



Great Western Operating Company, LLC

Production Post Job Report

Marcus LD 11-373 HNX (05-123-45380)

S:2 T:1S R:67W Weld CO



Great Western Operating Company, LLC

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

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

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

Cementing Treatment



Start Date 11/14/2017 **Well** Marcus LD 11-373HNX
End Date 11/14/2017 **County** WELD
Client GREAT WESTERN OPERATING COMPANY, LLC **State/Province** CO
Client Field Rep Marvin **API** 05-123-45380
Service Supervisor Anthony Staples **Formation**
District Cheyenne, WY **Type of Job** Long String

WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)
Previous Casing	8.92	9.63	36.00	1,733.00	1,733.00	
Open Hole	8.50			7,000.00	7,000.00	10.00
Open Hole	8.50			16,829.00	7,363.00	5.00
Casing	4.89	5.50	17.00	16,829.00	7,363.00	

Shoe Length (ft): 8

HARDWARE

Bottom Plug Used? No
Top Plug Used? Yes
Top Plug Provided By Customer
Top Plug Size 5.5
Landing Collar Depth (ft) 16,821

CIRCULATION PRIOR TO JOB

Well Circulated By Rig **10 min SGS** 6
Circulation Prior to Job YES **30 min SGS** 87
Solids Present at End of Circulation No
10 sec SGS 5

Cementing Treatment



Circulation Volume (bbls)		Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	10		
Mud Density Out (ppg)	10		
PV Mud In	29		
PV Mud Out	29		
YP Mud In	7		
YP Mud Out	7		

TEMPERATURE

Ambient Temperature (°F)	63
Flow Line Temperature (°F)	142

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	14.0000	1.5272	7.74	1,175	1,794.0000	319.4000
Tail Slurry	P50-X1	14.0000	1.3341	6.42	1,779	2,373.0000	422.5000
Displacement 1	MMCR Water	8.3337				0.0000	20.0000
Displacement 2	3% KCL Water	8.3300				0.0000	360.0000
Displacement Final	Water	8.3300				0.0000	10.0000

Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	CD Sapcer	Spacer Surfactant, SS-247, (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	SAND, S-8, Silica Flour, 200 Mesh	213.49	PPB
Spacer / Pre Flush / Flush	CD Sapcer	GELLANT WATER, GW-86	0.90	PPB
Spacer / Pre Flush / Flush	CD Sapcer	SURFACTANT, SS-267, (BJS ONLY)	0.50	GPB
Lead Slurry	P100-X2	SPECIAL ADDITIVE, MPA-300	0.10	BWOB
Lead Slurry	P100-X2	BONDING AGENT, BA-59	0.40	BWOB
Lead Slurry	P100-X2	FLUID LOSS, FL-66	0.50	BWOB
Lead Slurry	P100-X2	CEMENT, ASTM TYPE III	100.00	PCT
Lead Slurry	P100-X2	RETARDER, HIGH TEMP, R-31 (BJS Only)	0.17	BWOB
Lead Slurry	P100-X2	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Tail Slurry	P50-X1	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Tail Slurry	P50-X1	AR-20	0.07	BWOB
Tail Slurry	P50-X1	GELLANT WATER, GW-86	0.10	BWOB
Tail Slurry	P50-X1	Flyash (Rockies)	50.00	PCT
Tail Slurry	P50-X1	FLUID LOSS, FL-66	0.20	BWOB
Tail Slurry	P50-X1	CEMENT, CLASS G	50.00	PCT
Tail Slurry	P50-X1	EXTENDER, BENTONITE	1.00	BWOB
Displacement 1	MMCR 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	422.50
MMCR Water	0.00	20.00
3% KCL Water	0.00	360.00
Water	0.00	10.00

	Min	Max	Avg
Pressure (psi)	90	3625	1857
Rate (bpm)	3	8	5.5

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	43
Calculated Displacement Volume (bbls)	391.5	Method Used to Verify Returns	VISUAL
Actual Displacement Volume (bbls)	391.0	Amount of Spacer to Surface	50
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0
Bump Plug	YES	Amount Bled Back After Job	5
Bump Plug Pressure (psi)	3625	Total Volume Pumped (bbls)	1191
Were Returns Planned at Surface	YES	Top Out Cement Spotted	No
Cement returns During Job	YES	Lost Circulation During Cement Job	No

Customer Name Great Western
 Well Name Marcus LD 11-373HNX
 Job Type Long String

District Cheyenne
 Supervisor Anthony Staples
 Engineer _____

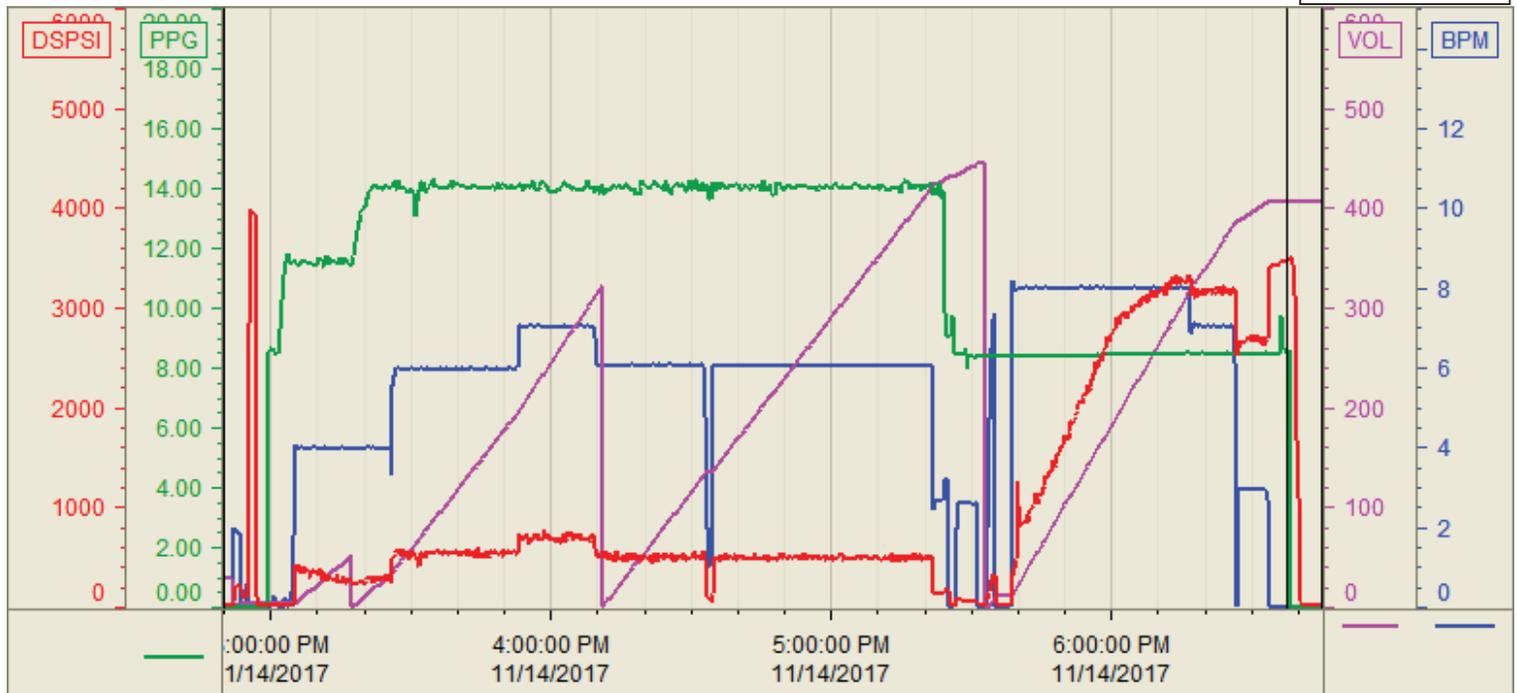


Seq No.	Start Date/Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	11/14/2017 5:00	Mobilization	Callout		1					
2	11/14/2017 8:48	Mobilization	Arrive on Location		48					Rig Running Casing
3	11/14/2017 9:00	Operational	Spot Units	Cement Pump Truck	49					
4	11/14/2017 9:10	Operational	Safety Meeting		53					STEACS with Crew
5	11/14/2017 9:15	Operational	Rig Up		50					
6	11/14/2017 10:15	Operational	Prime Up		52					
7	11/14/2017 10:30	StandBy	Other (See comment)		82					Waiting, Rig Running Casing
8	11/14/2017 13:40	Operational	Safety Meeting		53					STEACS with all Personnel
9	11/14/2017 14:40	Operational	Rig Up		50					Floor Rig Up
10	11/14/2017 15:00	Operational	Other (See comments)		76	8.34	2	2	90	Load Lines
11	11/14/2017 15:03	Operational	Pressure Test		54	8.34			4400	
12	11/14/2017 15:13	Operational	Pump Spacer		56	11.5	4	50		
13	11/14/2017 15:25	Operational	Pump Lead Cement	Cement Pump Truck	58	14	4	30	450	Batch, Weigh, and Pump 1175sks, Lead CMT (319 Bbls)
14	11/14/2017 15:47	Operational	Pump Lead Cement	Cement Pump Truck	58	13.9	6	55	660	2nd Weight Taken @ 85 bbls away
15	11/14/2017 15:53	Operational	Pump Lead Cement	Cement Pump Truck	58	14	7	115	700	3rd Weight Taken @ 200 bbls away
16	11/14/2017 16:07	Operational	Pump Lead Cement	Cement Pump Truck	58	14	7	100	720	4th Weight Taken @ 300 bbls away
17	11/14/2017 16:19	Operational	Pump Tail Cement	Cement Pump Truck	60	14	6	10	629	Weigh, and Pump 1778 sks of 14#, Tail CMT (421.8 Bbls)
18	11/14/2017 16:40	Operational	Pump Tail Cement	Cement Pump Truck	60	13.9	6	160	612	2nd Weight Taken @ 170 bbls away
19	11/14/2017 17:02	Operational	Pump Tail Cement	Cement Pump Truck	60	14	6	130	620	3rd Weight Taken @ 300 bbls away
20	11/14/2017 17:17	Operational	Pump Tail Cement	Cement Pump Truck	60	14	6	90	600	4th Weight Taken @ 390 bbls away
21	11/14/2017 17:33	Operational	Pump Tail Cement	Cement Pump Truck	60	14	5	30	480	Shut Down Pumping Operations @ 429 Bbls TOT @ 6521
22	11/14/2017 17:34	Operational	Clean Pumps and Lines	Cement Pump Truck	62					
23	11/14/2017 17:40	Operational	Drop Top Plug		63					Plug Verified
24	11/14/2017 17:41	Operational	Pump Displacement	Cement Pump Truck	64	8.34	6	5	990	
25	11/14/2017 17:58	Operational	Pump Displacement	Cement Pump Truck	64	8.34	8	95	1785	100 Bbls away
26	11/14/2017 18:12	Operational	Pump Displacement	Cement Pump Truck	64	8.34	8	100	3550	200 Bbls away
27	11/14/2017 18:26	Operational	Spacer Back to Surface	Cement Pump Truck	65	8.34	7	106	3150	306 Bbls away
28	11/14/2017 18:31	Operational	Cement Back to Surface	Cement Pump Truck	66	8.34	7	42	3120	348 bbls away
29	11/14/2017 18:42	Operational	Land Plug	Cement Pump Truck	67	8.34	3	43	3625	391 bbls away 43 Bbls CMT to Surface
30	11/14/2017 18:47	Operational	Check Floats	Cement Pump Truck	68	8.34				5 Bbls Back
31	11/14/2017 18:50	Operational	End Pumping		69					
32	11/14/2017 19:00	Operational	Rig Down		73					Rig Down Safety Meeting
33	11/14/2017 20:50	Mobilization	Leave Location		74					

Customer: GREAT WESTERN
 Well Number: 11-373HNX
 Lease Info: MARCUS LD



Print Date/Time
 11/14/2017 7:58:38 PM



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press(PSI)	3771	11/14/2017 6:37:47 PM	Cementer\DS_DISCHARGE_PRESS_DIAL
2	Recirc - Density (PPG)	8.47 i.	11/14/2017 6:37:44 PM i.	Cementer\DENSITY_ACTUAL_RATE
3	Down Hole Total (BBLs)	406.6 i.	11/14/2017 6:37:44 PM i.	Cementer\DOWNHOLE_FLOW_TOTAL
4	Combined rate (BPM)	0.00 i.	11/14/2017 6:37:44 PM i.	Cementer\Flow_Combined
5				

Source: Control1 7:58:32 PM