



# Great Western Operating Company, LLC

## Production Post Job Report

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Marcus LD 11-371HNX (API 05-123-45383)



S:34 T:1N R:67W Weld CO

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# Great Western Operating Company, LLC

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

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Dear Great Western Operating Company,

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,  
Jacob Ojeda  
Field Engineer I | (763) 516-3012 | [jacob.ojeda@bjservices.com](mailto:jacob.ojeda@bjservices.com)

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

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

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# Cementing Treatment



**Start Date** 12/21/2017 **Well** Marcus LD 11-371HNX  
**End Date** 12/22/2017 **County** WELD  
**Client** GREAT WESTERN OPERATING COMPANY, LLC **State/Province** CO  
**Service Supervisor** Wesley Bell **API** 05-123-45383  
**District** Cheyenne, WY **Type of Job** Long String

## WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)
Open Hole	8.50			7,000.00	7,000.00	10.00
Open Hole	8.50			17,598.00	7,347.00	5.00
Casing	4.89	5.50	17.00	17,610.00	7,347.00	
Previous Casing	8.92	9.63	36.00	1,734.00	1,734.00	

**Shoe Length (ft.):** 6.5

## HARDWARE

**Bottom Plug Used?** No **Max Casing Pressure - Rated (psi)** 10500  
**Top Plug Used?** Yes **Max Casing Pressure - Operated (psi)** 4000  
**Top Plug Provided By** Customer **Pipe Movement** No  
**Top Plug Size** 5.5 **Job Pumped Through** Casing  
**Centralizers Used** Yes **Top Connection Thread** BTC  
**Centralizers Quantity** 71 **Top Connection Size** 5.5  
**Landing Collar Depth (ft)** 17,591

# Cementing Treatment



## CIRCULATION PRIOR TO JOB

Well Circulated By	Customer	PV Mud In	33
Circulation Prior to Job	Yes	PV Mud Out	33
Circulation Time (min)	180	YP Mud In	13
Circulation Rate (bpm)	10.7	YP Mud Out	13
Circulation Volume (bbls)	1926	Solids Present at End of Circulation	No
Lost Circulation Prior to Cement Job	No	10 sec SGS	7
Mud Density In (ppg)	10.0	10 min SGS	8
Mud Density Out (ppg)	10.0	30 min SGS	9
		Flare Prior to/during the Cement Job	No
		Gas Present	No

## TEMPERATURE

Ambient Temperature (°F)	16	Slurry Cement Temperature (°F)	60
Mix Water Temperature (°F)	60	Flow Line Temperature (°F)	65

## BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	CD Spacer	11.5000					50.0000
Lead Slurry	P100-X2	13.5000	1.6750	8.85	1,071	1,794.0000	319.4000
Tail Slurry	P50-X1	14.0000	1.3341	6.42	1,923	2,564.0000	456.6000
Displacement 1	Retarded Water	8.3337				0.0000	20.0000
Displacement 2	3% KCl	8.3300				0.0000	388.0000

# Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	CD Sapcer	SAND, S-8, Silica Flour, 200 Mesh	213.49	PPB
Spacer / Pre Flush / Flush	CD Sapcer	Spacer Surfactant, SS-247, (BJS Only)	0.50	GPB
Spacer / Pre Flush / Flush	CD Sapcer	SURFACTANT, SS-267, (BJS ONLY)	0.50	GPB
Spacer / Pre Flush / Flush	CD Sapcer	RETARDER, HIGH TEMP, R-31 (BJS Only)	0.58	PPB
Spacer / Pre Flush / Flush	CD Sapcer	GELLANT WATER, GW-86	0.90	PPB
Lead Slurry	P100-X2	GELLANT WATER, GW-86	0.05	BWOB
Lead Slurry	P100-X2	RETARDER, HIGH TEMP, R-31 (BJS Only)	0.17	BWOB
Lead Slurry	P100-X2	CEMENT, ASTM TYPE III	100.00	PCT
Lead Slurry	P100-X2	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Lead Slurry	P100-X2	BONDING AGENT, BA-60	0.40	BWOB
Lead Slurry	P100-X2	FLUID LOSS, FL-66	0.50	BWOB
Tail Slurry	P50-X1	GELLANT WATER, GW-86	0.10	BWOB
Tail Slurry	P50-X1	EXTENDER, BENTONITE	1.00	BWOB
Tail Slurry	P50-X1	CEMENT, CLASS G	50.00	PCT
Tail Slurry	P50-X1	FLUID LOSS, FL-66	0.20	BWOB
Tail Slurry	P50-X1	AR-20	0.07	BWOB
Tail Slurry	P50-X1	Flyash (Rockies)	50.00	PCT
Tail Slurry	P50-X1	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Displacement 1	Retarded Water	AR-61	0.10	GPB

# Cementing Treatment



## TREATMENT SUMMARY

Fluid	Rate (bpm)	Fluid Vol. (bbls)
CD Spacer	0.00	50.00
P100-X2	0.00	319.40
P50-X1	0.00	456.60
Retarded Water	0.00	20.00
3% KCl	5.00	388.00

	Min	Max	Avg
Pressure (psi)	0	4000	2000
Rate (bpm)	0	8	4

## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ Services	Amount of Cement Returned/Reversed	50
Calculated Displacement Volume (bbls)	408	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	400	Amount of Spacer to Surface	50
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0
Bump Plug	Yes	Amount Bled Back After Job	2
Bump Plug Pressure (psi)	4000	Total Volume Pumped (bbls)	1227
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement returns During Job	Yes	Lost Circulation During Cement Job	No

## CEMENT PLUG

Bottom of Cement Plug?	No	Wiper Balls Used?	No
		Plug Catcher	No

Customer Name Great Western  
 Well Name Marcus LD 11-371HNX  
 Job Type Long String

District Cheyenne  
 Supervisor Wesley Bell  
 Engineer Oscar Medrano



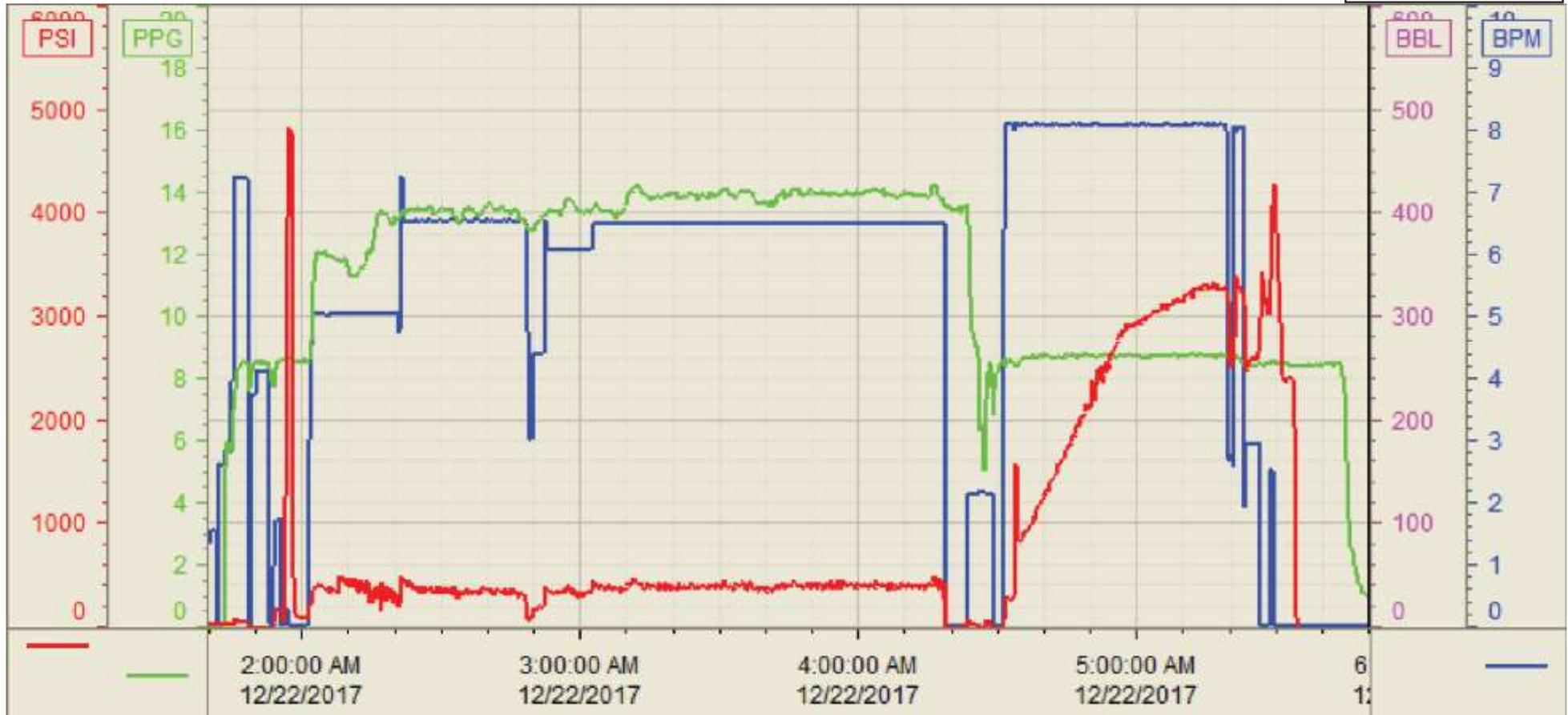
Seq No.	Start Date/Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	12/21/2017 11:00	Operational	Callout		1					Bj crew called out for job requested on location at 20:00.
2	12/21/2017 13:30	Operational	Steacs Briefing							Bj crew talk about the dangers of driving to locations
3	12/21/2017 13:45	Mobilization	Depart Yard							Depart yard.
4	12/21/2017 16:00	Mobilization	Arrive At Location							Arrive at location
5	12/21/2017 16:15	Operational	Steacs Briefing							Bj crew talk about the dangers of spotting in and rigging up.
6	12/21/2017 16:30	Operational	Spot in/rig up							Spot in and rig up.
7	12/21/2017 17:30	Operational	Waiting							Waiting of rig to finish running casing.
8	12/22/2017 1:30	Operational	Steacs Briefing							Bj and Rig crew talk about the operations and dangers of the job.
9	12/22/2017 2:06	Operational	Fill lines			8.33	2	3	190	Fill lines with 3 bbls of water.
10	12/22/2017 2:09	Operational	Pressure Test		54				5000	Shutdown/ pressure test to 5000 psi.
11	12/22/2017 2:14	Operational	Pump Spacer		56	11.5	5	50	200	Pump 50 bbls of spacer at 11.5 ppg.
12	12/22/2017 2:29	Operational	Pump Lead			13.5	6.5	319.4	300	Pump 319.4 bbls of lead cement (1071 sks, 13.5 ppg, 1.67 yld, 8.85 wtr) Took weights every 80 bbls
13	12/22/2017 3:21	Operational	Pump Tail			14	6.5	456	450	Pump 456 bbls of tail cement (1923 sks, 14.0 ppg, 1.33 yld, 6.42 wtr.) Checked weights every 80 bbls.
14	12/22/2017 4:32	Operational	Shutdown/ wash lines							Shutdown and wash pumps and lines to pit.
15	12/22/2017 4:44	Operational	Drop Top Plug		63					Company many witnesses plug leave.
16	12/22/2017 5:37	Operational	Displacement			8.5	8	408	2400	Displace 408 bbls kcl w/ biocide.
17	12/22/2017 4:58	Operational	Displacement			8.5	8	100	1400	100 bbls of displacement away. First 20 bbls was water.
18	12/22/2017 5:15	Operational	Displacement			8.5	8	100	2300	200 bbls of displacement away.
19	12/22/2017 5:24	Operational	Displacement			8.5	8	100	3100	300 bbls of displacement away. Spacer back at 300 away. Cement back at 350 away.
20	12/22/2017 5:37	Operational	Slow Rate			8.5	3	388	2400	Slow rate to 3 bpm.
21	12/22/2017 5:40	Operational	Bump Plug						2400	Bumped plug at 2400. Brought usp to 3400 psi.
22	12/22/2017 5:45	Operational	Check Floats		68					2 bbls back to truck. Floats held.
23	12/22/2017 6:00	Operational	Steacs Briefing							Bj crew talks about the dangers of rigging down.
24	12/22/2017 6:15	Operational	Rig Down		73					Rig down.
25	12/22/2017 7:00	Operational	Steacs Briefing							Bj crew talks about the dangers of driving.
26	12/22/2017 7:30	Operational	Depart Location							Depart Location .

Customer: Great Western  
 Well Number: LD 11-371HNX  
 Lease Info: Marcus



Print Date/Time

12/22/2017 7:27:38 AM



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	-46.1 i.	12/22/2017 5:50:00 AM i.	CementerDS_DISCHARGE_PRESS_DIAL
2	DH - Density (PPG)	0.97	12/22/2017 5:50:03 AM	CementerDENSITY2_ACTUAL_RATE
3	Combined Rate	0.00	12/22/2017 5:50:03 AM	CementerFlow_Combined
4				
5				

Source: Control1 7:27:33 AM