



P.O. Box 1653  
Durango, Colorado 81302  
(970) 764-7356  
[www.cottonwoodconsulting.com](http://www.cottonwoodconsulting.com)

May 27, 2022

Bill Fellman  
4038 Hwy 550  
Durango, CO 81303

**RE: Bondad Middle Well- Fellman Preplug  
Water Well Sampling Results  
4038 Hwy 550 Durango, CO 81303**

Dear Mr. Fellman,

Cottonwood Consulting LLC is pleased to provide you with the results of water well sampling conducted at your property on April 29, 2022. The sampling was conducted prior to the plugging and abandonment of the nearby Bryce (OWP) #1-X orphan oil and gas well.

Please find a table summarizing the results and the associated laboratory analytical reports enclosed in this packet. The table summarizing your results also provides recommended levels from the Environmental Protection Agency (EPA) for comparison purposes.

Should you have any questions, please do not hesitate to contact me at 970-764-7356. We appreciate your participation in the water monitoring program.

Sincerely,

A handwritten signature in cursive script that reads "Kyle D. Siesser".

Kyle Siesser, P.G.  
Cottonwood Consulting, LLC



**Bondad Middle Well- Fellman 4/29/2022**

**COGCC Facility ID: 706210**

**Operator: COGCC**

**Gas Well: Bryce (OWP) #1-X**

**CO DWR Permit: 231376**

**Depth: 160 ft**

**Static Water Level: 35 ft**

**Yield: 12 gpm**

Parameter	Results	EPA Standard	Units
<b>Dissolved Gases</b>			
Methane	1.2	-	mg/L
<b>Bacteria Analysis</b>			
E coli	Absent	Absent	-
Total Coliform	Present	Absent	-
Iron-Related Bacteria	High Aggressivity	-	-
Slime-Forming Bacteria	Low Aggressivity	-	-
Sulfate-Reducing Bacteria	Medium Aggressivity	-	-
<b>General Chemistry</b>			
Alkalinity, Bicarbonate	315	-	mg/L
Alkalinity, Carbonate	<10.0	-	mg/L
Alkalinity, Total	315	-	mg/L
Chloride	780	250	mg/L
Conductivity at 25°C	3160	-	uS/cm
Fluoride	1.41	2.0 and 4.0*	mg/L
Nitrate/ Nitrite, as dissolved Nitrogen	0.077	Nitrate=10 Nitrite-1*	mg/L
pH	7.58	6.5-8.5	pH Units
Sodium Adsorption Ratio	12.6	-	-
Total Dissolved Solids	1680	500	mg/L
Sulfate	37.0	250	mg/L
<b>Metals Analysis</b>			
Calcium	108	-	mg/L
Hardness, as CaCO <sub>3</sub>	274	-	mg/L
Iron	<0.250	0.3	mg/L
Magnesium	1.41	-	mg/L
Potassium	<5.00	-	mg/L
Sodium	479	-	mg/L
Manganese	0.157	0.05	mg/L
Selenium	<0.0020	0.05*	mg/L
<b>Field Data and Stabilized Parameters</b>			
pH	7.67	6.5-8.5	pH Units
Conductivity	2660	-	uS/cm
Temperature	13.7	-	°C
Hydrogen Sulfide	1.0-2.0	-	mg/L
Total Volume Purged	126	-	gallons

**Field Notes:**

Sample for COGCC's plugging of the Bryce 1-X. Met Bill on-site. Flow reduced at end of test. Water clear, no tint, bacterial odor, no bubbles, minor black flake sediment.

mg/L- milligrams per Liter; °C- degrees Centigrade; uS/cm- Microsiemens per Centimeter

EPA standards are Secondary Standards unless otherwise noted; \*- EPA Primary Standard

Lab #: 827237 Job #: 50859 IS-107464 Co. Job#:  
Sample Name: Bondad Middle Well - Fellman Preplug Co. Lab#:  
Company: Cottonwood Consulting, LLC  
API/Well:  
Container: IsoFlask  
Field/Site Name: Bryce (OWP) #1-X  
Location:  
Formation/Depth:  
Sampling Point: 706210  
Date Sampled: 4/29/2022 11:35 Date Received: 5/03/2022 Date Reported: 5/05/2022

Component	Dissolved gas cc/L	Dissolved gas ppm
Methane -----	1.8	1.2
Ethane -----	0.018	0.022
Propane -----	< 0.0001	< 0.0002

dissolved gas ppm = dissolved gas mg/L

nd = not detected; na = not analyzed.



Cottonwood Consulting  
PO Box 1653  
Durango CO, 81302

Project: Rule 608  
Project Name / Number: Bryce (OWP) #1-X  
Project Manager: Kyle Siesser

Reported:  
05/13/22 16:32

**Bondad Middle Well - Fellman Preplug  
FAC ID: 706210 CC ID: 042922-EM1**

**2204356-01 (Ground Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Microbiology**

Total Coliform	Present			No Unit	1	04/29/22 15:30	SM9223B Colilert		LLG
E. Coli	Absent			No Unit	1	04/29/22 15:30	SM9223B Colilert		LLG

**General Chemistry**

Alkalinity, Bicarbonate as CaCO <sub>3</sub> *	315	10.0	2.27	mg/L	5	05/09/22 10:15	2320 B		VJW
Alkalinity, Carbonate as CaCO <sub>3</sub> *	<10.0	10.0	2.27	mg/L	5	05/09/22 10:15	2320 B		VJW
Alkalinity, Hydroxide as CaCO <sub>3</sub> *	<10.0	10.0	2.27	mg/L	5	05/09/22 10:15	2320 B		VJW
Alkalinity, Total as CaCO <sub>3</sub> *	315	10.0	2.27	mg/L	5	05/09/22 10:15	2320 B		VJW
Chloride*	780	30.0	0.912	mg/L	30	05/12/22 09:48	EPA300.0		AES
Conductivity*	3160	1.00		umho/cm @ 25.0°C	1	04/29/22 16:20	2510 B		VJW
Fluoride*	1.41	0.300	0.0291	mg/L	3	05/11/22 21:28	EPA300.0		AES
Nitrate/Nitrite as N*	0.077	0.020	0.012	mg/L as N	1	05/12/22 10:36	EPA353.2		AES
pH*	7.58			pH Units	1	04/29/22 16:20	EPA150.1		VJW
pH Temperature, degrees C	20.2			pH Units	1	04/29/22 16:20	EPA150.1		VJW
SAR	12.6			No Unit	1	05/10/22 20:14	Calculation		AES
Total Dissolved Solids*	1680	10.0		mg/L	1	05/04/22 16:50	EPA160.1		VJW
Sulfate*	37.0	3.00	0.372	mg/L	3	05/11/22 21:28	EPA300.0		AES

**Total Recoverable Metals by ICP (E200.7)**

Calcium*	108	0.500	0.192	mg/L	5	05/10/22 20:14	EPA200.7		AES
Hardness as CaCO <sub>3</sub>	274	3.31	1.09	mg/L	5	05/10/22 20:14	2340 B		AES
Iron*	<0.250	0.250	0.189	mg/L	5	05/10/22 20:14	EPA200.7		AES
Magnesium*	1.41	0.500	0.148	mg/L	5	05/10/22 20:14	EPA200.7		AES
Potassium*	<5.00	5.00	0.888	mg/L	5	05/10/22 20:14	EPA200.7		AES
Sodium*	479	5.00	0.380	mg/L	5	05/10/22 20:14	EPA200.7		AES

**Total Recoverable Metals by ICPMS (E200.8)**

Manganese*	0.157	0.0040	0.0004	mg/L	2	05/09/22 15:10	EPA200.8		AES
Selenium*	<0.0020	0.0020	0.0014	mg/L	2	05/09/22 15:10	EPA200.8		AES

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Other**

Iron-Related Bacteria	High			CFU/mL	1	04/29/22 17:00	Lab Procedure		LLG
	Aggressivity								
Slime-Forming Bacteria	Low			CFU/mL	1	04/29/22 17:00	Lab Procedure		LLG
	Aggressivity								
Sulfate-Reducing Bacteria	Medium			CFU/mL	1	04/29/22 17:00	Lab Procedure		LLG
	Aggressivity								
Cation/Anion Balance	-4.98								

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