GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
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August 29, 2018

Mr. Jason Litwiller
URS
2425 River Road (c/o SPRU DP)
Niskayuna, New York 12309

Re: SPRU Disposition Project
Work Order: 457973

Dear Mr. Litwiller:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 23, 2018. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4778.

Sincerely,

Taylor Cannon for
Hope Taylor
Project Manager

Chain of Custody: 18-COC-35
Enclosures

Table of Contents

Chain of Custody and Supporting Documentation

SPRU DP OFF-SITE CHAIN-OF-CUSTODY FORM

Page: 1 of 1
Project #: SPRU DP
COC Number (1): 18-COC-35

SPRU DP Off-Site Chain-of-Custody and Analytical Request Form

Work Order or Sample Delivery Group (SDG) Number: 457973

Laboratory Address:
GEL Laboratories, LLC
2040 Savage Rd
Charleston, SC 29407

Client Name: AECOM (c/o Jason Litwiller) Phone #: 518-225-8513

Project/Site Name: SPRU Disposition Project

Address: 2401 River Rd. (SP-24) Niskayuna, NY 12309

Collected by: Jason Litwiller
Send Results: Jason Litwiller
Reference: Samples- SPRU-ENV-020, Fig 13 – SWMU-082

Sample Analysis Requested (5) (Fill in the number of containers for each test, X for analyses run from another container.)

Sample ID* (* Must be obtain from Sample Coordinator)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	Sample Code(2)	Field Filtered (3)	Sample Matrix (4)	Should this Sample be considered: Radioactive (Y or N)	Should this Sample be considered: TSCA Regulated (Y or N)	Total number of containers		Gamma Spec	Alpha Spec – Th232	Alpha Spec – U	TAL Metals incl Hg (Se by SW6020)	TCL VOCs (SW8260), For this gray till soil, purge and trap & medium level with methanol extraction	SVOCs (SW8270)	< --Preservative Type (6) Sample Description (required) Note: Additional sample is required for sample-specific QC (as needed)
SFT01	8/22/18	1400	N	N	SO	N	N	5					X	X		Soil, from frac tank (FT) area - located NW of FT THDS-1. Encore vials (4) and 250ml

TAT Requested (working days): Normal: Rush: X- 5 Day Specify below:

E-mail Results (Yes/No): Yes

Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards:*

No (clean confirmation sample). VOC samples taken from 6-12" depth. Soil is dry, black topsoil. PID had no detection.
Per Mike Boerste, freeze VOC (soil) containers upon receipt at GEL Labs to extend hold time longer than 48 hours. Dedicated sample equipment.
Please return cooler & ice packs.

Chain of Custody Signatures				Sample Shipping and Delivery Details	
Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time	Lab PM: Hope Taylor	
1.Jason Litwiller	8/22/18	1600	1.	8/23/18	855	Method of Shipment: Fed Ex	Date Shipped: 08/22/18
2.			2.			Airbill #: 7730 3901 3417	

1) Chain of Custody Number = Client Determined
2) Sample Codes: **N** = Normal Sample, , **C** = Composite*, **TB** = Trip Blank, **EB** = Equipment Blank, FB – Field Blank *NOTE: All samples are grab samples unless otherwise specified
3) Field Filtered: For liquid matrices, indicate with a –Y- for yes the sample was field filtered or –N- for sample was not field filtered.
4) Matrix Codes: **GW**=Groundwater, **WW**=Waste Water, **W**=Water, **ML**=Misc. Liquid, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **MW**=Misc. Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, SM=smear(s), MET=metal, CON-concrete
5) Sample Analysis Requested: Analytical suite (e.g., Gamma spec (full suite), TCLP metals) or analytical method requested (e.g., Alpha spec (specify isotopes), 8260B (VOCs), 6010B/7470A (total metals +Hg) and number of containers provided for each..
6) Preservative Type: **HA** =Hydrochloric Acid, **NI** =Nitric Acid, **SH** =Sodium Hydroxide, **SA** =Sulfuric Acid, **AA** =Ascorbic Acid, **HX** = Hexane, **ST** =Sodium Thiosulfate, If no preservative is added = leave field blank.

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: C

GEL | Laboratories LLC HT

SAMPLE RECEIPT & REVIEW FORM

Client: URSC	**SDG/AR/COC/Work Order:** 457973
Received By: AJK	**Date Received:** 8/23/18
Carrier and Tracking Number	Circle Applicable: (FedEx Express) FedEx Ground UPS Field Services Courier Other 7730 3513 5820 (5 coolers) – 23° 7730 3901 3417 – 6° (soil kit + jar)

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?	✓		Maximum Net Counts Observed* (Observed Counts - Area Background Counts): Ø CPM / mR/Hr Classified as: (Rad 1) Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		✓	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: See above
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR2-18 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?		✓		Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	✓			If Yes, Are Encores or Soil Kits present? Yes ✓ No___ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ✓ No___ N/A (If unknown, select No) VOA vials free of headspace? Yes No ✓ N/A Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials VG Date 8/24/18 Page 1 of 1

GL-CHL-SR-001 Rev 5

Laboratory Certifications

List of current GEL Certifications as of 29 August 2018

State	Certification
Alaska	17−018
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122018−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Data Package Qualifier Definitions

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
URS Energy & Construction (URSC)
SDG #: 457973

Product: **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method: SW846 5035A/8260C
Analytical Procedure: GL-OA-E-038 REV# 26
Analytical Batch: 1797202

Preparation Method: SW846 5035A
Preparation Procedure: GL-OA-E-039 REV# 12
Preparation Batch: 1797201

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
457973001	SFT01
1204102625	Method Blank (MB)
1204102626	Laboratory Control Sample (LCS)
1204102627	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

Continuing Calibration Verification Requirements
The calibration verification standard requirements were not all met for sample 457973001 (SFT01). The daily CCV analyzed on 8/27/18 was biased high for Bromomethane at 29.1%D. Less than 20% of the analytes were outside the method criteria. This satisfies the method criteria. The results are reported.

Quality Control (QC) Information

Blank (MB) Statement
Target analytes were detected in the blank 1204102625 (MB) below the reporting limit.

LCS/LCSD Relative Percent Difference (RPD) Statement
The RPD between the LCS/LCSD pair (See Below) were not all within the acceptance limits.

Sample	Analyte	Value
1204102626 (LCS) and 1204102627 (LCSD)	Bromomethane	RPD 24* (0%-20%)

Technical Information

Sample Re-extraction/Re-analysis
Sample 457973001 (SFT01) was re-analyzed and reported due to possible carry-over from a previously analyzed

sample. Sample 457973001 (SFT01) was analyzed neat and using a methanol dilution extraction procedure. Both sets of results are reported.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

URSC013 URS Energy & Construction (2012-SC-SPRU-29463-171)

Client SDG: 457973 GEL Work Order: 457973

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
B The target analyte was detected in the associated blank.
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name: Erin Haubert**

Date: 28 AUG 2018 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: August 28, 2018

Company : URS
Address : 2425 River Road (c/o SPRU DP)

Niskayuna, New York 12309
Contact: Mr. Jason Litwiller
Project: SPRU Disposition Project

Client Sample ID: SFT01 | Project: URSC00211
Sample ID: 457973001 | Client ID: URSC013
Matrix: Soil
Collect Date: 22-AUG-18 14:00
Receive Date: 23-AUG-18
Collector: Client
Moisture: 11.8%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
SW846 8260C Volatiles "Dry Weight Corrected"												
1,1,1-Trichloroethane	U	ND	0.451	3.01	ug/kg	1.33	1	RXY1	08/27/18	2007	1797202	1
1,1,2,2-Tetrachloroethane	U	ND	0.451	3.01	ug/kg	1.33	1					
1,1,2-Trichloroethane	U	ND	0.451	3.01	ug/kg	1.33	1					
1,1-Dichloroethane	U	ND	0.451	3.01	ug/kg	1.33	1					
1,1-Dichloroethylene	U	ND	0.451	3.01	ug/kg	1.33	1					
1,2,3-Trichlorobenzene	U	ND	0.451	3.01	ug/kg	1.33	1					
1,2,4-Trichlorobenzene	U	ND	0.451	3.01	ug/kg	1.33	1					
1,2-Dibromo-3-chloropropane	U	ND	0.752	3.01	ug/kg	1.33	1					
1,2-Dibromoethane	U	ND	0.451	3.01	ug/kg	1.33	1					
1,2-Dichlorobenzene	U	ND	0.451	3.01	ug/kg	1.33	1					
1,2-Dichloroethane	U	ND	0.451	3.01	ug/kg	1.33	1					
1,2-Dichloropropane	U	ND	0.451	3.01	ug/kg	1.33	1					
1,3-Dichlorobenzene	U	ND	0.451	3.01	ug/kg	1.33	1					
1,4-Dichlorobenzene	U	ND	0.451	3.01	ug/kg	1.33	1					
1,4-Dioxane	U	ND	22.6	75.2	ug/kg	1.33	1					
2-Butanone	U	ND	4.51	15.0	ug/kg	1.33	1					
2-Hexanone	U	ND	4.51	15.0	ug/kg	1.33	1					
4-Methyl-2-pentanone	U	ND	4.51	15.0	ug/kg	1.33	1					
Acetone	U	ND	4.51	15.0	ug/kg	1.33	1					
Benzene	U	ND	0.451	3.01	ug/kg	1.33	1					
Bromochloromethane	U	ND	0.451	3.01	ug/kg	1.33	1					
Bromodichloromethane	U	ND	0.451	3.01	ug/kg	1.33	1					
Bromoform	U	ND	0.451	3.01	ug/kg	1.33	1					
Bromomethane	U	ND	0.451	3.01	ug/kg	1.33	1					
Carbon disulfide	U	ND	2.41	15.0	ug/kg	1.33	1					
Carbon tetrachloride	U	ND	0.451	3.01	ug/kg	1.33	1					
Chlorobenzene	U	ND	0.451	3.01	ug/kg	1.33	1					
Chloroethane	U	ND	0.451	3.01	ug/kg	1.33	1					
Chloroform	U	ND	0.451	3.01	ug/kg	1.33	1					
Chloromethane	U	ND	0.451	3.01	ug/kg	1.33	1					
Cyclohexane	U	ND	0.451	3.01	ug/kg	1.33	1					
Dibromochloromethane	U	ND	0.451	3.01	ug/kg	1.33	1					
Dichlorodifluoromethane	U	ND	0.451	3.01	ug/kg	1.33	1					
Ethylbenzene	U	ND	0.451	3.01	ug/kg	1.33	1					
Isopropylbenzene	U	ND	0.451	3.01	ug/kg	1.33	1					
Methyl acetate	U	ND	2.26	7.52	ug/kg	1.33	1					

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Certificate of Analysis

Report Date: August 28, 2018

Company : URS
Address : 2425 River Road (c/o SPRU DP)

Niskayuna, New York 12309
Contact: Mr. Jason Litwiller
Project: SPRU Disposition Project

Client Sample ID: SFT01 Project: URSC00211
Sample ID: 457973001 Client ID: URSC013

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
SW846 8260C Volatiles "Dry Weight Corrected"												
Methylcyclohexane	U	ND	0.451	3.01	ug/kg	1.33	1					
Methylene chloride	U	ND	2.41	7.52	ug/kg	1.33	1					
Styrene	U	ND	0.451	3.01	ug/kg	1.33	1					
Tetrachloroethylene	U	ND	0.451	3.01	ug/kg	1.33	1					
Toluene	U	ND	0.451	3.01	ug/kg	1.33	1					
Trichloroethylene	U	ND	0.451	3.01	ug/kg	1.33	1					
Trichlorofluoromethane	U	ND	0.451	3.01	ug/kg	1.33	1					
Trichlorotrifluoroethane	U	ND	2.41	7.52	ug/kg	1.33	1					
Vinyl chloride	U	ND	0.451	3.01	ug/kg	1.33	1					
cis-1,2-Dichloroethylene	U	ND	0.451	3.01	ug/kg	1.33	1					
cis-1,3-Dichloropropylene	U	ND	0.451	3.01	ug/kg	1.33	1					
m,p-Xylenes	U	ND	0.451	6.02	ug/kg	1.33	1					
o-Xylene	U	ND	0.451	3.01	ug/kg	1.33	1					
tert-Butyl methyl ether	U	ND	0.451	3.01	ug/kg	1.33	1					
trans-1,2-Dichloroethylene	U	ND	0.451	3.01	ug/kg	1.33	1					
trans-1,3-Dichloropropylene	U	ND	0.451	3.01	ug/kg	1.33	1					
1,1,1-Trichloroethane	U	ND	47.0	313	ug/kg	2.76	50	RXY1	08/27/18	1936	1797202	2
1,1,2,2-Tetrachloroethane	U	ND	47.0	313	ug/kg	2.76	50					
1,1,2-Trichloroethane	U	ND	47.0	313	ug/kg	2.76	50					
1,1-Dichloroethane	U	ND	47.0	313	ug/kg	2.76	50					
1,1-Dichloroethylene	U	ND	47.0	313	ug/kg	2.76	50					
1,2,3-Trichlorobenzene	U	ND	47.0	313	ug/kg	2.76	50					
1,2,4-Trichlorobenzene	U	ND	47.0	313	ug/kg	2.76	50					
1,2-Dibromo-3-chloropropane	U	ND	78.3	313	ug/kg	2.76	50					
1,2-Dibromoethane	U	ND	47.0	313	ug/kg	2.76	50					
1,2-Dichlorobenzene	U	ND	47.0	313	ug/kg	2.76	50					
1,2-Dichloroethane	U	ND	47.0	313	ug/kg	2.76	50					
1,2-Dichloropropane	U	ND	47.0	313	ug/kg	2.76	50					
1,3-Dichlorobenzene	U	ND	47.0	313	ug/kg	2.76	50					
1,4-Dichlorobenzene	U	ND	47.0	313	ug/kg	2.76	50					
1,4-Dioxane	U	ND	2350	7830	ug/kg	2.76	50					
2-Butanone	U	ND	470	1570	ug/kg	2.76	50					
2-Hexanone	U	ND	470	1570	ug/kg	2.76	50					
4-Methyl-2-pentanone	U	ND	470	1570	ug/kg	2.76	50					
Acetone	U	ND	470	1570	ug/kg	2.76	50					
Benzene	U	ND	47.0	313	ug/kg	2.76	50					

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Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Volatile Organics												
SW846 8260C Volatiles "Dry Weight Corrected"												
Bromochloromethane	U	ND	47.0	313	ug/kg	2.76	50					
Bromodichloromethane	U	ND	47.0	313	ug/kg	2.76	50					
Bromoform	U	ND	47.0	313	ug/kg	2.76	50					
Bromomethane	U	ND	47.0	313	ug/kg	2.76	50					
Carbon disulfide	U	ND	251	1570	ug/kg	2.76	50					
Carbon tetrachloride	U	ND	47.0	313	ug/kg	2.76	50					
Chlorobenzene	U	ND	47.0	313	ug/kg	2.76	50					
Chloroethane	U	ND	47.0	313	ug/kg	2.76	50					
Chloroform	U	ND	47.0	313	ug/kg	2.76	50					
Chloromethane	U	ND	47.0	313	ug/kg	2.76	50					
Cyclohexane	U	ND	47.0	313	ug/kg	2.76	50					
Dibromochloromethane	U	ND	47.0	313	ug/kg	2.76	50					
Dichlorodifluoromethane	U	ND	47.0	313	ug/kg	2.76	50					
Ethylbenzene	U	ND	47.0	313	ug/kg	2.76	50					
Isopropylbenzene	U	ND	47.0	313	ug/kg	2.76	50					
Methyl acetate	U	ND	235	783	ug/kg	2.76	50					
Methylcyclohexane	U	ND	47.0	313	ug/kg	2.76	50					
Methylene chloride	U	ND	251	783	ug/kg	2.76	50					
Styrene	U	ND	47.0	313	ug/kg	2.76	50					
Tetrachloroethylene	U	ND	47.0	313	ug/kg	2.76	50					
Toluene	U	ND	47.0	313	ug/kg	2.76	50					
Trichloroethylene	U	ND	47.0	313	ug/kg	2.76	50					
Trichlorofluoromethane	U	ND	47.0	313	ug/kg	2.76	50					
Trichlorotrifluoroethane	U	ND	251	783	ug/kg	2.76	50					
Vinyl chloride	U	ND	47.0	313	ug/kg	2.76	50					
cis-1,2-Dichloroethylene	U	ND	47.0	313	ug/kg	2.76	50					
cis-1,3-Dichloropropylene	U	ND	47.0	313	ug/kg	2.76	50					
m,p-Xylenes	U	ND	47.0	627	ug/kg	2.76	50					
o-Xylene	U	ND	47.0	313	ug/kg	2.76	50					
tert-Butyl methyl ether	U	ND	47.0	313	ug/kg	2.76	50					
trans-1,2-Dichloroethylene	U	ND	47.0	313	ug/kg	2.76	50					
trans-1,3-Dichloropropylene	U	ND	47.0	313	ug/kg	2.76	50					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035A	5035A/8260C Prep	RXY1	08/22/18	1400	1797201

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Client Sample ID: SFT01 Project: URSC00211
Sample ID: 457973001 Client ID: URSC013

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 5035A/8260C	
2	SW846 5035A/8260C	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	SW846 8260C Volatiles "Dry Weight Corrected"	77.0 ug/kg	50.0	102	(81%-124%)
Bromofluorobenzene	SW846 8260C Volatiles "Dry Weight Corrected"	78.1 ug/kg	50.0	104	(70%-130%)
Toluene-d8	SW846 8260C Volatiles "Dry Weight Corrected"	78.3 ug/kg	50.0	104	(81%-120%)
1,2-Dichloroethane-d4	SW846 8260C Volatiles "Dry Weight Corrected"	7860 ug/kg	50.0	100	(81%-124%)
Bromofluorobenzene	SW846 8260C Volatiles "Dry Weight Corrected"	7620 ug/kg	50.0	97	(70%-130%)
Toluene-d8	SW846 8260C Volatiles "Dry Weight Corrected"	7570 ug/kg	50.0	97	(81%-120%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Summary

QC Summary

Report Date: August 28, 2018

URS
2425 River Road (c/o SPRU DP)
Niskayuna, New York

Contact: **Mr. Jason Litwiller**

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
QC1204102626 LCS											
1,1,1-Trichloroethane	50.0			53.8	ug/kg		108	(70%-130%)	RXY1	08/27/18	13:00
1,1,2,2-Tetrachloroethane	50.0			49.9	ug/kg		100	(70%-130%)			
1,1,2-Trichloroethane	50.0			46.5	ug/kg		93	(70%-130%)			
1,1-Dichloroethane	50.0			52.3	ug/kg		105	(70%-130%)			
1,1-Dichloroethylene	50.0			56.0	ug/kg		112	(70%-130%)			
1,2,3-Trichlorobenzene	50.0		B	45.9	ug/kg		92	(70%-130%)			
1,2,4-Trichlorobenzene	50.0		B	46.6	ug/kg		93	(70%-130%)			
1,2-Dibromo-3-chloropropane	50.0			48.4	ug/kg		97	(70%-130%)			
1,2-Dibromoethane	50.0			48.5	ug/kg		97	(70%-130%)			
1,2-Dichlorobenzene	50.0			48.2	ug/kg		96	(70%-130%)			
1,2-Dichloroethane	50.0			52.2	ug/kg		104	(70%-130%)			
1,2-Dichloropropane	50.0			51.7	ug/kg		103	(70%-130%)			
1,3-Dichlorobenzene	50.0			47.5	ug/kg		95	(70%-130%)			
1,4-Dichlorobenzene	50.0			47.3	ug/kg		95	(70%-130%)			

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
2-Butanone	250			274	ug/kg		110	(70%-130%)	RXY1	08/27/18	13:00
2-Hexanone	250			275	ug/kg		110	(70%-130%)			
4-Methyl-2-pentanone	250			240	ug/kg		96	(70%-130%)			
Acetone	250			291	ug/kg		116	(70%-130%)			
Benzene	50.0			50.7	ug/kg		101	(70%-130%)			
Bromochloromethane	50.0			49.4	ug/kg		99	(70%-130%)			
Bromodichloromethane	50.0			51.7	ug/kg		103	(70%-130%)			
Bromoform	50.0			49.0	ug/kg		98	(70%-130%)			
Bromomethane	50.0			51.1	ug/kg		102	(70%-130%)			
Carbon disulfide	250			280	ug/kg		112	(70%-130%)			
Carbon tetrachloride	50.0			55.1	ug/kg		110	(70%-130%)			
Chlorobenzene	50.0			48.0	ug/kg		96	(70%-130%)			
Chloroethane	50.0			48.7	ug/kg		97	(70%-130%)			
Chloroform	50.0			52.9	ug/kg		106	(70%-130%)			
Chloromethane	50.0			49.3	ug/kg		99	(70%-130%)			

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
Cyclohexane	50.0			49.3	ug/kg		99	(70%-130%)	RXY1	08/27/18	13:00
Dibromochloromethane	50.0			48.1	ug/kg		96	(70%-130%)			
Dichlorodifluoromethane	50.0			44.1	ug/kg		88	(70%-130%)			
Ethylbenzene	50.0			48.9	ug/kg		98	(70%-130%)			
Isopropylbenzene	50.0			47.2	ug/kg		94	(70%-130%)			
Methyl acetate	250			259	ug/kg		104	(70%-130%)			
Methylcyclohexane	50.0			48.3	ug/kg		97	(70%-130%)			
Methylene chloride	50.0			52.4	ug/kg		105	(70%-130%)			
Styrene	50.0			47.2	ug/kg		94	(70%-130%)			
Tetrachloroethylene	50.0			47.0	ug/kg		94	(70%-130%)			
Toluene	50.0			45.1	ug/kg		90	(70%-130%)			
Trichloroethylene	50.0			52.8	ug/kg		106	(70%-130%)			
Trichlorofluoromethane	50.0			50.6	ug/kg		101	(70%-130%)			
Vinyl chloride	50.0			51.4	ug/kg		103	(70%-130%)			
cis-1,2-Dichloroethylene	50.0			49.6	ug/kg		99	(70%-130%)			

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
cis-1,3-Dichloropropylene	50.0			51.7	ug/kg		103	(70%-130%)	RXY1	08/27/18	13:00
m,p-Xylenes	100			96.3	ug/kg		96	(70%-130%)			
o-Xylene	50.0			48.5	ug/kg		97	(70%-130%)			
tert-Butyl methyl ether	50.0			50.8	ug/kg		102	(70%-130%)			
trans-1,2-Dichloroethylene	50.0			55.4	ug/kg		111	(70%-130%)			
trans-1,3-Dichloropropylene	50.0			46.5	ug/kg		93	(70%-130%)			
**1,2-Dichloroethane-d4	50.0			52.3	ug/L		105	(81%-124%)			
**Bromofluorobenzene	50.0			49.5	ug/L		99	(70%-130%)			
**Toluene-d8	50.0			46.3	ug/L		93	(81%-120%)			
QC1204102627 LCSD											
1,1,1-Trichloroethane	50.0			55.3	ug/kg	3	111	(0%-20%)		08/27/18	16:36
1,1,2,2-Tetrachloroethane	50.0			51.2	ug/kg	3	102	(0%-20%)			
1,1,2-Trichloroethane	50.0			48.8	ug/kg	5	98	(0%-20%)			
1,1-Dichloroethane	50.0			54.8	ug/kg	5	110	(0%-20%)			
1,1-Dichloroethylene	50.0			54.5	ug/kg	3	109	(0%-20%)			
1,2,3-Trichlorobenzene	50.0		B	47.7	ug/kg	4	95	(0%-20%)			

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
1,2,4-Trichlorobenzene	50.0		B	48.8	ug/kg	5	98	(0%-20%)	RXY1	08/27/18	16:36
1,2-Dibromo-3-chloropropane	50.0			47.8	ug/kg	1	96	(0%-20%)			
1,2-Dibromoethane	50.0			48.6	ug/kg	0	97	(0%-20%)			
1,2-Dichlorobenzene	50.0			49.2	ug/kg	2	98	(0%-20%)			
1,2-Dichloroethane	50.0			51.5	ug/kg	1	103	(0%-20%)			
1,2-Dichloropropane	50.0			54.0	ug/kg	4	108	(0%-20%)			
1,3-Dichlorobenzene	50.0			47.9	ug/kg	1	96	(0%-20%)			
1,4-Dichlorobenzene	50.0			48.7	ug/kg	3	97	(0%-20%)			
2-Butanone	250			308	ug/kg	11	123	(0%-20%)			
2-Hexanone	250			289	ug/kg	5	116	(0%-20%)			
4-Methyl-2-pentanone	250			264	ug/kg	9	105	(0%-20%)			
Acetone	250			311	ug/kg	7	124	(0%-20%)			
Benzene	50.0			50.9	ug/kg	0	102	(0%-20%)			
Bromochloromethane	50.0			50.5	ug/kg	2	101	(0%-20%)			
Bromodichloromethane	50.0			52.9	ug/kg	2	106	(0%-20%)			

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
Bromoform	50.0			47.5	ug/kg	3	95	(0%-20%)	RXY1	08/27/18	16:36
Bromomethane	50.0			64.9	ug/kg	24*	130	(0%-20%)			
Carbon disulfide	250			277	ug/kg	1	111	(0%-20%)			
Carbon tetrachloride	50.0			54.0	ug/kg	2	108	(0%-20%)			
Chlorobenzene	50.0			50.3	ug/kg	5	101	(0%-20%)			
Chloroethane	50.0			50.8	ug/kg	4	102	(0%-20%)			
Chloroform	50.0			53.4	ug/kg	1	107	(0%-20%)			
Chloromethane	50.0			51.4	ug/kg	4	103	(0%-20%)			
Cyclohexane	50.0			50.9	ug/kg	3	102	(0%-20%)			
Dibromochloromethane	50.0			47.7	ug/kg	1	95	(0%-20%)			
Dichlorodifluoromethane	50.0			46.7	ug/kg	6	93	(0%-20%)			
Ethylbenzene	50.0			47.5	ug/kg	3	95	(0%-20%)			
Isopropylbenzene	50.0			48.5	ug/kg	3	97	(0%-20%)			
Methyl acetate	250			244	ug/kg	6	98	(0%-20%)			
Methylcyclohexane	50.0			49.1	ug/kg	1	98	(0%-20%)			

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
Methylene chloride	50.0			52.0	ug/kg	1	104	(0%-20%)	RXY1	08/27/18	16:36
Styrene	50.0			46.3	ug/kg	2	93	(0%-20%)			
Tetrachloroethylene	50.0			46.6	ug/kg	1	93	(0%-20%)			
Toluene	50.0			48.6	ug/kg	8	97	(0%-20%)			
Trichloroethylene	50.0			54.3	ug/kg	3	109	(0%-20%)			
Trichlorofluoromethane	50.0			53.6	ug/kg	6	107	(0%-20%)			
Vinyl chloride	50.0			53.2	ug/kg	3	106	(0%-20%)			
cis-1,2-Dichloroethylene	50.0			51.5	ug/kg	4	103	(0%-20%)			
cis-1,3-Dichloropropylene	50.0			53.3	ug/kg	3	107	(0%-20%)			
m,p-Xylenes	100			94.6	ug/kg	2	95	(0%-20%)			
o-Xylene	50.0			47.1	ug/kg	3	94	(0%-20%)			
tert-Butyl methyl ether	50.0			49.1	ug/kg	3	98	(0%-20%)			
trans-1,2-Dichloroethylene	50.0			53.8	ug/kg	3	108	(0%-20%)			
trans-1,3-Dichloropropylene	50.0			49.7	ug/kg	7	99	(0%-20%)			
**1,2-Dichloroethane-d4	50.0			51.3	ug/L		103	(81%-124%)			

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
**Bromofluorobenzene	50.0			49.4	ug/L		99	(70%-130%)	RXY1	08/27/18	16:36
**Toluene-d8	50.0			48.4	ug/L		97	(81%-120%)			
QC1204102625 MB											
1,1,1-Trichloroethane			U	ND	ug/kg					08/27/18	14:02
1,1,2,2-Tetrachloroethane			U	ND	ug/kg						
1,1,2-Trichloroethane			U	ND	ug/kg						
1,1-Dichloroethane			U	ND	ug/kg						
1,1-Dichloroethylene			U	ND	ug/kg						
1,2,3-Trichlorobenzene			J	0.450	ug/kg						
1,2,4-Trichlorobenzene			J	0.400	ug/kg						
1,2-Dibromo-3-chloropropane			U	ND	ug/kg						
1,2-Dibromoethane			U	ND	ug/kg						
1,2-Dichlorobenzene			U	ND	ug/kg						
1,2-Dichloroethane			U	ND	ug/kg						
1,2-Dichloropropane			U	ND	ug/kg						
1,3-Dichlorobenzene			U	ND	ug/kg						

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
1,4-Dichlorobenzene			U	ND	ug/kg				RXY1	08/27/18	14:02
1,4-Dioxane			U	ND	ug/kg						
2-Butanone			U	ND	ug/kg						
2-Hexanone			U	ND	ug/kg						
4-Methyl-2-pentanone			U	ND	ug/kg						
Acetone			U	ND	ug/kg						
Benzene			U	ND	ug/kg						
Bromochloromethane			U	ND	ug/kg						
Bromodichloromethane			U	ND	ug/kg						
Bromoform			U	ND	ug/kg						
Bromomethane			U	ND	ug/kg						
Carbon disulfide			U	ND	ug/kg						
Carbon tetrachloride			U	ND	ug/kg						
Chlorobenzene			U	ND	ug/kg						
Chloroethane			U	ND	ug/kg						

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1797202											
Chloroform			U	ND	ug/kg				RXY1	08/27/18	14:02
Chloromethane			U	ND	ug/kg						
Cyclohexane			U	ND	ug/kg						
Dibromochloromethane			U	ND	ug/kg						
Dichlorodifluoromethane			U	ND	ug/kg						
Ethylbenzene			U	ND	ug/kg						
Isopropylbenzene			U	ND	ug/kg						
Methyl acetate			U	ND	ug/kg						
Methylcyclohexane			U	ND	ug/kg						
Methylene chloride			U	ND	ug/kg						
Styrene			U	ND	ug/kg						
Tetrachloroethylene			U	ND	ug/kg						
Toluene			U	ND	ug/kg						
Trichloroethylene			U	ND	ug/kg						
Trichlorofluoromethane			U	ND	ug/kg						

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1797202										
Trichlorotrifluoroethane			U	ND	ug/kg				RXY1	08/27/18 14:02
Vinyl chloride			U	ND	ug/kg					
cis-1,2-Dichloroethylene			U	ND	ug/kg					
cis-1,3-Dichloropropylene			U	ND	ug/kg					
m,p-Xylenes			U	ND	ug/kg					
o-Xylene			U	ND	ug/kg					
tert-Butyl methyl ether			U	ND	ug/kg					
trans-1,2-Dichloroethylene			U	ND	ug/kg					
trans-1,3-Dichloropropylene			U	ND	ug/kg					
**1,2-Dichloroethane-d4	50.0			51.1	ug/L		102	(81%-124%)		
**Bromofluorobenzene	50.0			47.4	ug/L		95	(70%-130%)		
**Toluene-d8	50.0			51.3	ug/L		103	(81%-120%)		

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B The target analyte was detected in the associated blank.

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N	Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UJ	Compound cannot be extracted
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
URS Energy & Construction (URSC)
SDG #: 457973

Product: Determination of Metals by ICP
Analytical Method: SW846 3050B/6010D
Analytical Procedure: GL-MA-E-013 REV# 30
Analytical Batch: 1796100

Product: Determination of Metals by ICP-MS
Analytical Method: SW846 3050B/6020
Analytical Procedure: GL-MA-E-014 REV# 32
Analytical Batch: 1796163

Product: Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer
Analytical Method: SW846 7471A
Analytical Procedure: GL-MA-E-010 REV# 36
Analytical Batch: 1796452

Preparation Method: SW846 3050B
Preparation Procedure: GL-MA-E-009 REV# 28
Preparation Batches: 1796099 and 1796162

Preparation Method: SW846 7471A Prep
Preparation Procedure: GL-MA-E-010 REV# 36
Preparation Batch: 1796451

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
457973001	SFT01
1204100041	Method Blank (MB)**ICP**
1204100042	Laboratory Control Sample (LCS)
1204100045	457973001(SFT01L) Serial Dilution (SD)
1204100043	457973001(SFT01S) Matrix Spike (MS)
1204100044	457973001(SFT01SD) Matrix Spike Duplicate (MSD)
1204103017	457973001(SFT01PS) Post Spike (PS)
1204100190	Method Blank (MB)**ICP-MS**
1204100191	Laboratory Control Sample (LCS)
1204100194	457973001(SFT01L) Serial Dilution (SD)
1204100192	457973001(SFT01D) Sample Duplicate (DUP)
1204100193	457973001(SFT01S) Matrix Spike (MS)
1204100816	Method Blank (MB)**CVAA**
1204100817	Laboratory Control Sample (LCS)
1204100823	458027001(NonSDGL) Serial Dilution (SD)
1204100819	458027001(NonSDGS) Matrix Spike (MS)
1204100822	458027001(NonSDGSD) Matrix Spike Duplicate (MSD)
1204100824	458027001(NonSDGPS) Post Spike (PS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Quality Control (QC) Information

Matrix Spike (MS/MSD) Recovery Statement
The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analytes. The post spike recoveries were within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recoveries may be attributed to possible sample matrix interference and/or non-homogeneity.

Sample	Analyte	Value
1204100043 (SFT01MS)	Cobalt	74.6* (75%-125%)
1204100819 (Non SDG 458027001MS)	Mercury	3.09* (80%-120%)
1204100822 (Non SDG 458027001MSD)	Mercury	42.3* (80%-120%)

MS/MSD Relative Percent Difference (RPD) Statement
The RPD values between qualifying analyte results in the MS and MSD were not within the acceptance limits. Sample non-homogeneity and/or possible matrix interferences may be suspected.

Sample	Analyte	Value
1204100043MS and 1204100044MSD (SFT01)	Calcium	RPD 46.3* (0%-20%)
	Magnesium	RPD 41.9* (0%-20%)

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. Samples (See Below) did not meet holding time requirements due to insufficient time remaining to meet the hold times.

Sample	Analyte	Value
1204100819 (Non SDG 458027001MS)	Mercury	Received 13-AUG-18, within holding, analyzed 27-AUG-18, out of holding 25-AUG-18
1204100822 (Non SDG 458027001MSD)	Mercury	Received 13-AUG-18, within holding, analyzed 27-AUG-18, out of holding 25-AUG-18
1204100823 (Non SDG 458027001SDILT)	Mercury	Received 13-AUG-18, within holding, analyzed 27-AUG-18, out of holding 25-AUG-18
1204100824 (Non SDG 458027001PS)	Mercury	Received 13-AUG-18, within holding, analyzed 27-AUG-18, out of holding 25-AUG-18

Preparation/Analytical Method Verification
Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment. Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Sample Dilutions
Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. The ICPMS solid samples in this SDG were diluted the standard two times. ICP-MS.

Analyte	**457973**
	001
Selenium	2X

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

URSC013 URS Energy & Construction (2012-SC-SPRU-29463-171)

Client SDG: 457973 GEL Work Order: 457973

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
B Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
H Analytical holding time was exceeded
J Value is estimated
N Metals--The Matrix spike sample recovery is not within specified control limits
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Kristen Mizzell **Name: Kristen Mizzell**

Date: 28 AUG 2018 **Title: Team Leader**

Sample Data Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: August 28, 2018

Company : URS
Address : 2425 River Road (c/o SPRU DP)

Niskayuna, New York 12309
Contact: Mr. Jason Litwiller
Project: SPRU Disposition Project

Client Sample ID: SFT01 | Project: URSC00211
Sample ID: 457973001 | Client ID: URSC013
Matrix: Soil
Collect Date: 22-AUG-18 14:00
Receive Date: 23-AUG-18
Collector: Client
Moisture: 11.8%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA												
7471 Cold Vapor Hg in Solid "Dry Weight Corrected"												
Mercury		0.0422	0.00442	0.0132	mg/kg	58.1	1	MTM1	08/27/18	1246	1796452	1
Metals Analysis-ICP												
SW846 3050B/6010D Metals, Solid "Dry Weight Corrected"												
Aluminum		6750	7.24	21.3	mg/kg	93.8	1	TXT1	08/27/18	2002	1796100	2
Antimony	J	0.919	0.351	1.06	mg/kg	93.8	1					
Arsenic		8.80	0.532	3.19	mg/kg	93.8	1					
Barium		47.7	0.106	0.532	mg/kg	93.8	1					
Beryllium	J	0.501	0.106	0.532	mg/kg	93.8	1					
Cadmium	J	0.120	0.106	0.532	mg/kg	93.8	1					
Calcium		18800	8.51	26.6	mg/kg	93.8	1					
Chromium		11.0	0.160	0.532	mg/kg	93.8	1					
Cobalt		7.43	0.160	0.532	mg/kg	93.8	1					
Copper		25.1	0.319	1.06	mg/kg	93.8	1					
Iron		17700	8.51	26.6	mg/kg	93.8	1					
Lead		15.4	0.351	1.06	mg/kg	93.8	1					
Magnesium		9960	9.04	31.9	mg/kg	93.8	1					
Manganese		365	0.213	1.06	mg/kg	93.8	1					
Nickel		16.0	0.160	0.532	mg/kg	93.8	1					
Potassium		753	6.81	26.6	mg/kg	93.8	1					
Silver	J	0.338	0.106	0.532	mg/kg	93.8	1					
Sodium		56.0	7.45	26.6	mg/kg	93.8	1					
Thallium	U	ND	0.532	2.13	mg/kg	93.8	1					
Vanadium		15.4	0.106	0.532	mg/kg	93.8	1					
Zinc		158	0.426	1.06	mg/kg	93.8	1					
Metals Analysis-ICP-MS												
6020 MIMICP SCAN Metals "Dry Weight Corrected"												
Selenium	J	0.513	0.383	1.06	mg/kg	93.8	2	SKJ	08/24/18	1700	1796163	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3050B	ICP-MS 3050BS PREP	SXW1	08/24/18	0929	1796162
SW846 3050B	SW846 3050B Prep	SXW1	08/24/18	0919	1796099
SW846 7471A Prep	EPA 7471A Mercury Prep Soil	AXS5	08/24/18	1408	1796451

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: August 28, 2018

Company :	URS
Address :	2425 River Road (c/o SPRU DP)
	Niskayuna, New York 12309
Contact:	Mr. Jason Litwiller
Project:	SPRU Disposition Project

Client Sample ID:	SFT01	Project:	URSC00211
Sample ID:	457973001	Client ID:	URSC013

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 7471A	
2	SW846 3050B/6010D	
3	SW846 3050B/6020	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Quality Control Summary

QC Summary

Report Date: August 28, 2018

URS
2425 River Road (c/o SPRU DP)
Niskayuna, New York

Contact: **Mr. Jason Litwiller**

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1796163										
QC1204100192 457973001 DUP										
Selenium	J	0.513	U	ND	mg/kg	200 ^			SKJ	08/24/18 17:03
QC1204100191 LCS										
Selenium	4.88			4.12	mg/kg		84.3	(80%-120%)		08/24/18 16:56
QC1204100190 MB										
Selenium			U	ND	mg/kg					08/24/18 16:53
QC1204100193 457973001 MS										
Selenium	5.34 J	0.513		4.92	mg/kg		82.4	(75%-125%)		08/24/18 17:06
QC1204100194 457973001 SDILT										
Selenium	J	2.41	U	ND	ug/L	N/A		(0%-10%)		08/24/18 17:10
Metals Analysis-ICP										
Batch 1796100										
QC1204100042 LCS										
Aluminum	498			447	mg/kg		89.8	(80%-120%)	TXT1	08/27/18 20:00
Antimony	49.8			41.5	mg/kg		83.3	(80%-120%)		
Arsenic	49.8			40.6	mg/kg		81.6	(80%-120%)		
Barium	49.8			42.5	mg/kg		85.4	(80%-120%)		
Beryllium	49.8			44.3	mg/kg		88.9	(80%-120%)		
Cadmium	49.8			44.0	mg/kg		88.3	(80%-120%)		

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch 1796100											
Calcium	498			446	mg/kg		89.6	(80%-120%)	TXT1	08/27/18	20:00
Chromium	49.8			41.7	mg/kg		83.8	(80%-120%)			
Cobalt	49.8			42.0	mg/kg		84.3	(80%-120%)			
Copper	49.8			44.1	mg/kg		88.6	(80%-120%)			
Iron	498			443	mg/kg		88.9	(80%-120%)			
Lead	49.8			43.8	mg/kg		88	(80%-120%)			
Magnesium	498			445	mg/kg		89.4	(80%-120%)			
Manganese	49.8			43.2	mg/kg		86.7	(80%-120%)			
Nickel	49.8			41.7	mg/kg		83.7	(80%-120%)			
Potassium	498			444	mg/kg		89.3	(80%-120%)			
Silver	9.96			9.33	mg/kg		93.7	(80%-120%)			
Sodium	498			423	mg/kg		85	(80%-120%)			
Thallium	49.8			44.9	mg/kg		90.2	(80%-120%)			
Vanadium	49.8			42.7	mg/kg		85.7	(80%-120%)			
Zinc	49.8			43.7	mg/kg		87.8	(80%-120%)			

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP											
Batch 1796100											
QC1204100041 MB											
Aluminum			U	ND	mg/kg				TXT1	08/27/18	19:57
Antimony			U	ND	mg/kg						
Arsenic			U	ND	mg/kg						
Barium			U	ND	mg/kg						
Beryllium			U	ND	mg/kg						
Cadmium			U	ND	mg/kg						
Calcium			U	ND	mg/kg						
Chromium			U	ND	mg/kg						
Cobalt			U	ND	mg/kg						
Copper			U	ND	mg/kg						
Iron			U	ND	mg/kg						
Lead			U	ND	mg/kg						
Magnesium			U	ND	mg/kg						
Manganese			U	ND	mg/kg						
Nickel			U	ND	mg/kg						

QC Summary

Workorder: **457973**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1796100											
Potassium				U	ND	mg/kg				TXT1	08/27/18 19:57
Silver				U	ND	mg/kg					
Sodium				U	ND	mg/kg					
Thallium				U	ND	mg/kg					
Vanadium				U	ND	mg/kg					
Zinc				U	ND	mg/kg					
QC1204100043 457973001 MS											
Aluminum	564		6750		8840	mg/kg		N/A	(75%-125%)		08/27/18 20:04
Antimony	56.4	J	0.919		46.2	mg/kg		80.4	(75%-125%)		
Arsenic	56.4		8.80		51.5	mg/kg		75.7	(75%-125%)		
Barium	56.4		47.7		95.9	mg/kg		85.5	(75%-125%)		
Beryllium	56.4	J	0.501		46.9	mg/kg		82.4	(75%-125%)		
Cadmium	56.4	J	0.120		44.9	mg/kg		79.5	(75%-125%)		
Calcium	564		18800		20400	mg/kg		N/A	(75%-125%)		
Chromium	56.4		11.0		56.6	mg/kg		80.9	(75%-125%)		
Cobalt	56.4		7.43		49.5	mg/kg		74.6*	(75%-125%)		

QC Summary

Workorder: **457973**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1796100											
Copper	56.4		25.1		72.5	mg/kg		84	(75%-125%)	TXT1	08/27/18 20:04
Iron	564		17700		18700	mg/kg		N/A	(75%-125%)		
Lead	56.4		15.4		58.9	mg/kg		77.1	(75%-125%)		
Magnesium	564		9960		11300	mg/kg		N/A	(75%-125%)		
Manganese	56.4		365		417	mg/kg		N/A	(75%-125%)		
Nickel	56.4		16.0		58.3	mg/kg		75	(75%-125%)		
Potassium	564		753		1400	mg/kg		115	(75%-125%)		
Silver	11.3	J	0.338		10.4	mg/kg		89.2	(75%-125%)		
Sodium	564		56.0		552	mg/kg		87.9	(75%-125%)		
Thallium	56.4	U	ND		45.1	mg/kg		80	(75%-125%)		
Vanadium	56.4		15.4		62.4	mg/kg		83.3	(75%-125%)		
Zinc	56.4		158		209	mg/kg		90.1	(75%-125%)		
QC1204100044 457973001 MSD											
Aluminum	540		6750		8510	mg/kg	3.71	N/A	(0%-20%)		08/27/18 20:06
Antimony	54.0	J	0.919		45.7	mg/kg	1.23	82.9	(0%-20%)		
Arsenic	54.0		8.80		55.5	mg/kg	7.58	86.5	(0%-20%)		

QC Summary

Workorder: **457973**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP												
Batch 1796100												
Barium	54.0		47.7		96.3	mg/kg	0.415	90	(0%-20%)	TXT1	08/27/18	20:06
Beryllium	54.0	J	0.501		48.1	mg/kg	2.55	88.2	(0%-20%)			
Cadmium	54.0	J	0.120		44.2	mg/kg	1.66	81.6	(0%-20%)			
Calcium	540		18800		32700	mg/kg	46.3*	N/A	(0%-20%)			
Chromium	54.0		11.0		58.5	mg/kg	3.24	87.9	(0%-20%)			
Cobalt	54.0		7.43		50.6	mg/kg	2.24	80	(0%-20%)			
Copper	54.0		25.1		75.8	mg/kg	4.46	93.8	(0%-20%)			
Iron	540		17700		19600	mg/kg	4.62	N/A	(0%-20%)			
Lead	54.0		15.4		60.0	mg/kg	1.91	82.6	(0%-20%)			
Magnesium	540		9960		17300	mg/kg	41.9*	N/A	(0%-20%)			
Manganese	54.0		365		382	mg/kg	8.66	N/A	(0%-20%)			
Nickel	54.0		16.0		61.1	mg/kg	4.66	83.4	(0%-20%)			
Potassium	540		753		1390	mg/kg	0.867	118	(0%-20%)			
Silver	10.8	J	0.338		10.3	mg/kg	0.96	92.2	(0%-20%)			
Sodium	540		56.0		579	mg/kg	4.86	96.9	(0%-20%)			

QC Summary

Workorder: **457973**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP												
Batch 1796100												
Thallium	54.0	U	ND		43.9	mg/kg	2.85	81.2	(0%-20%)	TXT1	08/27/18	20:06
Vanadium	54.0		15.4		62.7	mg/kg	0.512	87.6	(0%-20%)			
Zinc	54.0		158		203	mg/kg	2.83	83.3	(0%-20%)			
QC1204103017 457973001 PS												
Cobalt	500		69.8		507	ug/L		87.4	(75%-125%)		08/28/18	11:05
QC1204100045 457973001 SDILT												
Aluminum			63400		13300	ug/L	4.74		(0%-20%)		08/27/18	20:08
Antimony		J	8.63	U	ND	ug/L	N/A		(0%-20%)			
Arsenic			82.7	J	16.0	ug/L	3.35		(0%-20%)			
Barium			448		93.7	ug/L	4.61		(0%-20%)			
Beryllium		J	4.70	J	1.00	ug/L	6.69		(0%-20%)			
Cadmium		J	1.12	U	ND	ug/L	N/A		(0%-20%)			
Calcium			177000		37600	ug/L	6.34		(0%-20%)			
Chromium			104		22.1	ug/L	6.7		(0%-20%)			
Cobalt			69.8		15.4	ug/L	10.5		(0%-20%)			
Copper			236		44.6	ug/L	5.6		(0%-20%)			
Iron			166000		35800	ug/L	7.89		(0%-20%)			

QC Summary

Workorder: **457973**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-ICP												
Batch 1796100												
Lead			145		30.7	ug/L	5.89		(0%-20%)	TXT1	08/27/18	20:08
Magnesium			93600		19700	ug/L	4.95		(0%-20%)			
Manganese			3430		741	ug/L	7.89		(0%-20%)			
Nickel			151		32.3	ug/L	7.36		(0%-20%)			
Potassium			7080		1350	ug/L	4.39		(0%-20%)			
Silver		J	3.18	U	ND	ug/L	N/A		(0%-20%)			
Sodium			526	J	83.8	ug/L	20.4		(0%-20%)			
Thallium		U	ND	U	ND	ug/L	N/A		(0%-20%)			
Vanadium			145		30.0	ug/L	3.41		(0%-20%)			
Zinc			1480		305	ug/L	2.84		(0%-20%)			
Metals Analysis-Mercury												
Batch 1796452												
QC1204100817 LCS												
Mercury	0.118				0.131	mg/kg		111	(80%-120%)	MTM1	08/27/18	15:33
QC1204100816 MB												
Mercury				U	ND	mg/kg					08/27/18	12:36
QC1204100819 458027001 MS												
Mercury	0.103	H	0.393	H	0.397	mg/kg		3.09*	(80%-120%)		08/27/18	12:49

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-Mercury											
Batch 1796452											
QC1204100822 458027001 MSD											
Mercury	0.115 H	0.393	H	0.442	mg/kg	10.8	42.3*	(0%-20%)	MTM1	08/27/18	12:51
QC1204100824 458027001 PS											
Mercury	2.00 H	7.03	H	9.13	ug/L		105	(80%-120%)		08/27/18	12:54
QC1204100823 458027001 SDILT											
Mercury	H	7.03	H	1.44	ug/L	2.56		(0%-10%)		08/27/18	12:53

Notes:

The Qualifiers in this report are defined as follows:

<	Result is less than value reported
>	Result is greater than value reported
E	%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
N	Metals--The Matrix spike sample recovery is not within specified control limits
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

QC Summary

Workorder: **457973**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.