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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www.gel.com

January 09, 2015

Mr. Scot Fitzgerald
CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352

Re: CHPRC SAF F15-004
Work Order: 363057
SDG: GEL363057

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 12, 2014. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. This data package was revised to correct the Volatiles fraction. The original data package that was sent was incomplete.

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. 4505.

Sincerely,

Heather Shaffer

Heather Shaffer
Project Manager

Purchase Order: 301754 - 7H
Chain of Custody: F15-004-001, F15-004-002, F15-004-003 and F15-004-004
Enclosures

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Sample Issue Resolution

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR15-134
REV NUM	0
DATE INITIATED	12/15/2014

SAMPLE EVENT INFORMATION

SAF NUM(S)	S15-012, F15-004
OPERABLE UNIT(S)	
PROJECT(S)	CPP 200 Area, SURV15
SAMPLE EVENT TITLE(S)	SWL Monitoring, SURV15
LABORATORY	GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES	2
SAMPLE NUMBERS	B2YT86, B303W4
SAMPLE MATRIX	
COLLECTION DATE	-
SDG NUM	

ISSUE BACKGROUND

CLASS	Field Sampling Issue
TYPE	Incorrect Sample Preservation
DESCRIPTION	The TOC & COD containers for B2YT86 were received at a pH of 7. The metals container for B303W4 was received at a pH of 7. The containers were marked as preserved.

DISPOSITION

DESCRIPTION	Proposed Disposition: Preserve the containers to the correct pH and proceed with analysis.
JUSTIFICATION	Accept proposed disposition.

SUBMITTED BY: Heather Shaffer DATE: 12/15/2014
ACCEPTED BY: Scot Fitzgerald DTAE: 12/15/2014

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR15-152
REV NUM	0
DATE INITIATED	12/29/2014

SAMPLE EVENT INFORMATION

SAF NUM(S)	F15-004
OPERABLE UNIT(S)	
PROJECT(S)	CPP 200 Area
SAMPLE EVENT TITLE(S)	SWL Monitoring
LABORATORY	GEL Laboratories, LLC

SAMPLING INFORMATION

NUMBER OF SAMPLES	2
SAMPLE NUMBERS	B2YT88, B2YT89
SAMPLE MATRIX	WATER
COLLECTION DATE	12/11/2014 - 12/11/2014
SDG NUM	GEL363057

ISSUE BACKGROUND

CLASS	Sample Management Issues
TYPE	Incorrect Method Analysis Requested
DESCRIPTION	Decane is listed under the 8260 reporting list. GEL reports this compound by 8270, not volatiles.

DISPOSITION

DESCRIPTION	Proposed Disposition: Decane will not be reported. For future samples, a container would be needed for 8270 analysis.
JUSTIFICATION	Accept Proposed Disposition. SUBMITTED BY; Heather Shaffer DATE: 12/26/2014 ACCEPTED BY: Heather Medley DATE: 12/29/2014

Case Narrative

This data package was revised to correct the Volatiles fraction. The original data package that was sent was incomplete.

General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF F15-004
SDG: GEL363057

January 09, 2015

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on December 12, 2014, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. Please see the enclosed SIR for further details.

Items of Note All efforts were made by the lab to meet any short hold times. Samples that were analyzed outside of the initial hold time but still within 2X hold time will be noted in the lab case narrative and DER

Sample Identification
The laboratory received the following samples:

Laboratory Identification	Sample Description
363057001	B2YT86
363057002	B2YT87
363057003	B2YT88
363057004	B2YT89

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: GC/MS Volatile, General Chemistry and Metals.

This package, to the best of my knowledge, is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manger (or designee) and the laboratory's client services representative as verified by their signatures on this report.

Heather Shaffer

Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-004-001	PAGE 1 OF 1
COLLECTOR K.C. Patterson CHPRC	COMPANY CONTACT MEDLEY, HA	TELEPHONE NO. 372-1488	PROJECT COORDINATOR MEDLEY, HA	PRICE CODE 7H	DATA TURNAROUND
SAMPLING LOCATION 4th QUARTER CY2014 SWL LEACHATE	PROJECT DESIGNATION Solid Waste Landfill - Leachate		SAF NO. F15-004	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-331	FIELD LOGBOOK NO. HNF-N-507 30 p 27	ACTUAL SAMPLE DEPTH N/A	COA 301754	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 52.69		BILL OF LADING/AIR BILL NO. NA 60 12.11.14	7721 9693 0921	

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	H2SO4 to pH <2/Cool <=6C	HCl or H2SO4 to pH <2/Cool	HNO3 to pH <2	H2SO4 to pH <2/Cool <=6C	Cool <=6C	H2SO4 to pH <2/Cool <=6C	Cool <=6C
HOLDING TIME	28 Days	28 Days	6 Months	28 Days	ASAP	28 Days	7 Days
TYPE OF CONTAINER	aGs*	aG	G/P	G/P	P	G/P	G/P
NO. OF CONTAINER(S)	1	1	1	1	1	1	1
VOLUME	1L	250mL	500mL	125mL	125mL	125mL	500mL
SAMPLE ANALYSIS	9020_TOX: COMMON;	9060_TOC: COMMON;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	350.1_AMMONIA: COMMON;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	410.4_COD: COMMON;	2540C_TDS: COMMON;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B2YT86	WATER	DEC 11 2014	1200	✓	✓	✓	✓	✓	✓	✓

363007

January 9, 2015

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
K.C. Patterson CHPRC	DEC 11 2014 1240	F.M. Hall/CHPRC	DEC 11 2014 1240
F.M. Hall/CHPRC	DEC 11 2014 1400	FEDEX	
FED EX		Patricia Dent P. Hunt 12.12.14 0935	

SPECIAL INSTRUCTIONS

TRVL-14-193
(1) 6010_METALS_ICP: COMMON {Calcium, Iron, Magnesium, Potassium, Sodium, Vanadium}; 6020_METALS_ICPMS: COMMON {Aluminum, Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Molybdenum, Selenium, Silver}; 6020_METALS_ICPMS: COMMON (Add-on) {Arsenic, Manganese, Nickel, Strontium, Thallium, Thorium, Tin, Uranium, Zinc}; 7470_MERCURY_CV: COMMON (AQUEOUS);
(2) 9040_pH (AQUEOUS): COMMON; 9050_CONDUCTIVITY: COMMON;

TRVL-14-193

Rev. 1

LABORATORY SECTION	RECEIVED BY		TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD		DISPOSED BY	DATE/TIME

PRINTED ON 11/13/2014

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-004-002	PAGE 1 OF 1
COLLECTOR: K.C. Patterson CHPRC	COMPANY CONTACT: MEDLEY, HA	TELEPHONE NO.: 372-1488	PROJECT COORDINATOR: MEDLEY, HA	PRICE CODE: 7H	DATA TURNAROUND
SAMPLING LOCATION: 4th QUARTER CY2014 SWL LEACHATE	PROJECT DESIGNATION: Solid Waste Landfill - Leachate		SAF NO.: F15-004	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-331	FIELD LOGBOOK NO.: HNF-N-507 30 p27	ACTUAL SAMPLE DEPTH: N/A	COA: 301754	METHOD OF SHIPMENT: FEDERAL EXPRESS	ORIGINAL
SHIPPED TO: GEL Laboratories, LLC	OFFSITE PROPERTY NO.: 5269		BILL OF LADING/AIR BILL NO.: N/A bb 12.11.14 7721 9693 0921		

363057

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	28 Days/48 Hours
		TYPE OF CONTAINER	P
		NO. OF CONTAINER(S)	1
		VOLUME	60mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2YT87	WATER	DEC 11 2014	1200	✓

January 9, 2015

CHAIN OF POSSESSION	SIGN/ PRINT NAMES			
RELINQUISHED BY/REMOVED FROM: K.C. Patterson CHPRC	DATE/TIME: DEC 11 2014 1240	RECEIVED BY/STORED IN: F.M. Hall/CHPRC	DATE/TIME: DEC 11 2014 1240	SPECIAL INSTRUCTIONS: TRVL-14-193 (1) 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: COMMON (Add-on);
RELINQUISHED BY/REMOVED FROM: F.M. Hall/CHPRC	DATE/TIME: DEC 11 2014 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: FED EX	DATE/TIME:	RECEIVED BY/STORED IN: P.Valent Patricia Dent 12.12.14 0935	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	
RELINQUISHED BY/REMOVED FROM	DATE/TIME:	RECEIVED BY/STORED IN	DATE/TIME:	

TRVL-14-193

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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Rev. 1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-004-003	PAGE 1 OF 1
COLLECTOR K.C. Patterson CHPRC	COMPANY CONTACT MEDLEY, HA	TELEPHONE NO. 372-1488	PROJECT COORDINATOR MEDLEY, HA	PRICE CODE 7H	DATA TURNAROUND
SAMPLING LOCATION 4th QUARTER CY2014 SWL LEACHATE	PROJECT DESIGNATION Solid Waste Landfill - Leachate		SAF NO. F15-004	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS -331	FIELD LOGBOOK NO. HNF-N-507 30 p 27	ACTUAL SAMPLE DEPTH N/A	COA 301754	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 5269		BILL OF LADING/AIR BILL NO. NA 12-1-14 7721 9693 0921		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION	HCl or H2SO4 to pH <2/Cool
		HOLDING TIME	14 Days
		TYPE OF CONTAINER	aGs*
		NO. OF CONTAINER(S)	4
		VOLUME	40mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2YT88	WATER	DEC 11 2014	1200	✓

363057

January 9, 2015

CHAIN OF POSSESSION	SIGN/ PRINT NAMES			SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	TRVL-14-193 (1) 8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: COMMON (Add-on);
K.C. Patterson CHPRC	DEC 11 2014 1240	F.M. Hall/CHPRC	DEC 11 2014 1240	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME 1420 DEC 11 2014	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FED EX	DATE/TIME	RECEIVED BY/STORED IN Patricia Dent P. Hall 12.12.14 0935	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

TRVL-14-193

Rev. 1

LABORATORY SECTION	RECEIVED BY		TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD		DISPOSED BY	DATE/TIME

PRINTED ON 11/13/2014

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-004-004	PAGE 1 OF 1
COLLECTOR K.C. Patterson CHPRC	COMPANY CONTACT MEDLEY, HA	TELEPHONE NO. 372-1488	PROJECT COORDINATOR MEDLEY, HA	PRICE CODE 7H	DATA TURNAROUND
SAMPLING LOCATION 4th QUARTER CY2014 SWL LEACHATE FXR	PROJECT DESIGNATION Solid Waste Landfill - Leachate		SAF NO. F15-004	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO. GWS-331	FIELD LOGBOOK NO. HNF-N-507 30 p 22	ACTUAL SAMPLE DEPTH N/A	COA 301754	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO GEL Laboratories, LLC	OFFSITE PROPERTY NO. 5269		BILL OF LADING/AIR BILL NO. ~~N/A~~ bb 12.11.14 7721 9693 0921		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HCl or H2SO4 to pH <2/Cool
HOLDING TIME	14 Days
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	4
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2YT89	WATER	DEC 11 2014	1200	✓

363057

January 9, 2015

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM K.C. Patterson CHPRC	DATE/TIME DEC 11 2014 1240	RECEIVED BY/STORED IN F.M. Hall/CHPRC	DATE/TIME DEC 11 2014 1240
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME DEC 11 2014 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME
RELINQUISHED BY/REMOVED FROM FED EX	DATE/TIME	RECEIVED BY/STORED IN Patricia Dent P. Want	DATE/TIME 12.12.14 0935
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-14-193
(1) 8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: COMMON (Add-on);

TRVL-14-193

Rev. 1

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 11/13/2014

A-6003-618 (REV 2)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CPRC	SDG/AR/COC/Work Order: 363057
Received By: P. Hebert	Date Received: 12.12.14

Suspected Hazard Information	Yes	No
COC/Samples marked as radioactive?		X
Classified Radioactive II or III by RSO?		X
COC/Samples marked containing PCBs?		X
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X
Shipped as a DOT Hazardous?		X
Samples identified as Foreign Soil?		X

*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.

Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm

If yes, Were swipes taken of sample contatiners < action levels?

If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.

Hazard Class Shipped: UN#:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *~~all temperatures~~ are recorded in Celsius. 1.2C
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 130462966
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH: BAYT86 TOC + COD rec'd Unpreserved. If Preservation added, Lot#: H2SO4 added at 1.46 lot # 215785
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7721 9893 0921 7721 9893 0748 7721 8994 1044 7721 9893 0005

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HS Date 12/15/14 Page ____ of ____

Data Review Qualifier Definitions

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 08−JAN−15

Project Specific Qualifier Definitions for GEL Client Code: CPRC

Code	Status	Qualifier Definition	CofA	Department	Fraction	Additional Comments
U	Programmed	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.	Y			Includes MDA, TPU, count uncert.
J	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated	Y	Organics		Organics only
P	Programmed	Aroclor target analyte with greater than 25% difference between column analyses.	Y	Organics		PCB only
C	Manual	Analyte has been confirmed by GC/MS analysis	Y	Organics	Pesticide	IF GC/MS confirmation was attempted but unsuccessful do not qualify with C
B	Programmed	The analyte was detected in both the associated QC blank and in the sample.	Y	Organics		
E	Manual	Concentration exceeds the calibration range of the instrument	Y	Organics		Qualifier Uploaded
A	Manual	The TIC is a suspected aldol−condensation product	Y	Organics	Semi−Volatile	Uploaded with TIC
X	Programmed	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			Replaces H Hold Date In RAD replaces UI. Same usage as standard X as well.
N	Programmed	Spike Sample recovery is outside control limits.	Y			
*	Programmed	Duplicate analysis not within control limits	Y	Inorganics		
>	Programmed	Result greater than quantifiable range or greater than upper limit of the analysis range	Y	General Chemistry		
Z	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	Inorganics	Metals	Replaces J Estimated Value
D	Programmed	Results are reported from a diluted aliquot of sample.	Y			Dilution
E	Programmed	Reported value is estimated due to interferences. See comment in narrative.	Y	Inorganics	Metals	GEL E
M	Manual	Duplicate precision not met.	Y	Inorganics	Metals	Replaces *
o	Programmed	Analyte failed to recover within LCS limits (0rganics only)	Y	Organics		
S	Manual	Reported value determined by the Method of Standard Additions (MSA)	Y	Inorganics		Not coded B/C Rarely preformed
T	Programmed	Spike and/or spike duplicate sample recovery is outside control limits.	Y	Organics		GC/MS only
W	Manual	Post−digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Y	Inorganics		No GFAA in house.
B	Programmed	The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample	Y	Radiological		
Y	Manual	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier	Y			
+	Manual	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Y	Inorganics		
B	Programmed	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Y	General Chemistry		Replaces J Estimated Value
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	Inorganics	Metals	Replaces B Blank Detection
C	Programmed	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Y	General Chemistry		Replaces B Blank Detection
<	Programmed	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide	Y	General Chemistry		for Reactive CN/S

Laboratory Certifications

List of current GEL Certifications as of 09 January 2015

State	Certification
Alaska	UST−110
Arkansas	88−0651
CLIA	42D0904046
California	2940 Interim
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC000122013−10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013−10
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	LA150001
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC000122013−10
Nebraska	NE−OS−26−13
Nevada	SC000122014−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−14−9
Utah NELAP	SC000122014−16
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Volatile Analysis

Case Narrative

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260C
Analytical Batch Number:	1443080

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
363057003	B2YT88
363057004	B2YT89
1203227629	Method Blank (MB)
1203227630	Laboratory Control Sample (LCS)
1203227631	362793001(B2YHN6) Post Spike (PS)
1203227632	362793001(B2YHN6) Post Spike Duplicate (PSD)
1203227638	Laboratory Control Sample (LCS)
1203227639	362793001(B2YHN6) Post Spike (PS)
1203227640	362793001(B2YHN6) Post Spike Duplicate (PSD)
1203228413	Method Blank (MB)
1203228414	Laboratory Control Sample (LCS)
1203228415	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The data results reported met all SOP and method criteria, unless otherwise discussed below.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 21.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an

industry shortage.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements
All associated calibration verification standards (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 362793001 (B2YHN6) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike 1203227631 (B2YHN6PS) recoveries were not all within the acceptance limits.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate 1203227632 (B2YHN6PSD) recoveries were not all within the acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. 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. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
Preservation for sample 363057003 (B2YT88) was indicated on the vial, however the sample pH value was above 2. The sample was analyzed within 7 days from collection.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
The following DERs were generated for this SDG: 1364923 and 1371208.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this SDG.

Additional Comments
The client requested compound list was changed after the samples were analyzed to include 2-Pentanone and Hexane. The QC samples (LCS/MS/MSD) associated with these samples did not contain these two comounds.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA3.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

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

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL363057 GEL Work Order: 363057

The Qualifiers in this report are defined as follows:

E Concentration exceeds the calibration range of the instrument

J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated

T Spike and/or spike duplicate sample recovery is outside control limits.

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

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: 08 JAN 2015 **Title: Data Validator**

Sample Data Summary

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 8, 2015

Client Sample ID: B2YT88
Sample ID: 363057003
Matrix: WATER
Collect Date: 11-DEC-14 12:00
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
8260VOA_GCMS: COMMON + (add on) "As Received"										
1,1,1,2-Tetrachloroethane 630-20-6	U	0.00	0.300	5.00	ug/L	1	CDS1 12/13/14	1019	1443080	1
1,1,1-Trichloroethane 71-55-6	U	0.00	0.300	5.00	ug/L	1				
1,1,2-Trichloroethane 79-00-5	U	0.00	0.300	5.00	ug/L	1				
1,1-Dichloroethane 75-34-3	U	0.00	0.300	10.0	ug/L	1				
1,1-Dichloroethylene 75-35-4	U	0.00	0.300	10.0	ug/L	1				
1,2,4-Trimethylbenzene 95-63-6	U	0.00	0.300	10.0	ug/L	1				
1,2-Dichloroethane 107-06-2	U	0.00	0.300	5.00	ug/L	1				
1,4-Dichlorobenzene 106-46-7	J	4.53	0.300	5.00	ug/L	1				
1,4-Dioxane 123-91-1	J	20.4	15.0	500	ug/L	1				
2-Butanone 78-93-3	TU	0.00	3.00	10.0	ug/L	1				
2-Pentanone 107-87-9	U	0.00	3.00	10.0	ug/L	1				
4-Methyl-2-pentanone 108-10-1	U	0.00	3.00	10.0	ug/L	1				
Acetone 67-64-1	TU	2.80	3.00	20.0	ug/L	1				
Acetonitrile 75-05-8	U	0.00	16.7	100	ug/L	1				
Benzene 71-43-2	U	0.00	0.300	5.00	ug/L	1				
Carbon disulfide 75-15-0	U	0.00	1.60	10.0	ug/L	1				
Carbon tetrachloride 56-23-5	TU	0.00	0.300	5.00	ug/L	1				
Chlorobenzene 108-90-7	U	0.00	0.300	5.00	ug/L	1				

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Report Date: January 8, 2015

Client Sample ID: B2YT88
Sample ID: 363057003

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
8260VOA_GCMS: COMMON + (add on) "As Received"										
Chloroform 67-66-3	U	0.00	0.300	5.00	ug/L	1				
Cyclohexane 110-82-7	U	0.00	0.300	5.00	ug/L	1				
Cyclohexanone 108-94-1	U	0.00	16.7	50.0	ug/L	1				
Ethyl acetate 141-78-6	U	0.00	1.50	10.0	ug/L	1				
Ethyl ether 60-29-7	U	0.00	0.300	5.00	ug/L	1				
Ethylbenzene 100-41-4	U	0.00	0.300	5.00	ug/L	1				
Hexane 110-54-3	U	0.00	1.67	5.00	ug/L	1				
Iodomethane 74-88-4	U	0.00	3.00	10.0	ug/L	1				
Methylene chloride 75-09-2	U	0.00	1.60	5.00	ug/L	1				
Propionitrile 107-12-0	U	0.00	3.00	10.0	ug/L	1				
Tetrachloroethylene 127-18-4	J	0.470	0.300	5.00	ug/L	1				
Tetrahydrofuran 109-99-9	J	5.62	1.50	50.0	ug/L	1				
Toluene 108-88-3	U	0.00	0.300	5.00	ug/L	1				
Trichloroethylene 79-01-6	U	0.00	0.300	5.00	ug/L	1				
Trichlorofluoromethane 75-69-4	U	0.00	0.300	2.00	ug/L	1				
Trichlorotrifluoroethane 76-13-1	U	0.00	1.60	10.0	ug/L	1				
Vinyl chloride 75-01-4	U	0.00	0.300	10.0	ug/L	1				
Xylenes (total) 1330-20-7	U	0.00	0.300	10.0	ug/L	1				
cis-1,2-Dichloroethylene 156-59-2	U	0.00	0.300	5.00	ug/L	1				
n-Butyl alcohol 71-36-3	U	0.00	83.3	250	ug/L	1				

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Project: **CHPRC SAF F15-004**

Report Date: January 8, 2015

Client Sample ID: B2YT88
Sample ID: 363057003

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
8260VOA_GCMS: COMMON + (add on) "As Received"										
n-Butylbenzene 104-51-8	U	0.00	0.300	5.00	ug/L	1				
trans-1,2-Dichloroethylene 156-60-5	U	0.00	0.300	5.00	ug/L	1				

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260C	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	8260VOA_GCMS: COMMON + (add on) "As Received"	58.6 ug/L	50.0	117	(77%-123%)
Bromofluorobenzene	8260VOA_GCMS: COMMON + (add on) "As Received"	55.7 ug/L	50.0	111	(80%-120%)
Toluene-d8	8260VOA_GCMS: COMMON + (add on) "As Received"	53.9 ug/L	50.0	108	(80%-120%)

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Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 8, 2015

Client Sample ID: B2YT89
Sample ID: 363057004
Matrix: WATER
Collect Date: 11-DEC-14 12:00
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
8260VOA_GCMS: COMMON + (add on) "As Received"										
1,1,1,2-Tetrachloroethane 630-20-6	U	0.00	0.300	5.00	ug/L	1	CDS1 12/13/14	1050	1443080	1
1,1,1-Trichloroethane 71-55-6	U	0.00	0.300	5.00	ug/L	1				
1,1,2-Trichloroethane 79-00-5	U	0.00	0.300	5.00	ug/L	1				
1,1-Dichloroethane 75-34-3	U	0.00	0.300	10.0	ug/L	1				
1,1-Dichloroethylene 75-35-4	U	0.00	0.300	10.0	ug/L	1				
1,2,4-Trimethylbenzene 95-63-6	U	0.00	0.300	10.0	ug/L	1				
1,2-Dichloroethane 107-06-2	U	0.00	0.300	5.00	ug/L	1				
1,4-Dichlorobenzene 106-46-7	U	0.00	0.300	5.00	ug/L	1				
1,4-Dioxane 123-91-1	U	0.00	15.0	500	ug/L	1				
2-Butanone 78-93-3	TU	0.00	3.00	10.0	ug/L	1				
2-Pentanone 107-87-9	U	0.00	3.00	10.0	ug/L	1				
4-Methyl-2-pentanone 108-10-1	U	0.00	3.00	10.0	ug/L	1				
Acetone 67-64-1	TU	0.00	3.00	20.0	ug/L	1				
Acetonitrile 75-05-8	U	0.00	16.7	100	ug/L	1				
Benzene 71-43-2	U	0.00	0.300	5.00	ug/L	1				
Carbon disulfide 75-15-0	U	0.00	1.60	10.0	ug/L	1				
Carbon tetrachloride 56-23-5	TU	0.00	0.300	5.00	ug/L	1				
Chlorobenzene 108-90-7	U	0.00	0.300	5.00	ug/L	1				

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Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 8, 2015

Client Sample ID: B2YT89
Sample ID: 363057004

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
8260VOA_GCMS: COMMON + (add on) "As Received"										
Chloroform 67-66-3	U	0.00	0.300	5.00	ug/L	1				
Cyclohexane 110-82-7	U	0.00	0.300	5.00	ug/L	1				
Cyclohexanone 108-94-1	U	0.00	16.7	50.0	ug/L	1				
Ethyl acetate 141-78-6	U	0.00	1.50	10.0	ug/L	1				
Ethyl ether 60-29-7	U	0.00	0.300	5.00	ug/L	1				
Ethylbenzene 100-41-4	U	0.00	0.300	5.00	ug/L	1				
Hexane 110-54-3	U	0.00	1.67	5.00	ug/L	1				
Iodomethane 74-88-4	U	0.00	3.00	10.0	ug/L	1				
Methylene chloride 75-09-2	J	4.05	1.60	5.00	ug/L	1				
Propionitrile 107-12-0	U	0.00	3.00	10.0	ug/L	1				
Tetrachloroethylene 127-18-4	U	0.00	0.300	5.00	ug/L	1				
Tetrahydrofuran 109-99-9	U	0.00	1.50	50.0	ug/L	1				
Toluene 108-88-3	U	0.00	0.300	5.00	ug/L	1				
Trichloroethylene 79-01-6	U	0.00	0.300	5.00	ug/L	1				
Trichlorofluoromethane 75-69-4	U	0.00	0.300	2.00	ug/L	1				
Trichlorotrifluoroethane 76-13-1	U	0.00	1.60	10.0	ug/L	1				
Vinyl chloride 75-01-4	U	0.00	0.300	10.0	ug/L	1				
Xylenes (total) 1330-20-7	U	0.00	0.300	10.0	ug/L	1				
cis-1,2-Dichloroethylene 156-59-2	U	0.00	0.300	5.00	ug/L	1				
n-Butyl alcohol 71-36-3	U	0.00	83.3	250	ug/L	1				

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Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 8, 2015

Client Sample ID: B2YT89
Sample ID: 363057004

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatile Organics										
8260VOA_GCMS: COMMON + (add on) "As Received"										
n-Butylbenzene 104-51-8	U	0.00	0.300	5.00	ug/L	1				
trans-1,2-Dichloroethylene 156-60-5	U	0.00	0.300	5.00	ug/L	1				

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260C	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	8260VOA_GCMS: COMMON + (add on) "As Received"	50.6 ug/L	50.0	101	(77%-123%)
Bromofluorobenzene	8260VOA_GCMS: COMMON + (add on) "As Received"	48.9 ug/L	50.0	97.8	(80%-120%)
Toluene-d8	8260VOA_GCMS: COMMON + (add on) "As Received"	48.8 ug/L	50.0	97.5	(80%-120%)

Quality Control Summary

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QC Summary

Report Date: January 8, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1443080										
QC1203227630 LCS										
1,1,1,2-Tetrachloroethane	50.0			49.2	ug/L		98.3	(70%-130%)	CDS1	12/12/14 07:01
1,1,1-Trichloroethane	50.0			49.1	ug/L		98.1	(70%-130%)		
1,1,2-Trichloroethane	50.0			47.1	ug/L		94.2	(70%-130%)		
1,1-Dichloroethane	50.0			48.1	ug/L		96.2	(70%-130%)		
1,1-Dichloroethylene	50.0			45.8	ug/L		91.6	(70%-130%)		
1,2,4-Trimethylbenzene	50.0			46.2	ug/L		92.4	(70%-130%)		
1,2-Dichloroethane	50.0			47.2	ug/L		94.4	(70%-130%)		
1,4-Dichlorobenzene	50.0			47.0	ug/L		93.9	(70%-130%)		
2-Butanone	250			215	ug/L		85.9	(70%-130%)		
4-Methyl-2-pentanone	250			232	ug/L		92.6	(70%-130%)		
Acetone	250			205	ug/L		81.8	(70%-130%)		
Acetonitrile	1250			1110	ug/L		89	(70%-130%)		
Benzene	50.0			46.2	ug/L		92.5	(70%-130%)		
Carbon disulfide	250			225	ug/L		89.9	(70%-130%)		
Carbon tetrachloride	50.0			47.9	ug/L		95.8	(70%-130%)		
Chlorobenzene	50.0			45.8	ug/L		91.7	(70%-130%)		
Chloroform	50.0			47.7	ug/L		95.3	(70%-130%)		
Cyclohexane	50.0			49.1	ug/L		98.2	(70%-130%)		
Ethyl ether	50.0			54.6	ug/L		109	(70%-130%)		
Ethylbenzene	50.0			46.0	ug/L		91.9	(70%-130%)		

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1443080										
Iodomethane	250			217	ug/L		87	(70%-130%)	CDS1	12/12/14 07:01
Methylene chloride	50.0			42.0	ug/L		83.9	(70%-130%)		
Tetrachloroethylene	50.0			45.4	ug/L		90.7	(70%-130%)		
Toluene	50.0			46.1	ug/L		92.1	(70%-130%)		
Trichloroethylene	50.0			48.7	ug/L		97.5	(70%-130%)		
Trichlorofluoromethane	50.0			50.7	ug/L		101	(70%-130%)		
Vinyl chloride	50.0			49.9	ug/L		99.7	(70%-130%)		
Xylenes (total)	150			138	ug/L		92	(70%-130%)		
cis-1,2-Dichloroethylene	50.0			45.8	ug/L		91.7	(70%-130%)		
n-Butyl alcohol	5000			5350	ug/L		107	(70%-130%)		
n-Butylbenzene	50.0			48.8	ug/L		97.7	(70%-130%)		
trans-1,2-Dichloroethylene	50.0			47.0	ug/L		94	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			48.7	ug/L		97.5	(77%-123%)		
**Bromofluorobenzene	50.0			53.3	ug/L		107	(80%-120%)		
**Toluene-d8	50.0			49.1	ug/L		98.2	(80%-120%)		
QC1203227638 LCS										
1,4-Dioxane	2500			2520	ug/L		101	(70%-130%)		12/12/14 12:40
Cyclohexanone	1250			1380	ug/L		110	(70%-130%)		
Ethyl acetate	250			253	ug/L		101	(70%-130%)		
Propionitrile	250			246	ug/L		98.3	(70%-130%)		
Tetrahydrofuran	250			247	ug/L		98.6	(70%-130%)		
Trichlorotrifluoroethane	250			263	ug/L		105	(70%-130%)		

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1443080										
**1,2-Dichloroethane-d4	50.0			49.0	ug/L		98	(77%-123%)	CDS1	12/12/14 12:40
**Bromofluorobenzene	50.0			47.5	ug/L		94.9	(80%-120%)		
**Toluene-d8	50.0			48.1	ug/L		96.1	(80%-120%)		
QC1203228414 LCS										
1,1,1,2-Tetrachloroethane	50.0			54.2	ug/L		108	(70%-130%)		12/13/14 07:17
1,1,1-Trichloroethane	50.0			57.3	ug/L		115	(70%-130%)		
1,1,2-Trichloroethane	50.0			51.8	ug/L		104	(70%-130%)		
1,1-Dichloroethane	50.0			53.5	ug/L		107	(70%-130%)		
1,1-Dichloroethylene	50.0			52.8	ug/L		106	(70%-130%)		
1,2,4-Trimethylbenzene	50.0			48.0	ug/L		96	(70%-130%)		
1,2-Dichloroethane	50.0			50.3	ug/L		101	(70%-130%)		
1,4-Dichlorobenzene	50.0			50.1	ug/L		100	(70%-130%)		
2-Butanone	250			232	ug/L		92.7	(70%-130%)		
4-Methyl-2-pentanone	250			254	ug/L		101	(70%-130%)		
Acetone	250			232	ug/L		92.7	(70%-130%)		
Acetonitrile	1250			1150	ug/L		91.8	(70%-130%)		
Benzene	50.0			51.8	ug/L		104	(70%-130%)		
Carbon disulfide	250			269	ug/L		108	(70%-130%)		
Carbon tetrachloride	50.0			55.2	ug/L		110	(70%-130%)		
Chlorobenzene	50.0			51.3	ug/L		103	(70%-130%)		
Chloroform	50.0			51.8	ug/L		104	(70%-130%)		
Cyclohexane	50.0			57.8	ug/L		116	(70%-130%)		

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1443080										
Ethyl ether	50.0			53.5	ug/L		107	(70%-130%)	CDS1	12/13/14 07:17
Ethylbenzene	50.0			50.5	ug/L		101	(70%-130%)		
Iodomethane	250			250	ug/L		100	(70%-130%)		
Methylene chloride	50.0			47.5	ug/L		95	(70%-130%)		
Tetrachloroethylene	50.0			49.8	ug/L		99.6	(70%-130%)		
Toluene	50.0			52.3	ug/L		105	(70%-130%)		
Trichloroethylene	50.0			53.2	ug/L		106	(70%-130%)		
Trichlorofluoromethane	50.0			57.9	ug/L		116	(70%-130%)		
Vinyl chloride	50.0			59.6	ug/L		119	(70%-130%)		
Xylenes (total)	150			155	ug/L		104	(70%-130%)		
cis-1,2-Dichloroethylene	50.0			50.5	ug/L		101	(70%-130%)		
n-Butyl alcohol	5000			4840	ug/L		96.7	(70%-130%)		
n-Butylbenzene	50.0			53.6	ug/L		107	(70%-130%)		
trans-1,2-Dichloroethylene	50.0			52.9	ug/L		106	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			47.1	ug/L		94.2	(77%-123%)		
**Bromofluorobenzene	50.0			52.4	ug/L		105	(80%-120%)		
**Toluene-d8	50.0			50.8	ug/L		102	(80%-120%)		
QC1203228415 LCS										
1,4-Dioxane	2500			2360	ug/L		94.6	(70%-130%)		12/13/14 07:49
Cyclohexanone	1250			1200	ug/L		96.3	(70%-130%)		
Ethyl acetate	250			238	ug/L		95.3	(70%-130%)		
Propionitrile	250			230	ug/L		91.9	(70%-130%)		

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1443080										
Tetrahydrofuran	250			231	ug/L		92.2	(70%-130%)	CDS1	12/13/14 07:49
Trichlorotrifluoroethane	250			231	ug/L		92.2	(70%-130%)		
**1,2-Dichloroethane-d4	50.0			46.9	ug/L		93.9	(77%-123%)		
**Bromofluorobenzene	50.0			46.6	ug/L		93.2	(80%-120%)		
**Toluene-d8	50.0			48.9	ug/L		97.8	(80%-120%)		
QC1203227629 MB										
1,1,1,2-Tetrachloroethane			U	0.300	ug/L					12/12/14 13:10
1,1,1-Trichloroethane			U	0.300	ug/L					
1,1,2-Trichloroethane			U	0.300	ug/L					
1,1-Dichloroethane			U	0.300	ug/L					
1,1-Dichloroethylene			U	0.300	ug/L					
1,2,4-Trimethylbenzene			U	0.300	ug/L					
1,2-Dichloroethane			U	0.300	ug/L					
1,4-Dichlorobenzene			U	0.300	ug/L					
1,4-Dioxane			U	15.0	ug/L					
2-Butanone			U	3.00	ug/L					
2-Pentanone			U	3.00	ug/L					
4-Methyl-2-pentanone			U	3.00	ug/L					
Acetone			U	3.00	ug/L					
Acetonitrile			U	16.7	ug/L					
Benzene			U	0.300	ug/L					
Carbon disulfide			U	1.60	ug/L					

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1443080											
Carbon tetrachloride			U	0.300	ug/L				CDS1	12/12/14	13:10
Chlorobenzene			U	0.300	ug/L						
Chloroform			U	0.300	ug/L						
Cyclohexane			U	0.300	ug/L						
Cyclohexanone			U	16.7	ug/L						
Ethyl acetate			U	1.50	ug/L						
Ethyl ether			U	0.300	ug/L						
Ethylbenzene			U	0.300	ug/L						
Hexane			U	1.67	ug/L						
Iodomethane			U	3.00	ug/L						
Methylene chloride			U	1.60	ug/L						
Propionitrile			U	3.00	ug/L						
Tetrachloroethylene			U	0.300	ug/L						
Tetrahydrofuran			U	1.50	ug/L						
Toluene			U	0.300	ug/L						
Trichloroethylene			U	0.300	ug/L						
Trichlorofluoromethane			U	0.300	ug/L						
Trichlorotrifluoroethane			U	1.60	ug/L						
Vinyl chloride			U	0.300	ug/L						
Xylenes (total)			U	0.300	ug/L						
cis-1,2-Dichloroethylene			U	0.300	ug/L						

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 1443080										
n-Butyl alcohol			U	83.3	ug/L					
n-Butylbenzene			U	0.300	ug/L				CDS1	12/12/14 13:10
trans-1,2-Dichloroethylene			U	0.300	ug/L					
**1,2-Dichloroethane-d4	50.0			51.4	ug/L		103	(77%-123%)		
**Bromofluorobenzene	50.0			50.7	ug/L		101	(80%-120%)		
**Toluene-d8	50.0			49.1	ug/L		98.3	(80%-120%)		
QC1203228413 MB										
1,1,1,2-Tetrachloroethane			U	0.300	ug/L					12/13/14 08:19
1,1,1-Trichloroethane			U	0.300	ug/L					
1,1,2-Trichloroethane			U	0.300	ug/L					
1,1-Dichloroethane			U	0.300	ug/L					
1,1-Dichloroethylene			U	0.300	ug/L					
1,2,4-Trimethylbenzene			U	0.300	ug/L					
1,2-Dichloroethane			U	0.300	ug/L					
1,4-Dichlorobenzene			U	0.300	ug/L					
1,4-Dioxane			U	15.0	ug/L					
2-Butanone			U	3.00	ug/L					
2-Pentanone			U	3.00	ug/L					
4-Methyl-2-pentanone			U	3.00	ug/L					
Acetone			U	3.00	ug/L					
Acetonitrile			U	16.7	ug/L					
Benzene			U	0.300	ug/L					
Carbon disulfide			U	1.60	ug/L					

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS											
Batch 1443080											
Carbon tetrachloride			U	0.300	ug/L				CDS1	12/13/14	08:19
Chlorobenzene			U	0.300	ug/L						
Chloroform			U	0.300	ug/L						
Cyclohexane			U	0.300	ug/L						
Cyclohexanone			U	16.7	ug/L						
Ethyl acetate			U	1.50	ug/L						
Ethyl ether			U	0.300	ug/L						
Ethylbenzene			U	0.300	ug/L						
Hexane			U	1.67	ug/L						
Iodomethane			U	3.00	ug/L						
Methylene chloride			U	1.60	ug/L						
Propionitrile			U	3.00	ug/L						
Tetrachloroethylene			U	0.300	ug/L						
Tetrahydrofuran			U	1.50	ug/L						
Toluene			U	0.300	ug/L						
Trichloroethylene			U	0.300	ug/L						
Trichlorofluoromethane			U	0.300	ug/L						
Trichlorotrifluoroethane			U	1.60	ug/L						
Vinyl chloride			U	0.300	ug/L						
Xylenes (total)			U	0.300	ug/L						
cis-1,2-Dichloroethylene			U	0.300	ug/L						

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QC Summary

Workorder: 363057

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1443080											
n-Butyl alcohol				U	83.3	ug/L					
n-Butylbenzene				U	0.300	ug/L				CDS1	12/13/14 08:19
trans-1,2-Dichloroethylene				U	0.300	ug/L					
**1,2-Dichloroethane-d4	50.0				50.1	ug/L		100	(77%-123%)		
**Bromofluorobenzene	50.0				49.6	ug/L		99.3	(80%-120%)		
**Toluene-d8	50.0				47.4	ug/L		94.8	(80%-120%)		
QC1203227631 362793001 PS											
1,1,1,2-Tetrachloroethane	50.0	U	0.00		49.1	ug/L		98.3	(70%-130%)		12/12/14 16:33
1,1,1-Trichloroethane	50.0	U	0.00		51.4	ug/L		103	(70%-130%)		
1,1,2-Trichloroethane	50.0	U	0.00		44.8	ug/L		89.7	(70%-130%)		
1,1-Dichloroethane	50.0	U	0.00		47.8	ug/L		95.6	(70%-130%)		
1,1-Dichloroethylene	50.0	U	0.00		45.8	ug/L		91.5	(70%-130%)		
1,2,4-Trimethylbenzene	50.0	U	0.00		45.1	ug/L		90.2	(70%-130%)		
1,2-Dichloroethane	50.0	U	0.00		46.3	ug/L		92.6	(70%-130%)		
1,4-Dichlorobenzene	50.0	U	0.00		46.7	ug/L		93.5	(70%-130%)		
2-Butanone	250	TU	0.00	T	133	ug/L		53*	(70%-130%)		
4-Methyl-2-pentanone	250	U	0.00		211	ug/L		84.5	(70%-130%)		
Acetone	250	TU	0.00	T	96.6	ug/L		38.6*	(70%-130%)		
Acetonitrile	1250	U	0.00		1060	ug/L		84.9	(70%-130%)		
Benzene	50.0	U	0.00		46.4	ug/L		92.8	(70%-130%)		
Carbon disulfide	250	U	0.00		229	ug/L		91.5	(70%-130%)		
Carbon tetrachloride	50.0	T	98.3	E	134	ug/L		70.4	(70%-130%)		
Chlorobenzene	50.0	U	0.00		47.9	ug/L		95.8	(70%-130%)		

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QC Summary

Workorder: **363057**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1443080											
Chloroform	50.0	J	2.35		49.1	ug/L		93.5	(70%-130%)	CDS1	12/12/14 16:33
Cyclohexane	50.0	U	0.00		50.9	ug/L		102	(70%-130%)		
Ethyl ether	50.0	U	0.00		51.5	ug/L		103	(70%-130%)		
Ethylbenzene	50.0	U	0.00		47.9	ug/L		95.9	(70%-130%)		
Iodomethane	250	U	0.00		221	ug/L		88.4	(70%-130%)		
Methylene chloride	50.0	U	0.00		42.7	ug/L		85.4	(70%-130%)		
Tetrachloroethylene	50.0	U	0.00		45.6	ug/L		91.2	(70%-130%)		
Toluene	50.0	U	0.00		46.1	ug/L		92.2	(70%-130%)		
Trichloroethylene	50.0	U	0.00		48.8	ug/L		97.6	(70%-130%)		
Trichlorofluoromethane	50.0	U	0.00		51.9	ug/L		104	(70%-130%)		
Vinyl chloride	50.0	U	0.00		54.8	ug/L		110	(70%-130%)		
Xylenes (total)	150	U	0.00		143	ug/L		95.3	(70%-130%)		
cis-1,2-Dichloroethylene	50.0	U	0.00		47.1	ug/L		94.1	(70%-130%)		
n-Butyl alcohol	5000	U	0.00		4990	ug/L		99.8	(70%-130%)		
n-Butylbenzene	50.0	U	0.00		49.4	ug/L		98.8	(70%-130%)		
trans-1,2-Dichloroethylene	50.0	U	0.00		47.2	ug/L		94.5	(70%-130%)		
**1,2-Dichloroethane-d4	50.0		48.7		47.1	ug/L		94.1	(77%-123%)		
**Bromofluorobenzene	50.0		47.7		51.4	ug/L		103	(80%-120%)		
**Toluene-d8	50.0		48.5		47.6	ug/L		95.1	(80%-120%)		
QC1203227639 362793001 PS											
1,4-Dioxane	2500	U	0.00		2380	ug/L		95.3	(70%-130%)		12/12/14 17:34
Cyclohexanone	1250	U	0.00		1240	ug/L		98.9	(70%-130%)		

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QC Summary

Workorder: **363057**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1443080											
Ethyl acetate	250	U	0.00		243	ug/L		97.2	(70%-130%)	CDS1	12/12/14 17:34
Propionitrile	250	U	0.00		232	ug/L		92.8	(70%-130%)		
Tetrahydrofuran	250	U	0.00		230	ug/L		91.8	(70%-130%)		
Trichlorotrifluoroethane	250	U	0.00		231	ug/L		92.5	(70%-130%)		
**1,2-Dichloroethane-d4	50.0		48.7		46.1	ug/L		92.2	(77%-123%)		
**Bromofluorobenzene	50.0		47.7		46.1	ug/L		92.1	(80%-120%)		
**Toluene-d8	50.0		48.5		48.8	ug/L		97.5	(80%-120%)		
QC1203227632 362793001 PSD											
1,1,1,2-Tetrachloroethane	50.0	U	0.00		47.7	ug/L	3.08	95.3	(0%-20%)		12/12/14 17:04
1,1,1-Trichloroethane	50.0	U	0.00		49.7	ug/L	3.42	99.3	(0%-20%)		
1,1,2-Trichloroethane	50.0	U	0.00		47.5	ug/L	5.70	94.9	(0%-20%)		
1,1-Dichloroethane	50.0	U	0.00		47.4	ug/L	0.756	94.9	(0%-20%)		
1,1-Dichloroethylene	50.0	U	0.00		45.5	ug/L	0.504	91.1	(0%-20%)		
1,2,4-Trimethylbenzene	50.0	U	0.00		45.4	ug/L	0.597	90.7	(0%-20%)		
1,2-Dichloroethane	50.0	U	0.00		47.2	ug/L	1.97	94.4	(0%-20%)		
1,4-Dichlorobenzene	50.0	U	0.00		46.4	ug/L	0.666	92.8	(0%-20%)		
2-Butanone	250	TU	0.00	T	144	ug/L	8.48	57.7*	(0%-20%)		
4-Methyl-2-pentanone	250	U	0.00		221	ug/L	4.39	88.3	(0%-20%)		
Acetone	250	TU	0.00	T	97.7	ug/L	1.17	39.1*	(0%-20%)		
Acetonitrile	1250	U	0.00		1060	ug/L	0.157	85.1	(0%-20%)		
Benzene	50.0	U	0.00		46.4	ug/L	0.129	92.9	(0%-20%)		
Carbon disulfide	250	U	0.00		225	ug/L	1.78	89.9	(0%-20%)		

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Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 1443080											
Carbon tetrachloride	50.0	T	98.3	ET	128	ug/L	4.27	59.3*	(0%-20%)	CDS1	12/12/14 17:04
Chlorobenzene	50.0	U	0.00		46.3	ug/L	3.44	92.6	(0%-20%)		
Chloroform	50.0	J	2.35		49.3	ug/L	0.325	93.9	(0%-20%)		
Cyclohexane	50.0	U	0.00		49.7	ug/L	2.41	99.3	(0%-20%)		
Ethyl ether	50.0	U	0.00		50.6	ug/L	1.88	101	(0%-20%)		
Ethylbenzene	50.0	U	0.00		46.2	ug/L	3.59	92.5	(0%-20%)		
Iodomethane	250	U	0.00		214	ug/L	3.36	85.5	(0%-20%)		
Methylene chloride	50.0	U	0.00		41.2	ug/L	3.74	82.3	(0%-20%)		
Tetrachloroethylene	50.0	U	0.00		45.5	ug/L	0.329	90.9	(0%-20%)		
Toluene	50.0	U	0.00		46.4	ug/L	0.735	92.9	(0%-20%)		
Trichloroethylene	50.0	U	0.00		48.8	ug/L	0.0205	97.6	(0%-20%)		
Trichlorofluoromethane	50.0	U	0.00		48.3	ug/L	7.29	96.5	(0%-20%)		
Vinyl chloride	50.0	U	0.00		51.1	ug/L	6.88	102	(0%-20%)		
Xylenes (total)	150	U	0.00		137	ug/L	4.16	91.4	(0%-20%)		
cis-1,2-Dichloroethylene	50.0	U	0.00		46.8	ug/L	0.554	93.6	(0%-20%)		
n-Butyl alcohol	5000	U	0.00		5360	ug/L	7.11	107	(0%-20%)		
n-Butylbenzene	50.0	U	0.00		47.6	ug/L	3.69	95.2	(0%-20%)		
trans-1,2-Dichloroethylene	50.0	U	0.00		45.8	ug/L	3.12	91.6	(0%-20%)		
**1,2-Dichloroethane-d4	50.0		48.7		49.4	ug/L		98.8	(77%-123%)		
**Bromofluorobenzene	50.0		47.7		52.2	ug/L		104	(80%-120%)		
**Toluene-d8	50.0		48.5		48.3	ug/L		96.6	(80%-120%)		

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QC Summary

Workorder: **363057**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Volatile-GC/MS												
Batch 1443080												
QC1203227640 362793001 PSD												
1,4-Dioxane	2500	U	0.00		2440	ug/L	2.42	97.6	(0%-40%)	CDS1	12/12/14	18:05
Cyclohexanone	1250	U	0.00		1350	ug/L	9.01	108	(0%-20%)			
Ethyl acetate	250	U	0.00		245	ug/L	0.849	98	(0%-20%)			
Propionitrile	250	U	0.00		246	ug/L	6.04	98.5	(0%-20%)			
Tetrahydrofuran	250	U	0.00		244	ug/L	6.28	97.8	(0%-20%)			
Trichlorotrifluoroethane	250	U	0.00		222	ug/L	4.03	88.8	(0%-20%)			
**1,2-Dichloroethane-d4	50.0		48.7		47.6	ug/L		95.2	(77%-123%)			
**Bromofluorobenzene	50.0		47.7		47.6	ug/L		95.2	(80%-120%)			
**Toluene-d8	50.0		48.5		48.9	ug/L		97.7	(80%-120%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (0rganics only)

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	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.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-DEC-14	Federal	SOP	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	8260C	Liquid	CPRC001
Batch ID:	**Sample Numbers:**		
1443080	All		

Potentially affected work order(s)(SDG): 362793(GEL362793),363012(GEL363012),363057(GEL363057)

Application Issues:

Failed Recovery for MS/PS

Other

Failed Recovery for LCS/LCSD

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The percent drift for 2-Chloro-1,3-butadiene was outside of the acceptance limits in the calibration verification sample analyzed 12/12/14 with a high bias (+37.4%). The compound was not detected in any of the associated samples. The effected SDG was GEL 362793. 2. The recovery for 2-Chloro-1,3-butadiene was outside of the acceptance limits in LCS 1203227638. The compound was not detected in any of the associated samples. The effected SDG was GEL 362793. 2-Chloro-1,3-butadiene 133% limits: 70-130% 3. The recoveries for Acetone, 2-Butanone and 2-Hexanone were outside of the acceptance limits in the matrix spike and in the matrix spike duplicate performed on sample 362793001. The calculated relative percent differences between the MS and MSD were within acceptance limits for all client requested compound. 4. The recovery of Carbon Tetrachloride was outside of acceptance limits in the matrix spike duplicate. The compound's recovery was within acceptance limits in the matrix spike but near the lower control limit. The post-spiked concentrations of this compound exceeded the calibration range of the instrument. The calculated relative percent differences between the MS and MSD were within acceptance limits for all client requested compound.	1-4. Narrate and report data.

Originator's Name:

Crystal Stacey 13-DEC-14

Data Validator/Group Leader:

Erin Haubert 06-JAN-15

GEL Laboratories LLC
Form GEL-DER

DER Report No.: 1371208
Revision No.: 1

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
08-JAN-15	Federal	SOP	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	8260C	Liquid	CPRC001
Batch ID:	**Sample Numbers:**		
1443080	363057003, 363057004		

Potentially affected work order(s)(SDG): 362793(GEL362793),363012(GEL363012),363057(GEL363057)

Application Issues:

Other

Specification and Requirements Exception Description:	DER Disposition:
1. The client requested compound list was changed after the samples were analyzed to include 2-Pentanone and Hexane. The QC samples (LCS/MS/MSD) associated with these samples did not contain these two compounds.	1. Narrate and report data. Project manager was notified.

Originator's Name:

Crystal Stacey 08-JAN-15

Data Validator/Group Leader:

Erin Haubert 08-JAN-15

Metals Analysis

Case Narrative

Metals Fractional Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL363057

Sample ID	Client ID
363057001	B2YT86
1203228145	Method Blank (MB)**ICP**
1203228146	Laboratory Control Sample (LCS)
1203228149	363057001(B2YT86L) Serial Dilution (SD)
1203228147	363057001(B2YT86S) Matrix Spike (MS)
1203228148	363057001(B2YT86SD) Matrix Spike Duplicate (MSD)
1203228166	Method Blank (MB)**ICP-MS**
1203236445	Method Blank (MB)**ICP-MS**
1203228167	Laboratory Control Sample (LCS)
1203236446	Laboratory Control Sample (LCS)
1203228170	363057001(B2YT86L) Serial Dilution (SD)
1203236449	363057001(B2YT86L) Serial Dilution (SD)
1203228168	363057001(B2YT86S) Matrix Spike (MS)
1203236447	363057001(B2YT86S) Matrix Spike (MS)
1203228169	363057001(B2YT86SD) Matrix Spike Duplicate (MSD)
1203236448	363057001(B2YT86SD) Matrix Spike Duplicate (MSD)
1203229386	Method Blank (MB)**CVAA**
1203229387	Laboratory Control Sample (LCS)
1203229402	363057001(B2YT86L) Serial Dilution (SD)
1203229400	363057001(B2YT86D) Sample Duplicate (DUP)
1203229401	363057001(B2YT86S) Matrix Spike (MS)

Sample Analysis

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch:	1443308, 1443317, 1446706 and 1443811
Prep Batch :	1443307, 1443316, 1446705 and 1443808
Standard Operating Procedures:	GL-MA-E-013 REV# 23, GL-MA-E-006 REV# 11, GL-MA-E-014 REV# 25 and GL-MA-E-010 REV# 28
Analytical Method:	SW846 3005A/6010C, SW846 3005A/6020A and SW846 7470A
Prep Method :	SW846 3005A and SW846 7470A Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with an ESI SC-FAST introduction, cyclonic spray chamber, and yttrium or scandium internal standard.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN DRC-e inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector, and dynamic reaction cell. The DRC-e uses a dynamic reaction cell to eliminate polyatomic interferences. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL/PQL Requirements
The PQL standard recoveries for SW846 6010C met the control limits with the exception of sodium. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. ICP.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The method blanks (MB) analyzed with this SDG met the acceptance criteria. The concentration for sodium was greater than the MDL in blank 1203228145 (MB)-ICP. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 363057001 (B2YT86)-ICP, ICP-MS, ICP-MS and CVAA.

Matrix Spike (MS) Recovery Statement

The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable analytes met the acceptance criteria.

Matrix Spike Duplicate (MSD) Recovery Statement
The percent recovery (%R) obtained from the MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable analytes met the acceptance criteria.

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) obtained from the designated matrix spike duplicate (MSD) is evaluated based on acceptance criteria of 20%. The RPD values between qualifying analyte results in the MS and MSD were within the acceptance limits.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the established acceptance percent difference criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

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. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Samples 1203228168 (B2YT86MS), 1203228169 (B2YT86MSD), 1203228170 (B2YT86SDILT) and 363057001 (B2YT86)-ICP-MS were diluted to ensure that the manganese and strontium concentrations were within the linear calibration range of the instrument.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator’s signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. Data exception reports were included behind the Case Narrative or in the Miscellaneous Data section of this data package. A data exception report was not required for this SDG.

Additional Comments
Additional comments were not required for this SDG.

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.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Pat Stell **Date:** 01/06/2015

Sample Data Summary

GEL LABORATORIES LLC

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Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL363057 GEL Work Order: 363057

The Qualifiers in this report are defined as follows:

* Duplicate analysis not within control limits

B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).

D Results are reported from a diluted aliquot of sample.

N Spike Sample recovery is outside control limits.

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Heather Shaffer.

Reviewed by Pat Steele 01/06/2015

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 6, 2015

Client Sample ID: B2YT86
Sample ID: 363057001
Matrix: WATER
Collect Date: 11-DEC-14 12:00
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA												
7470_MERCURY_CV: COMMON "As Received"												
Mercury 7439-97-6		0.205	+/-0.0467	0.067	0.200	ug/L	1	MTM1	12/17/14	1042	1443811	1
Metals Analysis-ICP												
6010_METALS_ICP: COMMON "As Received"												
Calcium 7440-70-2		187000	+/-37300	50.0	200	ug/L	1	JWJ	12/22/14	0941	1443308	2
Iron 7439-89-6		4470	+/-894	30.0	100	ug/L	1					
Magnesium 7439-95-4		104000	+/-20900	110	300	ug/L	1					
Potassium 7440-09-7		14300	+/-2860	50.0	150	ug/L	1					
Sodium 7440-23-5		97600	+/-19500	100	300	ug/L	1					
Vanadium 7440-62-2	B	2.40	+/-0.584	1.00	5.00	ug/L	1					
Metals Analysis-ICP-MS												
6020_METALS_ICPMS: COMMON + Add on "As Received"												
Antimony 7440-36-0	U	0.242	+/-0.337	1.00	3.00	ug/L	1	BCD1	12/23/14	1950	1443317	3
Barium 7440-39-3		442	+/-88.4	0.600	2.00	ug/L	1					
Cadmium 7440-43-9	U	-0.032	+/-0.0372	0.110	1.00	ug/L	1					
Lead 7439-92-1	U	0.192	+/-0.171	0.500	2.00	ug/L	1					
Molybdenum 7439-98-7		9.06	+/-1.81	0.165	0.500	ug/L	1					
Selenium 7782-49-2	U	0.017	+/-0.500	1.50	5.00	ug/L	1					
Silver 7440-22-4	U	0.017	+/-0.0668	0.200	1.00	ug/L	1					
Thallium 7440-28-0	U	0.091	+/-0.151	0.450	2.00	ug/L	1					
Thorium	U	0.055	+/-0.128	0.383	2.00	ug/L	1					

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 6, 2015

Client Sample ID: B2YT86 Project: CPRC0F15004
Sample ID: 363057001 Client ID: CPRC001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
6020_METALS_ICPMS: COMMON + Add on "As Received"												
7440-29-1 Tin		17.1	+/-3.43	1.00	5.00	ug/L	1					
7440-31-5 Uranium		0.966	+/-0.194	0.067	0.200	ug/L	1					
7440-61-1 Manganese	D	1690	+/-337	5.00	25.0	ug/L	5	BCD1	12/25/14	0253	1443317	4
7439-96-5 Strontium	D	1360	+/-273	10.0	50.0	ug/L	5					
7440-24-6 Aluminum	U	8.71	+/-5.30	15.0	50.0	ug/L	1	BCD1	12/30/14	0334	1443317	5
7429-90-5 Beryllium	U	0.015	+/-0.0667	0.200	0.500	ug/L	1					
7440-41-7 Chromium	U	0.890	+/-0.690	2.00	10.0	ug/L	1					
7440-47-3 Cobalt		2.80	+/-0.561	0.100	1.00	ug/L	1					
7440-48-4 Copper		8.33	+/-1.67	0.350	1.00	ug/L	1					
7440-50-8 Nickel		72.8	+/-14.6	0.500	2.00	ug/L	1					
7440-02-0 Arsenic		18.4	+/-3.73	1.70	5.00	ug/L	1	SKJ	12/30/14	1514	1443317	6
7440-38-2 Zinc		120	+/-24.0	3.50	10.0	ug/L	1	BCD1	01/05/15	1418	1446706	7
7440-66-6												

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	JXM5	12/16/14	0800	1443316
SW846 3005A	ICP-MS 3005A PREP	JXM5	01/02/15	0830	1446705
SW846 3005A	SW846 3005A for 6010C	JXM5	12/16/14	0800	1443307
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	AXS5	12/16/14	1400	1443808

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 7470A	
2	SW846 3005A/6010C	

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 6, 2015

Client Sample ID: B2YT86
Sample ID: 363057001

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
3		SW846 3005A/6020A								
4		SW846 3005A/6020A								
5		SW846 3005A/6020A								
6		SW846 3005A/6020A								
7		SW846 3005A/6020A								

Quality Control Summary

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

QC Summary

Report Date: January 6, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1443317										
QC1203228167 LCS										
Aluminum	2000			2110	ug/L		106	(80%-120%)	BCD1	12/30/14 03:18
Antimony	50.0			50.0	ug/L		100	(80%-120%)		12/23/14 19:29
Arsenic	50.0			49.8	ug/L		99.6	(80%-120%)	SKJ	12/30/14 15:09
Barium	50.0			49.8	ug/L		99.7	(80%-120%)	BCD1	12/23/14 19:29
Beryllium	50.0			55.3	ug/L		111	(80%-120%)		12/30/14 03:18
Cadmium	50.0			49.2	ug/L		98.4	(80%-120%)		12/23/14 19:29
Chromium	50.0			51.4	ug/L		103	(80%-120%)		12/30/14 03:18
Cobalt	50.0			50.9	ug/L		102	(80%-120%)		
Copper	50.0			48.6	ug/L		97.1	(80%-120%)		
Lead	50.0			47.0	ug/L		94	(80%-120%)		12/23/14 19:29
Manganese	50.0			51.1	ug/L		102	(80%-120%)		12/25/14 02:33
Molybdenum	50.0			48.2	ug/L		96.5	(80%-120%)		12/23/14 19:29
Nickel	50.0			51.0	ug/L		102	(80%-120%)		12/30/14 03:18
Selenium	50.0			50.7	ug/L		101	(80%-120%)		12/23/14 19:29
Silver	50.0			49.6	ug/L		99.2	(80%-120%)		
Strontium	50.0			48.2	ug/L		96.4	(80%-120%)		12/25/14 02:33
Thallium	50.0			43.9	ug/L		87.8	(80%-120%)		12/23/14 19:29
Thorium	50.0			46.3	ug/L		92.6	(80%-120%)		
Tin	50.0			50.0	ug/L		99.9	(80%-120%)		
Uranium	50.0			46.1	ug/L		92.2	(80%-120%)		

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1443317										
QC1203228166 MB										
Aluminum			U	ND	ug/L				BCD1	12/30/14 03:13
Antimony			U	ND	ug/L					12/23/14 19:22
Arsenic			U	ND	ug/L				SKJ	12/30/14 15:08
Barium			U	ND	ug/L				BCD1	12/23/14 19:22
Beryllium			U	ND	ug/L					12/30/14 03:13
Cadmium			U	ND	ug/L					12/23/14 19:22
Chromium			U	ND	ug/L					12/30/14 03:13
Cobalt			U	ND	ug/L					
Copper			U	ND	ug/L					
Lead			U	ND	ug/L					12/23/14 19:22
Manganese			U	ND	ug/L					12/25/14 02:26
Molybdenum			U	ND	ug/L					12/23/14 19:22
Nickel			U	ND	ug/L					12/30/14 03:13
Selenium			U	ND	ug/L					12/23/14 19:22
Silver			U	ND	ug/L					
Strontium			U	ND	ug/L					12/25/14 02:26
Thallium			U	ND	ug/L					12/23/14 19:22
Thorium			U	ND	ug/L					
Tin			U	ND	ug/L					
Uranium			U	ND	ug/L					
QC1203228168 363057001 MS										
Aluminum	2000	U	ND	1990	ug/L		99.2	(75%-125%)		12/30/14 03:39

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QC Summary

Workorder: 363057

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1443317											
Antimony	50.0	U	ND		49.4	ug/L		98.3	(75%-125%)	BCD1	12/23/14 19:57
Arsenic	50.0		18.4		67.5	ug/L		98.1	(75%-125%)	SKJ	12/30/14 15:15
Barium	50.0		442		492	ug/L		N/A	(75%-125%)	BCD1	12/23/14 19:57
Beryllium	50.0	U	ND		51.6	ug/L		103	(75%-125%)		12/30/14 03:39
Cadmium	50.0	U	ND		46.7	ug/L		93.5	(75%-125%)		12/23/14 19:57
Chromium	50.0	U	ND		46.4	ug/L		91.1	(75%-125%)		12/30/14 03:39
Cobalt	50.0		2.80		46.4	ug/L		87.2	(75%-125%)		
Copper	50.0		8.33		49.2	ug/L		81.7	(75%-125%)		
Lead	50.0	U	ND		46.4	ug/L		92.5	(75%-125%)		12/23/14 19:57
Manganese	50.0	D	1690	D	1760	ug/L		N/A	(75%-125%)		12/25/14 03:00
Molybdenum	50.0		9.06		58.8	ug/L		99.5	(75%-125%)		12/23/14 19:57
Nickel	50.0		72.8		112	ug/L		78	(75%-125%)		12/30/14 03:39
Selenium	50.0	U	ND		47.0	ug/L		93.9	(75%-125%)		12/23/14 19:57
Silver	50.0	U	ND		48.2	ug/L		96.4	(75%-125%)		
Strontium	50.0	D	1360	D	1440	ug/L		N/A	(75%-125%)		12/25/14 03:00
Thallium	50.0	U	ND		43.6	ug/L		86.9	(75%-125%)		12/23/14 19:57
Thorium	50.0	U	ND		48.9	ug/L		97.7	(75%-125%)		
Tin	50.0		17.1		66.3	ug/L		98.5	(75%-125%)		
Uranium	50.0		0.966		49.6	ug/L		97.2	(75%-125%)		
QC1203228169 363057001 MSD											
Aluminum	2000	U	ND		2100	ug/L	5.20	104	(0%-20%)		12/30/14 03:44
Antimony	50.0	U	ND		48.6	ug/L	1.66	96.6	(0%-20%)		12/23/14 20:04

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QC Summary

Workorder: **363057**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS											
Batch 1443317											
Arsenic	50.0		18.4		67.7	ug/L	0.303	98.5	(0%-20%)	SKJ	12/30/14 15:16
Barium	50.0		442		497	ug/L	0.975	N/A	(0%-20%)	BCD1	12/23/14 20:04
Beryllium	50.0	U	ND		54.0	ug/L	4.49	108	(0%-20%)		12/30/14 03:44
Cadmium	50.0	U	ND		46.4	ug/L	0.758	92.8	(0%-20%)		12/23/14 20:04
Chromium	50.0	U	ND		48.2	ug/L	3.67	94.6	(0%-20%)		12/30/14 03:44
Cobalt	50.0		2.80		48.5	ug/L	4.49	91.5	(0%-20%)		
Copper	50.0		8.33		51.2	ug/L	3.98	85.7	(0%-20%)		
Lead	50.0	U	ND		47.2	ug/L	1.68	94.1	(0%-20%)		12/23/14 20:04
Manganese	50.0	D	1690	D	1700	ug/L	2.99	N/A	(0%-20%)		12/25/14 03:07
Molybdenum	50.0		9.06		57.8	ug/L	1.71	97.5	(0%-20%)		12/23/14 20:04
Nickel	50.0		72.8		116	ug/L	4.04	87.2	(0%-20%)		12/30/14 03:44
Selenium	50.0	U	ND		48.0	ug/L	2.25	96	(0%-20%)		12/23/14 20:04
Silver	50.0	U	ND		47.1	ug/L	2.46	94.1	(0%-20%)		
Strontium	50.0	D	1360	D	1400	ug/L	2.47	N/A	(0%-20%)		12/25/14 03:07
Thallium	50.0	U	ND		44.7	ug/L	2.69	89.3	(0%-20%)		12/23/14 20:04
Thorium	50.0	U	ND		49.7	ug/L	1.58	99.2	(0%-20%)		
Tin	50.0		17.1		65.5	ug/L	1.29	96.8	(0%-20%)		
Uranium	50.0		0.966		50.4	ug/L	1.67	98.9	(0%-20%)		
QC1203228170 363057001 SDILT											
Aluminum		U	ND	DU	ND	ug/L	N/A		(0%-10%)		12/30/14 03:54
Antimony		U	ND	DU	ND	ug/L	N/A		(0%-10%)		12/23/14 20:18
Arsenic			18.4	D	3.69	ug/L	.0759		(0%-10%)	SKJ	12/30/14 15:19

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1443317										
Barium		442	D	90.9	ug/L	2.9		(0%-10%)	BCD1	12/23/14 20:18
Beryllium	U	ND	DU	ND	ug/L	N/A		(0%-10%)		12/30/14 03:54
Cadmium	U	ND	DU	ND	ug/L	N/A		(0%-10%)		12/23/14 20:18
Chromium	U	ND	DU	ND	ug/L	N/A		(0%-10%)		12/30/14 03:54
Cobalt		2.80	D	0.556	ug/L	.679		(0%-10%)		
Copper		8.33	D	1.81	ug/L	8.84		(0%-10%)		
Lead	U	ND	DU	ND	ug/L	N/A		(0%-10%)		12/23/14 20:18
Manganese	D	337	D	67.0	ug/L	.612		(0%-10%)		12/25/14 03:21
Molybdenum		9.06	D	1.80	ug/L	.541		(0%-10%)		12/23/14 20:18
Nickel		72.8	D	15.2	ug/L	4.19		(0%-10%)		12/30/14 03:54
Selenium	U	ND	DU	ND	ug/L	N/A		(0%-10%)		12/23/14 20:18
Silver	U	ND	DU	ND	ug/L	N/A		(0%-10%)		
Strontium	D	273	D	54.6	ug/L	.0741		(0%-10%)		12/25/14 03:21
Thallium	U	ND	DU	ND	ug/L	N/A		(0%-10%)		12/23/14 20:18
Thorium	U	ND	DU	ND	ug/L	N/A		(0%-10%)		
Tin		17.1	D	3.43	ug/L	.445		(0%-10%)		
Uranium		0.966	D	0.204	ug/L	5.59		(0%-10%)		
Batch 1446706										
QC1203236446 LCS										
Zinc	50.0			45.9	ug/L		91.7	(80%-120%)	BCD1	01/05/15 14:08
QC1203236445 MB										
Zinc			U	ND	ug/L					01/05/15 14:04
QC1203236447 363057001 MS										
Zinc	50.0	120		168	ug/L		95.9	(75%-125%)		01/05/15 14:22

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS										
Batch 1446706										
QC1203236448 363057001 MSD										
Zinc	50.0	120		163	ug/L	3.09	85.7	(0%-20%)	BCD1	01/05/15 14:26
QC1203236449 363057001 SDILT										
Zinc		120	D	27.9	ug/L	16.4		(0%-10%)		01/05/15 14:29
Metals Analysis-ICP										
Batch 1443308										
QC1203228146 LCS										
Calcium	5000			5050	ug/L		101	(80%-120%)	JWJ	12/22/14 09:38
Iron	5000			4970	ug/L		99.4	(80%-120%)		
Magnesium	5000			5120	ug/L		102	(80%-120%)		
Potassium	5000			4780	ug/L		95.6	(80%-120%)		
Sodium	5000			5090	ug/L		102	(80%-120%)		
Vanadium	500			507	ug/L		101	(80%-120%)		
QC1203228145 MB										
Calcium			U	ND	ug/L					12/22/14 09:35
Iron			U	ND	ug/L					
Magnesium			U	ND	ug/L					
Potassium			U	ND	ug/L					
Sodium			B	170	ug/L					
Vanadium			U	ND	ug/L					
QC1203228147 363057001 MS										
Calcium	5000	187000		193000	ug/L		N/A	(75%-125%)		12/22/14 09:43
Iron	5000	4470		9430	ug/L		99.1	(75%-125%)		
Magnesium	5000	104000		111000	ug/L		N/A	(75%-125%)		
Potassium	5000	14300		19600	ug/L		106	(75%-125%)		

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QC Summary

Workorder: **363057**

Parmname	NOM		Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 1443308											
Sodium	5000		97600		104000	ug/L		N/A	(75%-125%)		
Vanadium	500	B	2.40		509	ug/L		101	(75%-125%)	JWJ	12/22/14 09:43
QC1203228148 363057001 MSD											
Calcium	5000		187000		192000	ug/L	0.441	N/A	(0%-20%)		12/22/14 09:45
Iron	5000		4470		9430	ug/L	0.0732	99.2	(0%-20%)		
Magnesium	5000		104000		111000	ug/L	0.135	N/A	(0%-20%)		
Potassium	5000		14300		19700	ug/L	0.585	109	(0%-20%)		
Sodium	5000		97600		103000	ug/L	0.851	N/A	(0%-20%)		
Vanadium	500	B	2.40		517	ug/L	1.54	103	(0%-20%)		
QC1203228149 363057001 SDILT											
Calcium			187000	D	38000	ug/L	1.75		(0%-10%)		12/22/14 09:47
Iron			4470	D	910	ug/L	1.77		(0%-10%)		
Magnesium			104000	D	21800	ug/L	4.33		(0%-10%)		
Potassium			14300	D	2840	ug/L	.685		(0%-10%)		
Sodium			97600	D	19800	ug/L	1.69		(0%-10%)		
Vanadium		B	2.40	DU	ND	ug/L	N/A		(0%-10%)		
Metals Analysis-Mercury											
Batch 1443811											
QC1203229400 363057001 DUP											
Mercury			0.205		0.203	ug/L	0.980 ^		(+/-0.200)	MTM1	12/17/14 10:43
QC1203229387 LCS											
Mercury	2.00				2.01	ug/L		101	(80%-120%)		12/17/14 09:34
QC1203229386 MB											
Mercury				U	ND	ug/L					12/17/14 09:33
QC1203229401 363057001 MS											
Mercury	2.00		0.205		2.00	ug/L		89.7	(75%-125%)		12/17/14 10:45
QC1203229402 363057001 SDILT											
Mercury			0.205	DU	ND	ug/L	N/A		(0%-10%)		12/17/14 10:47

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis-Mercury											
Batch 1443811											

Notes:

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E Reported value is estimated due to interferences. See comment in narrative.
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- S Reported value determined by the Method of Standard Additions (MSA)
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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.

General Chem Analysis

Case Narrative

General Chemistry Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL363057

Method/Analysis Information

Product:	**Carbon and Total Organic**		
Analytical Batch:	1443446	**Method:**	9060_TOC: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060A:

Sample ID	Client ID
363057001	B2YT86
1203228438	Method Blank (MB)
1203228439	Laboratory Control Sample (LCS)
1203228440	363057001(B2YT86) Sample Duplicate (DUP)
1203228441	363094004(B30424) Sample Duplicate (DUP)
1203228442	363057001(B2YT86) Post Spike (PS)
1203228443	363094004(B30424) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 363057001 (B2YT86) and 363094004 (B30424).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1203228440 (B2YT86DUP), 1203228442 (B2YT86PS) and 363057001 (B2YT86).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Organic Halogens (TOX)**		
Analytical Batch:	1443411	**Method:**	9020_TOX: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9020B:

Sample ID	Client ID
363057001	B2YT86
1203228378	Method Blank (MB)
1203228379	Laboratory Control Sample (LCS)
1203228380	363057001(B2YT86) Sample Duplicate (DUP)
1203228381	363057001(B2YT86) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-007 REV# 14.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Halogen analysis was performed on a Mitsubishi AOX-200.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 363057001 (B2YT86).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
A pair of nitrate wash blanks is analyzed at the start of the batch. Although they are designated as ICB, they are performed for calculating purposes only. The value of the nitrate wash blanks are averaged and subtracted from all samples. Neither of these values should exceed 0 .6 ug Cl. The PQL limit typically applied to ICB results does not apply in this application, since the results are used only to determine background concentrations and are subtracted from all calculated results.

Breakthrough effect
No breakthrough effects were observed for samples in this batch. Breakthrough effect: If the value for a sample is greater than the reporting limit (10 ug/L), the result for the second slug should not be greater than 25% of the combined value of the first and second slug. Results which do not meet these criteria are designated with a "Fail" comment in the Breakthrough effect column on the Logbook page; however, the "fail" designation is not applicable for samples with a result of less than 10 ug/L.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1443170	**Method:**	9056_ANIONS_IC: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9056A:

Sample ID	Client ID
363057002	B2YT87
1203227860	Method Blank (MB)
1203227861	Laboratory Control Sample (LCS)
1203227862	362977001(B2YB06) Sample Duplicate (DUP)
1203228292	363057002(B2YT87) Sample Duplicate (DUP)
1203227863	362977001(B2YB06) Post Spike (PS)
1203228293	363057002(B2YT87) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 23.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 362977001 (B2YB06) and 363057002 (B2YT87).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1203228293 (B2YT87PS). The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1203228293 (B2YT87PS).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were accidentally analyzed outside of the method specified holding time. See the Data Exception Report (DER) section of this narrative for more information. 1203228292 (B2YT87DUP), 1203228293 (B2YT87PS) and 363057002 (B2YT87).

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1203227862 (B2YB06DUP) and 1203227863 (B2YB06PS). The following samples in this sample group were diluted due to matrix interference: 1203227862 (B2YB06DUP) and 1203227863 (B2YB06PS). The following samples were diluted based on historical data: 1203227862 (B2YB06DUP), 1203227863 (B2YB06PS), 1203228292 (B2YT87DUP), 1203228293 (B2YT87PS) and 363057002 (B2YT87).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1369366. 1203228292 (B2YT87DUP), 1203228293 (B2YT87PS) and 363057002 (B2YT87).

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1203227862 (B2YB06DUP), 1203227863 (B2YB06PS), 1203228292 (B2YT87DUP), 1203228293

(B2YT87PS) and 363057002 (B2YT87).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1443527	**Method:**	350.1_AMMONIA: COMMON
Prep Batch :	1443526	**Method:**	EPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
363057001	B2YT86
1203228634	Method Blank (MB)
1203228635	Laboratory Control Sample (LCS)
1203228642	363057001(B2YT86) Sample Duplicate (DUP)
1203228643	363057001(B2YT86) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 363057001 (B2YT86).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1203228643 (B2YT86MS).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1367205. 1203228643 (B2YT86MS).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids and Total Dissolved**		
Analytical Batch:	1443372	**Method:**	160.1_TDS:COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
363057001	B2YT86
1203228282	Method Blank (MB)
1203228283	Laboratory Control Sample (LCS)
1203228286	363057001(B2YT86) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 15.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 363057001 (B2YT86).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**COD**		
Analytical Batch:	1444553	**Method:**	410.4_COD: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 410.4:

Sample ID	Client ID
363057001	B2YT86
1203231196	Method Blank (MB)
1203231197	Laboratory Control Sample (LCS)
1203231202	363057001(B2YT86) Sample Duplicate (DUP)
1203231203	363057001(B2YT86) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-061 REV# 18.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Spectrometric analysis was performed on a Spectronic 20D+ Digital Spectrophotometer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 363057001 (B2YT86).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will

always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1444331	**Method:**	120.1_CONDUCTIVITY: COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
363057001	B2YT86
1203230816	Laboratory Control Sample (LCS)
1203230817	363057001(B2YT86) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration and Ion analysis was performed on a ManSci PC-Titrate TitraSip System.

Initial Standardization
The titrant was properly standardized

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
This batch does not require a method blank.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 363057001 (B2YT86).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1444323 **Method:** 9040_pH (AQUEOUS): COMMON

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9040C:

Sample ID	Client ID
363057001	B2YT86
1203230802	Laboratory Control Sample (LCS)
1203230804	363057001(B2YT86) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration and Ion analysis was performed on a ManSci PC-Titrate TitraSip System.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Method Blank (MB) Statement
This batch does not require a method blank.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 363057001 (B2YT86).

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following sample from this sample group was received by the lab outside of the method specified holding time: 363057001 (B2YT86).

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1366301. 363057001 (B2YT86).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

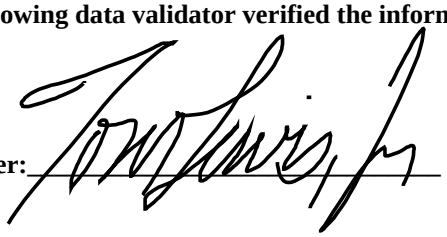
Certification Statement

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.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:  **Date:** 06Jan15

Sample Data Summary

GEL LABORATORIES LLC

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

Certificate of Analysis Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL363057 GEL Work Order: 363057

The Qualifiers in this report are defined as follows:

B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).

D Results are reported from a diluted aliquot of sample.

N Spike Sample recovery is outside control limits.

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Heather Shaffer.

Reviewed by

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

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 5, 2015

Client Sample ID: B2YT86
Sample ID: 363057001
Matrix: WATER
Collect Date: 11-DEC-14 12:00
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis												
9060_TOC: COMMON "As Received"												
Total Organic Carbon #1	D	57700		3300	10000	ug/L	10	TSM	12/16/14	1202	1443446	1
Total Organic Carbon #2	D	57900		3300	10000	ug/L	10					
Total Organic Carbon #3	D	58800		3300	10000	ug/L	10					
Total Organic Carbon #4	D	59600		3300	10000	ug/L	10					
Total Organic Carbon Average	D	58500		3300	10000	ug/L	10					
Halogen Analysis												
9020_TOX: COMMON "As Received"												
Total Organic Halogens 59473-04-0		366		3.33	10.0	ug/L	1	RMJ	12/16/14	1854	1443411	2
Nutrient Analysis												
350.1_AMMONIA: COMMON "As Received"												
Nitrogen, Ammonia 7664-41-7	N	795	+/-27.1	17.0	50.0	ug/L	1	KLP1	12/19/14	1307	1443527	3
Solids Analysis												
160.1_TDS:COMMON "As Received"												
Total Dissolved Solids		1360000		3400	14300	ug/L		MXB3	12/15/14	1225	1443372	4
Spectrometric Analysis												
410.4_COD: COMMON "As Received"												
COD		104000		6670	20000	ug/L	1	SXC5	12/18/14	1805	1444553	5
Titration and Ion Analysis												
120.1_CONDUCTIVITY: COMMON "As Received"												
Conductivity		2000		3.63	14.5	umhos/cm	1	PXO1	12/17/14	1648	1444331	6
9040_pH (AQUEOUS): COMMON "As Received"												
pH at Temp 21.9C	X	7.72		0.010	0.100	SU	1	PXO1	12/17/14	1735	1444323	7

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 5, 2015

Client Sample ID: B2YT86
Sample ID: 363057001

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	12/19/14	1152	1443526

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060A	
2	SW846 9020B	
3	EPA 350.1	
4	EPA 160.1	
5	EPA 410.4	
6	EPA 120.1	
7	SW846 9040C	

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Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: **CHPRC SAF F15-004**

Report Date: January 5, 2015

Client Sample ID: B2YT87
Sample ID: 363057002
Matrix: WATER
Collect Date: 11-DEC-14 12:00
Receive Date: 12-DEC-14
Collector: Client

Project: CPRC0F15004
Client ID: CPRC001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography											
9056_ANIONS_IC: COMMON "As Received"											
Bromide 24959-67-9	B	120	+/-22.7	67.0	250	ug/L	1	RXB5 12/12/14	1752	1443170	1
Fluoride 16984-48-8	B	332	+/-15.6	33.0	500	ug/L	1				
Nitrite-N 14797-65-0	U	0.00	+/-12.7	38.0	250	ug/L	1				
Phosphorus in phosphate PO4-P	B	94.2	+/-22.6	67.0	500	ug/L	1				
Nitrate-N 14797-55-8	DU	0.00	+/-110	330	1000	ug/L	10	RXB5 12/12/14	2159	1443170	2
Sulfate 14808-79-8	D	56600	+/-1940	1330	4000	ug/L	10				
Chloride 16887-00-6	D	179000	+/-6020	2680	8000	ug/L	40	RXB5 12/14/14	0221	1443170	3

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9056A	

Quality Control Summary

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

QC Summary

Report Date: January 5, 2015

CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: **Mr. Scot Fitzgerald**

Workorder: **363057**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Carbon Analysis												
Batch 1443446												
QC1203228440 363057001 DUP												
Total Organic Carbon Average		D	58500	D	59200	ug/L	1.21			(0%-20%)	TSM	12/16/14 12:36
QC1203228441 363094004 DUP												
Total Organic Carbon Average		B	631	B	571	ug/L	9.98	^		(+/-1000)		12/15/14 15:25
QC1203228439 LCS												
Total Organic Carbon Average	10000				10100	ug/L			101	(85%-115%)		12/15/14 13:02
QC1203228438 MB												
Total Organic Carbon Average				U	330	ug/L						12/15/14 12:53
QC1203228442 363057001 PS												
Total Organic Carbon Average	10.0	D	5.85	D	16.3	mg/L			104	(65%-120%)		12/16/14 12:56
QC1203228443 363094004 PS												
Total Organic Carbon #1	10.0	B	0.680		10.8	mg/L			101	(65%-120%)		12/15/14 15:45
Total Organic Carbon Average	10.0	B	0.631		10.8	mg/L			102	(65%-120%)		
Halogen Analysis												
Batch 1443411												
QC1203228380 363057001 DUP												
Total Organic Halogens			366		398	ug/L	8.40			(0%-20%)	RMJ	12/16/14 19:19
QC1203228379 LCS												
Total Organic Halogens	100				91.3	ug/L			91.3	(75%-118%)		12/16/14 13:46
QC1203228378 MB												
Total Organic Halogens				U	3.33	ug/L						12/16/14 13:22
QC1203228381 363057001 PS												
Total Organic Halogens	100		366		475	ug/L			109	(45%-174%)		12/16/14 19:42
Ion Chromatography												
Batch 1443170												
QC1203227862 362977001 DUP												
Bromide		B	85.8	B	87.1	ug/L	1.50	^		(+/-200)	RXB5	12/12/14 20:58
Chloride		D	9810	D	9790	ug/L	0.265			(0%-20%)		12/13/14 04:11
Fluoride		B	163	B	165	ug/L	0.854	^		(+/-500)		12/12/14 20:58

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1443170										
Nitrate-N	D	3620	D	3620	ug/L	0.0553		(0%-20%)	RXB5	12/13/14 04:11
Nitrite-N	U	38.0	U	38.0	ug/L	N/A				12/12/14 20:58
Phosphorus in phosphate	U	67.0	U	67.0	ug/L	N/A				
Sulfate	D	29300	D	29400	ug/L	0.402		(0%-20%)		12/13/14 04:11
QC1203228292 363057002 DUP										
Bromide	B	120	B	124	ug/L	3.03 ^		(+/-250)		12/12/14 18:23
Chloride	D	179000	D	179000	ug/L	0.206		(0%-20%)		12/14/14 02:52
Fluoride	B	332	B	332	ug/L	0.121 ^		(+/-500)		12/12/14 18:23
Nitrate-N	DU	330	DU	330	ug/L	N/A				12/12/14 22:30
Nitrite-N	U	38.0	U	38.0	ug/L	N/A				12/12/14 18:23
Phosphorus in phosphate	B	94.2	B	75.0	ug/L	22.7 ^		(+/-500)		
Sulfate	D	56600	D	57100	ug/L	0.851		(0%-20%)		12/12/14 22:30
QC1203227861 LCS										
Bromide	1250			1330	ug/L		106	(90%-110%)		12/13/14 05:44
Chloride	5000			4780	ug/L		95.6	(90%-110%)		
Fluoride	2500			2410	ug/L		96.5	(90%-110%)		
Nitrate-N	2500			2420	ug/L		96.6	(90%-110%)		
Nitrite-N	2500			2560	ug/L		102	(90%-110%)		
Phosphorus in phosphate	1250			1290	ug/L		103	(90%-110%)		
Sulfate	10000			9620	ug/L		96.2	(90%-110%)		
QC1203227860 MB										
Bromide			U	67.0	ug/L					12/13/14 05:13
Chloride			U	67.0	ug/L					

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QC Summary

Workorder: **363057**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1443170											
Fluoride				U	33.0	ug/L					
Nitrate-N				U	33.0	ug/L				RXB5	12/13/14 05:13
Nitrite-N				U	38.0	ug/L					
Phosphorus in phosphate				U	67.0	ug/L					
Sulfate				U	133	ug/L					
QC1203227863 362977001 PS											
Bromide	1.25	B	0.0858		1.41	mg/L		106	(90%-110%)		12/12/14 21:28
Chloride	5.00	D	0.981	D	6.10	mg/L		102	(90%-110%)		12/13/14 04:42
Fluoride	2.50	B	0.163		2.70	mg/L		101	(90%-110%)		12/12/14 21:28
Nitrate-N	2.50	D	0.362	D	2.92	mg/L		102	(90%-110%)		12/13/14 04:42
Nitrite-N	2.50	U	0.00		2.73	mg/L		109	(90%-110%)		12/12/14 21:28
Phosphorus in phosphate	1.25	U	0.0037		1.23	mg/L		98.2	(90%-110%)		
Sulfate	10.0	D	2.93	D	13.3	mg/L		104	(90%-110%)		12/13/14 04:42
QC1203228293 363057002 PS											
Bromide	1.25	B	0.120		0.307	mg/L		15*	(90%-110%)		12/12/14 18:54
Chloride	5.00	D	4.46	D	10.1	mg/L		114*	(90%-110%)		12/14/14 03:23
Fluoride	2.50	B	0.332		2.76	mg/L		97.2	(90%-110%)		12/12/14 18:54
Nitrate-N	2.50	DU	0.00	D	2.51	mg/L		100	(90%-110%)		12/12/14 23:01
Nitrite-N	2.50	U	0.00		1.78	mg/L		71*	(90%-110%)		12/12/14 18:54
Phosphorus in phosphate	1.25	B	0.0942		1.20	mg/L		88.4*	(90%-110%)		
Sulfate	10.0	D	5.66	D	16.3	mg/L		106	(90%-110%)		12/12/14 23:01
Nutrient Analysis											
Batch 1443527											
QC1203228642 363057001 DUP											
Nitrogen, Ammonia		N	795		771	ug/L	3.07		(0%-20%)	KLP1	12/19/14 13:08

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QC Summary

Workorder: 363057

Parmname			NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Nutrient Analysis														
Batch 1443527														
QC1203228635	LCS													
Nitrogen, Ammonia			1000				1090	ug/L		109	(90%-110%)	KLP1	12/19/14	12:52
QC1203228634	MB													
Nitrogen, Ammonia						U	17.0	ug/L					12/19/14	12:51
QC1203228643	363057001	MS												
Nitrogen, Ammonia			1000	N	795	N	1910	ug/L		112*	(90%-110%)		12/19/14	13:12
Solids Analysis														
Batch 1443372														
QC1203228286	363057001	DUP												
Total Dissolved Solids					1360000		1340000	ug/L	1.27		(0%-10%)	MXB3	12/15/14	12:25
QC1203228283	LCS													
Total Dissolved Solids			300000				290000	ug/L		96.7	(95%-105%)		12/15/14	12:25
QC1203228282	MB													
Total Dissolved Solids						U	3400	ug/L					12/15/14	12:25
Spectrometric Analysis														
Batch 1444553														
QC1203231202	363057001	DUP												
COD					104000		102000	ug/L	2.03		(0%-20%)	SXC5	12/18/14	18:05
QC1203231197	LCS													
COD			500000				468000	ug/L		93.7	(90%-110%)		12/18/14	18:02
QC1203231196	MB													
COD						U	6670	ug/L					12/18/14	18:02
QC1203231203	363057001	MS												
COD			500000		104000		554000	ug/L		90	(90%-110%)		12/18/14	18:05
Titration and Ion Analysis														
Batch 1444323														
QC1203230804	363057001	DUP												
pH				X	7.72	X	7.72	SU	0.0522		(0%-5%)	PXO1	12/17/14	17:43
QC1203230802	LCS													
pH			7.00				7.04	SU		101	(99%-101%)		12/17/14	16:55
Batch 1444331														
QC1203230817	363057001	DUP												
Conductivity					2000		1990	umhos/cm	0.212		(0%-10%)	PXO1	12/17/14	16:49
QC1203230816	LCS													

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QC Summary

Workorder: **363057**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Titration and Ion Analysis											
Batch 1444331											
Conductivity	1410			1440	umhos/cm		102	(95%-105%)		12/17/14	16:14

Notes:

The Qualifiers in this report are defined as follows:

- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- N Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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.

Miscellaneous

GEL Laboratories LLC
Form GEL-DER

DER Report No.: 1366301
Revision No.: 1

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
17-DEC-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
PC-Titrate TitraSip System	EPA 150.1, SW846 9040C	Liquid	BETT, CPRC, DAVE, DMAX,
Batch ID:	**Sample Numbers:**		
1444323	See Below		

Potentially affected work order(s)(SDG): 362888,362950(2015-511),362953(2015-510),363007,363057(GEL363057),363064,363252(363251-1)

Application Issues:

Sample received out of holding

Sample Logged out of Holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 362950 005 362953 005 363007 010 363057 001 363064 001 363252 001,003,005,007,009 2. Sample Logged out of Holding: 362888 002,006,010	1. Samples were received and analyzed outside of method specified holding time. 2. Samples were logged in and analyzed outside of method specified holding time.

Originator's Name:
Patrick Orgel 17-DEC-14

Data Validator/Group Leader:
Elzbieta Szulc 18-DEC-14

GEL Laboratories LLC
Form GEL-DER

DER Report No.: 1367205
Revision No.: 1

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-DEC-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1, EPA 350.1 SC	Liquid	CPRC, DPNT, ESHL, GWSD,
Batch ID:	**Sample Numbers:**		
1443527	See Below		

Potentially affected work order(s)(SDG): 362438,362845,362928,362976,363057(GEL363057),363081,363401

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1203228637MS,1203228639MS, 1203228643MS	1. The spike recovery falls outside of the established acceptance limits due to matrix interference.

Originator's Name:

Kristen Parson 19-DEC-14

Data Validator/Group Leader:

Aubrey Kingsbury 19-DEC-14

GEL Laboratories LLC
Form GEL-DER

DER Report No.: 1369366
Revision No.: 2

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
30-DEC-14	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
IC	SW846 9056A	Liquid	CPRC
Batch ID:	**Sample Numbers:**		
1443170	See Below		

Potentially affected work order(s)(SDG): 362977(GEL362977),362983(GEL362983),362992(GEL362992),363005(GEL363005),363057(GEL363057)

Application Issues:

Failed Recovery for MS/PS

Sample Analyzed out of Holding

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1203228293PS 2. Sample Analyzed out of Holding: 362992 002 363057 002 QC 1203228292DUP, 1203228293PS	1. The PS failed required acceptance limits for Nitrite and Bromide due to matrix interference. Of the remaining anions in the PS, several met required acceptance limits. This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. 2. Analyst was given incorrect information regarding the sample hold date. The sample collect date was initially entered incorrectly, which caused the hold date to appear a day later than it actually was. Analyst put samples on the instrument according to hold date/times.

Originator's Name:

Rachael Bell 30-DEC-14

Data Validator/Group Leader:

Thomas Lewis 05-JAN-15