



# Great Western Operating Company, LLC

F]c`@7`%&!`\*` , <B

API # 05-001-%\$( \*\*

---

**Surface Cement**

July 6, 2019

**Quote #:** QUO-33192

**Execution #:** EXC-19354



# Great Western Operating Company, LLC

Attention: Mr. Matt Mount | (720) 595-2173 | [mmount@gwogco.com](mailto:mmount@gwogco.com)

Great Western | 1001 17th Street, Suite 2000 | Denver, CO 80202

---

Dear Mr. Mount,

Thank you for the opportunity to provide cementing services on this well. BJ Services strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact BJ Services at any time.

Sincerely,

Zen Keith  
Field Engineer III | (307) 757-7178 | [Zen.Keith@BJServices.com](mailto:Zen.Keith@BJServices.com)

Field Office 28730 US-6, Rifle, CO 81650  
Phone: (970) 632-2412

Sales Office 999 18th St. Suite 1200 Denver, CO 80202  
Phone: (281) 408-2361

---

# BJ Cementing Treatment Report

<b>SERVICE SUPERVISOR</b>	H. Zeke Busheri	<b>FORMATION</b>	
<b>CLIENT FIELD REPRESENTATIVE</b>	Kyle Hibbert	<b>RIG</b>	
<b>DISTRICT</b>	Rifle, CO	<b>COUNTY</b>	ADAMS
<b>SERVICE</b>	Cementing	<b>STATE / PROVINCE</b>	CO

## WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	EXCESS (%)	GRADE	THREAD
Open Hole	13.50	0.00	0.00	1,778.00	30.00		
Casing	8.92	9.63	36.00	1,778.00		J-55	LTC

## HARDWARE

<b>Bottom Plug Used?</b>	No	<b>Tool Type</b>	Float Collar
<b>Top Plug Used?</b>	Yes	<b>Tool Depth (ft)</b>	1,731.18
<b>Top Plug Provided By</b>	Non BJ	<b>Max Casing Pressure - Rated (psi)</b>	3520.00
<b>Top Plug Size</b>	9.625	<b>Max Casing Pressure - Operated (psi)</b>	2800.00
<b>Centralizers Used</b>	No	<b>Pipe Movement</b>	None
<b>Landing Collar Depth (ft)</b>	1,731.18	<b>Job Pumped Through</b>	No Manifold
		<b>Top Connection Thread</b>	8rd
		<b>Top Connection Size</b>	9.625

Client: Great Western Operating Company LLC

Well: RIO LC #12-368HN

Well API: 05-001-10466

Start Date: 7/5/2019

End Date: 7/6/2019

Field Ticket #: FT-19354-P4G2L70202-75844



### CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	Yes	Flare Prior to / during the Cement Job	No
Circulation Time (min)	20.00	Gas Present	No
Circulation Rate (bpm)	8.00		
Circulation Volume (bbls)	150.00		
Lost Circulation Prior to Cement Job	No		
Mud Density Out (ppg)	8.40		

### TEMPERATURE

Ambient Temperature (°F)	71.00	Slurry Cement Temperature (°F)	68.00
Mix Water Temperature (°F)	66.00	Flow Line Temperature (°F)	

### FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H <sub>2</sub> O REQ (gals/sk)	PLN TOP FLD (ft)	LENGTH (ft)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer	Water	8.3300			0.00				20.0000
Tail Slurry	BJCem S100.3.XC	14.5000	1.3902	6.81	0.00	1,725.00	800	1113.0000	198.1000
Displacement	Water	8.3300			0.00			0.0000	114.7000

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Tail Slurry	BJCem S100.3.XC	CEMENT, ASTM TYPE III	100.0000	PCT

### TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESS (psi)	ANNULUS PRESS (psi)	COMMENTS
7/6/2019 12:00:00 AM	Water	5.00	20.00	259.00		
7/6/2019 1:00:00 AM	BJCem S100.3.XC	5.00	198.10	492.00		
7/6/2019 2:00:00 AM	Water	5.00	133.00	615.00		

### MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	259.00	615.00	455.33
Rate (bpm)	5.00	5.00	5.00

Client: Great Western Operating Company LLC

Well: RIO LC #12-368HN

Well 05-001-10466  
API:

Start 7/5/2019  
Date:

End 7/6/2019  
Date:

Field Ticket FT-19354-P4G2L70202-  
#: 75844



## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	58.00
Calculated Displacement Vol (bbls)	133.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	133.00	Amt of Spacer to Surface	30.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	No	Amt Bled Back After Job	0.50
Bump Plug Pressure (psi)	1200.00	Total Volume Pumped (bbls)	358.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement Returns During Job	Yes	Lost Circulation During Cement Job	No

Client: Great Western Operating  
Company LLC

Well: RIO LC #12-368HN

Well 05-001-10466  
API:

Start 7/5/2019  
Date:

End 7/6/2019  
Date:

Field Ticket FT-19354-P4G2L70202-  
#: 75844



# BJ Cementing Event Log

Surface - Rifle, CO – H. Zeke Busheri

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	07/05/2019 15:00	Arrive on Location					AOL @ 1530, RTS @ 1900
2	07/05/2019 15:30	STEACS Briefing					STEACS w/ Co Man
3	07/05/2019 15:40	Rig Up					Rig up All DH Equip to Buffer Zone
4	07/05/2019 16:30	Rig					Rig Running Casing
5	07/05/2019 23:30	STEACS Briefing					STEACS w/ CoMan, Rig Crew, 3rd Party, Rig Circulate 30 mins @ 8 BPM, 240 Bbls
6	07/05/2019 23:45	Rig Up					Rig up PLH and Lines to Floor
7	07/06/2019 00:12	Pump Spacer	8.3300	2.50	5.00	159.00	Fill Lines Break Circulation
8	07/06/2019 00:15	Pressure Test				3000.00	Pressure Test
9	07/06/2019 00:18	Pump Spacer	8.3300	5.00	20.00	430.00	20 Bbls FW + Dye, Swap to Cmt @ 14.5 PPG DH, 800 Sks, 1.39 Y, 6.81 MW, 198.1 Bbls
10	07/06/2019 00:24	Pumping Cement	14.5000	5.00	50.00	453.00	50 Bbls Cmt
11	07/06/2019 00:36	Pumping Cement	14.5000	3.00	100.00	416.00	100 Bbls Cmt
12	07/06/2019 00:52	Pumping Cement	14.5000	3.00	150.00	311.00	150 Bbls Cmt
13	07/06/2019 01:15	Pumping Cement	14.5000	3.00	198.10	298.00	198.1 Bbls Cmt, Shut Down
14	07/06/2019 01:38	Drop Top Plug	8.3300	5.00	50.00	293.00	Drop Top Plug, 50 Bbls FW Disp, Dye to Surf @ 45 Bbls Away
15	07/06/2019 01:52	Pump Displacement	8.3300	5.00	100.00	554.00	100 Bbls FW Disp, Cmt to Surf @ 75 Bbls Away, 58 Bbls Cmt to Surf
16	07/06/2019 02:03	Land Plug	8.3300	3.00	133.00	615.00	133 Bbls FW Disp, Land Plug @ 1200 PSI, 15 min csg test: start 1256 psi, end 1247 psi.
17	07/06/2019 02:20	Check Floats					Floats Held, 0.5 Bbls Returned to Truck
18	07/06/2019 02:35	Rig Down					STEACS, Rig Down DH Equip

