



Great Western Operating Company, LLC

RIO LC 12-373HN

API # 05-001-10464

Surface

March 17, 2020

Quote #: QUO-43367-N3T9H1

Execution #: EXC-25259-D9B6F902



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	RIG	White Mountain
DISTRICT	Cheyenne, WY	COUNTY	ADAMS
SERVICE	Cementing	STATE / PROVINCE	CO

WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)	GRADE	THREAD
Open Hole	13.50	0.00	0.00	2,022.00	2,022.00	30.00		
Casing	8.92	9.63	36.00	2,022.00	2,022.00		J-55	LTC

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	1,977.23
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	2,720.00
Top Plug Size	9.630	Max Casing Pressure - Operated (psi)	1500.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	20.00	Job Pumped Through	Manifold
Centralizers Type	Bow	Top Connection Thread	LTC
Landing Collar Depth (ft)	1,977.23	Top Connection Size	9.625

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)	5.00	Flare Prior to / during the Cement Job	No
Circulation Volume (bbls)	150.00	Gas Present	No
Lost Circulation Prior to Cement Job	No		

TEMPERATURE

Ambient Temperature (°F)	39.00	Slurry Cement Temperature (°F)	56.00
Mix Water Temperature (°F)	55.00		

Client: Great Western Operating Company, LLC

Well: RIO LC #12-373HN

Well API: 05-001-10464

Start Date: 3/17/2020

End Date: 3/17/2020

Field Ticket #: FT-25259-D9B6F90201-2041481977



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 / Pre Flush / Flush	Water	8.3300			0.00				20.0000
Tail Slurry	BJCem S100.3.XC	14.5000	1.3902	6.81	0.00	2,000.00	930	1293.0000	230.3000
Displacement Final	Water	8.3300			0.00			0.0000	151.4000

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	35.00
Calculated Displacement Vol (bbls)	153.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	153.00	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)	1,550.00	Total Volume Pumped (bbls)	403.00
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 - Cheyenne, WY - Eric Dewit

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	03/17/2020 01:00	Callout					Customer calls out with an OL time of 07:00 on 3/17/20 Crew gets equipment and materials ready to travel to location
2	03/17/2020 03:45	Depart for Location					Crew leaves yard to travel to location
3	03/17/2020 05:48	Arrive on Location					Arrive on location (rig running casing) Pre-rig up safety meeting
4	03/17/2020 05:55	Spot Units					
5	03/17/2020 06:00	Rig Up					Rig up Bulk, Water, and Treating line
6	03/17/2020 06:25	Rig					Waiting on rig to finish running casing, and circulate
7	03/17/2020 09:03	STEACS Briefing					Pre-job safety meeting with BJ Crew, Rig Crew, and Company Man
8	03/17/2020 09:18	Rig Up					Rig up cement head
9	03/17/2020 09:27	Pump Spacer	8.3400	5.20	10.00	151.00	Load lines with 3 bbls of fresh water
10	03/17/2020 09:33	Pressure Test	8.3400	0.00	0.00	3039.00	Test pumps and lines
11	03/17/2020 09:36	Pump Spacer	8.3400	4.20	10.00	142.00	Pump 17 bbls of fresh water (Customer did not want to use the dye on this well, thinks we will see the change to cement better)
12	03/17/2020 09:39	Pumping Cement	14.5000	4.40	230.00	97.00	Pump 930 sks of cement @14.5 ppg
13	03/17/2020 10:33	Drop Top Plug					
14	03/17/2020 10:36	Pump Displacement	8.3400	6.60	0.00	112.00	Send plug, start fresh water displacement + Biocide (provided buy customer)
15	03/17/2020 10:53	Other (See comment)	8.3400	1.30	95.00	425.00	Drop rate so rig can swap return lines for cement
16	03/17/2020 10:54	Other (See comment)	8.3400	6.50	96.00	480.00	Bring rate back up
17	03/17/2020 10:55	Other (See comment)	8.3400	1.30	101.00	450.00	Drop rate again, rig having issue with return line
18	03/17/2020 10:58	Other (See comment)	8.3400	6.50	103.00	640.00	Bring rate back up
19	03/17/2020 11:00	Cement Back-to-Surface	8.3400	1.30	118.00	640.00	Getting good cement to surface (had to drop rate trouble getting water, had to swap to another water tank)
20	03/17/2020 11:03	Pump Displacement	8.3400	6.50	120.00	785.00	Bring rate back up
21	03/17/2020 11:06	Pump Displacement	8.3400	6.50	135.00	780.00	Drop rate to land the plug
22	03/17/2020 11:10	Land Plug	8.3400	2.80	153.00	1550.00	Land plug (35 bbls of cement to surface)

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Plan #: ORD-25259-D9B6F9

Execution #: EXC-25259-D9B6F902

23	03/17/2020 11:20	Other (See comment)	8.3400			1556.00	Pressure @10 min. into casing test
24	03/17/2020 11:30	Other (See comment)	8.3400			1557.00	Pressure @20 min. into casing test
25	03/17/2020 11:40	Check Floats	8.3400	0.00	0.00	1564.00	Floats held (.5 bbls back)
26	03/17/2020 11:42	STEACS Briefing					Pre-rig down safety meeting
27	03/17/2020 11:55	Rig Down					Rig everything down
28	03/17/2020 12:30	Leave Location					leave location to head back to the yard



JobMaster Program Version 5.00C1

Job Number:

Customer: Great Western

Well Name: Rio LC 12-373HN

