Ft. Collins, Colorado

LIMS Version: 6.888

Sunday, December 30, 2018

Karen Waters-Husted
CH2M HILL Plateau Remediation Company
825 Jadwin Avenue
Richland, WA 99352

Re: ALS Workorder: 1812325
Project Name: Groundwater Background Study,
Project Number: X19-002

Dear Ms. Waters-Husted:

Two water samples were received from CH2M HILL Plateau Remediation Company, on 12/21/2018. The samples were scheduled for the following analysis:

GC/MS Volatiles

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Katie M. OBrien
Project Manager

We certify that this data package 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 Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522
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Environmental www.alsglobal.com
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SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR19-0357
Rev. Number: 0
Date Initiated: 12/26/2018

SAMPLE EVENT INFORMATION

SAF NUM(S): X19-002

LABORATORY: ALS

SAMPLING INFORMATION

NUMBER OF SAMPLES: 2

SAMPLE NUMBERS: B3L6C1A, B3L6C2A

SAMPLE MATRIX: WATER

SDG NUM(S): ALS1812325

ISSUE BACKGROUND

CLASS: Field Sampling Issue

TYPE: Insufficient Sample Volume Collected

DESCRIPTION: Voa vials contain headspace > 6mm in all vials except for 2 vials for B3L6C1A and 1 vial for B3L6C2A

RESOLUTION

PROPOSED RESOLUTION: Please use the vials with the least headspace and proceed with VOA analysis.

FINAL RESOLUTION: See as proposed.

SUBMITTED BY:

O'BRIEN, KATIE 12/26/2018

ACCEPTED BY:

CUTSFORTH, EC 12/26/2018

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR19-0389
Rev. Number: 0
Date Initiated: 01/03/2019

SAMPLE EVENT INFORMATION

SAF NUM(S): X19-002

LABORATORY: ALS

SAMPLING INFORMATION

NUMBER OF SAMPLES: 1

SAMPLE NUMBERS: B3L6C2A

SAMPLE MATRIX: WATER

SDG NUM(S): ALS1812325

ISSUE BACKGROUND

CLASS: Chain of Custody Issue (Field)

TYPE: Broken Chain of Custody

DESCRIPTION: In SDG ALS1812325, COCs X19-002-069A and X19-002-068A both have broken chains of possession.

RESOLUTION

PROPOSED RESOLUTION: Document and close.

FINAL RESOLUTION: Document and close.

SUBMITTED BY:

CALIXTO, SE 01/03/2019

ACCEPTED BY:

HEY, BE 01/03/2019

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR19-0487
Rev. Number: 0
Date Initiated: 01/31/2019

SAMPLE EVENT INFORMATION

SAF NUM(S): X19-002

LABORATORY: ALS

SAMPLING INFORMATION

NUMBER OF SAMPLES: 2

SAMPLE NUMBERS: B3L6C1A, B3L6C2A

SAMPLE MATRIX: WATER

SDG NUM(S): ALS1812325

ISSUE BACKGROUND

CLASS: Chain of Custody Issue (Field)

TYPE: Other COC issue (Specify)

DESCRIPTION: The Priority on COC indicated 30 Days; it should have indicated 15-Days. The laboratory was aware of this discrepancy and returned the results in 15-days.

RESOLUTION

PROPOSED RESOLUTION: Per request, the laboratory returned the results in 15-days.

FINAL RESOLUTION: Per request, the laboratory returned the results in 15-days.

SUBMITTED BY:

TOLE, KM 01/31/2019

ACCEPTED BY:

HEY, BE 01/31/2019

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1812325
Client Name: CH2M HILL Plateau Remediation Company
Client Project Name: Groundwater Background Study,
Client Project Number: X19-002
Client PO Number: BOA 54854

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
B3L6C1A	1812325-1		WATER	13-Dec-18	8:50
B3L6C2A	1812325-2		WATER	14-Dec-18	8:33

1812325

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # X19-002-068 A Page 1 of ~~1~~ 2

Collector: WILLIAM COLLINS CHPRC	**Contact/Requester:** WATERS-HUSTED, K	**Telephone No.:** 376-4650
SAF No.: X19-002	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071 TLB
Project Title: Groundwater Background Study,	**Logbook No.:** HNF-N-506 -101 /91	**Ice Chest No.:** GWS-~~657~~ 036 12-13-18
Shipped To (Lab): TestAmerica Denver	**Method of Shipment:** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7739 6727 1203
Protocol: SURV	**Priority:** 30 Days	**Offsite Property No.:** 10382

POSSIBLE SAMPLE HAZARDS/REMARK
*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 INSTRUCTIONS
Batch with A, I, S, and W SAFs.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
① B3L6C14 St 12-20-18	N	W	DEC 13 2018	0850	5x40-mL aGs*	8260_VOA_GCMS: COMMON	14 Days	HCl or H2SO4 to pH <2 / Cool <=6C

SDG:
DN118280-1

1.9 +0.7 IR9 AP 12-14-18

Relinquished By:	Received By:
WILLIAM COLLINS CHPRC — DEC 13 2018 1010 (Print First and Last Name / Signature / Date/Time)	Troy Bacon CHPRC — Troy L. Bacon — DEC 13 2018 1010 (Print First and Last Name / Signature / Date/Time)
Troy Bacon CHPRC — Troy L. Bacon — DEC 13 2018 1400 (Print First and Last Name / Signature / Date/Time)	FEDEX (Print First and Last Name / Signature / Date/Time)
Fedex (Print First and Last Name / Signature / Date/Time)	Steven Zimmerman — 12/14/18 0920 (Print First and Last Name / Signature / Date/Time)
Laura Castro — Laura Castro — 12/20/18 1530 (Print First and Last Name / Signature / Date/Time)	~~Nick Josles~~ — ~~12/21/18 11:40~~ ND 12/21/18 (Print First and Last Name / Signature / Date/Time)

Matrix *
S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 8/29/2018 FSR ID = FSR66350 A-6004-842 (REV 3)

1812325

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. X19-002-068A

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
					Fedex		
	Fedex			Nick Jostes		[signature]	12/21/18 11:40

A-6003-962 (03/05)

ALS 1812325 Jan. 31, 2019 Rev. 2

1812325

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# X19-002-069A Page 1 of ~~1~~ 2

12-20-18

Collector: Kevin Patterson /CHPRC	Contact/Requester: WATERS-HUSTED, K	Telephone No.: 376-4650
SAF No.: X19-002	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: Groundwater Background Study,	Logbook No.: HNF-N-506 101	Ice Chest No.: GWS-593
Shipped To (Lab): TestAmerica Denver	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 773980937145
Protocol: SURV	Priority: 30 Days	Offsite Property No.: 10392

POSSIBLE SAMPLE HAZARDS/REMARK
*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 INSTRUCTIONS
Batch with A, I, S, and W SAFs.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3L6C2A st 12-20-18	N	W	DEC 14 2018	0833	5x40-mL aGs*	8260_VOA_GCMS: COMMON	14 Days	HCl or H2SO4 to pH <2 / Cool <=6C

(2)

DN 280-118319 Chain of Custody
DN118319-1

-0.4 5 +1.0 by AP 12/15/18

Relinquished By:	Received By:
Kevin Patterson /CHPRC — DEC 14 2018 0915	Troy Bacon /CHPRC — Troy L. Bacon — DEC 14 2018 0915
Troy Bacon /CHPRC — Troy L. Bacon — DEC 14 2018 1400	FEDEX
FED EX	Amanda Pal — 12/15/18 0905
	Fedex

Print First and Last Name / Signature / Date/Time

Matrix *
S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 8/29/2018 FSR ID = FSR66351 A-6004-842 (REV 3)

ALS 1812325 Jan. 31, 2019 Rev. 2

1812325

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. X19-002-069A

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Fedex				Nick Jostes		12/21/18 11:40
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time

A-6003-962 (03/05)

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1812325

Project Manager: KO Initials: NJ Date: 12121118

1. Are airbills / shipping documents present and/or removable?	DROP OFF	YES	NO
2. Are custody seals on **shipping** containers intact?	NONE	YES	NO
3. Are custody seals on **sample** containers intact?	NONE	YES	NO
4. Is there a COC (chain-of-custody) present?		YES	NO
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		YES	NO
6. Are short-hold samples present?		YES	NO
7. Are all samples within holding times for the requested analyses?		YES	NO
8. Were all sample containers received intact? (not broken or leaking)		YES	NO
9. Is there sufficient sample for the requested analyses?		YES	NO
10. Are all samples in the proper containers for the requested analyses?		YES	NO
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)	N/A	YES	NO
12. Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
13. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	N/A	YES	NO
14. Were the samples shipped on ice?		YES	NO
15. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4	RAD ONLY	YES	NO

Cooler #:	1							
Temperature (°C):	4.4							
No. of custody seals on cooler:	1							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: **Please provide details here for any NO responses to gray-shaded boxes above, or any other issues noted:**

All bottles except 1812325-1-2,4 and -2-3 contain headspace

All client bottle ID's vs ALS lab ID's double-checked by: NJ

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

Project Manager Signature / Date: [signature] 12/21/18

Form 201r26.xls
(06/29/2018)

*IR Gun #1, VWR SN 170560549
*IR Gun #3, VWR SN 170647571
*IR Gun #4, Oakton, SN 2372220101-0002

Page 1 of ___

1812325

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Temperature Controll

IF THIS SHIPMENT IS DELAYED IN TRANSIT, STORE REFRIGERATED (2° TO 8° C / 36° TO 47° F

TAL-00

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:WHHA (303) 736-0100
SAMPLE RECEIVING
TESTAMERICA DENVER
4955 YARROW ST.
SAMPLE RECEIVING
ARVADA, CO 80002
UNITED STATES US

SHIP DATE: 20DEC18
ACTWGT: 18.50 LB
CAD: 290884/CAFE3211

BILL SENDER

TO KATIE M. O'BRIEN, PROJECT MANAGER
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524
(303) 736-0100 REF: S280-83066
PO: NO

10-1
4.4kg

FedEx Express

TRK# 0201 4759 5574 7340

FRI - 21 DEC 10:30A
PRIORITY OVERNIGHT

72 FTCA

80524
CO-US DEN

GC/MS Volatiles

Case Narrative

CH2M HILL Plateau Remediation Company

Groundwater Background Study, -- X19-002

Work Order Number: 1812325

1. The samples were prepared according to SW-846, 3rd Edition procedures. Specifically, the water samples were prepared using purge and trap procedures based on Method 5030C.

2. The samples were analyzed using GC/MS with an RTX-624, RTX-VMS, or equivalent capillary column according to the current revision of SOP 525 based on SW-846 Method 8260. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

3. All initial calibration criteria were met.

4. All initial calibrations are verified by comparing a second source standard calibration verification (ICV) against the calibration curve. All criteria for initial calibration verification were met.

5. All compounds in the daily (continuing) calibration verification were within 20%D.

6. Methylene chloride, acetone and 2-butanone are common laboratory contaminants. In order to minimize the levels of these compounds detected in the gc/ms analysis, ALS has designated its volatile laboratory as a restricted access area. In addition, the laboratory has been equipped with a dedicated, air intake and exhaust system that operates under positive pressure in order to minimize cross contamination of these compounds. Due to fluctuations in ambient laboratory conditions, reported sample values for common laboratory contaminants may be due to lab contamination even if the compound in question is not detected in the associated method blank.

   All method blank criteria were met.

7. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.

8. A matrix spike and matrix spike duplicate were not performed because of insufficient sample. A laboratory control sample and laboratory control sample duplicate were performed instead.

9. The samples were analyzed within the established holding time.

10. All surrogate recoveries were within acceptance criteria.

11. All internal standard recoveries were within acceptance criteria.

12. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Mindy Norton 12/28/18
Mindy Norton Date
Organics Primary Data Reviewer

12/30/18
Organics Final Data Reviewer Date

GC/MS Volatiles

Method SW8260_25C

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1812325
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Lab ID: VL181224-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 24-Dec-18
Date Analyzed: 24-Dec-18

Prep Batch: VL181224-3
QCBatchID: VL181224-3-1
Run ID: VL181224-3A
Cleanup: NONE
Basis: N/A
File Name: C84720

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
75-01-4	VINYL CHLORIDE	1	0.15	U	1	0.15
75-35-4	1,1-DICHLOROETHENE	1	0.3	U	1	0.3
67-64-1	ACETONE	1	3	U	10	3
75-15-0	CARBON DISULFIDE	1	0.3	U	1	0.3
75-09-2	METHYLENE CHLORIDE	1	0.34	U	1	0.34
75-34-3	1,1-DICHLOROETHANE	1	0.3	U	1	0.3
78-93-3	2-BUTANONE	1	3	U	10	3
67-66-3	CHLOROFORM	1	0.3	U	1	0.3
71-55-6	1,1,1-TRICHLOROETHANE	1	0.3	U	1	0.3
56-23-5	CARBON TETRACHLORIDE	1	0.15	U	1	0.15
107-06-2	1,2-DICHLOROETHANE	1	0.15	U	1	0.15
71-43-2	BENZENE	1	0.3	U	1	0.3
79-01-6	TRICHLOROETHENE	1	0.5	U	1	0.5
108-10-1	4-METHYL-2-PENTANONE	1	3	U	10	3
108-88-3	TOLUENE	1	0.3	U	1	0.3
79-00-5	1,1,2-TRICHLOROETHANE	1	0.3	U	1	0.3
127-18-4	TETRACHLOROETHENE	1	0.3	U	1	0.3
108-90-7	CHLOROBENZENE	1	0.3	U	1	0.3
100-41-4	ETHYLBENZENE	1	0.3	U	1	0.3
1330-20-7	TOTAL XYLENES	1	1	U	1	1

Data Package ID: *VL1812325-1*

GC/MS Volatiles

Method SW8260_25C

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1812325
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Lab ID: VL181224-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 24-Dec-18
Date Analyzed: 24-Dec-18

Prep Batch: VL181224-3
QCBatchID: VL181224-3-1
Run ID: VL181224-3A
Cleanup: NONE
Basis: N/A
File Name: C84720

Sample Aliquot: 1 ml
Final Volume: 1 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25.3		25	101	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	24.6		25	99	84 - 118
2037-26-5	TOLUENE-D8	25.2		25	101	85 - 115

Data Package ID: *VL1812325-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1812325
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Field ID: B3L6C1A
Lab ID: 1812325-1

Analysis ReqCode: 8260_VOA_GCM

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Dec-18
Date Extracted: 24-Dec-18
Date Analyzed: 24-Dec-18
Prep Method: SW5030 Rev C

Prep Batch: VL181224-3
QCBatchID: VL181224-3-1
Run ID: VL181224-3A
Cleanup: NONE
Basis: As Received
File Name: C84726

Analyst: Joe Kostelnik
Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
75-01-4	VINYL CHLORIDE	1	0.15	U	1	0.15
75-35-4	1,1-DICHLOROETHENE	1	0.3	U	1	0.3
67-64-1	ACETONE	1	3	U	10	3
75-15-0	CARBON DISULFIDE	1	0.3	U	1	0.3
75-09-2	METHYLENE CHLORIDE	1	9.4		1	0.34
75-34-3	1,1-DICHLOROETHANE	1	0.3	U	1	0.3
78-93-3	2-BUTANONE	1	3	U	10	3
67-66-3	CHLOROFORM	1	0.3	U	1	0.3
71-55-6	1,1,1-TRICHLOROETHANE	1	0.3	U	1	0.3
56-23-5	CARBON TETRACHLORIDE	1	0.15	U	1	0.15
107-06-2	1,2-DICHLOROETHANE	1	0.15	U	1	0.15
71-43-2	BENZENE	1	0.3	U	1	0.3
79-01-6	TRICHLOROETHENE	1	0.5	U	1	0.5
108-10-1	4-METHYL-2-PENTANONE	1	3	U	10	3
108-88-3	TOLUENE	1	0.3	U	1	0.3
79-00-5	1,1,2-TRICHLOROETHANE	1	0.3	U	1	0.3
127-18-4	TETRACHLOROETHENE	1	0.3	U	1	0.3
108-90-7	CHLOROBENZENE	1	0.3	U	1	0.3
100-41-4	ETHYLBENZENE	1	0.3	U	1	0.3
1330-20-7	TOTAL XYLENES	1	1	U	1	1

Data Package ID: *VL1812325-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1812325
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Field ID: B3L6C1A
Lab ID: 1812325-1

Analysis ReqCode: 8260_VOA_GCM

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 13-Dec-18
Date Extracted: 24-Dec-18
Date Analyzed: 24-Dec-18
Prep Method: SW5030 Rev C

Prep Batch: VL181224-3
QCBatchID: VL181224-3-1
Run ID: VL181224-3A
Cleanup: NONE
Basis: As Received
File Name: C84726

Analyst: Joe Kostelnik
Sample Aliquot: 1 ml
Final Volume: 1 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25.8		25	103	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	24.8		25	99	84 - 118
2037-26-5	TOLUENE-D8	24.8		25	99	85 - 115

Data Package ID: *VL1812325-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1812325
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Field ID: B3L6C2A
Lab ID: 1812325-2

Analysis ReqCode: 8260_VOA_GCM

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 14-Dec-18
Date Extracted: 24-Dec-18
Date Analyzed: 24-Dec-18
Prep Method: SW5030 Rev C

Prep Batch: VL181224-3
QCBatchID: VL181224-3-1
Run ID: VL181224-3A
Cleanup: NONE
Basis: As Received
File Name: C84727

Analyst: Joe Kostelnik
Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
75-01-4	VINYL CHLORIDE	1	0.15	U	1	0.15
75-35-4	1,1-DICHLOROETHENE	1	0.3	U	1	0.3
67-64-1	ACETONE	1	3	U	10	3
75-15-0	CARBON DISULFIDE	1	0.3	U	1	0.3
75-09-2	METHYLENE CHLORIDE	1	0.34	U	1	0.34
75-34-3	1,1-DICHLOROETHANE	1	0.3	U	1	0.3
78-93-3	2-BUTANONE	1	3	U	10	3
67-66-3	CHLOROFORM	1	0.3	U	1	0.3
71-55-6	1,1,1-TRICHLOROETHANE	1	0.3	U	1	0.3
56-23-5	CARBON TETRACHLORIDE	1	0.15	U	1	0.15
107-06-2	1,2-DICHLOROETHANE	1	0.15	U	1	0.15
71-43-2	BENZENE	1	0.3	U	1	0.3
79-01-6	TRICHLOROETHENE	1	0.5	U	1	0.5
108-10-1	4-METHYL-2-PENTANONE	1	3	U	10	3
108-88-3	TOLUENE	1	0.3	U	1	0.3
79-00-5	1,1,2-TRICHLOROETHANE	1	0.3	U	1	0.3
127-18-4	TETRACHLOROETHENE	1	0.3	U	1	0.3
108-90-7	CHLOROBENZENE	1	0.3	U	1	0.3
100-41-4	ETHYLBENZENE	1	0.3	U	1	0.3
1330-20-7	TOTAL XYLENES	1	1	U	1	1

Data Package ID: *VL1812325-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1812325
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Field ID: B3L6C2A
Lab ID: 1812325-2

Analysis ReqCode: 8260_VOA_GCM

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 14-Dec-18
Date Extracted: 24-Dec-18
Date Analyzed: 24-Dec-18
Prep Method: SW5030 Rev C

Prep Batch: VL181224-3
QCBatchID: VL181224-3-1
Run ID: VL181224-3A
Cleanup: NONE
Basis: As Received
File Name: C84727

Analyst: Joe Kostelnik
Sample Aliquot: 1 ml
Final Volume: 1 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25.6		25	102	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25.5		25	102	84 - 118
2037-26-5	TOLUENE-D8	24.6		25	98	85 - 115

Data Package ID: *VL1812325-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1812325
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Lab ID: VL181224-3LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/24/2018
Date Analyzed: 12/24/2018
Prep Method: SW5030C

Prep Batch: VL181224-3
QCBatchID: VL181224-3-1
Run ID: VL181224-3A
Cleanup: NONE
Basis: N/A
File Name: C84717

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
75-01-4	VINYL CHLORIDE	10	8.97	1		90	72 - 123%
75-35-4	1,1-DICHLOROETHENE	10	9.04	1		90	77 - 119%
67-64-1	ACETONE	40	38.1	10		95	62 - 142%
75-15-0	CARBON DISULFIDE	10	9.94	1		99	76 - 121%
75-09-2	METHYLENE CHLORIDE	10	9.37	1		94	71 - 130%
75-34-3	1,1-DICHLOROETHANE	10	9.91	1		99	83 - 119%
78-93-3	2-BUTANONE	40	37.2	10		93	70 - 135%
67-66-3	CHLOROFORM	10	9.52	1		95	82 - 119%
71-55-6	1,1,1-TRICHLOROETHANE	10	9.91	1		99	80 - 120%
56-23-5	CARBON TETRACHLORIDE	10	9.93	1		99	77 - 122%
107-06-2	1,2-DICHLOROETHANE	10	9.34	1		93	74 - 128%
71-43-2	BENZENE	10	9.57	1		96	83 - 117%
79-01-6	TRICHLOROETHENE	10	9.52	1		95	83 - 117%
108-10-1	4-METHYL-2-PENTANONE	40	36.3	10		91	73 - 125%
108-88-3	TOLUENE	10	9.44	1		94	82 - 113%
79-00-5	1,1,2-TRICHLOROETHANE	10	8.78	1		88	78 - 116%
127-18-4	TETRACHLOROETHENE	10	9.72	1		97	84 - 117%
108-90-7	CHLOROBENZENE	10	9.15	1		92	81 - 113%
100-41-4	ETHYLBENZENE	10	9.58	1		96	81 - 113%
179601-23-	M+P-XYLENE	20	18.5	1		92	82 - 115%
95-47-6	O-XYLENE	10	9.19	1		92	81 - 115%

Data Package ID: *VL1812325-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1812325
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Lab ID: VL181224-3LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/24/2018
Date Analyzed: 12/24/2018
Prep Method: SW5030C

Prep Batch: VL181224-3
QCBatchID: VL181224-3-1
Run ID: VL181224-3A
Cleanup: NONE
Basis: N/A
File Name: C84718

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
75-01-4	VINYL CHLORIDE	10	8.98	1		90	20	0
75-35-4	1,1-DICHLOROETHENE	10	9.99	1		100	20	10
67-64-1	ACETONE	40	39.8	10		99	30	4
75-15-0	CARBON DISULFIDE	10	10.1	1		101	20	1
75-09-2	METHYLENE CHLORIDE	10	9.76	1		98	20	4
75-34-3	1,1-DICHLOROETHANE	10	10.4	1		104	20	5
78-93-3	2-BUTANONE	40	40.7	10		102	30	9
67-66-3	CHLOROFORM	10	9.82	1		98	20	3
71-55-6	1,1,1-TRICHLOROETHANE	10	10	1		100	20	1
56-23-5	CARBON TETRACHLORIDE	10	10.2	1		102	20	2
107-06-2	1,2-DICHLOROETHANE	10	9.77	1		98	20	5
71-43-2	BENZENE	10	9.88	1		99	20	3
79-01-6	TRICHLOROETHENE	10	10.1	1		101	20	6
108-10-1	4-METHYL-2-PENTANONE	40	38.7	10		97	30	6
108-88-3	TOLUENE	10	10.1	1		101	20	7
79-00-5	1,1,2-TRICHLOROETHANE	10	9.52	1		95	20	8
127-18-4	TETRACHLOROETHENE	10	10.4	1		104	20	7
108-90-7	CHLOROBENZENE	10	9.62	1		96	20	5
100-41-4	ETHYLBENZENE	10	9.85	1		99	20	3
179601-23-	M+P-XYLENE	20	19.5	1		98	20	6
95-47-6	O-XYLENE	10	9.57	1		96	20	4

Data Package ID: *VL1812325-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: **ALS -- Fort Collins**
Work Order Number: 1812325
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25	96		97		85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25	98		98		84 - 118
2037-26-5	TOLUENE-D8	25	99		101		85 - 115

Data Package ID: *VL1812325-1*

Prep Batch ID: VL181224-3

Start Date: 12/24/18
Start Time: 9:15
Prep Analyst: Joe Kostelnik

End Date: 12/24/18
End Time: 19:11

Concentration Method: NONE
Extract Method: SW5030C
Initial Volume Units: ml
Final Volume Units: ml

Batch Created By: JXK
Date Created: 12/26/18
Time Created: 8:17
Validated By: JXK
Date Validated: 12/26/18
Time Validated: 8:26

Comments:

QC Batch ID: VL181224-3-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
VL181224-3	MB	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812325
VL181224-3	LCS	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812325
VL181224-3	LCSD	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812325
1812325-1	SMP	B3L6C1A	WATER	12/13/2018	10	10	NONE	1	1812325
1812325-2	SMP	B3L6C2A	WATER	12/14/2018	10	10	NONE	1	1812325
1812327-1	SMP	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812327
1812329-1	SMP	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812329

QC Types

CAR	Carrier reference sample	DUP	Laboratory Duplicate
LCS	Laboratory Control Sample	LCSD	Laboratory Control Sample Duplicat
MB	Method Blank	MS	Laboratory Matrix Spike
MSD	Laboratory Matrix Spike Duplicate	REP	Sample replicate
RVS	Reporting Level Verification Standar	SMP	Field Sample
SYS	Sample Yield Spike		