



Monday, June 28, 2021

Max Trehus
Great Western Operating Company, LLC
4093 Specialty Place, Unit B
Longmont, CO 80504

Re: ALS Workorder: 2105526
Project Name: Schneider HD 11-059 HNX
Project Number:

Dear Mr. Trehus:

Two water samples were received from Great Western Operating Company, LLC, on 5/25/2021. The samples were scheduled for the following analyses:

- Dissolved Gasses
- GC/MS Volatiles
- Inorganics
- Metals
- Total Extractable Petroleum Hydrocarbons (Diesel)
- Total Volatile Petroleum Hydrocarbons (Gasoline)
- Chloride and Sulfate - Subcontracted to ALS MI

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. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

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

Sincerely,

ALS Environmental
Katie M. OBrien
Project Manager

Accreditations: ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
California (CA)	2926
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
PJ-LA (DoD ELAP/ISO 170250)	95377
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO010992018-1
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

40 CFR Part 136: All analyses for Clean Water Act samples are analyzed using the 40 CFR Part 136 specified method and include all the QC requirements.



2105526

GC/MS Volatiles:

The sample was analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C.

All acceptance criteria were met.

Dissolved Gasses:

The sample was prepared and analyzed according to method RSK-175 procedures and the current revision of SOP 449.

All acceptance criteria were met.

GRO:

The sample was analyzed following the current revision of SOP 425 generally based on SW-846 Methods 8000C and 8015D. TVPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C6 to C10.

All acceptance criteria were met.

DRO:

The sample was analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C10 to C28.

All acceptance criteria were met.

Metals:

The samples were analyzed following Methods for the Determination of Metals in Environmental Samples – Supplement 1 procedures. Analysis by Trace ICP followed method 200.7 and the current revision of SOP 834.

Sample 2105526-2 was to be analyzed for dissolved metals. The sample was filtered through a 0.45 micron filter and preserved with nitric acid to a pH less than two prior to analysis.

All acceptance criteria were met.



Inorganics:

The sample was analyzed following Standard Method procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Alkalinity	SM2320B	1106
Bicarbonate	SM2320B	1106
Carbonate	SM2320B	1106
TDS	SM2540C	1101

All acceptance criteria were met.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2105526

Client Name: Great Western Operating Company, LLC

Client Project Name: Schneider HD 11-059 HNX

Client Project Number:

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
11-059 HNX A	2105526-1		WATER	24-May-21	11:30
11-059 HNX B	2105526-2		WATER	24-May-21	11:30



ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524
 TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Turnaround time for samples received after 2 p.m. will be calculated beginning from the next business day.
 Turnaround time for samples received Saturday will be calculated beginning from the next business day.

ALS WORKORDER #

210 5526

TURNAROUND TIME		SAMPLER		SITE ID		PAGE		DISPOSAL		BY LAB		or		RETURN													
PROJECT NAME	PROJECT No.	EDD FORMAT	PURCHASE ORDER	BILL TO COMPANY	INVOICE ATTN TO	ADDRESS	CITY / STATE / ZIP	PHONE	FAX	E-MAIL	MATRIX	SAMPLE DATE	SAMPLE TIME	# OF BOTTLES	PRESERVATIVE	QC	A	B	C	D	E	F	G	H	I	J	SEE NOTES SECTION
Schneider HP	11-059 HNX			Grant Western	Max Trehns					MTrehns@GWP.Com	U	5/24/21	11:30	3	-		X										
														3	HCL		X										
														3	HCL			X									
														3	HCL			X									
														1	-				X								
														1	-					X							
														1	HNO3								X				

Form 2029

Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>[Signature]</i>	Kenny Ryatt	5/25/21	12:15
RELINQUISHED BY	<i>[Signature]</i>	Angel Lee	5/25/21	12:16:10
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

REPORT LEVEL / QC REQUIRED

Summary (Standard OC)

LEVEL II (Standard OC)

LEVEL III (Std OC + forms)

LEVEL IV (Std OC + forms + raw)

Facility ID 454106

6 of 26

PRESERVATION KEY 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaOH/ZnAcetate 6-NaHSO4 7-4°C 8-Other



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CONDITION OF SAMPLE UPON RECEIPT FORM

Client: GREAT WESTERN OIL

Workorder No: 2105526

Project Manager: KMO

Initials: JPE

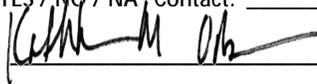
Date: 05/24/2021

		N/A	YES	NO
1.	Are airbills / shipping documents present and/or removable?	X		
	Tracking number:			
2.	Are custody seals on shipping containers intact?	X		
3.	Are custody seals on sample containers intact?	X		
4.	Is there a COC (chain-of-custody) present?		X	
5.	Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X	
6.	Are short-hold samples present?			X
7.	Are all samples within holding times for the requested analyses?		X	
8.	Were all sample containers received intact? (not broken or leaking)		X	
9.	Is there sufficient sample for the requested analyses?		X	
10.	Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X	
11.	Are all aqueous samples preserved correctly, if required? (excluding volatiles)		X	
12.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)		X	
13.	Were the samples shipped on ice?		X	
14.	Were cooler temperatures measured at 0.1-6.0°C?			
	IR gun used*:	#5		
			RAD ONLY	X
	Cooler #: <u>1</u>			
	Temperature (°C): <u>2.4</u>			
	# of custody seals on cooler: <u>0</u>			
	External µR/hr reading: <u>NA</u>			
	Background µR/hr reading: <u>11</u>			
	Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)			

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Were unpreserved bottles pH checked? YES / NA All client bottle ID's vs ALS lab ID's double-checked by

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

Project Manager Signature / Date:  5/26/21

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SAMPLE SUMMARY REPORT

Client: Great Western Operating Company, LLC
Project: Schneider HD 11-059 HNX
Sample ID: 11-059 HNX A
Legal Location:
Collection Date: 5/24/2021 11:30

Date: 25-Jun-21
Work Order: 2105526
Lab ID: 2105526-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Alkalinity as Calcium Carbonate			SM2320B			Prep Date: 5/31/2021 PrepBy: BMK
BICARBONATE AS CaCO3	ND		20	MG/L	1	5/31/2021
CARBONATE AS CaCO3	290		20	MG/L	1	5/31/2021
TOTAL ALKALINITY AS CaCO3	1100		20	MG/L	1	5/31/2021
Diesel Range Organics			SW8015M			Prep Date: 6/4/2021 PrepBy: JRS
Diesel Range Organics	26		1	MG/L	1	6/9/2021 08:08
Surr: O-TERPHENYL	115		69-120	%REC	1	6/9/2021 08:08
Dissolved Gasses			RSK175			Prep Date: 5/28/2021 PrepBy: JRS
METHANE	320		1	UG/L	1	5/28/2021 17:30
ETHANE	74		2	UG/L	1	5/28/2021 17:30
PROPANE	24		1	UG/L	1	5/28/2021 17:30
Gasoline Range Organics			SW8015			Prep Date: 6/3/2021 PrepBy: JRS
GASOLINE RANGE ORGANICS	2.6		0.5	MG/L	5	6/3/2021 14:55
Surr: 2,3,4-TRIFLUOROTOLUENE	110		80-120	%REC	5	6/3/2021 14:55
GC/MS Volatiles			SW8260_25			Prep Date: 6/7/2021 PrepBy: TWK
BENZENE	57		25	UG/L	25	6/7/2021 11:28
TOLUENE	160		25	UG/L	25	6/7/2021 11:28
ETHYLBENZENE	26		25	UG/L	25	6/7/2021 11:28
M+P-XYLENE	120		25	UG/L	25	6/7/2021 11:28
O-XYLENE	58		25	UG/L	25	6/7/2021 11:28
TOTAL XYLENES	180		1	UG/L	1	6/7/2021 11:28
Surr: 4-BROMOFLUOROBENZENE	101		80-120	%REC	25	6/7/2021 11:28
Surr: DIBROMOFLUOROMETHANE	101		80-120	%REC	25	6/7/2021 11:28
Surr: TOLUENE-D8	98		80-120	%REC	25	6/7/2021 11:28
Total Recoverable Metals by 200.7			EPA200.7			Prep Date: 6/2/2021 PrepBy: ZRH
CALCIUM	98		10	MG/L	10	6/3/2021 12:59
POTASSIUM	1300		10	MG/L	10	6/3/2021 12:59
MAGNESIUM	ND		10	MG/L	10	6/3/2021 12:59
SODIUM	2200		100	MG/L	100	6/3/2021 13:10
Total Dissolved Solids			SM2540C			Prep Date: 5/27/2021 PrepBy: BMK
TOTAL DISSOLVED SOLIDS	8600		400	MG/L	1	5/27/2021

Client: Great Western Operating Company, LLC
Project: Schneider HD 11-059 HNX
Sample ID: 11-059 HNX B
Legal Location:
Collection Date: 5/24/2021 11:30

Date: 25-Jun-21
Work Order: 2105526
Lab ID: 2105526-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dissolved Metals by 200.7			EPA200.7		Prep Date: 6/2/2021	PrepBy: ZRH
CALCIUM	100		10	MG/L	10	6/3/2021 13:00
POTASSIUM	1400		10	MG/L	10	6/3/2021 13:00
MAGNESIUM	ND		10	MG/L	10	6/3/2021 13:00
SODIUM	2200		100	MG/L	100	6/3/2021 13:13

Client: Great Western Operating Company, LLC
Project: Schneider HD 11-059 HNX
Sample ID: 11-059 HNX B
Legal Location:
Collection Date: 5/24/2021 11:30

Date: 25-Jun-21
Work Order: 2105526
Lab ID: 2105526-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

- "Report Limit" is the MDC
- U or ND - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- W - DER is greater than Warning Limit of 1.42
- * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
- # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
- G - Sample density differs by more than 15% of LCS density.
- D - DER is greater than Control Limit
- M - Requested MDC not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS, Matrix Spike Recovery within control limits.
- N - Matrix Spike Recovery outside control limits
- NC - Not Calculated for duplicate results less than 5 times MDC
- B - Analyte concentration greater than MDC.
- B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

- B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
- U or ND - Indicates that the compound was analyzed for but not detected.
- E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
- M - Duplicate injection precision was not met.
- N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
- Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
- * - Duplicate analysis (relative percent difference) not within control limits.
- S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

- U or ND - Indicates that the compound was analyzed for but not detected.
- B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
- E - Analyte concentration exceeds the upper level of the calibration range.
- J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
- A - A tentatively identified compound is a suspected aldol-condensation product.
- X - The analyte was diluted below an accurate quantitation level.
- * - The spike recovery is equal to or outside the control criteria used.
- + - The relative percent difference (RPD) equals or exceeds the control criteria.
- G - A pattern resembling gasoline was detected in this sample.
- D - A pattern resembling diesel was detected in this sample.
- M - A pattern resembling motor oil was detected in this sample.
- C - A pattern resembling crude oil was detected in this sample.
- 4 - A pattern resembling JP-4 was detected in this sample.
- 5 - A pattern resembling JP-5 was detected in this sample.
- H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
- Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

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Date: 6/25/2021 11:43:

Client: Great Western Operating Company, LLC
 Work Order: 2105526
 Project: Schneider HD 11-059 HNX

QC BATCH REPORT

Batch ID: **HC210528-91-1** Instrument ID: **MEE-1** Method: **RSK175**

LCS Sample ID: **HC210528-91** Units: **UG/L** Analysis Date: **5/28/2021 15:32**

Client ID: Run ID: **HC210528-91A** Prep Date: **5/28/2021** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	152	1	142		107	76-125				25	
ETHANE	291	2	267		109	70-120				25	
PROPANE	429	1	391		110	72-120				25	

LCSD Sample ID: **HC210528-91** Units: **UG/L** Analysis Date: **5/28/2021 17:15**

Client ID: Run ID: **HC210528-91A** Prep Date: **5/28/2021** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	152	1	142		107	76-125		152	1	25	
ETHANE	297	2	267		111	70-120		291	2	25	
PROPANE	441	1	391		113	72-120		429	3	25	

MB Sample ID: **HC210528-91** Units: **UG/L** Analysis Date: **5/28/2021 15:45**

Client ID: Run ID: **HC210528-91A** Prep Date: **5/28/2021** DF: **1**

Analyte	Result	ReportLimit										Qual
METHANE	ND	1										
ETHANE	ND	2										
PROPANE	ND	1										

The following samples were analyzed in this batch:

Client: Great Western Operating Company, LLC
 Work Order: 2105526
 Project: Schneider HD 11-059 HNX

QC BATCH REPORT

Batch ID: **HC210603-61-1** Instrument ID: **FUELS-1** Method: **SW8015**

LCS		Sample ID: HC210603-61			Units: MG/L		Analysis Date: 6/3/2021 11:11				
Client ID:		Run ID: HC210603-61B			Prep Date: 6/3/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	0.471	0.1	0.5		94	80-120				20	
Surr: 2,3,4-TRIFLUOROTOLUENE	0.107		0.1		107	80-120					

LCSD		Sample ID: HC210603-61			Units: MG/L		Analysis Date: 6/3/2021 16:24				
Client ID:		Run ID: HC210603-61B			Prep Date: 6/3/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	0.537	0.1	0.5		107	80-120		0.471	13	20	
Surr: 2,3,4-TRIFLUOROTOLUENE	0.114		0.1		114	80-120			6		

MB		Sample ID: HC210603-61			Units: MG/L		Analysis Date: 6/3/2021 11:33					
Client ID:		Run ID: HC210603-61B			Prep Date: 6/3/2021		DF: 1					
Analyte	Result	ReportLimit										Qual
GASOLINE RANGE ORGANICS	ND	0.1										
Surr: 2,3,4-TRIFLUOROTOLUENE	0.105				105	80-120						

The following samples were analyzed in this batch:

Client: Great Western Operating Company, LLC
 Work Order: 2105526
 Project: Schneider HD 11-059 HNX

QC BATCH REPORT

Batch ID: **HC210604-81-1** Instrument ID: **FUELS-1** Method: **SW8015M**

LCS		Sample ID: HC210604-81		Units: MG/L		Analysis Date: 6/9/2021 06:43					
Client ID:		Run ID: HC210608-81			Prep Date: 6/4/2021			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	6.87	1.07	8.33		82	53-120				20	
Surr: O-TERPHENYL	1.77		1.67		106	69-120					

LCSD		Sample ID: HC210604-81		Units: MG/L		Analysis Date: 6/9/2021 07:05					
Client ID:		Run ID: HC210608-81			Prep Date: 6/4/2021			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	6.6	1.07	8.33		79	53-120		6.87	4	20	
Surr: O-TERPHENYL	1.68		1.67		101	69-120			5		

MB		Sample ID: HC210604-81		Units: MG/L		Analysis Date: 6/9/2021 06:22					
Client ID:		Run ID: HC210608-81			Prep Date: 6/4/2021			DF: 1			
Analyte	Result	ReportLimit	Qual								
Diesel Range Organics	ND	1.1									
Surr: O-TERPHENYL	1.7		102	69-120							

The following samples were analyzed in this batch:

Client: Great Western Operating Company, LLC
 Work Order: 2105526
 Project: Schneider HD 11-059 HNX

QC BATCH REPORT

Batch ID: **IP210602-1-2** Instrument ID: **ICPTrace2** Method: **EPA200.7**

LCS		Sample ID: IP210602-1			Units: MG/L		Analysis Date: 6/3/2021 12:55				
Client ID:		Run ID: IT210603-1A6			Prep Date: 6/2/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	39.9	1	40		100	85-115				20	
MAGNESIUM	41.2	1	40		103	85-115				20	
POTASSIUM	41.2	1	40		103	85-115				20	
SODIUM	41.3	1	40		103	85-115				20	

LCSD		Sample ID: IP210602-1			Units: MG/L		Analysis Date: 6/3/2021 12:56				
Client ID:		Run ID: IT210603-1A6			Prep Date: 6/2/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
CALCIUM	40.7	1	40		102	85-115		39.9	2	20	
MAGNESIUM	41.8	1	40		104	85-115		41.2	1	20	
POTASSIUM	41.4	1	40		104	85-115		41.2	0	20	
SODIUM	41.4	1	40		104	85-115		41.3	0	20	

MB		Sample ID: FP210528-1			Units: MG/L		Analysis Date: 6/3/2021 12:49				
Client ID:		Run ID: IT210603-1A6			Prep Date: 6/2/2021		DF: 1				
Analyte	Result	ReportLimit	Qual								
CALCIUM	ND	1									
MAGNESIUM	ND	1									
POTASSIUM	ND	1									
SODIUM	ND	1									

MB		Sample ID: IP210602-1			Units: MG/L		Analysis Date: 6/3/2021 12:54				
Client ID:		Run ID: IT210603-1A6			Prep Date: 6/2/2021		DF: 1				
Analyte	Result	ReportLimit	Qual								
CALCIUM	ND	1									
MAGNESIUM	ND	1									
POTASSIUM	ND	1									
SODIUM	ND	1									

The following samples were analyzed in this batch:

2105526-1	2105526-2
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Client: Great Western Operating Company, LLC

QC BATCH REPORT

Work Order: 2105526

Project: Schneider HD 11-059 HNX

Batch ID: VL210607-3-3

Instrument ID: HPV1

Method: SW8260_25

LCS		Sample ID: VL210607-3			Units: %REC		Analysis Date: 6/7/2021 07:48				
Client ID:		Run ID: VL210607-3A			Prep Date: 6/7/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	24.9		25		100	80-120					
Surr: DIBROMOFLUOROMETHANE	25		25		100	80-120					
Surr: TOLUENE-D8	24.9		25		99	80-120					
BENZENE	9.92	1	10		99	80-120				20	
TOLUENE	10.1	1	10		101	80-120				20	
ETHYLBENZENE	10	1	10		100	80-120				20	
M+P-XYLENE	20.1	1	20		100	80-120				20	
O-XYLENE	9.86	1	10		99	80-120				20	

LCSD		Sample ID: VL210607-3			Units: %REC		Analysis Date: 6/7/2021				
Client ID:		Run ID: VL210607-3A			Prep Date: 6/7/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	25.3		25		101	80-120			1		
Surr: DIBROMOFLUOROMETHANE	25.5		25		102	80-120			2		
Surr: TOLUENE-D8	24.7		25		99	80-120			1		
BENZENE	9.94	1	10		99	80-120		9.92	0	20	
TOLUENE	10.1	1	10		101	80-120		10.1	0	20	
ETHYLBENZENE	9.95	1	10		100	80-120		10	1	20	
M+P-XYLENE	19.8	1	20		99	80-120		20.1	1	20	
O-XYLENE	9.85	1	10		98	80-120		9.86	0	20	

MB		Sample ID: VL210607-3			Units: %REC		Analysis Date: 6/7/2021 08:59				
Client ID:		Run ID: VL210607-3A			Prep Date: 6/7/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	25.7				103	80-120					
Surr: DIBROMOFLUOROMETHANE	25.2				101	80-120					
Surr: TOLUENE-D8	24.8				99	80-120					
BENZENE	ND	1									
TOLUENE	ND	1									
ETHYLBENZENE	ND	1									
M+P-XYLENE	ND	1									
O-XYLENE	ND	1									
TOTAL XYLENES	ND	1									

The following samples were analyzed in this batch:

2105526-1

Client: Great Western Operating Company, LLC
 Work Order: 2105526
 Project: Schneider HD 11-059 HNX

QC BATCH REPORT

Batch ID: **AK210531-1-1** Instrument ID: **NONE** Method: **SM2320B**

LCS		Sample ID: AK210531-1			Units: MG/L		Analysis Date: 5/31/2021				
Client ID:		Run ID: AK210531-1A1			Prep Date: 5/31/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	100	5	100		100	85-115				15	

MB		Sample ID: AK210531-1			Units: MG/L		Analysis Date: 5/31/2021				
Client ID:		Run ID: AK210531-1A1			Prep Date: 5/31/2021		DF: 1				
Analyte	Result	ReportLimit	Qual								
BICARBONATE AS CaCO3	ND	5									
CARBONATE AS CaCO3	ND	5									
TOTAL ALKALINITY AS CaCO3	ND	5									

The following samples were analyzed in this batch:

Client: Great Western Operating Company, LLC
 Work Order: 2105526
 Project: Schneider HD 11-059 HNX

QC BATCH REPORT

Batch ID: **TD210527-1-1** Instrument ID: **Balance** Method: **SM2540C**

LCS		Sample ID: TD210527-1			Units: MG/L		Analysis Date: 5/27/2021				
Client ID:		Run ID: TD210527-1A1			Prep Date: 5/27/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	418	20	400		104	85-115				14	

LCSD		Sample ID: TD210527-1			Units: MG/L		Analysis Date: 5/27/2021				
Client ID:		Run ID: TD210527-1A1			Prep Date: 5/27/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	433	20	400		108	85-115		418	4	14	

MB		Sample ID: TD210527-1			Units: MG/L		Analysis Date: 5/27/2021				
Client ID:		Run ID: TD210527-1A1			Prep Date: 5/27/2021		DF: 1				
Analyte	Result	ReportLimit	Qual								
TOTAL DISSOLVED SOLIDS	ND	20									

The following samples were analyzed in this batch:



09-Jun-2021

Katie O'Brien
ALS Environmental
225 Commerce Dr
Ft. Collins, CO 80524

Re: **2105526**

Work Order: **21060236**

Dear Katie,

ALS Environmental received 1 sample on 02-Jun-2021 10:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 9.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink that reads "Ehrland Bosworth".

Electronically approved by: Ehrland Bosworth

Ehrland Bosworth
Project Manager

Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental ALS

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RIGHT SOLUTIONS RIGHT PARTNER

Client: ALS Environmental
Project: 2105526
Work Order: 21060236

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
21060236-01	11-059 HNX A	Water		5/24/2021 11:30	6/2/2021 10:30	<input type="checkbox"/>

Client: ALS Environmental
Project: 2105526
WorkOrder: 21060236

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCS D	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

Client: ALS Environmental
Project: 2105526
Work Order: 21060236

Case Narrative

Samples for the above noted Work Order were received on 06/02/2021. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:

No deviations or anomalies were noted.

ALS Group USA, Corp

Date: 09-Jun-21

CLIENT: ALS Environmental
Project: 2105526

Work Order: 21060236

Lab ID: 21060236-01A
Client Sample ID: 11-059 HNX A

Collection Date: 5/24/2021 11:30:00 AM
Matrix: WATER

Analyses	Result	Report Limit	MDL	Qual	Units	Dilution Factor	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY			E300.0				Analyst: JDR
Chloride	2,700	400	120		mg/L	400	6/8/2021 03:48 AM
Sulfate	270	40	7.6		mg/L	40	6/8/2021 03:28 AM

Qualifiers: U - Analyzed for but Not Detected
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 P - Dual Column results RPD > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time

Client: ALS Environmental
 Work Order: 21060236
 Project: 2105526

QC BATCH REPORT

Batch ID: **R319298** Instrument ID **IC3** Method: **E300.0**

MBLK		Sample ID: MBLK-R319298				Units: mg/L		Analysis Date: 6/7/2021 04:52 PM			
Client ID:		Run ID: IC3_210607A				SeqNo: 7468954		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								
Sulfate	U	0.19	1.0								

MBLK		Sample ID: MBLK-R319298				Units: mg/L		Analysis Date: 6/7/2021 10:39 PM			
Client ID:		Run ID: IC3_210607A				SeqNo: 7468972		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								
Sulfate	U	0.19	1.0								

MBLK		Sample ID: MBLK-R319298				Units: mg/L		Analysis Date: 6/8/2021 05:04 AM			
Client ID:		Run ID: IC3_210607A				SeqNo: 7468992		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								
Sulfate	U	0.19	1.0								

LCS		Sample ID: LCS-R319298				Units: mg/L		Analysis Date: 6/7/2021 05:12 PM			
Client ID:		Run ID: IC3_210607A				SeqNo: 7468955		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.318	0.31	1.0	10	0	93.2	90-110	0			
Sulfate	9.593	0.19	1.0	10	0	95.9	90-110	0			

LCS		Sample ID: LCS-R319298				Units: mg/L		Analysis Date: 6/7/2021 10:59 PM			
Client ID:		Run ID: IC3_210607A				SeqNo: 7468973		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.414	0.31	1.0	10	0	94.1	90-110	0			
Sulfate	9.834	0.19	1.0	10	0	98.3	90-110	0			

LCS		Sample ID: LCS-R319298				Units: mg/L		Analysis Date: 6/8/2021 05:24 AM			
Client ID:		Run ID: IC3_210607A				SeqNo: 7468993		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.462	0.31	1.0	10	0	94.6	90-110	0			
Sulfate	9.859	0.19	1.0	10	0	98.6	90-110	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental

Work Order: 21060236

Project: 2105526

QC BATCH REPORT

Batch ID: R319298

Instrument ID IC3

Method: E300.0

MS					Sample ID: 21060043-01C MS			Units: mg/L		Analysis Date: 6/7/2021 08:05 PM		
Client ID:		Run ID: IC3_210607A			SeqNo: 7468964		Prep Date:		DF: 40			
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Chloride	648.4	12	40	400	238.1	103	80-120	0				
Sulfate	407.4	7.6	40	400	8.748	99.7	80-120	0				

MS					Sample ID: 21060137-01I MS			Units: mg/L		Analysis Date: 6/8/2021 12:54 AM		
Client ID:		Run ID: IC3_210607A			SeqNo: 7468979		Prep Date:		DF: 20			
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Chloride	203.5	6.2	20	200	16.97	93.3	80-120	0				
Sulfate	244.9	3.8	20	200	46.21	99.3	80-120	0				

MS					Sample ID: 21060243-03A MS			Units: mg/L		Analysis Date: 6/8/2021 07:58 AM		
Client ID:		Run ID: IC3_210607A			SeqNo: 7469001		Prep Date:		DF: 10			
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Chloride	99.08	3.1	10	100	8.374	90.7	80-120	0				
Sulfate	111.2	1.9	10	100	15.49	95.7	80-120	0				

MSD					Sample ID: 21060043-01C MSD			Units: mg/L		Analysis Date: 6/7/2021 08:24 PM		
Client ID:		Run ID: IC3_210607A			SeqNo: 7468965		Prep Date:		DF: 40			
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Chloride	652.9	12	40	400	238.1	104	80-120	648.4	0.689	20		
Sulfate	406.3	7.6	40	400	8.748	99.4	80-120	407.4	0.274	20		

MSD					Sample ID: 21060137-01I MSD			Units: mg/L		Analysis Date: 6/8/2021 01:13 AM		
Client ID:		Run ID: IC3_210607A			SeqNo: 7468980		Prep Date:		DF: 20			
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Chloride	202.5	6.2	20	200	16.97	92.7	80-120	203.5	0.507	20		
Sulfate	244.5	3.8	20	200	46.21	99.1	80-120	244.9	0.163	20		

MSD					Sample ID: 21060243-03A MSD			Units: mg/L		Analysis Date: 6/8/2021 08:17 AM		
Client ID:		Run ID: IC3_210607A			SeqNo: 7469002		Prep Date:		DF: 10			
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Chloride	99.05	3.1	10	100	8.374	90.7	80-120	99.08	0.0293	20		
Sulfate	112.1	1.9	10	100	15.49	96.6	80-120	111.2	0.845	20		

The following samples were analyzed in this batch:

21060236-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Sample Receipt Checklist

Client Name: **ALS - FORT COLLINS**

Date/Time Received: **02-Jun-21 10:30**

Work Order: **21060236**

Received by: **DS**

Checklist completed by Diane Shaw 02-Jun-21
eSignature Date

Reviewed by: Eheland Beaworth 03-Jun-21
eSignature Date

Matrices: Water

Carrier name: FedEx

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container/Temp Blank temperature in compliance? Yes No
- Sample(s) received on ice? Yes No

Temperature(s)/Thermometer(s):

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

Water - VOA vials have zero headspace? Yes No No VOA vials submitted

Water - pH acceptable upon receipt? Yes No N/A

pH adjusted? Yes No N/A

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: