



Friday, July 23, 2021

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

Re: ALS Workorder: 2105587  
Project Name: Wilson IC 03-302 HC  
Project Number:

Dear Mr. Trehus:

Two water samples were received from Great Western Operating Company, LLC, on 5/27/2021. 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)

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.



## 2105588

### **GC/MS Volatiles:**

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

Sample 2105588-1RR1 was analyzed beyond the holding time requirements. See NCR #15269.

All remaining 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 2105588-2 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 EMSL and 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
Chloride	300.0 Revision 2.1	1113
Sulfate	300.0 Revision 2.1	1113

The sample was analyzed outside of hold time for TDS, chloride and sulfate. (See NCR #15287 and #15301)

The method blank associated with each batch was below the reporting limit for the requested analytes with the exception of alkalinity and bicarbonate. The associated sample contained more than ten times the concentration of alkalinity and bicarbonate detected in the method blank, so no further action was taken.

All remaining acceptance criteria were met.

# ALS -- Fort Collins

## Sample Number(s) Cross-Reference Table

---

**OrderNum:** 2105588

**Client Name:** Great Western Operating Company, LLC

**Client Project Name:** Wilson IC 03-222 HN

**Client Project Number:**

**Client PO Number:**

---

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
03-222 HN A	2105588-1		WATER	26-May-21	15:55
03-222 HN B	2105588-2		WATER	26-May-21	15:55



# 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 #	2105588
PAGE	of
DISPOSAL	BY LAB or RETURN
PARAMETER/METHOD REQUEST FOR ANALYSIS	

TURNAROUND TIME	SAMPLER	SITE ID	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
		Wilson FC 03-222HN			Greent Western	Max Trehus					MTrehus@GWP.com	W	5/24/21	15:55	3	-		X										
		03-222HNA													3	HCL		X										
		03-222HNA													3	HCL			X									
		03-222HNA													3	HCL			X									
		03-222HNA													1	-						X						
		03-222HNB													1	-						X						
		03-222HDA													1	HNO3							X					

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>[Signature]</i>	Kenny Frost	5/27/21	14:05
RELINQUISHED BY	<i>[Signature]</i>	Angel Cu	5/27/21	15:05
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

Form 2029

REPORT LEVEL / QC REQUIRED

Summary (Standard QC)

LEVEL II (Standard QC)

LEVEL III (Std QC + forms)

LEVEL IV (Std QC + forms + raw)

Facility ID 452187

6 of 23

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

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



**ALS Environmental - Fort Collins**  
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: GWOC Workorder No: 2105588  
 Project Manager: KMO Initials: AL Date: 05/27/2021

		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
Cooler #: <u>1</u> Temperature (°C): <u>3.5</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? <u>N/A</u>				

\* 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? NA All client bottle ID's vs ALS lab ID's double-checked by: AL

If applicable, was the client contacted? YES / NO / NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Project Manager Signature / Date: [Signature] 6/01/21

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: Great Western Operating Company, LLC  
 Project: Wilson IC 03-222 HN  
 Sample ID: 03-222 HN A  
 Legal Location:  
 Collection Date: 5/26/2021 15:55

Date: 21-Jul-21  
 Work Order: 2105588  
 Lab ID: 2105588-1  
 Matrix: WATER  
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>Alkalinity as Calcium Carbonate</b>			<b>SM2320B</b>		Prep Date: <b>6/7/2021</b>	PrepBy: <b>BMK</b>
BICARBONATE AS CaCO3	140		20	MG/L	1	6/7/2021
CARBONATE AS CaCO3	220		20	MG/L	1	6/7/2021
TOTAL ALKALINITY AS CaCO3	370		20	MG/L	1	6/7/2021
<b>Diesel Range Organics</b>			<b>SW8015M</b>		Prep Date: <b>6/4/2021</b>	PrepBy: <b>JRS</b>
Diesel Range Organics	9.7		1.2	MG/L	1	6/9/2021 09:11
Surr: O-TERPHENYL	109		69-120	%REC	1	6/9/2021 09:11
<b>Dissolved Gasses</b>			<b>RSK175</b>		Prep Date: <b>6/8/2021</b>	PrepBy: <b>JRS</b>
METHANE	760		1	UG/L	1	6/8/2021 16:50
ETHANE	160		2	UG/L	1	6/8/2021 16:50
PROPANE	98		1	UG/L	1	6/8/2021 16:50
<b>Gasoline Range Organics</b>			<b>SW8015</b>		Prep Date: <b>6/7/2021</b>	PrepBy: <b>JRS</b>
GASOLINE RANGE ORGANICS	2		1	MG/L	10	6/7/2021 16:42
Surr: 2,3,4-TRIFLUOROTOLUENE	110		80-120	%REC	10	6/7/2021 16:42
<b>GC/MS Volatiles</b>			<b>SW8260_25</b>		Prep Date: <b>6/9/2021</b>	PrepBy: <b>AEW</b>
BENZENE	71		2	UG/L	2	6/9/2021 18:25
TOLUENE	180		4	UG/L	4	6/10/2021 17:29
ETHYLBENZENE	52		2	UG/L	2	6/9/2021 18:25
M+P-XYLENE	160		2	UG/L	2	6/9/2021 18:25
O-XYLENE	92		2	UG/L	2	6/9/2021 18:25
TOTAL XYLENES	250		1	UG/L	1	6/10/2021 17:29
Surr: 4-BROMOFLUOROBENZENE	99		80-120	%REC	4	6/10/2021 17:29
Surr: 4-BROMOFLUOROBENZENE	102		80-120	%REC	2	6/9/2021 18:25
Surr: DIBROMOFLUOROMETHANE	91		80-120	%REC	2	6/9/2021 18:25
Surr: DIBROMOFLUOROMETHANE	99		80-120	%REC	4	6/10/2021 17:29
Surr: TOLUENE-D8	99		80-120	%REC	2	6/9/2021 18:25
Surr: TOLUENE-D8	100		80-120	%REC	4	6/10/2021 17:29
<b>Ion Chromatography</b>			<b>EPA300.0</b>		Prep Date: <b>7/1/2021</b>	PrepBy: <b>LMC</b>
CHLORIDE	5300		100	MG/L	500	7/3/2021 05:09
SULFATE	1000		200	MG/L	200	7/1/2021 21:55
<b>Total Recoverable Metals by 200.7</b>			<b>EPA200.7</b>		Prep Date: <b>6/7/2021</b>	PrepBy: <b>ZRH</b>
CALCIUM	2500		10	MG/L	10	6/10/2021 11:51
POTASSIUM	470		10	MG/L	10	6/10/2021 11:51
MAGNESIUM	ND		10	MG/L	10	6/10/2021 11:51
SODIUM	530		10	MG/L	10	6/10/2021 11:51
<b>Total Dissolved Solids</b>			<b>SM2540C</b>		Prep Date: <b>6/25/2021</b>	PrepBy: <b>BMK</b>
TOTAL DISSOLVED SOLIDS	15000		400	MG/L	1	6/30/2021

**Client:** Great Western Operating Company, LLC

**Date:** 21-Jul-21

**Project:** Wilson IC 03-222 HN

**Work Order:** 2105588

**Sample ID:** 03-222 HN B

**Lab ID:** 2105588-2

**Legal Location:**

**Matrix:** WATER

**Collection Date:** 5/26/2021 15:55

**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>Dissolved Metals by 200.7</b>			<b>EPA200.7</b>		Prep Date: <b>6/7/2021</b>	PrepBy: <b>ZRH</b>
<b>CALCIUM</b>	2600		<b>10</b>	<b>MG/L</b>	10	6/10/2021 11:52
<b>POTASSIUM</b>	470		<b>10</b>	<b>MG/L</b>	10	6/10/2021 11:52
<b>MAGNESIUM</b>	ND		<b>10</b>	<b>MG/L</b>	10	6/10/2021 11:52
<b>SODIUM</b>	530		<b>10</b>	<b>MG/L</b>	10	6/10/2021 11:52

**Client:** Great Western Operating Company, LLC  
**Project:** Wilson IC 03-222 HN  
**Sample ID:** 03-222 HN B  
**Legal Location:**  
**Collection Date:** 5/26/2021 15:55

**Date:** 21-Jul-21  
**Work Order:** 2105588  
**Lab ID:** 2105588-2  
**Matrix:** WATER  
**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

**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

ALS -- Fort Collins

Date: 7/21/2021 3:29:

Client: Great Western Operating Company, LLC

QC BATCH REPORT

Work Order: 2105588

Project: Wilson IC 03-222 HN

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	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	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	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	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: 2105588  
 Project: Wilson IC 03-222 HN

# QC BATCH REPORT

Batch ID: **HC210607-62-1** Instrument ID **FUELS-1** Method: **SW8015**

**LCS** Sample ID: **HC210607-62** Units: **MG/L** Analysis Date: **6/7/2021 20:01**  
 Client ID: Run ID: **HC210607-61A** Prep Date: **6/7/2021** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	0.438	0.1	0.5		88	80-120				20	
Surr: 2,3,4-TRIFLUOROTOLUENE	0.111		0.1		111	80-120					

**LCSD** Sample ID: **HC210607-62** Units: **MG/L** Analysis Date: **6/8/2021 03:15**  
 Client ID: Run ID: **HC210607-61A** Prep Date: **6/7/2021** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	0.45	0.1	0.5		90	80-120		0.438	3	20	
Surr: 2,3,4-TRIFLUOROTOLUENE	0.11		0.1		110	80-120			1		

**MB** Sample ID: **HC210607-62** Units: **MG/L** Analysis Date: **6/7/2021 11:54**  
 Client ID: Run ID: **HC210607-61A** Prep Date: **6/7/2021** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	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: 2105588  
 Project: Wilson IC 03-222 HN

# QC BATCH REPORT

Batch ID: **HC210608-91-1** Instrument ID **MEE-1** Method: **RSK175**

LCS		Sample ID: <b>HC210608-91</b>			Units: <b>UG/L</b>		Analysis Date: <b>6/8/2021 15:59</b>				
Client ID:		Run ID: <b>HC210608-91A</b>			Prep Date: <b>6/8/2021</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
METHANE	151	1	142		106	76-125				25	
ETHANE	288	2	267		108	70-120				25	
PROPANE	426	1	391		109	72-120				25	

LCSD		Sample ID: <b>HC210608-91</b>			Units: <b>UG/L</b>		Analysis Date: <b>6/8/2021 16:54</b>				
Client ID:		Run ID: <b>HC210608-91A</b>			Prep Date: <b>6/8/2021</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
METHANE	140	1	142		99	76-125		151	7	25	
ETHANE	270	2	267		101	70-120		288	6	25	
PROPANE	399	1	391		102	72-120		426	6	25	

MB		Sample ID: <b>HC210608-91</b>			Units: <b>UG/L</b>		Analysis Date: <b>6/8/2021 16:12</b>					
Client ID:		Run ID: <b>HC210608-91A</b>			Prep Date: <b>6/8/2021</b>		DF: <b>1</b>					
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: 2105588  
 Project: Wilson IC 03-222 HN

# QC BATCH REPORT

Batch ID: **IP210607-2-2** Instrument ID **ICPTrace2** Method: **EPA200.7**

LCS		Sample ID: <b>IP210607-2</b>			Units: <b>MG/L</b>		Analysis Date: <b>6/10/2021 11:47</b>				
Client ID:		Run ID: <b>IT210610-1A5</b>			Prep Date: <b>6/7/2021</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CALCIUM	40	1	40		100	85-115				20	
MAGNESIUM	40.2	1	40		101	85-115				20	
POTASSIUM	41.7	1	40		104	85-115				20	
SODIUM	40.4	1	40		101	85-115				20	

LCSD		Sample ID: <b>IP210607-2</b>			Units: <b>MG/L</b>		Analysis Date: <b>6/10/2021 18:04</b>				
Client ID:		Run ID: <b>IT210610-1A5</b>			Prep Date: <b>6/7/2021</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CALCIUM	39	1	40		98	85-115		40	3	20	
MAGNESIUM	40.7	1	40		102	85-115		40.2	1	20	
POTASSIUM	40.6	1	40		101	85-115		41.7	3	20	
SODIUM	40.7	1	40		102	85-115		40.4	1	20	

MB		Sample ID: <b>FP210607-2</b>			Units: <b>MG/L</b>		Analysis Date: <b>6/10/2021 11:45</b>					
Client ID:		Run ID: <b>IT210610-1A5</b>			Prep Date: <b>6/7/2021</b>		DF: <b>1</b>					
Analyte	Result	ReportLimit										Qual
CALCIUM	ND	1										
MAGNESIUM	ND	1										
POTASSIUM	ND	1										
SODIUM	ND	1										

MB		Sample ID: <b>IP210607-2</b>			Units: <b>MG/L</b>		Analysis Date: <b>6/10/2021 11:46</b>					
Client ID:		Run ID: <b>IT210610-1A5</b>			Prep Date: <b>6/7/2021</b>		DF: <b>1</b>					
Analyte	Result	ReportLimit										Qual
CALCIUM	ND	1										
MAGNESIUM	ND	1										
POTASSIUM	ND	1										
SODIUM	ND	1										

The following samples were analyzed in this batch:

2105588-1	2105588-2
-----------	-----------

Client: Great Western Operating Company, LLC  
 Work Order: 2105588  
 Project: Wilson IC 03-222 HN

# QC BATCH REPORT

Batch ID: VL210609-3-2 Instrument ID: HPV1 Method: SW8260\_25

LCS		Sample ID: VL210609-3			Units: %REC			Analysis Date: 6/9/2021 10:27			
Client ID:		Run ID: VL210609-3A			Prep Date: 6/9/2021			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	24.6		25		98	80-120					
Surr: DIBROMOFLUOROMETHANE	25.5		25		102	80-120					
Surr: TOLUENE-D8	25.1		25		100	80-120					
BENZENE	9.69	1	10		97	80-120				20	
TOLUENE	9.42	1	10		94	80-120				20	
ETHYLBENZENE	9.49	1	10		95	80-120				20	
M+P-XYLENE	18.5	1	20		92	80-120				20	
O-XYLENE	9.17	1	10		92	80-120				20	

LCSD		Sample ID: VL210609-3			Units: %REC			Analysis Date: 6/9/2021 10:51			
Client ID:		Run ID: VL210609-3A			Prep Date: 6/9/2021			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	25.5		25		102	80-120			4		
Surr: DIBROMOFLUOROMETHANE	25.8		25		103	80-120			1		
Surr: TOLUENE-D8	24.7		25		99	80-120			1		
BENZENE	9.77	1	10		98	80-120		9.69	1	20	
TOLUENE	9.57	1	10		96	80-120		9.42	2	20	
ETHYLBENZENE	9.52	1	10		95	80-120		9.49	0	20	
M+P-XYLENE	18.9	1	20		95	80-120		18.5	3	20	
O-XYLENE	9.37	1	10		94	80-120		9.17	2	20	

MB		Sample ID: VL210609-3			Units: %REC			Analysis Date: 6/9/2021 12:51			
Client ID:		Run ID: VL210609-3A			Prep Date: 6/9/2021			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	24.9				100	80-120					
Surr: DIBROMOFLUOROMETHANE	24.9				100	80-120					
Surr: TOLUENE-D8	25				100	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:

Client: Great Western Operating Company, LLC  
 Work Order: 2105588  
 Project: Wilson IC 03-222 HN

# QC BATCH REPORT

Batch ID: VL210610-3-5 Instrument ID: HPV1 Method: SW8260\_25

LCS		Sample ID: VL210610-3			Units: %REC		Analysis Date: 6/10/2021 13:54				
Client ID:		Run ID: VL210610-3A			Prep Date: 6/10/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	25		25		100	80-120					
Surr: DIBROMOFLUOROMETHANE	25.3		25		101	80-120					
Surr: TOLUENE-D8	24.7		25		99	80-120					
BENZENE	9.82	1	10		98	80-120				20	
TOLUENE	9.82	1	10		98	80-120				20	
ETHYLBENZENE	10	1	10		100	80-120				20	
M+P-XYLENE	19.5	1	20		97	80-120				20	
O-XYLENE	9.55	1	10		96	80-120				20	

LCSD		Sample ID: VL210610-3			Units: %REC		Analysis Date: 6/10/2021 15:07				
Client ID:		Run ID: VL210610-3A			Prep Date: 6/10/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	25.1		25		100	80-120			0		
Surr: DIBROMOFLUOROMETHANE	24.9		25		100	80-120			2		
Surr: TOLUENE-D8	24.8		25		99	80-120			0		
BENZENE	9.33	1	10		93	80-120		9.82	5	20	
TOLUENE	9.37	1	10		94	80-120		9.82	5	20	
ETHYLBENZENE	9.38	1	10		94	80-120		10	6	20	
M+P-XYLENE	18.1	1	20		91	80-120		19.5	7	20	
O-XYLENE	9.3	1	10		93	80-120		9.55	3	20	

MB		Sample ID: VL210610-3			Units: %REC		Analysis Date: 6/10/2021 14:44				
Client ID:		Run ID: VL210610-3A			Prep Date: 6/10/2021		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	25.1				100	80-120					
Surr: DIBROMOFLUOROMETHANE	25.8				103	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:

**Client:** Great Western Operating Company, LLC  
**Work Order:** 2105588  
**Project:** Wilson IC 03-222 HN

## QC BATCH REPORT

Batch ID: **AK210607-1-1**      Instrument ID **NONE**      Method: **SM2320B**

<b>LCS</b>	Sample ID: <b>AK210607-1</b>					Units: <b>MG/L</b>	Analysis Date: <b>6/7/2021</b>				
Client ID:	Run ID: <b>AK210607-1A1</b>			Prep Date: <b>6/7/2021</b>			DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	96.6	5	100		96	85-115				15	

<b>MB</b>	Sample ID: <b>AK210607-1</b>					Units: <b>MG/L</b>	Analysis Date: <b>6/7/2021</b>				
Client ID:	Run ID: <b>AK210607-1A1</b>			Prep Date: <b>6/7/2021</b>			DF: <b>1</b>				
Analyte	Result	ReportLimit									
BICARBONATE AS CaCO3	6.5	5									
CARBONATE AS CaCO3	ND	5									
TOTAL ALKALINITY AS CaCO3	6.5	5									

The following samples were analyzed in this batch:

2105588-1
-----------

Client: Great Western Operating Company, LLC  
 Work Order: 2105588  
 Project: Wilson IC 03-222 HN

# QC BATCH REPORT

Batch ID: **IC210701-1-1** Instrument ID **IC3** Method: **EPA300.0**

LCS		Sample ID: <b>IC210701-1</b>			Units: <b>MG/L</b>		Analysis Date: <b>7/1/2021 13:17</b>				
Client ID:		Run ID: <b>IC210701-1A1</b>			Prep Date: <b>7/1/2021</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHLORIDE	9.8	0.2	10		98	90-110				15	
SULFATE	48.2	1	50		96	90-110				15	

LCSD		Sample ID: <b>IC210701-1</b>			Units: <b>MG/L</b>		Analysis Date: <b>7/1/2021 15:55</b>				
Client ID:		Run ID: <b>IC210701-1A1</b>			Prep Date: <b>7/1/2021</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHLORIDE	9.71	0.2	10		97	90-110		9.8	1	15	
SULFATE	48.1	1	50		96	90-110		48.2	0	15	

MB		Sample ID: <b>IC210701-1</b>			Units: <b>MG/L</b>		Analysis Date: <b>7/1/2021 13:30</b>					
Client ID:		Run ID: <b>IC210701-1A1</b>			Prep Date: <b>7/1/2021</b>		DF: <b>1</b>					
Analyte	Result	ReportLimit										Qual
CHLORIDE	ND	0.2										
SULFATE	ND	1										

The following samples were analyzed in this batch:

**Client:** Great Western Operating Company, LLC  
**Work Order:** 2105588  
**Project:** Wilson IC 03-222 HN

## QC BATCH REPORT

Batch ID: **TD210625-1-1**      Instrument ID **Balance**      Method: **SM2540C**

LCS	Sample ID: <b>TD210625-1</b>					Units: <b>MG/L</b>	Analysis Date: <b>6/30/2021</b>				
Client ID:		Run ID: <b>TD210630-2A1</b>				Prep Date: <b>6/25/2021</b>		DF: <b>1</b>			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	426	20	400		106	85-115				14	

LCSD	Sample ID: <b>TD210625-1</b>					Units: <b>MG/L</b>	Analysis Date: <b>6/30/2021</b>				
Client ID:		Run ID: <b>TD210630-2A1</b>				Prep Date: <b>6/25/2021</b>		DF: <b>1</b>			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	420	20	400		105	85-115		426	1	14	

MB	Sample ID: <b>TD210625-1</b>					Units: <b>MG/L</b>	Analysis Date: <b>6/30/2021</b>					
Client ID:		Run ID: <b>TD210630-2A1</b>				Prep Date: <b>6/25/2021</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit										Qual
TOTAL DISSOLVED SOLIDS	ND	20										

**The following samples were analyzed in this batch:**

# CONTROLLED NON-CONFORMANCE REPORT

## Non-Conformance

**Initiated By:** Audrey E. Wolfgang on 6/24/2021

**Event Type:** Method Requirements Not Met -- Hold time exceeded on required dilution

**Event Explanation:** Sample 2105588-1 ran on last day of hold time exceeded calibration limits. This was not reviewed until the next day when it had become out on hold time. The sample was reanalyzed one day past holding time with the necessary dilution. No further action was taken.

**Action To**

**Prevent Recurrence:** Review data of samples within holding time

## Corrective Action

**Corrective Action:** Document in Narrative

**Department Manager Approval:**

**Approval Date:**

**Corrective Action Comments:**

### Workorders Affected

Workorder -- Procedure

2105588 -- SW8260\_25

No client contact information.

Approved By

Katie M. OBrien

Approval Date

7/14/2021

## Associated Batches

The samples were originally associated with the following Batch(es):

VL210610-3A created on 6/10/2021

All rework was completed in the following Batch(es):

Not Applicable

## NCR Approval

**Project Manager Approval:** KMO on 7/14/2021

**Department Manager Approval:**

**QA Manager Approval:**

## CONTROLLED NON-CONFORMANCE REPORT

### Non-Conformance

**Initiated By:** Lisa M. Champagne on 7/8/2021

**Event Type:** Hold Time Exceeded

**Event Explanation:** Due to prolonged instrument malfunction these samples were analyzed out of holding time.

**Action To**

**Prevent Recurrence:** Not Applicable

### Corrective Action

**Corrective Action:** Document in Narrative

**Department Manager Approval:**

**Approval Date:**

**Corrective Action Comments:**

#### Workorders Affected

Workorder -- Procedure	No client contact information.	Approved By	Approval Date
2106011 -- EPA300.0		PENDING	
2104630 -- EPA300.0 2105587 -- EPA300.0 2105588 -- EPA300.0 2106125 -- EPA300.0 2106609 -- EPA300.0 2106643 -- EPA300.0 2106666 -- EPA300.0	No client contact information.	Katie M. OBrien	7/14/2021

### Associated Batches

The samples were originally associated with the following Batch(es):

IC210527-1A2 created on 5/27/2021  
 IC210702-1A3 created on 7/2/2021  
 IC210527-1A1 created on 5/27/2021  
 IC210702-1A1 created on 7/2/2021  
 IC210702-1A4 created on 7/2/2021  
 IC210702-1A2 created on 7/2/2021

All rework was completed in the following Batch(es):

**Not Applicable**

### NCR Approval



Ft. Collins, Colorado

NCR #: 15287

## CONTROLLED NON-CONFORMANCE REPORT

---

**Project Manager Approval:**

KMO on 7/14/2021

**Department Manager Approval:**

**QA Manager Approval:**

## CONTROLLED NON-CONFORMANCE REPORT

### Non-Conformance

**Initiated By:** Breyer M. Kinzer on 7/22/2021

**Event Type:** Hold Time Exceeded

**Event Explanation:** Due to laboratory oversight samples were analyzed out of hold.

**Action To**

**Prevent Recurrence:** Not Applicable

### Corrective Action

**Corrective Action:**

**Department Manager Approval:**

**Approval Date:**

**Corrective Action Comments:**

<b>Workorders Affected</b>
----------------------------

Workorder -- Procedure

Approved By

Approval Date

2105587 -- SM2540C

No client contact information.

PENDING

2105588 -- SM2540C

### Associated Batches

The samples were originally associated with the following Batch(es):

All rework was completed in the following Batch(es):

TD210630-2A1 created on 6/30/2021
-----------------------------------

**Not Applicable**

### NCR Approval

**Project Manager Approval:**

**Department Manager Approval:**

**QA Manager Approval:**