



Great Western Operating Company, LLC

Rio LC 12-368HC

API # 05-001-10462

Surface Cement

July 5, 2019

Quote #: QUO-33587

Execution #: EXC-19353



Great Western Operating Company, LLC

Attention: Mr. Matt Mount | (720) 595-2173 | 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

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

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

WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	EXCESS (%)	GRADE	THREAD
Casing	8.92	9.63	36.00	1,772.00		J-55	LTC
Open Hole	13.50	0.00	0.00	1,772.00	30.00		

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	1,727.80
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	3520.00
Top Plug Size	9.625	Max Casing Pressure - Operated (psi)	2800.00
Centralizers Used	Yes	Pipe Movement	None
Landing Collar Depth (ft)	1,727.80	Job Pumped Through	No Manifold
		Top Connection Thread	8rd
		Top Connection Size	9.625

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Well: RIO LC #12-368HC

Well API: 05-001-10462

Start Date: 7/4/2019

End Date: 7/5/2019

Field Ticket #: FT-19353-Z8W5Z00202-82999



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)	30.00	Gas Present	No
Circulation Rate (bpm)	8.00		
Circulation Volume (bbls)	240.00		
Lost Circulation Prior to Cement Job	No		
Mud Density Out (ppg)	8.40		

TEMPERATURE

Ambient Temperature (°F)	68.00	Slurry Cement Temperature (°F)	72.00
Mix Water Temperature (°F)	66.00	Flow Line Temperature (°F)	

FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H ₂ 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	1112.0000	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
7/5/2019 12:30:00 AM	Water	5.00	20.00	559.00		
7/5/2019 1:00:00 AM	BJCem S100.3.XC	5.00	198.10	473.00		
7/5/2019 1:30:00 AM	Water	7.00	114.70	649.00		

MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	473.00	649.00	560.33
Rate (bpm)	5.00	7.00	5.67

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DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	38.00
Calculated Displacement Vol (bbls)	132.50	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	132.50	Amt of Spacer to Surface	30.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	0.50
Bump Plug Pressure (psi)	1640.00	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

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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	07/04/2019 09:00	Callout					STEACS, PreTrip, LoadOut, JM
2	07/04/2019 13:00	Arrive on Location					Convoy to Location, RTS 2130
3	07/04/2019 13:10	STEACS Briefing					STEACS w/ CoMan
4	07/04/2019 13:30	Rig Up					Spot Units, STEACS, Rig up all DH Equip to Buffer Zone
5	07/04/2019 16:30	Rig					Rig Running Casing
6	07/04/2019 23:45	STEACS Briefing					STEACS w/ CoMan, Rig Crew
7	07/05/2019 00:00	Rig Up					Rig up PLH and Lines to PLH
8	07/05/2019 00:20	Pump Spacer	8.3300		5.00	129.00	Fill Lines, Break Circulation
9	07/05/2019 00:22	Pressure Test				3500.00	Pressure Test
10	07/05/2019 00:28	Pump Spacer	8.3300	4.00	20.00	559.00	20 Bbls FW Spacer, Swap to Cmt @ 14.5 PPG DH, 800 Sks, 1.39 Y, 6.81 MW, 198.1 Bbls
11	07/05/2019 00:34	Pumping Cement	14.5000	4.00	50.00	473.00	50 Bbls Cmt
12	07/05/2019 00:48	Pumping Cement	14.5000	3.50	100.00	39.00	100 Bbls Cmt
13	07/05/2019 01:02	Pumping Cement	14.5000	3.50	150.00	211.00	150 Bbls Cmt
14	07/05/2019 01:15	Pumping Cement	14.5000	3.50	198.00	217.00	198 Bbls Cmt Pumped, Shut Down
15	07/05/2019 01:28	Drop Top Plug	8.3300	5.00	50.00	563.00	Drop Plug, 50 Bbls FW Disp
16	07/05/2019 01:35	Pump Displacement	8.3300	7.00	100.00	747.00	100 Bbls FW Disp. Dye to Surf @ 65 Bbls away, Cmt to Surf @ 95 Bbls Away. Total 38 Bbls Cmt to Surf
17	07/05/2019 01:43	Land Plug	8.3300	3.00	132.50	1640.00	Land Plug @ 1640 PSI, FCP @ 650 PSI. 15 min csg test: start 1635 PSI, end 1652 PSI.
18	07/05/2019 01:49	Check Floats					Floats Held, 0.5 Bbls Returned to Truck
19	07/05/2019 02:06	Rig Down					

