



Great Western Operating Company, LLC

RIO LC 12-375HN

API # 05-001-10469

Surface

March 19, 2020

Quote #: QUO-43368-B3W3D1

Execution #: EXC-25336-F7G0G502



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	Eric Dewit	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	2,014.00	2,014.00	30.00		
Casing	8.92	9.63	36.00	2,014.00	2,014.00		J-55	LTC

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	1,969.24
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	2,720.00
Top Plug Size	9.625	Max Casing Pressure - Operated (psi)	1,600.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	19.00	Job Pumped Through	Manifold
Centralizers Type	Bow	Top Connection Thread	LTC
Landing Collar Depth (ft)	1,969.24	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)	33.00	Slurry Cement Temperature (°F)	56.00
Mix Water Temperature (°F)	55.00		

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	36.00
Calculated Displacement Vol (bbls)	152.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	152.00	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)	1,584.00	Total Volume Pumped (bbls)	402.00
Were Returns Planned at Surface	No	Top Out Cement Spotted	No
Cement Returns During Job	Yes	Lost Circulation During Cement Job	No

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	03/19/2020 01:00	Other (See comment)					Crew arrived at yard early due to weather concerns.
2	03/19/2020 02:30	Depart for Location					Depart for location.
3	03/19/2020 03:30	Arrive on Location					Arrive on location.
4	03/19/2020 04:30	Other (See comment)					Waiting to spot trucks and rig up.
5	03/19/2020 08:00	Spot Units					Pre rig up meeting and spot units.
6	03/19/2020 08:10	Rig Up					Rig everything up except the rig floor
7	03/19/2020 09:30	Requested Time					Requested time on location by customer.
8	03/19/2020 09:30	Rig					Waiting on rig to run casing and circulate.
9	03/19/2020 13:00	STEACS Briefing					Pre job safety meeting with crew, rig crew and company man.
10	03/19/2020 13:15	Rig Up					Rig up cement head.
11	03/19/2020 13:37	Other (See comment)	8.3400	5.20	4.00	193.00	Fill pumps and lines.
12	03/19/2020 13:38	Pressure Test	8.3400	0.00	0.00	4100.00	
13	03/19/2020 13:41	Pump Spacer	8.3400	4.20	16.00	144.00	Water spacer ahead.
14	03/19/2020 13:46	Pumping Cement	14.5000	5.00	230.00	125.00	Pump 930 sacks @ 14.5 ppg
15	03/19/2020 14:33	Drop Top Plug					
16	03/19/2020 14:37	Pump Displacement	8.3400	6.50	0.00	209.00	Send plug, start pumping fresh water displacement, and add customer provided biocide.
17	03/19/2020 14:54	Spacer Back-to-Surface	8.3400	6.50	96.00	684.00	
18	03/19/2020 14:57	Cement Back-to-Surface	8.3400	6.50	116.00	691.00	Start getting good cement back to surface.
19	03/19/2020 15:00	Pump Displacement	8.3400	2.80	135.00	704.00	Drop rate to land plug.
20	03/19/2020 15:05	Land Plug	8.3400	2.80	152.00	1584.00	Land plug. Held for 30 minute casing test. (36 bbls of cement to surface)
21	03/19/2020 15:15	Pressure Test	8.3400	0.00	0.00	1608.00	Casing test pressure 10 min. into test
22	03/19/2020 15:25	Pressure Test	8.3400	0.00	0.00	1616.00	Casing test pressure 20 min. into test
23	03/19/2020 15:35	Check Floats	8.3400	0.00	0.00	1629.00	Floats held (.5 bbls back)
24	03/19/2020 15:37	STEACS Briefing					Pre-rig down safety meeting
25	03/19/2020 15:45	Rig Down					Rig down

Client: Great Western Operating Company, LLC

Well Name / API: RIO LC #12-375HN / 05-001-10469



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Plan #: ORD-25336-F7G0G5

Execution #: EXC-25336-F7G0G502



JobMaster Program Version 5.00C1

Job Number:

Customer: Great Western

Well Name: Rio LC 12-375HN

