

# BJ Cementing Treatment Report

SERVICE SUPERVISOR	Chad Johnson	FORMATION	NIOBRARA
DISTRICT	Cheyenne, WY	RIG	True 33
SERVICE	Cementing	COUNTY	ADAMS
		STATE / PROVINCE	CO

## WELL GEOMETRY

TYPE	OD (in)	ID (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)
Open Hole	0.00	8.50	0.00	12,197.00	7,364.00	16.50
Casing	5.50	4.89	17.00	12,187.00	7,364.00	
Previous Casing	9.63	8.92	36.00	1,557.00	1,557.00	

## HARDWARE

Bottom Plug Used?	Yes	Centralizers Quantity	155.00
Bottom Plug Provided By	Non BJ	Centralizers Type	Rigid
Bottom Plug Size	5.500	Landing Collar Depth (ft)	12,101
Top Plug Used?	Yes	Pipe Movement	None
Top Plug Provided By	Non BJ	Job Pumped Through	Manifold
Top Plug Size	5.500	Top Connection Thread	BTC
Centralizers Used	Yes	Top Connection Size	5.5

## CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	PV Mud Out	13
Circulation Prior to Job	Yes	YP Mud In	10
Circulation Time (min)	180.00	YP Mud Out	10
Circulation Rate (bpm)	10.00	Solids Present at End of Circulation	No
Circulation Volume (bbls)	1800.00	10 sec SGS	5
Lost Circulation Prior to Cement Job	No	10 min SGS	12
Mud Density In (ppg)	10.20	30 min SGS	17
Mud Density Out (ppg)	10.20	Flare Prior to / during the Cement Job	No
PV Mud In	13	Gas Present	No

## TEMPERATURE

Ambient Temperature (°F)	35.00	Mix Water Temperature (°F)	60.00
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## FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H <sub>2</sub> O REQ (gals/sk)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	Fresh Water	8.3300					20.0000
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	12.0000					60.0000
Lead Slurry	BJCem P100.3.01C	12.5000	2.1565	12.22	835	1796.0000	319.8000
Tail Slurry	BJCem P50.6.02C	13.5000	1.7509	8.71	835	1467.0000	261.1000
Displacement 2	Retarded Water	8.3337			0	0.0000	20.0000
Displacement Final	Displacement Final (Water)	8.3308				0.0000	262.4000

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	SPACER SURFACTANT, SS-247	0.5000	GPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	RETARDER, R-31	0.5000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	RETARDER, R-7C	2.0000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	IntegraGuard GW-86	1.2000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	WEIGHTING ADDITIVE, W-11	243.6000	PPB
Lead Slurry	BJCem P100.3.01C	IntegraGuard GW-86	0.2000	BWOB
Lead Slurry	BJCem P100.3.01C	IntegraSeal POLI	0.1300	LBS/SK
Lead Slurry	BJCem P100.3.01C	EXTENDER, BENTONITE	4.0000	BWOB
Lead Slurry	BJCem P100.3.01C	FLUID LOSS, FL-24	0.3000	BWOB
Lead Slurry	BJCem P100.3.01C	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem P100.3.01C	FOAM PREVENTER, FP-25	0.3000	BWOB
Lead Slurry	BJCem P100.3.01C	BONDING AGENT, BA-60	0.4000	BWOB
Lead Slurry	BJCem P100.3.01C	RETARDER, SR-20	0.7000	BWOB
Tail Slurry	BJCem P50.6.02C	IntegraGuard GW-86	0.1000	BWOB
Tail Slurry	BJCem P50.6.02C	Flyash (Rockies)	50.0000	PCT
Tail Slurry	BJCem P50.6.02C	FLUID LOSS, FL-66	0.4000	BWOB
Tail Slurry	BJCem P50.6.02C	FOAM PREVENTER, FP-25	0.3000	BWOB
Tail Slurry	BJCem P50.6.02C	RETARDER, SR-20	0.1000	BWOB
Tail Slurry	BJCem P50.6.02C	SAND, S-8, Silica Flour, 200 Mesh	20.0000	BWOB
Tail Slurry	BJCem P50.6.02C	EXTENDER, BENTONITE	2.0000	BWOB
Tail Slurry	BJCem P50.6.02C	CEMENT, CLASS G	50.0000	PCT
Displacement 2	Retarded Water	RETARDER, R-8L	0.5000	GPB
Displacement 2	Retarded Water	BIOCIDE, BIOC11139W	0.0100	GPB
Displacement 2	Retarded Water	ResCare CS-2	0.0800	GPB
Displacement Final	Displacement Final (Water)	ResCare CS-2	0.0800	GPB
Displacement Final	Displacement Final (Water)	BIOCIDE, BIOC11139W	0.0100	GPB



## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ
Calculated Displacement Vol (bbls)	268.00
Actual Displacement Vol (bbls)	292.00
Did Float Hold?	Yes
Bump Plug	Yes
Bump Plug Pressure (psi)	1800.00
Were Returns Planned at Surface	Yes
Cement Returns During Job	Full

Amt of Cement Returned / Reversed	100.00
Method Used to Verify Returns	Visual
Amt of Spacer to Surface	60.00
Pressure Left on Casing (psi)	0.00
Amt Bled Back After Job	2.50
Total Volume Pumped (bbls)	1000.00
Top Out Cement Spotted	No
Lost Circulation During Cement Job	No

## CEMENT PLUG

Bottom of Cement Plug?	Yes
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Wiper Balls Used?	No
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# BJ Cementing Event Log

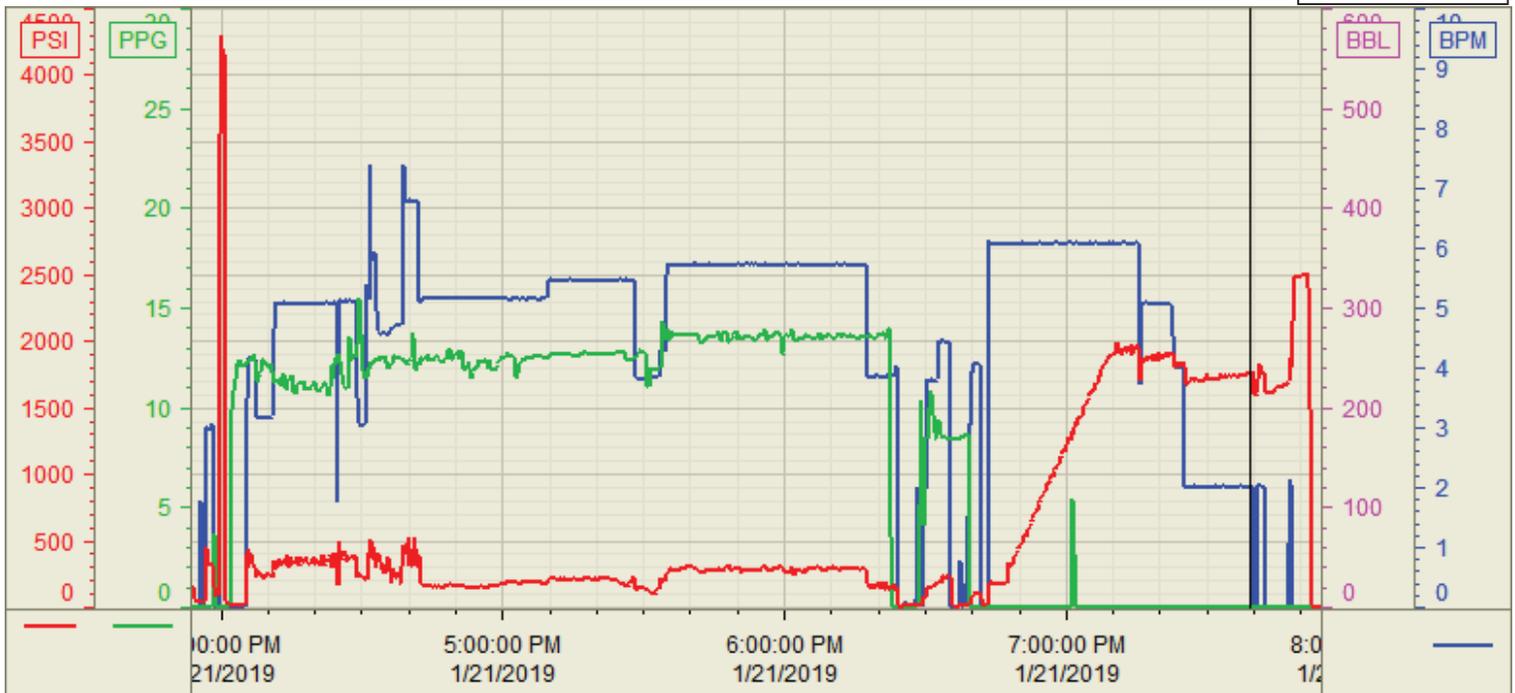
Long String - Cheyenne, WY - Chad Johnson

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	01/21/2019 05:30	Callout					Crew called out requested on location for 1200
2	01/21/2019 10:30	Arrive on Location					Crew arrived on location
3	01/21/2019 10:40	STEACS Briefing					Safety meeting
4	01/21/2019 11:00	Spot Units					Spotted all units
5	01/21/2019 11:05	Rig Up					Rigged up all equipment
6	01/21/2019 12:15	Client					Waiting on rig to finish circulating the well
7	01/21/2019 15:30	STEACS Briefing					Safety meeting
8	01/21/2019 15:57	Prime Up	8.3400	3.00	5.00	300.00	Fill lines with 5 bbls water
9	01/21/2019 16:00	Pressure Test					Pressure test lines to 4000 psi
10	01/21/2019 16:06	Pump Spacer	12.0000	5.00	60.00	350.00	Pump 20 bbls spacer at 12 ppg, 20 bbls at 11.5 ppg, 20 bbls at 11 ppg
11	01/21/2019 16:20	Pump Lead Cement	12.5000	6.00	321.00	400.00	Pump 321 bbls lead cement at 12.5 ppg (835 sks, 2.16Y, 12.22 gal/sk)
12	01/21/2019 17:35	Pump Tail Cement	13.5000	6.00	260.00	300.00	Pump 260 bbls tail cement at 13.5 ppg (835 sks, 1.75 Y, 8.71 gal/sk)
13	01/21/2019 18:23	Other (See comment)					Shutdown
14	01/21/2019 18:25	Wash Pumps and Lines					Wash pumps and lines to pit
15	01/21/2019 18:40	Drop Bottom Plug					Drop bottom plug
16	01/21/2019 18:40	Pump Displacement	8.3400	4.00	10.00	100.00	Pump 10 bbls water displacement
17	01/21/2019 18:44	Drop Top Plug					Drop top plug
18	01/21/2019 18:45	Pump Displacement	8.3400	8.00	250.00	1000.00	Pump 268 bbls displacement
19	01/21/2019 19:16	Cement Back-to-Surface					Cement back to surface at bbls away, bbls cement to surface
20	01/21/2019 19:27	Other (See comment)	8.3400	2.00	18.00	1500.00	Slow pump rate to 2 bpm at 250 bbls away
21	01/21/2019 19:50	Land Plug					Land top plug at 1800 psi took to 2400 psi,
22	01/21/2019 19:53	Check Floats					Check floats, floats holding, 2.5 bbls back
23	01/21/2019 20:50	Other (See comment)					Co man requested, to pressure back up to 3500 psi. Reached 2100 psi and psi bleed off to 1800 psi then he requested to pump 10 more bbls and shutdown, bleed pressure off and got 2.5 bbls back
24	01/21/2019 21:00	STEACS Briefing					Safety meeting
25	01/21/2019 21:15	Rig Down					Rigged down all equipment
26	01/21/2019 22:30	Leave Location					Crew departed location

Customer: Petro Operating  
 Well Number: #16  
 Lease Info: BFE West



Print Date/Time  
 1/21/2019 8:53:30 PM



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	1755.4	1/21/2019 7:39:08 PM	Cementer\DS_DISCHARGE_PRESS_DIAL
2	Recirc - Density (PPG)	0.01 i.	1/21/2019 7:39:09 PM i.	Cementer\DENSITY_ACTUAL_RATE
3	Combined Rate	2.01 i.	1/21/2019 7:39:09 PM i.	Cementer\Flow_Combined
4				
5				

Source: Control1 8:53:25 PM