



## Water Quality Monitoring Data Review

Facility Name \_\_\_\_\_ Facility ID \_\_\_\_\_ Permit \_\_\_\_\_  
Lab Sample ID \_\_\_\_\_ Date Sampled \_\_\_\_\_ Sampler \_\_\_\_\_  
Lat \_\_\_\_\_ Long \_\_\_\_\_ QtrQtr \_\_\_\_\_ Sec \_\_\_\_\_ Twn \_\_\_\_\_ Rng \_\_\_\_\_  
Site Address \_\_\_\_\_  
Oil & Gas Well \_\_\_\_\_ Location/API# \_\_\_\_\_

### Field Sheet Review

1. Was the well/spring properly purged?
  - a. Please provide purge volume if applicable: \_\_\_\_\_
2. Was the flow rate reduced prior to sampling?
3. Were field parameters measured prior to sampling?
4. Did field parameters stabilize prior to sampling?
5. Did site conditions or other factors suggest that the samples may not be representative of groundwater?
  - a. If yes, please describe: \_\_\_\_\_

### Laboratory Data Review

6. Were the samples received at the recommended temperature of  $\leq 6^{\circ}\text{C}$ ?
7. Were the samples properly preserved?
  - a. If no, please explain: \_\_\_\_\_
8. Was proper chain-of-custody maintained?
  - a. If no, please explain: \_\_\_\_\_
9. Were all samples analyzed for the requested analyses?
  - a. If no, can the remaining sample be analyzed within the recommended hold time? \_\_\_\_\_
10. Were the proper methods used?
  - a. If no, can the remaining sample be re-analyzed within the recommended holding time? \_\_\_\_\_
11. Were all sample holding time limits met?
  - a. If no, please explain: \_\_\_\_\_
12. Were the correct reporting limits used?
  - a. If no, please explain: \_\_\_\_\_
13. Were laboratory quality assurance samples collected and analyzed (i.e., matrix spikes & matrix spike duplicates) according to laboratory methods?
  - a. If no, please explain: \_\_\_\_\_

14. Were laboratory quality assurance sample results within acceptance limits?  
a. *If no, please describe:*

### Field Control Samples

15. Were **field duplicate** samples submitted?  
a. *If no, proceed to trip blank questions.*
16. Were the original and duplicate samples  $\geq 5x$  the practical quantitation limit (PQL)
17. Was the Relative Percent Difference (RPD)  $\leq 20\%$ ?  
a. *If no, please describe:*
18. Were **trip blanks** submitted?  
a. *If no, proceed to equipment blank question.*
19. If trip blanks were submitted, were the VOC constituent concentration results below method detection limits?
20. If **equipment blanks** were submitted, did the results meet the equipment blank data quality objectives specified in the Sampling and Analysis Plan?
21. If **field blanks** were submitted, did the results meet the field blank data quality objectives specified in the Sampling and Analysis Plan?

### Corrective Actions

22. Are corrective actions required to remedy any data quality issues?  
a. *If yes, please describe:*

23. Date by when corrective actions must be completed: \_\_\_\_\_

24. Summary of Corrective Actions (once completed) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Data Suitability Statement

Based upon this data quality review and your professional judgment, have the data been collected and analyzed in general accordance with the COGCC Model Sampling and Analysis Plan? Yes

Are the data suitable for release for incorporation into the Colorado Oil and Gas Conservation Commission environmental database?

Data Quality Reviewer's Name: \_\_\_\_\_ Company: \_\_\_\_\_  
(Print)

Data Quality Reviewer's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# Field PPE, Equipment and Calibration Form



PPE	✓
Hard Hat	
Steel Toed Boots	
Safety Glasses	
FR Clothing	
Disposable Gloves	
Other:	

Calibration Fluid Information	Standard	Manufacturer	Lot No.
	pH 4	Proactive	1GF196
	pH 7	Proactive	1GE237
	pH 10	Proactive	0GF084
	EC 1413	Proactive	1GE423
	EC 5000	Proactive	1GD1216
	ORP 220	Proactive	1GK1233
	10 NTU	HACH	A1202
	20 NTU	HACH	A1207
	100 NTU	HACH	A1211
800 NTU	HACH	A1201R	

Manufacturer	Name	Serial Number
YSI	Professional Plus	13J100190

Date	Time	Calibration / Post Check	pH (std.units)			Specific Conductance (µmhos/cm² @ 25°C)		ORP 220 mV	DO 100%	Temp (°C)	Initials
			4.0	7.0	10.0	1413	5000				
06/10	0750	cali	7.07	6.90	9.97	1449	4419	217.2	80.1	24.0	AS
06/14	0730	cali	3.85	6.84	9.92	1414	4899	222.0	83.0	25.4	AS
06/15	0735	cali	4.11	7.04	10.07	1438	4888	210.9	90.5	24.5	AS
06/16	0810	cali	4.14	6.92	10.02	1397	4894	220.6	85.5	24.4	AS
06/21	0817	cali	4.00	6.90	10.11	1423	4931	217.9	66.7	24.9	AS
06/22	0800	cali	4.00	7.00	10.00	1409	—	223.3		24.1	AS
06/27	0500	cali	3.97	6.79	9.99	1400	4862	220.2	101.0	22.7	AS

Manufacturer	Name	Serial Number
Geotech	Portable turbidity meter	19062101

Date	Time	Calibration / Routine Check	Turbidity Calibration (NTU)		
			0.02	10	1000
06/15	230	Check	.02	10	1000
06/22	0800	cali	.02	10	1000

Other Equipment		
Manufacturer	Model	Serial No.
BW	Gas Alert XT	KA414-1046071
Garmin	GPSmap 76	80463283
Olympus	SI 6000 Digital Camera	G855535029
Global Water	Sonar water level Indicator	11406U



# Baseline Water Monitoring Fieldsheet

Sample Date

6/9/2022

Samplers

Lewis, Jesse

Client(s) Extraction Oil &amp; Gas, Inc (GWA - Interchange A &amp; B Pad, GWA - Washington West)

Initial ☒ 1st Subsequent ☐ 2nd Subsequent ☐ Response ☐ Annual ☐ Bi-Annual ☐ Frequency

O&amp;G Well

API

Spud Date

Completed Date

Regulation MOU

Distance from Well (ft)

Billing # Pad Alloc: P1283; Cost Center: COX3040

## Well Parameters

Well / Facility Name Valley Vista 43543-F-R Permit 43543-F-R Receipt 3678582 ID 760187

Map No. Project 744.1708.01 456747 QQ SESW Sec 10 TwN 1S Rng 68W Use Municipal

County Adams State CO Elev UTM Easting 500721.23 UTM Northing 4424764.85 Zone 13

Latitude 39.9730380000000 Longitude -104.9915540000000 NAD 83

Directions UTM's from GPS. Physical Address: "East Well" 15240 Delaware Street. Broomfield MOU.

## Owner Information

Valley Vista Estates HOA,

Mailing Address:

Physical Address:

Individuals Present During Sampling

Phone: 7205601839

15241 Delaware Street

Broomfield, Colorado 80023

Cell:

Alt Contact: C/O Bret Newsome Pre.

## Well Information

CAN/ABA ☐ No Refused Sample ☐ No Reported Water Level ☐ Reported Total Depth 900 Surface Casing Diameter 6.000Well House ☐ Vault ☐ Pitless ☐ Surf. Discharge Pipe ☐ Confined Space ☐ Airline Installed ☐Well Seal ☐ Type/Manufacturer ☐ Vented ☐ Gas Flow from Vent ☐ Access for WL ☐Storage Tank ☐ Storage Tank Volume (gal) ☐ Pressure Tank ☐ Pressure Tank Volume (gal) ☐Ground Slope Away from Well? ☐ No Area Desc/Proximity ☐Condition of well ☐LEL(%) ☐ x0.05= Methane Concentration ☐ % LEL Sample Location ☐Measured Flow Rate (gpm) 0.00 Time ☐ Sampling Flow Rate ☐ Method ☐Measured Water Level NaN Time ☐ Instrument ☐

## Pump Specifications &amp; Power

Pump Type ☐ Pump Manufacturer ☐ HP ☐ Phase ☐ Fused Shut Off ☐Fuse ☐ Time on ☐ Time Off ☐ Breaker ☐ Time On ☐ Time Off ☐Timer ☐ Time on ☐ Time Off ☐ Other ☐ Time On ☐ Time Off ☐ Other Description ☐

## Mini-Test Data

Clock Time	Elapsed Time	Water Level	Flow Rate (calc)	Flow (gal/sec)	Temp (°C)	pH	EC (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity	Color	Odor	Sediment	Bubbles / Effervescence	CH4 (%)
09:00			0.00		20.9	9.2	824	-109.8	3.38	46.54	Clear	None	Very Low	None	0

Sample ☒ Yes No Sample Reason ☐Sample Location ☐Sampling Before Tank ☐ Yes Flow Cell Used ☐ Purge Volume ☐ gal = (Pumped ☐ min @ ☐ gpm)Well Volume = 0.00 gal (Radius 9 in) Squared \* Water Column 0 \*0.163 Casing Volumes Removed ☐

Sample/Visit Time 08:45 Weather Cloudy/100° Field Conditions Moderate

Comment

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 22, 2022

Heather Shideman  
Civitas Resources  
650 Southgate Drive  
Windsor, CO 80550

RE: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad

Work Order #2206182

Enclosed are the results of analyses for samples received by Summit Scientific on 06/10/22 15:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad

Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BW_Valley_Vista_43543_F_R	2206182-01	Water	06/09/22 08:45	06/10/22 15:00

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

# Summit Scientific

2206182

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310 ♦ 303-374-5933

Page 1 of 1

Client: Extraction Oil and Gas (XOG) Report to: Apex Companies, LLC Project Manager: Heather Shideman  
 Address: 1512 Larimer St., Suite 540 E-Mail: Rochelle.Carliste@apexcos.com, Heather.Shideman@apexcos.com, Kolbi.Condos@apexcos.com  
 City/State/Zip: Denver, CO 80202 cc: jevans@civiresources.com  
 Phone: (970) 576-3446 Project Name: BWSE/GWA\_Interchange\_A\_B\_Pad

Sampler Name: Andres Santana Jessie Lewis Project No.: Facility ID 760187

				Preservative				Matrix				Analysis Requested						Special Instructions		
ID	Field ID / Point of Collection	Date Sampled	Time Sampled	# of containers	HCl	HNO3	NaOH	H2SO4	Groundwater	Soil	Air-Canister Serial #	Other (Specify)	COGCC 609	COGCC 615	As, Cr, Cu, Pb	Uranium	Hg	Hydrogen Sulfide		
1	BW_Valley_Vista_43543_F_R	06/01	0845	13	X	X	X	X	X					X	X	X	X	X		Sample Frequency:
	SESW_10_1S_68W																			SP
Temperature, field:		20.9		°C																
pH, field:		9.20		s.u.																
Conductivity, field:		824		uS/cm																
ORP, field:		-129.8		mV																
Dissolved Oxygen, field:		3.38		mg/L																
Turbidity, field:		46.54		NTU																
Relinquished by: <u>Andres Santana</u> Date/Time: <u>06/09/22</u> 1720					Received by: <u>[Signature]</u> Date/Time: <u>61022</u> 1500					Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> X 48 hours <input type="checkbox"/>										Notes:
Relinquished by:					Received by:					Sample Integrity: Temperature Upon Receipt: <u>3.7</u> Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										
Relinquished by:					Received by:															



S<sub>2</sub>

2206182

## Sample Receipt Checklist

S2 Work Order#

Client: XO<sub>2</sub>-ApexClient Project ID: BLUE/GWA Interchange ABpad

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

	-			
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Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☒

Other

☐

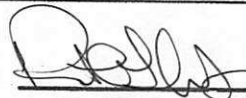
Temp (°C)

3.7

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C <sup>(1)</sup> ? <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			on ice
Were all samples received intact <sup>(1)</sup> ?	-			
Was adequate sample volume provided <sup>(1)</sup> ?	-			
If custody seals are present, are they intact <sup>(1)</sup> ?	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			-	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	-			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	-			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	-			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	-			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		-		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	-			NaOH, H <sub>2</sub> SO <sub>4</sub> HCl, HNO <sub>3</sub>
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.


Custodian Printed Name

6/02/22

Date/Time





Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**BW\_Valley\_Vista\_43543\_F\_R**  
**2206182-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BFF0420	06/15/22	06/16/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
m,p-Xylene	ND	2.0	"	"	"	"	"	"	
o-Xylene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	500	"	"	"	"	"	"	

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	8.98	67.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.0	89.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.6	94.1 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	<b>0.153</b>	0.100	mg/L	1	BFF0339	06/13/22	06/13/22	EPA 8015M	
C28-C36 (ORO)	ND	0.100	"	"	"	"	"	"	

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	0.0243	97.2 %	44.8-129		"	"	"	"	

**Dissolved Gases by RSK-175**

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**BW\_Valley\_Vista\_43543\_F\_R**  
**2206182-01 (Water)**

**Summit Scientific**

**Dissolved Gases by RSK-175**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Methane</b>	<b>1.3</b>	1.0		mg/L	100	BFF0390	06/14/22	06/15/22	RSK-175 mod	
Ethane	ND	0.010		"	1	"	"	"	"	
Propane	ND	0.010		"	"	"	"	"	"	

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: Ethene	ND	110 %		70-130		"	"	"	"	

**Total Metals by EPA Method 200.8**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Uranium	ND	0.500		ug/l	1	BFF0388	06/14/22	06/14/22	EPA 200.8	
Arsenic	ND	0.6000		"	"	"	"	"	"	
<b>Chromium</b>	<b>3.52</b>	1.00		"	"	"	"	"	"	
<b>Copper</b>	<b>32.5</b>	1.00		"	"	"	"	"	"	
<b>Lead</b>	<b>2.90</b>	0.500		"	"	"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>1340</b>	50.0		ug/l	1	BFF0387	06/14/22	06/14/22	EPA 200.8	
<b>Iron</b>	<b>12.5</b>	10.0		"	"	"	"	"	"	
<b>Magnesium</b>	<b>328</b>	50.0		"	"	"	"	"	"	
<b>Manganese</b>	<b>1.98</b>	1.00		"	"	"	"	"	"	
<b>Potassium</b>	<b>531</b>	50.0		"	"	"	"	"	"	
<b>Sodium</b>	<b>139000</b>	50.0		"	"	"	"	"	"	
<b>Barium</b>	<b>10.1</b>	1.00		"	"	"	"	"	"	
<b>Boron</b>	<b>163</b>	10.0		"	"	"	"	"	"	
Selenium	ND	1.00		"	"	"	"	"	"	

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650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad

Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**BW\_Valley\_Vista\_43543\_F\_R**  
**2206182-01 (Water)**

**Summit Scientific**

**Dissolved Metals by EPA Method 200.8**

Strontium	25.0	10.0	ug/l	1	BFF0387	06/14/22	06/14/22	EPA 200.8	
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**Total Mercury by EPA 245.1**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Mercury	ND	0.200	ug/l	1	BFF0320	06/13/22	06/13/22	EPA 245.1	

**Anions by EPA Method 300.0**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Bromide	0.275	0.200	mg/L	1	BFF0383	06/14/22	06/14/22	EPA 300.0	I-02
Chloride	23.2	20.0	"	200	"	"	"	"	I-02
Fluoride	1.33	0.200	"	1	"	"	"	"	I-02
Sulfate	1.24	0.300	"	"	"	"	"	"	I-02
Nitrate as N	ND	0.100	"	"	"	"	"	"	I-02
Nitrite as N	ND	0.100	"	"	"	"	"	"	I-02
Nitrate/Nitrite as N	ND	0.200	"	"	"	"	"	"	I-02

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Alkalinity	350	10.0	mg/L as CaCO3	1	BFF0407	06/16/22	06/16/22	SM2320-B	
Carbonate	40.0	10.0	"	"	"	"	"	"	
Bicarbonate	310	10.0	"	"	"	"	"	"	

**Conventional Chemistry Parameters by APHA/EPA Methods**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Phosphorus - Total	0.206	0.0500	mg/L	1	BFF0437	06/16/22	06/16/22	SM4500-P-E	

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650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**BW\_Valley\_Vista\_43543\_F\_R**  
**2206182-01 (Water)**

**Summit Scientific**

**Conventional Chemistry Parameters by APHA/EPA Methods**

Sulfide as H <sub>2</sub> S	ND	0.200	mg/L	1	BFF0436	06/15/22	06/16/22	SM4500 S2 F
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**Specific Conductance by SM2510B**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	<b>1160</b>	1.00	umhos/cm	1	BFF0421	06/15/22	06/15/22	SM2510B	

**Total Dissolved Solids by SM2540C**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	<b>518</b>	10.0	mg/L	1	BFF0395	06/14/22	06/14/22	SM2540C	

**pH by SM4500**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	<b>9.37</b>	1.00	pH Units	1	BFF0448	06/10/22	06/16/22	SM4500-H+ B	1-03

**Biological Activity Reaction Test**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Iron Related Bacteria	<b>35000</b>	25.0	CFU/ml	1	BFF0343	06/13/22	06/21/22	BART	
Sulfate Reducing Bacteria	<b>325</b>	200	"	"	"	"	"	"	
Slime Forming Bacteria	ND	500	"	"	"	"	"	"	

**Field Data**

Date Sampled: **06/09/22 08:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad

Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**BW\_Valley\_Vista\_43543\_F\_R**  
**2206182-01 (Water)**

**Summit Scientific**

**Field Data**

Specific Conductance (EC)	824.00	uS/cm	1	BFF0314	06/09/22	06/09/22	Field Method
Temperature	20.90	Degrees C	"	"	"	"	"
Oxidation/Reduction Potential	-109.8	mv	"	"	"	"	"
Dissolved Oxygen	3.38	mg/L	"	"	"	"	"
Turbidity	46.5	NTU	"	"	"	"	"
pH	9.2	SU	"	"	"	"	"

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Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BFF0420 - EPA 5030 Water MS

##### Blank (BFF0420-BLK1)

Prepared: 06/15/22 Analyzed: 06/16/22

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
m,p-Xylene	ND	2.0	"							
o-Xylene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Naphthalene	ND	1.0	"							
1,2,4-Trimethylbenzene	ND	1.0	"							
1,3,5-Trimethylbenzene	ND	1.0	"							
Gasoline Range Hydrocarbons	ND	500	"							
Surrogate: 1,2-Dichloroethane-d4	6.46		"	13.3		48.5	23-173			
Surrogate: Toluene-d8	11.8		"	13.3		88.7	20-170			
Surrogate: 4-Bromofluorobenzene	12.5		"	13.3		94.0	21-167			

##### LCS (BFF0420-BS1)

Prepared: 06/15/22 Analyzed: 06/16/22

Benzene	19.0	1.0	ug/l	33.3		57.0	51-132			
Toluene	27.8	1.0	"	33.3		83.6	51-138			
Ethylbenzene	32.3	1.0	"	33.3		97.0	58-146			
m,p-Xylene	70.9	2.0	"	66.7		106	57-144			
o-Xylene	36.1	1.0	"	33.3		108	53-146			
Naphthalene	25.0	1.0	"	33.3		74.9	70-130			
1,2,4-Trimethylbenzene	38.3	1.0	"	33.3		115	70-130			
1,3,5-Trimethylbenzene	37.6	1.0	"	33.3		113	70-130			
Surrogate: 1,2-Dichloroethane-d4	7.97		"	13.3		59.8	23-173			
Surrogate: Toluene-d8	12.2		"	13.3		91.2	20-170			
Surrogate: 4-Bromofluorobenzene	12.1		"	13.3		90.7	21-167			

##### Matrix Spike (BFF0420-MS1)

Source: 2206203-01

Prepared: 06/15/22 Analyzed: 06/16/22

Benzene	24.6	1.0	ug/l	33.3	ND	73.8	34-141			
Toluene	28.6	1.0	"	33.3	ND	85.8	27-151			
Ethylbenzene	34.9	1.0	"	33.3	ND	105	29-160			
m,p-Xylene	74.8	2.0	"	66.7	ND	112	20-166			
o-Xylene	37.3	1.0	"	33.3	ND	112	33-159			
Naphthalene	29.0	1.0	"	33.3	ND	87.1	70-130			
1,2,4-Trimethylbenzene	40.6	1.0	"	33.3	ND	122	70-130			
1,3,5-Trimethylbenzene	39.4	1.0	"	33.3	ND	118	70-130			
Surrogate: 1,2-Dichloroethane-d4	9.81		"	13.3		73.6	23-173			
Surrogate: Toluene-d8	12.1		"	13.3		90.5	20-170			

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650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0420 - EPA 5030 Water MS**

**Matrix Spike (BFF0420-MS1)**

Source: 2206203-01

Prepared: 06/15/22 Analyzed: 06/16/22

Surrogate: 4-Bromofluorobenzene	12.5		ug/l	13.3		94.1	21-167		
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**Matrix Spike Dup (BFF0420-MSD1)**

Source: 2206203-01

Prepared: 06/15/22 Analyzed: 06/16/22

Benzene	19.1	1.0	ug/l	33.3	ND	57.2	34-141	25.2	30
Toluene	28.4	1.0	"	33.3	ND	85.2	27-151	0.667	30
Ethylbenzene	35.2	1.0	"	33.3	ND	106	29-160	0.969	30
m,p-Xylene	75.9	2.0	"	66.7	ND	114	20-166	1.46	30
o-Xylene	37.4	1.0	"	33.3	ND	112	33-159	0.214	30
Naphthalene	29.6	1.0	"	33.3	ND	88.8	70-130	1.98	30
1,2,4-Trimethylbenzene	41.3	1.0	"	33.3	ND	124	70-130	1.59	30
1,3,5-Trimethylbenzene	40.1	1.0	"	33.3	ND	120	70-130	1.73	30
Surrogate: 1,2-Dichloroethane-d4	8.58		"	13.3		64.4	23-173		
Surrogate: Toluene-d8	12.1		"	13.3		90.7	20-170		
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.3	21-167		

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650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0339 - EPA 5030 Water GC**

**Blank (BFF0339-BLK1)**

Prepared & Analyzed: 06/13/22

C10-C28 (DRO)	ND	0.100	mg/L							
C28-C36 (ORO)	ND	0.100	"							
Surrogate: o-Terphenyl	0.0278		"	0.0250	111	44.8-129				

**LCS (BFF0339-BS1)**

Prepared & Analyzed: 06/13/22

C10-C28 (DRO)	0.864	0.100	mg/L	1.00	86.4	70-130				
Surrogate: o-Terphenyl	0.0273		"	0.0250	109	44.8-129				

**LCS Dup (BFF0339-BS1)**

Prepared & Analyzed: 06/13/22

C10-C28 (DRO)	0.724	0.100	mg/L	1.00	72.4	70-130	17.5	200		
Surrogate: o-Terphenyl	0.0281		"	0.0250	112	44.8-129				

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Dissolved Gases by RSK-175 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0390 - GC**

**Blank (BFF0390-BLK1)**

Prepared: 06/14/22 Analyzed: 06/15/22

Methane	ND	0.010	mg/L							
Ethane	ND	0.010	"							
Propane	ND	0.010	"							
Surrogate: Ethene	0.0447		"	0.0364	123	70-130				

**LCS (BFF0390-BS1)**

Prepared: 06/14/22 Analyzed: 06/15/22

Methane	0.034	0.010	mg/L	0.0428	78.6	70-130				
Ethane	0.099	0.010	"	0.0798	124	70-130				
Propane	0.14	0.010	"	0.139	102	70-130				
Surrogate: Ethene	0.0856		"	0.0728	118	70-130				

**Duplicate (BFF0390-DUP1)**

Source: 2206182-01

Prepared: 06/14/22 Analyzed: 06/15/22

Methane	1.4	1.0	mg/L		1.3			5.20	30	
Ethane	ND	0.010	"		ND				30	
Propane	ND	0.010	"		ND				30	
Surrogate: Ethene	0.0500		"	0.0364	137	70-130				S-06

**Matrix Spike (BFF0390-MS1)**

Source: 2206182-01

Prepared: 06/14/22 Analyzed: 06/15/22

Methane	1.5	1.0	mg/L	0.0428	1.3	398	70-130			QM-02
Ethane	0.10	1.0	"	0.0798	ND	125	70-130			
Propane	0.13	1.0	"	0.139	ND	93.6	70-130			
Surrogate: Ethene	0.0800		"	0.0728	110	70-130				

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Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Total Metals by EPA Method 200.8 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0388 - EPA 200.8**

**Blank (BFF0388-BLK1)**

Prepared & Analyzed: 06/14/22

Uranium	ND	0.500	ug/l
Arsenic	ND	0.6000	"
Chromium	ND	1.00	"
Copper	ND	1.00	"
Lead	ND	0.500	"

**LCS (BFF0388-BS1)**

Prepared & Analyzed: 06/14/22

Uranium	234	0.500	ug/l	250	93.7	85-115
Arsenic	522.3	0.6000	"	500	104	85-115
Chromium	549	1.00	"	500	110	85-115
Copper	537	1.00	"	500	107	85-115
Lead	245	0.500	"	250	98.2	85-115

**Duplicate (BFF0388-DUP1)**

Source: 2206164-01

Prepared & Analyzed: 06/14/22

Uranium	10.9	0.500	ug/l	12.0	9.85	20
Arsenic	0.3471	0.6000	"	0.4096	16.5	20
Chromium	0.196	1.00	"	0.201	2.35	20
Copper	4.61	1.00	"	4.64	0.544	20
Lead	3.27	0.500	"	3.92	18.1	20

**Matrix Spike (BFF0388-MS1)**

Source: 2206164-01

Prepared & Analyzed: 06/14/22

Uranium	250	0.500	ug/l	250	12.0	95.1	70-130
Arsenic	544.1	0.6000	"	500	0.4096	109	70-130
Chromium	560	1.00	"	500	0.201	112	70-130
Copper	538	1.00	"	500	4.64	107	70-130
Lead	244	0.500	"	250	3.92	96.2	70-130

**Matrix Spike Dup (BFF0388-MSD1)**

Source: 2206164-01

Prepared & Analyzed: 06/14/22

Uranium	247	0.500	ug/l	250	12.0	94.1	70-130	0.973	25
Arsenic	537.7	0.6000	"	500	0.4096	107	70-130	1.19	25
Chromium	553	1.00	"	500	0.201	111	70-130	1.22	25
Copper	532	1.00	"	500	4.64	106	70-130	0.955	25
Lead	241	0.500	"	250	3.92	94.9	70-130	1.29	25

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650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

## Dissolved Metals by EPA Method 200.8 - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BFF0387 - EPA 200.8

##### Blank (BFF0387-BLK1)

Prepared & Analyzed: 06/14/22

Calcium	ND	50.0	ug/l
Iron	ND	10.0	"
Magnesium	ND	50.0	"
Manganese	ND	1.00	"
Potassium	ND	50.0	"
Sodium	ND	50.0	"
Barium	ND	1.00	"
Boron	ND	10.0	"
Selenium	ND	1.00	"
Strontium	ND	10.0	"

##### LCS (BFF0387-BS1)

Prepared & Analyzed: 06/14/22

Calcium	5620	50.0	ug/l	5000	112	85-115
Iron	5460	10.0	"	5000	109	85-115
Magnesium	5420	50.0	"	5000	108	85-115
Manganese	499	1.00	"	500	99.9	85-115
Potassium	5570	50.0	"	5000	111	85-115
Sodium	5410	50.0	"	5000	108	85-115
Barium	540	1.00	"	500	108	85-115
Boron	2680	10.0	"	2500	107	85-115
Selenium	48.2	1.00	"	50.0	96.5	85-115
Strontium	526	10.0	"	500	105	85-115

##### Duplicate (BFF0387-DUP1)

Source: 2206180-01

Prepared & Analyzed: 06/14/22

Calcium	50400	50.0	ug/l	49900	0.949	20
Iron	144	10.0	"	149	3.10	20
Magnesium	28100	50.0	"	28500	1.33	20
Manganese	387	1.00	"	398	2.93	20
Potassium	2480	50.0	"	2530	1.94	20
Sodium	97600	50.0	"	101000	3.04	20
Barium	37.2	1.00	"	37.0	0.453	20
Boron	138	10.0	"	138	0.306	20
Selenium	0.626	1.00	"	0.720	14.0	20
Strontium	757	10.0	"	731	3.52	20

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Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Dissolved Metals by EPA Method 200.8 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0387 - EPA 200.8**

Matrix Spike (BFF0387-MS1)			Source: 2206180-01		Prepared & Analyzed: 06/14/22						
Calcium	58000	50.0	ug/l	5000	49900	161	70-130				QM-02
Iron	5780	10.0	"	5000	149	113	70-130				
Magnesium	32900	50.0	"	5000	28500	89.1	70-130				
Manganese	881	1.00	"	500	398	96.6	70-130				
Potassium	7780	50.0	"	5000	2530	105	70-130				
Sodium	101000	50.0	"	5000	101000	16.1	70-130				QM-02
Barium	622	1.00	"	500	37.0	117	70-130				
Boron	3010	10.0	"	2500	138	115	70-130				
Selenium	46.8	1.00	"	50.0	0.720	92.2	70-130				
Strontium	1330	10.0	"	500	731	121	70-130				

Matrix Spike Dup (BFF0387-MSD1)			Source: 2206180-01		Prepared & Analyzed: 06/14/22						
Calcium	49500	50.0	ug/l	5000	49900	NR	70-130	15.8	25		QM-02
Iron	5690	10.0	"	5000	149	111	70-130	1.54	25		
Magnesium	33600	50.0	"	5000	28500	102	70-130	2.02	25		
Manganese	892	1.00	"	500	398	98.7	70-130	1.19	25		
Potassium	7990	50.0	"	5000	2530	109	70-130	2.72	25		
Sodium	105000	50.0	"	5000	101000	91.2	70-130	3.63	25		
Barium	508	1.00	"	500	37.0	94.2	70-130	20.2	25		
Boron	2490	10.0	"	2500	138	93.9	70-130	18.9	25		
Selenium	49.5	1.00	"	50.0	0.720	97.6	70-130	5.63	25		
Strontium	1150	10.0	"	500	731	83.9	70-130	14.8	25		

Summit Scientific

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Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Total Mercury by EPA 245.1 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0320 - EPA 245.1**

**Blank (BFF0320-BLK1)**

Prepared & Analyzed: 06/13/22

Mercury ND 0.200 ug/l

**LCS (BFF0320-BS1)**

Prepared & Analyzed: 06/13/22

Mercury 2.66 0.200 ug/l 2.50 106 85-115

**Duplicate (BFF0320-DUP1)**

**Source: 2206099-01**

Prepared & Analyzed: 06/13/22

Mercury ND 0.200 ug/l ND 20

**Matrix Spike (BFF0320-MS1)**

**Source: 2206099-01**

Prepared & Analyzed: 06/13/22

Mercury 2.96 0.200 ug/l 2.50 ND 118 70-130

**Matrix Spike Dup (BFF0320-MSD1)**

**Source: 2206099-01**

Prepared & Analyzed: 06/13/22

Mercury 2.97 0.200 ug/l 2.50 ND 119 70-130 0.337 20

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Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Anions by EPA Method 300.0 - Quality Control**  
**Summit Scientific**

Reporting				Spike	Source	%REC			RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0383 - General Preparation**

**Blank (BFF0383-BLK1)**

Prepared & Analyzed: 06/14/22

Bromide	ND	0.200	mg/L
Chloride	ND	0.100	"
Fluoride	ND	0.200	"
Sulfate	ND	0.300	"
Nitrate as N	ND	0.100	"
Nitrite as N	ND	0.100	"
Nitrate/Nitrite as N	ND	0.200	"

**LCS (BFF0383-BS1)**

Prepared & Analyzed: 06/14/22

Bromide	9.76	0.200	mg/L	10.0	97.6	90-110
Chloride	2.88	0.100	"	3.00	96.1	90-110
Fluoride	2.08	0.200	"	2.00	104	90-110
Sulfate	15.9	0.300	"	15.0	106	90-110
Nitrate as N	2.82	0.100	"	3.00	94.0	90-110
Nitrite as N	2.83	0.100	"	3.00	94.2	90-110

**Duplicate (BFF0383-DUP1)**

Source: 2206111-01

Prepared & Analyzed: 06/14/22

Bromide	ND	40.0	mg/L	ND			20
Chloride	140	20.0	"	145		3.36	20
Fluoride	7.80	40.0	"	8.20		5.00	20
Sulfate	444	60.0	"	508		13.5	20
Nitrate as N	2.20	20.0	"	2.60		16.7	20
Nitrite as N	ND	20.0	"	1.60		200	20 R-05
Nitrate/Nitrite as N	2.20	40.0	"	4.20		62.5	20 R-05

**Matrix Spike (BFF0383-MS1)**

Source: 2206111-01

Prepared & Analyzed: 06/14/22

Bromide	1970	40.0	mg/L	2000	ND	98.3	80-120
Chloride	714	20.0	"	600	145	94.8	80-120
Fluoride	454	40.0	"	400	8.20	111	80-120
Sulfate	3370	60.0	"	3000	508	95.5	80-120
Nitrate as N	515	20.0	"	600	2.60	85.4	80-120
Nitrite as N	582	20.0	"	600	1.60	96.8	80-120

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0407 - General Preparation**

**Blank (BFF0407-BLK1)**

Prepared & Analyzed: 06/16/22

Total Alkalinity	ND	10.0	mg/L as CaCO3
Carbonate	ND	10.0	"
Bicarbonate	ND	10.0	"

**LCS (BFF0407-BS1)**

Prepared & Analyzed: 06/16/22

Total Alkalinity	100	10.0	mg/L as CaCO3	100	100	80-120
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**Duplicate (BFF0407-DUP1)**

Source: 2206180-01

Prepared & Analyzed: 06/16/22

Total Alkalinity	370	10.0	mg/L as CaCO3	370	0.00	20
Carbonate	20.0	10.0	"	20.0	0.00	20
Bicarbonate	350	10.0	"	350	0.00	20

**Matrix Spike (BFF0407-MS1)**

Source: 2206180-01

Prepared & Analyzed: 06/16/22

Total Alkalinity	470	10.0	mg/L as CaCO3	100	370	100	70-130
------------------	-----	------	------------------	-----	-----	-----	--------

**Matrix Spike Dup (BFF0407-MSD1)**

Source: 2206180-01

Prepared & Analyzed: 06/16/22

Total Alkalinity	470	10.0	mg/L as CaCO3	100	370	100	70-130	0.00	20
------------------	-----	------	------------------	-----	-----	-----	--------	------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0436 - General Preparation**

**Blank (BFF0436-BLK1)**

Prepared: 06/15/22 Analyzed: 06/16/22

Sulfide as H2S ND 0.200 mg/L

**LCS (BFF0436-BS1)**

Prepared: 06/15/22 Analyzed: 06/16/22

Sulfide as H2S 1.06 0.200 mg/L 1.00 106 80-120

**Matrix Spike (BFF0436-MS1)**

**Source: 2206182-01**

Prepared: 06/15/22 Analyzed: 06/16/22

Sulfide as H2S 1.01 0.200 mg/L 1.00 ND 101 75-125

**Matrix Spike Dup (BFF0436-MSD1)**

**Source: 2206182-01**

Prepared: 06/15/22 Analyzed: 06/16/22

Sulfide as H2S 0.968 0.200 mg/L 1.00 ND 96.8 75-125 4.64 20

**Batch BFF0437 - General Preparation**

**Blank (BFF0437-BLK1)**

Prepared & Analyzed: 06/16/22

Phosphorus - Total ND 0.0500 mg/L

**LCS (BFF0437-BS1)**

Prepared & Analyzed: 06/16/22

Phosphorus - Total 0.990 0.0500 mg/L 1.00 99.0 80-120

**Duplicate (BFF0437-DUP1)**

**Source: 2206180-01**

Prepared & Analyzed: 06/16/22

Phosphorus - Total 0.212 0.0500 mg/L 0.209 1.43 20

**Matrix Spike (BFF0437-MS1)**

**Source: 2206180-01**

Prepared & Analyzed: 06/16/22

Phosphorus - Total 1.08 0.0500 mg/L 1.00 0.209 87.3 70-130

**Matrix Spike Dup (BFF0437-MSD1)**

**Source: 2206180-01**

Prepared & Analyzed: 06/16/22

Phosphorus - Total 0.909 0.0500 mg/L 1.00 0.209 70.0 70-130 17.4 20

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad

Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

### Specific Conductance by SM2510B - Quality Control

#### Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

#### Batch BFF0421 - General Preparation

##### Duplicate (BFF0421-DUP1)

Source: 2206121-01

Prepared & Analyzed: 06/15/22

Specific Conductance (EC)	1600	1.00	umhos/cm	1570	2.33	20
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Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad

Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Total Dissolved Solids by SM2540C - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting			Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

**Batch BFF0395 - General Preparation**

**Blank (BFF0395-BLK1)**

Prepared & Analyzed: 06/14/22

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BFF0395-DUP1)**

Source: 2206178-01

Prepared & Analyzed: 06/14/22

Total Dissolved Solids 1120 10.0 mg/L 1080 3.74 20

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad

Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**pH by SM4500 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0448 - General Preparation**

**LCS (BFF0448-BS1)**

Prepared: 06/10/22 Analyzed: 06/16/22

pH	9.03	1.00	pH Units	9.18	98.4	90-110
----	------	------	----------	------	------	--------

**Duplicate (BFF0448-DUP1)**

**Source: 2206183-01**

Prepared: 06/10/22 Analyzed: 06/16/22

pH	6.80	1.00	pH Units	6.77	0.442	20
----	------	------	----------	------	-------	----

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad  
Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

**Biological Activity Reaction Test - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting			Spike	Source	%REC		RPD	
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BFF0343 - General Preparation**

**Blank (BFF0343-BLK1)**

Prepared: 06/13/22 Analyzed: 06/21/22

Iron Related Bacteria	ND	25.0	CFU/ml
Sulfate Reducing Bacteria	ND	200	"
Slime Forming Bacteria	ND	500	"

Summit Scientific

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Civitas Resources  
650 Southgate Drive  
Windsor CO, 80550

Project: Civitas - XOG - BWSE/GWA\_Interchange\_A\_B\_Pad

Project Number: Fac ID 760187  
Project Manager: Heather Shideman

**Reported:**  
06/22/22 09:34

### Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interferences.
R-05	The sample was diluted due to the presence of high levels of non-target analytes resulting in elevated reporting limits.
QM-02	The RPD and/or percent recovery for this QC sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
I-03	This sample was recieved and analyzed outside of the recommended holding time.
I-02	This sample was analyzed outside of the recommended holding time.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference





## ANALYTICAL SUMMARY REPORT

July 15, 2022

Extraction O&G

370 17th Street, Suite 5300  
Denver, CO 80202-5653

Work Order: G22060299

Project Name: BWSE

Energy Laboratories Inc. Gillette WY received the following 1 sample for Extraction O&G on 6/16/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
G22060299-001	BW_Valley_Vista_43543 _F_R	06/09/22 8:45	06/16/22	Aqueous	Carbon, Total Organic Client Provided Field Parameters Radium 226 + Radium 228 Radium 226, Total Radium 228, Total

The analyses presented in this report were performed by Energy Laboratories, Inc., 400 W. Boxelder Rd., Gillette, WY 82718, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these tests results, please contact your Project Manager.

Report Approved By:

  
Project Manager

Digitally signed by  
Misty Stephens  
Date: 2022.07.15 13:31:05 -06:00



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Billings, MT 800.735.4489 • Casper, WY 888.235.0515  
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

**CLIENT:** Extraction O&G  
**Project:** BWSE  
**Work Order:** G22060299

**Report Date:** 07/15/22

## **CASE NARRATIVE**

---

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002.



## LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Extraction O&G  
**Site Name:** GWA\_Interchange\_A\_B\_Pad  
**Project:** BWSE  
**Client Sample ID:** BW\_Valley\_Vista\_43543\_F\_R  
**Location:** SESW\_10\_15\_68W  
**Samp FRQ/Type:** SP  
**Lab ID:** G22060299-001

**Report Date:** 07/15/22  
**Collection Date:** 06/09/22 08:45  
**Date Received:** 06/16/22  
**Sampled By:** Jessie Lewis  
**Matrix:** Aqueous  
**Tracking Number:** 286851

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
<b>CLIENT PROVIDED FIELD PARAMETERS</b>						
Conductivity, field	824	umhos/cm			FIELD	06/09/22 08:45 / ***
Oxidation-Reduction Potential (ORP)	-109.8	mV			FIELD	06/09/22 08:45 / ***
Oxygen-Dissolved, field	3.38	mg/L			FIELD	06/09/22 08:45 / ***
pH, field	9.20	s.u.			FIELD	06/09/22 08:45 / ***
Temperature °C, field	20.9	°C			FIELD	06/09/22 08:45 / ***
Turbidity, field	46.54	NTU			FIELD	06/09/22 08:45 / ***
*** Performed by Sampler						
<b>NON-METALS</b>						
Organic Carbon, Total (TOC)	0.9	mg/L	0.5		A5310 C	06/21/22 18:30 / eli-ca
<b>RADIONUCLIDES, TOTAL</b>						
Radium 226	0.06	pCi/L		U	E903.0	07/05/22 14:45 / eli-ca
Radium 226 precision (±)	0.1	pCi/L			E903.0	07/05/22 14:45 / eli-ca
Radium 226 MDC	0.2	pCi/L			E903.0	07/05/22 14:45 / eli-ca
Radium 226 + Radium 228	-0.3	pCi/L		U	A7500-RA	07/06/22 13:46 / eli-ca
Radium 226 + Radium 228 precision (±)	0.6	pCi/L			A7500-RA	07/06/22 13:46 / eli-ca
Radium 226 + Radium 228 MDC	1.0	pCi/L			A7500-RA	07/06/22 13:46 / eli-ca
Radium 228	-0.4	pCi/L		U	RA-05	06/29/22 11:55 / eli-ca
Radium 228 precision (±)	0.6	pCi/L			RA-05	06/29/22 11:55 / eli-ca
Radium 228 MDC	1.0	pCi/L			RA-05	06/29/22 11:55 / eli-ca

**Report Definitions:**  
RL - Analyte Reporting Limit  
QCL - Quality Control Limit  
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level  
ND - Not detected at the Reporting Limit (RL)



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Extraction O&G

Work Order: G22060299

Report Date: 06/23/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A5310 C</b>							Analytical Run: TOC3-C_220621A		
<b>Lab ID: CCV-11940</b>	Continuing Calibration Verification Standard								06/21/22 18:14
Organic Carbon, Total (TOC)	5.28	mg/L	0.50	106	90	110			
<b>Method: A5310 C</b>							Batch: R283979		
<b>Lab ID: MBLK</b>	Method Blank								06/21/22 17:38
Organic Carbon, Total (TOC)	ND	mg/L	0.2				Run: TOC3-C_220621A		
<b>Lab ID: LCS-11923</b>	Laboratory Control Sample								06/21/22 17:58
Organic Carbon, Total (TOC)	5.32	mg/L	0.50	106	91	111	Run: TOC3-C_220621A		
<b>Lab ID: G22060299-001AMS</b>	Sample Matrix Spike								06/21/22 18:51
Organic Carbon, Total (TOC)	6.26	mg/L	0.50	107	91	111	Run: TOC3-C_220621A		
<b>Lab ID: G22060299-001AMSD</b>	Sample Matrix Spike Duplicate								06/21/22 19:07
Organic Carbon, Total (TOC)	6.20	mg/L	0.50	106	91	111	0.9	20	

### Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Extraction O&G

Work Order: G22060299

Report Date: 07/06/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b>							Batch: RA226-10519		
<b>Lab ID: LCS-RA226-10519</b>	Laboratory Control Sample				Run: G5000W_220623D		07/05/22 14:45		
Radium 226	8.8	pCi/L		86	70	130			
Radium 226 precision (±)	1.7	pCi/L							
Radium 226 MDC	0.25	pCi/L							
<b>Lab ID: MB-RA226-10519</b>	Method Blank				Run: G5000W_220623D		07/05/22 14:45		
Radium 226	-0.04	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
<b>Lab ID: G22060299-001BDUP</b>	Sample Duplicate				Run: G5000W_220623D		07/05/22 14:45		
Radium 226	-0.012	pCi/L					310	30	UR
Radium 226 precision (±)	0.13	pCi/L							
Radium 226 MDC	0.21	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 3, the RER result is 0.38.

### Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Extraction O&G

Work Order: G22060299

Report Date: 07/06/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>							Batch: RA228-6841		
<b>Lab ID: LCS-228-RA226-10519</b> Laboratory Control Sample							Run: TENNELEC-4_220623B 06/29/22 11:55		
Radium 228	6.8	pCi/L	88		70	130			
Radium 228 precision (±)	1.5	pCi/L							
Radium 228 MDC	1.1	pCi/L							
<b>Lab ID: MB-RA226-10519</b> Method Blank							Run: TENNELEC-4_220623B 06/29/22 11:55		
Radium 228	-0.6	pCi/L							U
Radium 228 precision (±)	0.6	pCi/L							
Radium 228 MDC	1	pCi/L							
<b>Lab ID: G22060299-001BDUP</b> Sample Duplicate							Run: TENNELEC-4_220623B 06/29/22 11:55		
Radium 228	-0.25	pCi/L					46	30	UR
Radium 228 precision (±)	0.59	pCi/L							
Radium 228 MDC	1.0	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 3, the RER result is 0.18.

### Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)



# Work Order Receipt Checklist

Extraction O&G

G22060299

Login completed by: Chantel S. Johnson

Date Received: 6/16/2022

Reviewed by: Alyson T. Degnan

Received by: csj

Reviewed Date: 6/21/2022

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	14.0°C Melted Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

---

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as —dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

---

## Contact and Corrective Action Comments:

None





# Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT - Provide as much information as possible.

Company Name: Civitas Resources, Inc		Project Name, PWS, Permit, Etc. BWSE/GWA Interchange A_B_Pad		Sample Origin State: CO		EPA/State Compliance: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Extraction Oil and Gas (XOG)		Contact Name: H. Shideman, R. Carlisle		Email: rochelle.carlisle@apexcos.com		Sampler: (Please Print) JCS/LeLewis	
Report Mail Address:		Phone/Fax:		Purchase Order:		Quote/Bottle Order:	
Extraction Oil and Gas (XOG)/Apex		Invoice Address: 1100 S. 1st St.		Invoice Contact & Phone:		Shipped By: 140	
Special Report/Formats - ELI must be notified prior to sample submittal for the following:		Number of Containers: 2		Sample Type: AWS V B O		Cooler ID(s):	
<input type="checkbox"/> DW <input type="checkbox"/> GSA <input type="checkbox"/> POTW/MMWTP <input type="checkbox"/> State: <input type="checkbox"/> Other:		<input type="checkbox"/> A2LA <input checked="" type="checkbox"/> EDD/EDT (Electronic Data) Format: COGCC Compatible <input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC		Air Water Soils/Solids Vegetation Bioassay Other		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date		Collection Time		Comments:	
BW_Valley_Vista_43543_F_R		06/09		0845		Facid 760187	
SESW_10_1S_68W		MATRIX		2W		SP	
Field Parameters		Value		Units		Isotopic Lab:	
Conductivity		924		uS/cm			
Dissolved Oxygen		3.38		mg/L			
Oxidation Reduction Potential		-108.8		mV			
pH		9.20		S.U.			
Temperature		20.9		°C			
Turbidity		46.54		NTU			
Relinquished by (print): ASANTARA		Date/Time: 06/13/12		Signature: ASANTARA		Received by (print):	
Relinquished by (print): ANDRES SANTARA		Date/Time: 06/14/12 1530		Signature:		Received by Laboratory: 10/11/2012	
Custody Record MUST be Signed		Sample Disposal: Return to Client:		Lab Disposal:		Signature: 10/11/2012	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.

This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at [www.energylab.com](http://www.energylab.com) for additional information, downloadable fee schedule, forms, and links.

Lab #: 832597 Job #: 51409 IS-99230 Co. Job#:

Sample Name: BW\_Valley\_Vista\_43543\_F\_R Co. Lab#:

Company: Civitas - Extraction Oil and Gas

API/Well:

Container: IsoFlask

Field/Site Name: BWSE/GWA\_Interchange\_A\_B\_Pad

Location: SESW\_10\_1S\_68W

Formation/Depth: SP

Sampling Point: 760187

Date Sampled: 6/09/2022 8:45 Date Received: 6/15/2022 Date Reported: 7/26/2022

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.04					
Oxygen -----	18.10					
Nitrogen -----	75.85					
Carbon Dioxide -----	0.058					
Methane -----	4.95	-70.80	-229.4		3.8	2.6
Ethane -----	0.0052				0.0043	0.0054
Ethylene -----	nd					
Propane -----	nd				< 0.0002	< 0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0004					

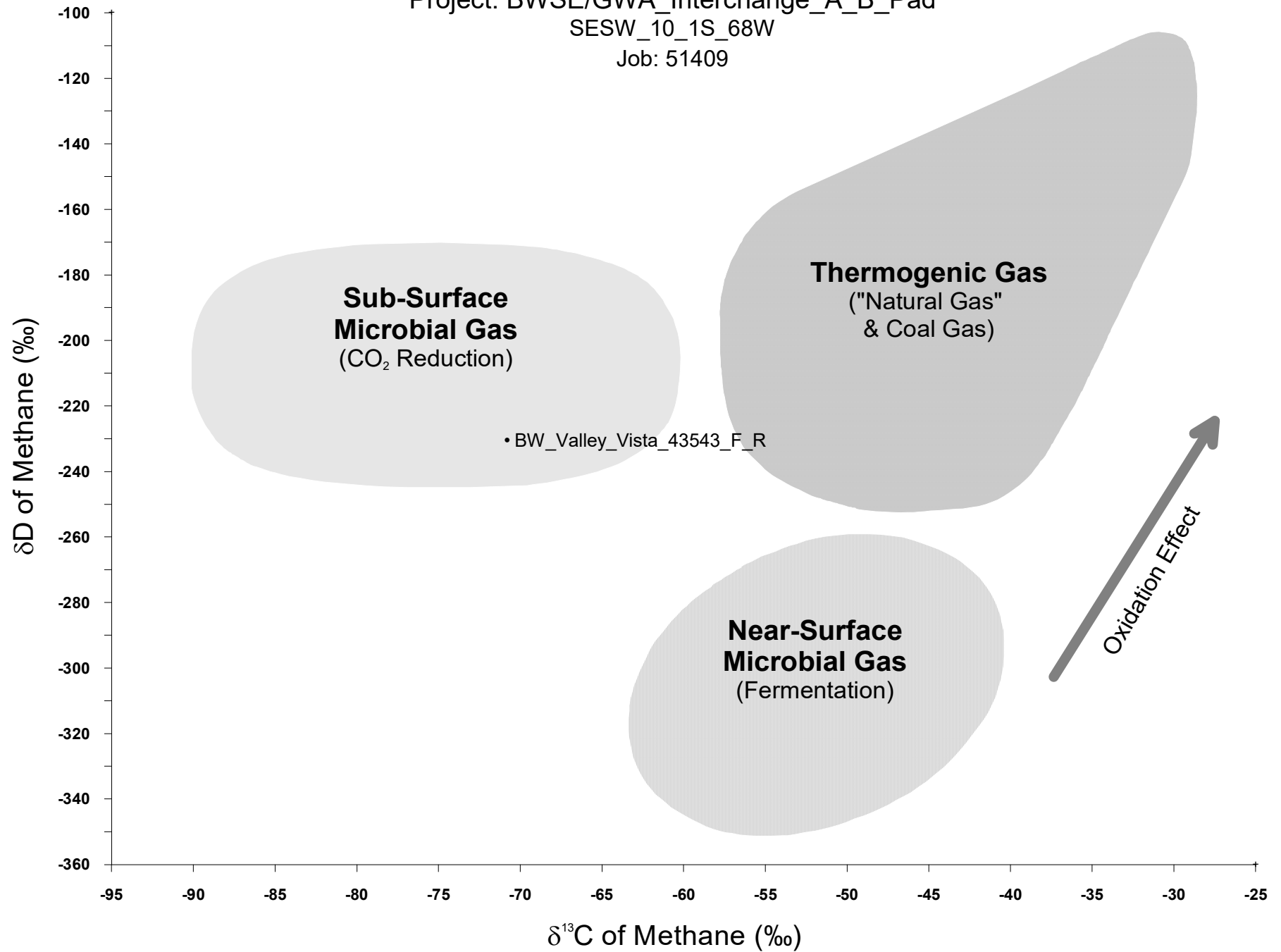
## Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.48

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Project: BWSE/GWA\_Interchange\_A\_B\_Pad  
SESW\_10\_1S\_68W  
Job: 51409



This plot is a visual representation of data and not intended to be an interpretation of results.