



Great Western Operating Company, LLC

Rio LC 12-369HNX

API # 05-001-10468

Surface

July 7, 2019

Quote #: QUO-33194-Y1X4H1

Execution #: EXC-19426-M9R9J402



Great Western Operating Company, LLC

Great Western Operating Company, LLC | 1801 Broadway, Suite 500 | Denver, CO 80202

Dear Great Western Operating Company, LLC,

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,
Jason Creel
Field Engineer I | (307) 256-0306 | Jason.Creel@BJServices.com

Field Office
1716 East Allison Rd., Cheyenne WY. 82007 | (307) 638-5585

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

BJ Cementing Treatment Report

SERVICE SUPERVISOR	Chad Johnson	COUNTY	ADAMS
DISTRICT	Cheyenne, WY	STATE / PROVINCE	CO
SERVICE	Cementing		

WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)	GRADE	THREAD
Casing	8.92	9.63	36.00	1,779.00	1,779.00		J-55	LTC
Open Hole	13.50	0.00	0.00	1,779.00	1,779.00	30.00		

HARDWARE

Bottom Plug Used?	No	Centralizers Type	Bow
Top Plug Used?	Yes	Landing Collar Depth (ft)	1,735.06
Top Plug Provided By	Non BJ	Pipe Movement	None
Top Plug Size	9.600	Job Pumped Through	Manifold
Centralizers Used	Yes	Top Connection Thread	BTC
Centralizers Quantity	17.00	Top Connection Size	9.6

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Mud Density In (ppg)	8.40
Circulation Prior to Job	Yes	Mud Density Out (ppg)	8.40
Circulation Time (min)	30.00	Solids Present at End of Circulation	No
Circulation Rate (bpm)	6.00	Flare Prior to / during the Cement Job	No
Circulation Volume (bbls)	180.00	Gas Present	No
Lost Circulation Prior to Cement Job	No		

TEMPERATURE

Ambient Temperature (°F)	76.00	Mix Water Temperature (°F)	60.00
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Client: Great Western Operating
Company LLC

Well: RIO LC #12-369HNX

Well
API: 05-001-10468

Start
Date: 7/7/2019

End
Date: 7/8/2019



FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H ₂ O REQ (gals/sk)	LENGTH (ft)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	Water	8.3300						20.0000
Tail Slurry	BJCem S100.3.XC	14.5000	1.3902	6.81	1,764.00	800	1111.7300	198.1000
Displacement 1	Water	8.3300					0.0000	114.7000

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

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	13.00
Calculated Displacement Vol (bbls)	133.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	133.00	Amt of Spacer to Surface	20.00
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)	800.00	Total Volume Pumped (bbls)	356.00
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 #12-369HNX

Well API: 05-001-10468

Start Date: 7/7/2019

End Date: 7/8/2019



BJ Cementing Event Log

Surface - Cheyenne, WY - Chad Johnson

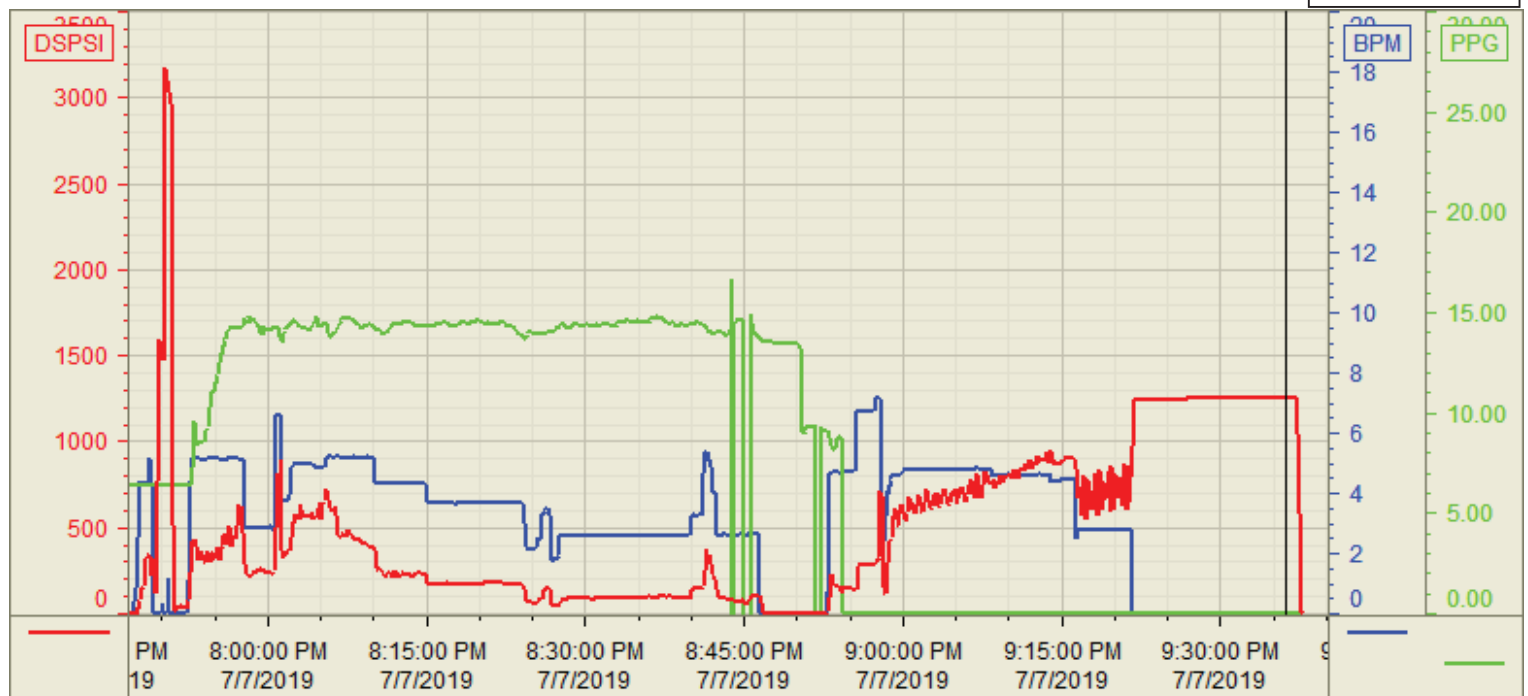
SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	07/07/2019 11:00	Callout					Crew called out requested on location at 1700
2	07/07/2019 15:00	Arrive on Location					Crew arrived on location
3	07/07/2019 15:10	STEACS Briefing					Safety meeting
4	07/07/2019 15:25	Spot Units					Spotted all units
5	07/07/2019 15:30	Rig Up					Rigged up all equipment
6	07/07/2019 17:00	Client					Waiting on rig to finish running casing and circulate the well
7	07/07/2019 19:15	STEACS Briefing					Safety meeting
8	07/07/2019 19:45	Prime Up	8.3400	4.00	5.00	100.00	Fill lines with dye water
9	07/07/2019 19:46	Pressure Test					Pressure test lines to 25000 psi
10	07/07/2019 19:49	Pump Spacer	8.3400	4.00	20.00	300.00	Pump water spacer
11	07/07/2019 19:54	Pump Tail Cement	14.5000	7.00	198.00	250.00	Pump tail cmt (198bbl, 800sk, 1.39Y,6.81 gal/sk)
12	07/07/2019 20:44	Other (See comment)					Shutdown
13	07/07/2019 20:49	Drop Top Plug					Drop top plug
14	07/07/2019 20:50	Pump Displacement	8.3400	7.00	120.00	500.00	Pump displacement
15	07/07/2019 21:14	Other (See comment)	8.3400	3.00	133.00	500.00	Slow pump rate
16	07/07/2019 21:16	Cement Back-to-Surface					Cement back to surface, 13 bbls cement to surface
17	07/07/2019 21:20	Land Plug					Land plug at 800 psi, took to 1300 psi. 15 min csg test: start 1280psi, end 1293psi.
18	07/07/2019 21:36	Check Floats					Check floats, floats holding, 0.5 bbls back
19	07/07/2019 21:40	STEACS Briefing					Safety meeting
20	07/07/2019 22:00	Rig Down					Rigged down all equipment
21	07/07/2019 23:30	Leave Location					Crew departed location

Customer: Great Western
Well Number: #12-369HNX
Lease Info: Rio LC



Print Date/Time

7/7/2019 9:37:54 PM



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	1254.3 i.	7/7/2019 9:36:09 PM i.	Cementer\DS_DISCHARGE_PRESS_DIAL
2	Recirc - Density (PPG)	0.01	7/7/2019 9:36:11 PM	Cementer\DENSITY_ACTUAL_RATE
3	Combined rate (BPM)	0.00	7/7/2019 9:36:11 PM	Cementer\Flow_Combined
4				
5				

Source: Control1 9:37:48 PM