloromethane	50.0	47.3		ug/L		95	85 - 117	3	20
Bromoform	50.0	46.7		ug/L		93	85 - 115	6	20
Bromomethane	50.0	53.9		ug/L		108	70 - 135	3	20
Carbon disulfide	50.0	47.1		ug/L		94	85 - 123	2	20

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QC Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 160-63151/5

Matrix: Water

Analysis Batch: 63151

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD
									Limit
Carbon tetrachloride	50.0	47.0		ug/L		94	85 - 118	1	20
Chlorobenzene	50.0	51.2		ug/L		102	85 - 115	1	20
Chloroethane	50.0	47.9		ug/L		96	75 - 125	1	20
Chloroform	50.0	48.4		ug/L		97	85 - 115	1	20
Chloromethane	50.0	46.1		ug/L		92	73 - 132	2	20
cis-1,2-Dichloroethene	50.0	49.7		ug/L		99	85 - 115	1	20
cis-1,3-Dichloropropene	50.0	49.1		ug/L		98	85 - 127	1	20
Cyclohexane	50.0	50.3		ug/L		101	73 - 115	0	20
Dibromochloromethane	50.0	50.3		ug/L		101	85 - 115	2	20
Dichlorodifluoromethane	50.0	44.6		ug/L		89	62 - 115	0	20
Ethylbenzene	50.0	51.9		ug/L		104	85 - 115	3	20
Isopropylbenzene	50.0	52.0		ug/L		104	85 - 124	1	20
Methyl acetate	250	225		ug/L		90	73 - 135	7	20
Methyl tert-butyl ether	50.0	48.2		ug/L		96	73 - 115	0	20
Methylcyclohexane	50.0	49.4		ug/L		99	85 - 134	1	20
Methylene Chloride	50.0	48.0		ug/L		96	84 - 115	0	20
m-Xylene & p-Xylene	50.0	52.7		ug/L		105	85 - 115	2	20
o-Xylene	50.0	51.5		ug/L		103	85 - 115	2	20
Styrene	50.0	48.0		ug/L		96	85 - 115	8	20
Tetrachloroethene	50.0	51.6		ug/L		103	85 - 115	1	20
Toluene	50.0	52.7		ug/L		105	85 - 115	0	20
trans-1,2-Dichloroethene	50.0	49.0		ug/L		98	85 - 115	3	20
trans-1,3-Dichloropropene	50.0	50.8		ug/L		102	85 - 123	2	20
Trichloroethene	50.0	48.0		ug/L		96	85 - 115	1	20
Trichlorofluoromethane	50.0	45.1		ug/L		90	85 - 116	4	20
Vinyl chloride	50.0	44.2		ug/L		88	68 - 133	3	20
Xylenes, Total	100	104		ug/L		104	70 - 130	2	20

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	92		82 - 132
4-Bromofluorobenzene (Surr)	100		82 - 121
Dibromofluoromethane (Surr)	99		85 - 119
Toluene-d8 (Surr)	101		85 - 115

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 160-63421/1-A

Matrix: Water

Analysis Batch: 63920

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 63421

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aluminum	ND		200	80	ug/L		07/29/13 11:34	07/30/13 15:44	1
Antimony	ND		10	4.0	ug/L		07/29/13 11:34	07/30/13 15:44	1
Arsenic	ND		10	2.0	ug/L		07/29/13 11:34	07/30/13 15:44	1
Barium	ND		50	4.0	ug/L		07/29/13 11:34	07/30/13 15:44	1
Beryllium	ND		5.0	0.61	ug/L		07/29/13 11:34	07/30/13 15:44	1
Cadmium	ND		5.0	0.91	ug/L		07/29/13 11:34	07/30/13 15:44	1
Calcium	ND		1000	110	ug/L		07/29/13 11:34	07/30/13 15:44	1

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QC Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 160-63421/1-A

Matrix: Water

Analysis Batch: 63920

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 63421

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chromium	ND		10	3.1	ug/L		07/29/13 11:34	07/30/13 15:44	1
Cobalt	ND		50	4.0	ug/L		07/29/13 11:34	07/30/13 15:44	1
Copper	ND		25	4.6	ug/L		07/29/13 11:34	07/30/13 15:44	1
Iron	ND		100	28	ug/L		07/29/13 11:34	07/30/13 15:44	1
Lead	ND		10	1.5	ug/L		07/29/13 11:34	07/30/13 15:44	1
Magnesium	ND		1000	130	ug/L		07/29/13 11:34	07/30/13 15:44	1
Manganese	ND		15	3.3	ug/L		07/29/13 11:34	07/30/13 15:44	1
Nickel	ND		40	13	ug/L		07/29/13 11:34	07/30/13 15:44	1
Potassium	ND		5000	1700	ug/L		07/29/13 11:34	07/30/13 15:44	1
Selenium	ND		15	2.7	ug/L		07/29/13 11:34	07/30/13 15:44	1
Silver	ND		10	6.0	ug/L		07/29/13 11:34	07/30/13 15:44	1
Sodium	ND		1000	320	ug/L		07/29/13 11:34	07/30/13 15:44	1
Thallium	ND		20	4.0	ug/L		07/29/13 11:34	07/30/13 15:44	1
Vanadium	ND		50	4.1	ug/L		07/29/13 11:34	07/30/13 15:44	1
Zinc	ND		20	5.2	ug/L		07/29/13 11:34	07/30/13 15:44	1

Lab Sample ID: LCS 160-63421/2-A

Matrix: Water

Analysis Batch: 63920

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 63421

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Aluminum	10000	9790		ug/L		98	80 - 120
Antimony	500	510		ug/L		102	80 - 120
Arsenic	1000	987		ug/L		99	80 - 120
Barium	1000	1030		ug/L		103	80 - 120
Beryllium	1000	1020		ug/L		102	80 - 120
Cadmium	1000	1010		ug/L		101	80 - 120
Calcium	10000	10400		ug/L		104	80 - 120
Chromium	1000	1030		ug/L		103	80 - 120
Cobalt	1000	1040		ug/L		104	80 - 120
Copper	1000	1030		ug/L		103	80 - 120
Iron	10000	10200		ug/L		102	80 - 120
Lead	1000	1050		ug/L		105	80 - 120
Magnesium	10000	10000		ug/L		100	80 - 120
Manganese	1000	1020		ug/L		102	80 - 120
Nickel	1000	1030		ug/L		103	80 - 120
Potassium	10000	9920		ug/L		99	80 - 120
Selenium	1000	1010		ug/L		101	80 - 120
Silver	100	86.9		ug/L		87	80 - 120
Sodium	10000	10100		ug/L		101	80 - 120
Thallium	200	222		ug/L		111	80 - 120
Vanadium	1000	989		ug/L		99	80 - 120
Zinc	1000	1010		ug/L		101	80 - 120

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TestAmerica St. Louis

QC Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 160-64080/1-A

Matrix: Water

Analysis Batch: 64103

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64080

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.060	ug/L		07/31/13 12:58	07/31/13 13:53	1

Lab Sample ID: LCS 160-64080/2-A

Matrix: Water

Analysis Batch: 64103

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64080

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.28		ug/L		106	80 - 120

Lab Sample ID: MB 160-64081/1-A

Matrix: Water

Analysis Batch: 64103

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64081

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.060	ug/L		07/31/13 13:01	07/31/13 13:40	1

Lab Sample ID: LCS 160-64081/2-A

Matrix: Water

Analysis Batch: 64103

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64081

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.10		ug/L		102	80 - 120

Lab Sample ID: 160-3110-1 MS

Matrix: Water

Analysis Batch: 64103

Client Sample ID: PURGE TANK

Prep Type: Dissolved

Prep Batch: 64081

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		5.00	5.14		ug/L		103	80 - 120

Lab Sample ID: 160-3110-1 MSD

Matrix: Water

Analysis Batch: 64103

Client Sample ID: PURGE TANK

Prep Type: Dissolved

Prep Batch: 64081

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		5.00	4.90		ug/L		98	80 - 120	5	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 160-62933/9

Matrix: Water

Analysis Batch: 62933

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iodide	ND		1.0	0.10	mg/L			07/24/13 16:18	1

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TestAmerica St. Louis

QC Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 160-62933/10

Matrix: Water

Analysis Batch: 62933

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iodide	4.00	4.04		mg/L		101	90 - 110

Lab Sample ID: MB 160-64071/3

Matrix: Water

Analysis Batch: 64071

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.020	0.0040	mg/L			07/24/13 12:30	1
Chloride	ND		0.20	0.020	mg/L			07/24/13 12:30	1
Bromide	ND		0.25	0.025	mg/L			07/24/13 12:30	1
Sulfate	ND		0.50	0.050	mg/L			07/24/13 12:30	1

Lab Sample ID: LCS 160-64071/4

Matrix: Water

Analysis Batch: 64071

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.400	0.400		mg/L		100	90 - 110
Chloride	2.00	1.90		mg/L		95	90 - 110
Bromide	2.00	1.99		mg/L		99	90 - 110
Sulfate	8.00	7.54		mg/L		94	90 - 110

Lab Sample ID: 160-3110-1 MS

Matrix: Water

Analysis Batch: 64071

Client Sample ID: PURGE TANK

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.39		0.400	0.813		mg/L		105	90 - 110
Bromide	1.4		2.00	3.51		mg/L		104	90 - 110

Lab Sample ID: 160-3110-1 DU

Matrix: Water

Analysis Batch: 64071

Client Sample ID: PURGE TANK

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	0.39		0.394		mg/L		0.01	20
Bromide	1.4		1.45		mg/L		1	20

Lab Sample ID: MB 160-64282/3

Matrix: Water

Analysis Batch: 64282

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.020	0.0040	mg/L			07/26/13 15:47	1
Chloride	ND		0.20	0.020	mg/L			07/26/13 15:47	1
Bromide	ND		0.25	0.025	mg/L			07/26/13 15:47	1
Sulfate	ND		0.50	0.050	mg/L			07/26/13 15:47	1

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QC Sample Results

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 160-64282/4

Matrix: Water

Analysis Batch: 64282

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.400	0.391		mg/L		98	90 - 110
Chloride	2.00	1.89		mg/L		95	90 - 110
Bromide	2.00	1.95		mg/L		98	90 - 110
Sulfate	8.00	7.52		mg/L		94	90 - 110

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 160-3110-1 MS

Matrix: Water

Analysis Batch: 64071

Client Sample ID: PURGE TANK

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate - DL	57		80.0	135		mg/L		97	90 - 110

Lab Sample ID: 160-3110-1 DU

Matrix: Water

Analysis Batch: 64071

Client Sample ID: PURGE TANK

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate - DL	57		56.8		mg/L		0.4	20

Method: 300.0 - Anions, Ion Chromatography - RADL

Lab Sample ID: 160-3110-1 MS

Matrix: Water

Analysis Batch: 64282

Client Sample ID: PURGE TANK

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride - RADL	130		200	327		mg/L		97	90 - 110

Lab Sample ID: 160-3110-1 DU

Matrix: Water

Analysis Batch: 64282

Client Sample ID: PURGE TANK

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride - RADL	130		131		mg/L		1	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 160-63939/1

Matrix: Water

Analysis Batch: 63939

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	0.250	J	1.3	0.14	mg/L			07/31/13 09:58	1

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QC Sample Results

Client: Engineering Management Support, Inc.
 Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 310.1 - Alkalinity (Continued)

Lab Sample ID: LCS 160-63939/3

Matrix: Water

Analysis Batch: 63939

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	400	376		mg/L		94	90 - 110

Lab Sample ID: LLCS 160-63939/2

Matrix: Water

Analysis Batch: 63939

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	200	190		mg/L		95	90 - 110

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QC Association Summary

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

GC/MS VOA

Analysis Batch: 63151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1	PURGE TANK	Total/NA	Water	8260C	
160-3110-2	TRIP BLANK	Total/NA	Water	8260C	
LCS 160-63151/4	Lab Control Sample	Total/NA	Water	8260C	
LCS D 160-63151/5	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 160-63151/2	Method Blank	Total/NA	Water	8260C	

Metals

Prep Batch: 63421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1	PURGE TANK	Dissolved	Water	3010A	
160-3110-1	PURGE TANK	Total/NA	Water	3010A	
LCS 160-63421/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-63421/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 63920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1	PURGE TANK	Dissolved	Water	6010C	63421
160-3110-1	PURGE TANK	Dissolved	Water	6010C	63421
160-3110-1	PURGE TANK	Total/NA	Water	6010C	63421
160-3110-1	PURGE TANK	Total/NA	Water	6010C	63421
LCS 160-63421/2-A	Lab Control Sample	Total/NA	Water	6010C	63421
MB 160-63421/1-A	Method Blank	Total/NA	Water	6010C	63421

Prep Batch: 64080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1	PURGE TANK	Total/NA	Water	7470A	
LCS 160-64080/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 160-64080/1-A	Method Blank	Total/NA	Water	7470A	

Prep Batch: 64081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1	PURGE TANK	Dissolved	Water	7470A	
160-3110-1 MS	PURGE TANK	Dissolved	Water	7470A	
160-3110-1 MSD	PURGE TANK	Dissolved	Water	7470A	
LCS 160-64081/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 160-64081/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 64103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1	PURGE TANK	Dissolved	Water	7470A	64081
160-3110-1	PURGE TANK	Total/NA	Water	7470A	64080
160-3110-1 MS	PURGE TANK	Dissolved	Water	7470A	64081
160-3110-1 MSD	PURGE TANK	Dissolved	Water	7470A	64081
LCS 160-64080/2-A	Lab Control Sample	Total/NA	Water	7470A	64080
LCS 160-64081/2-A	Lab Control Sample	Total/NA	Water	7470A	64081
MB 160-64080/1-A	Method Blank	Total/NA	Water	7470A	64080
MB 160-64081/1-A	Method Blank	Total/NA	Water	7470A	64081

TestAmerica St. Louis

QC Association Summary

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

General Chemistry

Analysis Batch: 62933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1	PURGE TANK	Total/NA	Water	300.0	
LCS 160-62933/10	Lab Control Sample	Total/NA	Water	300.0	
MB 160-62933/9	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 63939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1	PURGE TANK	Total/NA	Water	310.1	
LCS 160-63939/3	Lab Control Sample	Total/NA	Water	310.1	
LLCS 160-63939/2	Lab Control Sample	Total/NA	Water	310.1	
MB 160-63939/1	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 64071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1	PURGE TANK	Total/NA	Water	300.0	
160-3110-1 - DL	PURGE TANK	Total/NA	Water	300.0	
160-3110-1 DU	PURGE TANK	Total/NA	Water	300.0	
160-3110-1 DU - DL	PURGE TANK	Total/NA	Water	300.0	
160-3110-1 MS	PURGE TANK	Total/NA	Water	300.0	
160-3110-1 MS - DL	PURGE TANK	Total/NA	Water	300.0	
LCS 160-64071/4	Lab Control Sample	Total/NA	Water	300.0	
MB 160-64071/3	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 64282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-3110-1 - RADL	PURGE TANK	Total/NA	Water	300.0	
160-3110-1 DU - RADL	PURGE TANK	Total/NA	Water	300.0	
160-3110-1 MS - RADL	PURGE TANK	Total/NA	Water	300.0	
LCS 160-64282/4	Lab Control Sample	Total/NA	Water	300.0	
MB 160-64282/3	Method Blank	Total/NA	Water	300.0	

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Surrogate Summary

Client: Engineering Management Support, Inc.
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-3110-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	12DCE	BFB	DBFM	TOL
		(82-132)	(82-121)	(85-119)	(85-115)
160-3110-1	PURGE TANK	96	106	100	100
160-3110-2	TRIP BLANK	95	103	99	98
LCS 160-63151/4	Lab Control Sample	99	99	100	103
LCSD 160-63151/5	Lab Control Sample Dup	92	100	99	101
MB 160-63151/2	Method Blank	101	109	104	105

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

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