Ft. Collins, Colorado

LIMS Version: 6.888

Monday, December 31, 2018

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

Re: ALS Workorder: 1812275
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 12/19/2018. 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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ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1812275
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
B3L6B9A	1812275-1		WATER	07-Dec-18	13:18
B3L6B8A	1812275-2		WATER	06-Dec-18	8:22

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 1812275	C.O.C.# X19-002-066 A 12-18-18 ST Page 1 of ~~1~~ 2

Collector:	Curt Hoffman 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-506-106-49	**Ice Chest No.:**	GWS-563
Shipped To (Lab):	TestAmerica Denver	**Method of Shipment:**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	7739300142 37
Protocol:	SURV	**Priority:**	30 Days	**Offsite Property No.:**	10363

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) B3L6B9 A ST 12-18-18	N	W	12-7-18	1318	5x40-mL aGs*	8260_VOA_GCMS: COMMON	14 Days	HCl or H2SO4 to pH <2 / Cool <=6C

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Curt Hoffman CHPRC			DEC 07 2018 1400	SSU-1			DEC 07 2018 1400
SSU-1			DEC 10 2018 1030	Troy Bacon CHPRC		Troy L. Bacon	DEC 10 2018 1030
Troy Bacon CHPRC		Troy L. Bacon	DEC 10 2018 1400	FEDEX			
		Fedex			Jesse Lambert		12/11/18 1125

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	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 = FSR66348 A-6004-842 (REV 3)

ALS1812275 12/31/2018 REV.0

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

1812278

C.O.C. No. X19-002-066A

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Alyssa Gomez	Alyssa Gomez		12-18-18 1230		FedEx		
FED EX				C Trimble	C Trimble		12-19-18 1250

A-6003-962 (03/05)

ALS1812275

12/31/2018

REV.0

1812275 54165

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# X19-002-065A Page 1 of 2

12-18-18 ST

Collector:	Juan Aguilar /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-506-104145	Ice Chest No.:	605-650 560
Shipped To (Lab):	TestAmerica Denver	Method of Shipment:	Commercial Carrier	Bill of Lading/Air Bill No.:	7739 03909233
Protocol:	SURV	Priority:	30 Days	Offsite Property No.:	10349

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
(2) B3L6B8A ST 12-18-18	N	W	12-6-18	0822	5x40-mL aGs*	8260_VOA_GCMS: COMMON	14 Days	HCl or H2SO4 to pH <2 / Cool <=6C

DN 280-117939 Chain of Custody
DN117939-1

-0.9 H.O transfer JSL

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Juan Aguilar /CHPRC			DEC 0 6 2018 1100	Troy Bacon /CHPRC		Troy L. Bacon	DEC 0 6 2018 1100
Troy Bacon /CHPRC		Troy L. Bacon	DEC 0 6 2018 1400	FEDEX			
		FedEx				Sharon Zimmerman	12/7/18 0910
Relinquished By:			12-18-18 1230	Received By:		FedEx	

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 = FSR66347 A-6004-842 (REV 3)

ALS1812275 12/31/2018 REV.0

1812275

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. X19-002-065-A

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FED EX				C Trimble	C Trimble	12-19-18 1250
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 1812275 12/31/2018 REV.0

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CHPRC Workorder No: 1812275

Project Manager: KO Initials: CDT Date: 12-19-18

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~~ 12/19/18
6.	Are short-hold samples present?		YES	~~NO~~ CDT 12-19-18
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):	3.4							
No. of custody seals on cooler:	1							
DOT Survey/ Acceptance Information — External µR/hr reading:	10							
Background µR/hr reading:	10							

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:**

Not clear which preservative (HCL or H_2SO_4) was used.

HCl per client

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

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

Project Manager Signature / Date: 12/19/18

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

1812275

RT 617 5 A
ST 14 10:30 5781 12.19

TestAm

THE LEADER IN ENVIRONMENTAL TESTING

10 K

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

SHIP DATE: 18DEC18
ACTWGT: 14.20 LB
CAD: 290884/CAFE3211

BILL SENDER

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

3.4°

FORT COLLINS CO 80524
(303) 736-0100 REF: S280-82948
PO: NO DEPT: BOTTLE PREP

FedEx Express

TRK# 0201 4759 5574 5781

WED - 19 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: 1812275

1. These 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
Organics Primary Data Reviewer
Date

12/30/18

Organics Final Data Reviewer
Date

ALS
Data Qualifier Flags
Organics

U or ND:	**This flag indicates that the compound was analyzed for but not detected.**
J:	**This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.**
B:	**This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.**
E:	**This flag identifies compounds whose concentration exceeds the upper level of the calibration range.**
A:	**This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.**
X:	**This flag indicates that the analyte was diluted below an accurate quantitation level.**
***:**	**This flag indicates that a spike recovery is equal to or outside the control criteria used.**
+:	**This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.**

GC/MS Volatiles

Method SW8260_25C

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1812275
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Lab ID: VL181219-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 19-Dec-18
Date Analyzed: 19-Dec-18

Prep Batch: VL181219-3
QCBatchID: VL181219-3-2
Run ID: VL181219-3A
Cleanup: NONE
Basis: N/A
File Name: C84633

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: *VL1812275-1*

GC/MS Volatiles

Method SW8260_25C

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1812275
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Lab ID: VL181219-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 19-Dec-18
Date Analyzed: 19-Dec-18

Prep Batch: VL181219-3
QCBatchID: VL181219-3-2
Run ID: VL181219-3A
Cleanup: NONE
Basis: N/A
File Name: C84633

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	24.6		25	98	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	24		25	96	84 - 118
2037-26-5	TOLUENE-D8	24.6		25	98	85 - 115

Data Package ID: *VL1812275-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1812275
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Field ID: B3L6B9A
Lab ID: 1812275-1

Analysis ReqCode: 8260_VOA_GCM

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 07-Dec-18
Date Extracted: 19-Dec-18
Date Analyzed: 19-Dec-18
Prep Method: SW5030 Rev C

Prep Batch: VL181219-3
QCBatchID: VL181219-3-2
Run ID: VL181219-3A
Cleanup: NONE
Basis: As Received
File Name: C84637

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	20		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: *VL1812275-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1812275
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Field ID:	B3L6B9A
Lab ID:	1812275-1

Analysis ReqCode: 8260_VOA_GCM

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 07-Dec-18
Date Extracted: 19-Dec-18
Date Analyzed: 19-Dec-18
Prep Method: SW5030 Rev C

Prep Batch: VL181219-3
QCBatchID: VL181219-3-2
Run ID: VL181219-3A
Cleanup: NONE
Basis: As Received
File Name: C84637

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	26		25	104	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	24.1		25	96	84 - 118
2037-26-5	TOLUENE-D8	25.3		25	101	85 - 115

Data Package ID: *VL1812275-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1812275
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Field ID: B3L6B8A
Lab ID: 1812275-2

Analysis ReqCode: 8260_VOA_GCM

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 06-Dec-18
Date Extracted: 19-Dec-18
Date Analyzed: 19-Dec-18
Prep Method: SW5030 Rev C

Prep Batch: VL181219-3
QCBatchID: VL181219-3-2
Run ID: VL181219-3A
Cleanup: NONE
Basis: As Received
File Name: C84638

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	1.4		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: *VL1812275-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1812275
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Field ID:	B3L6B8A
Lab ID:	1812275-2

Analysis ReqCode: 8260_VOA_GCM

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 06-Dec-18
Date Extracted: 19-Dec-18
Date Analyzed: 19-Dec-18
Prep Method: SW5030 Rev C

Prep Batch: VL181219-3
QCBatchID: VL181219-3-2
Run ID: VL181219-3A
Cleanup: NONE
Basis: As Received
File Name: C84638

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		25	100	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	24.2		25	97	84 - 118
2037-26-5	TOLUENE-D8	25.7		25	103	85 - 115

Data Package ID: *VL1812275-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1812275
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Lab ID: VL181219-3LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/19/2018
Date Analyzed: 12/19/2018
Prep Method: SW5030C

Prep Batch: VL181219-3
QCBatchID: VL181219-3-2
Run ID: VL181219-3A
Cleanup: NONE
Basis: N/A
File Name: C84630

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	9.39	1		94	72 - 123%
75-35-4	1,1-DICHLOROETHENE	10	10.1	1		101	77 - 119%
67-64-1	ACETONE	40	40.2	10		100	62 - 142%
75-15-0	CARBON DISULFIDE	10	10.8	1		108	76 - 121%
75-09-2	METHYLENE CHLORIDE	10	10	1		100	71 - 130%
75-34-3	1,1-DICHLOROETHANE	10	10.9	1		109	83 - 119%
78-93-3	2-BUTANONE	40	38.9	10		97	70 - 135%
67-66-3	CHLOROFORM	10	10.2	1		102	82 - 119%
71-55-6	1,1,1-TRICHLOROETHANE	10	10.8	1		108	80 - 120%
56-23-5	CARBON TETRACHLORIDE	10	10.8	1		108	77 - 122%
107-06-2	1,2-DICHLOROETHANE	10	10	1		100	74 - 128%
71-43-2	BENZENE	10	10.3	1		103	83 - 117%
79-01-6	TRICHLOROETHENE	10	10.4	1		104	83 - 117%
108-10-1	4-METHYL-2-PENTANONE	40	35.5	10		89	73 - 125%
108-88-3	TOLUENE	10	10.3	1		103	82 - 113%
79-00-5	1,1,2-TRICHLOROETHANE	10	9.08	1		91	78 - 116%
127-18-4	TETRACHLOROETHENE	10	10.7	1		107	84 - 117%
108-90-7	CHLOROBENZENE	10	10.1	1		101	81 - 113%
100-41-4	ETHYLBENZENE	10	10.2	1		102	81 - 113%
179601-23-	M+P-XYLENE	20	20.1	1		101	82 - 115%
95-47-6	O-XYLENE	10	9.99	1		100	81 - 115%

Data Package ID: *VL1812275-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1812275
Client Name: CH2M HILL Plateau Remediation Company
ClientProject ID: Groundwater Background Study, X19-002

Lab ID: VL181219-3LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/19/2018
Date Analyzed: 12/19/2018
Prep Method: SW5030C

Prep Batch: VL181219-3
QCBatchID: VL181219-3-2
Run ID: VL181219-3A
Cleanup: NONE
Basis: N/A
File Name: C84631

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	9.13	1		91	20	3
75-35-4	1,1-DICHLOROETHENE	10	9.62	1		96	20	5
67-64-1	ACETONE	40	45.5	10		114	30	12
75-15-0	CARBON DISULFIDE	10	10.5	1		105	20	2
75-09-2	METHYLENE CHLORIDE	10	10.2	1		102	20	1
75-34-3	1,1-DICHLOROETHANE	10	10.6	1		106	20	3
78-93-3	2-BUTANONE	40	40.7	10		102	30	5
67-66-3	CHLOROFORM	10	10.2	1		102	20	0
71-55-6	1,1,1-TRICHLOROETHANE	10	10.6	1		106	20	2
56-23-5	CARBON TETRACHLORIDE	10	10.8	1		108	20	0
107-06-2	1,2-DICHLOROETHANE	10	10.3	1		103	20	3
71-43-2	BENZENE	10	10.3	1		103	20	0
79-01-6	TRICHLOROETHENE	10	10.2	1		102	20	2
108-10-1	4-METHYL-2-PENTANONE	40	38.9	10		97	30	9
108-88-3	TOLUENE	10	10.1	1		101	20	1
79-00-5	1,1,2-TRICHLOROETHANE	10	9.29	1		93	20	2
127-18-4	TETRACHLOROETHENE	10	10.4	1		104	20	3
108-90-7	CHLOROBENZENE	10	9.69	1		97	20	4
100-41-4	ETHYLBENZENE	10	10.1	1		101	20	1
179601-23-	M+P-XYLENE	20	19.9	1		99	20	1
95-47-6	O-XYLENE	10	9.97	1		100	20	0

Data Package ID: *VL1812275-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: **ALS -- Fort Collins**
Work Order Number: 1812275
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	99		94		85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25	98		98		84 - 118
2037-26-5	TOLUENE-D8	25	100		100		85 - 115

Data Package ID: *VL1812275-1*

Prep Batch ID: VL181219-3

Start Date: 12/19/18
Start Time: 9:35
Prep Analyst: Joe Kostelnik

End Date: 12/19/18
End Time: 21:38

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

Batch Created By: JXK
Date Created: 12/20/18
Time Created: 10:24
Validated By: JXK
Date Validated: 12/20/18
Time Validated: 10:35

Comments:

QC Batch ID: VL181219-3-2

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
VL181219-3	MB	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812274
VL181219-3	LCS	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812274
VL181219-3	LCSD	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812274
1812274-1	SMP	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812274
1812274-2	SMP	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812274
1812274-3	SMP	XXXXXX	WATER	XXXXXX	10	10	NONE	1	1812274
1812275-1	SMP	B3L6B9A	WATER	12/7/2018	10	10	NONE	1	1812275
1812275-2	SMP	B3L6B8A	WATER	12/6/2018	10	10	NONE	1	1812275

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		