

# BJ Cementing Treatment Report

SERVICE SUPERVISOR	Roger Acuna	FORMATION	NIOBRARA
CLIENT FIELD REPRESENTATIVE	Josh Klipsen	RIG	True 33
DISTRICT	Cheyenne, WY	COUNTY	WELD
SERVICE	Cementing	STATE / PROVINCE	CO

## WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)
Open Hole	8.50	0.00	0.00	15,567.00	6,952.00	0.00
Previous Casing	8.92	9.63	36.00	1,576.00	1,576.00	
Casing	4.78	5.50	20.00	15,551.00	6,952.00	

## HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	15,525.00
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	11080.00
Top Plug Size	5.500	Max Casing Pressure - Operated (psi)	3000.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	268.00	Job Pumped Through	Manifold
Centralizers Type	Rigid	Top Connection Thread	BTC
Landing Collar Depth (ft)	15,525	Top Connection Size	5.5

## CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	PV Mud Out	19
Circulation Prior to Job	Yes	YP Mud In	7
Circulation Time (min)	300.00	YP Mud Out	7
Circulation Rate (bpm)	8.00	Solids Present at End of Circulation	No
Circulation Volume (bbls)	2400.00	10 sec SGS	11
Lost Circulation Prior to Cement Job	No	10 min SGS	24
Mud Density In (ppg)	9.70	30 min SGS	31
Mud Density Out (ppg)	9.70	Flare Prior to / during the Cement Job	Yes
PV Mud In	19	Gas Present	Yes

Client Name: Petro Operating Company

Well: FLASCHENRIEM #1

Well API: 05-123-49813

Start Date: 5/5/2019

End Date: 5/5/2019



## TEMPERATURE

Ambient Temperature (°F)	50.00	Slurry Cement Temperature (°F)	55.00
Mix Water Temperature (°F)	55.00	Flow Line Temperature (°F)	115.00

## FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H <sub>2</sub> O REQ (gals/sk)	PLN TOP FLD (ft)	LENGTH (ft)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	12.0000			0.00				26.0000
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	11.5000			0.00				28.0000
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	11.0000			0.00				26.0000
Lead Slurry	BJCem P100.3.01C	12.5000	2.1556	12.22	0.00	7,870.00	865	1866.0000	332.3000
Tail Slurry	BJCem P50.6.02C	13.5000	1.7507	8.71	7,870.00	7,683.00	1005	1766.0000	314.4000
Displacement 2	Retarded Water	8.3337			13,244.00	0.00	0	0.0000	10.0000
Displacement Final	Displacement Final (Water)	8.3308			0.00			0.0000	335.0000

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FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	IntegraGuard GW-86	1.2000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	SPACER SURFACTANT, SS-267	1.0000	GPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	RETARDER, R-7C	2.0000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	RETARDER, R-31	0.5000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	WEIGHTING ADDITIVE, W-11	243.3100	PPB
Lead Slurry	BJCem P100.3.01C	FLUID LOSS, FL-24	0.3000	BWOB
Lead Slurry	BJCem P100.3.01C	FOAM PREVENTER, FP-25	0.3000	BWOB
Lead Slurry	BJCem P100.3.01C	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem P100.3.01C	IntegraGuard GW-86	0.2000	BWOB
Lead Slurry	BJCem P100.3.01C	BONDING AGENT, BA-60	0.4000	BWOB
Lead Slurry	BJCem P100.3.01C	EXTENDER, BENTONITE	4.0000	BWOB
Lead Slurry	BJCem P100.3.01C	IntegraSeal POLI	0.1300	LBS/SK
Lead Slurry	BJCem P100.3.01C	RETARDER, SR-20	0.6000	BWOB
Tail Slurry	BJCem P50.6.02C	SAND, S-8, Silica Flour, 200 Mesh	20.0000	BWOB
Tail Slurry	BJCem P50.6.02C	IntegraGuard GW-86	0.1000	BWOB
Tail Slurry	BJCem P50.6.02C	CEMENT, CLASS G	50.0000	PCT
Tail Slurry	BJCem P50.6.02C	Flyash (Rockies)	50.0000	PCT
Tail Slurry	BJCem P50.6.02C	RETARDER, SR-20	0.0700	BWOB
Tail Slurry	BJCem P50.6.02C	FOAM PREVENTER, FP-25	0.3000	BWOB
Tail Slurry	BJCem P50.6.02C	FLUID LOSS, FL-66	0.4000	BWOB
Tail Slurry	BJCem P50.6.02C	EXTENDER, BENTONITE	2.0000	BWOB
Displacement 2	Retarded Water	ResCare CS-2	0.0800	GPB
Displacement 2	Retarded Water	BIOCIDE, BIOC11139W	0.0100	GPB
Displacement 2	Retarded Water	RETARDER, SR-61L	0.1000	GPB
Displacement Final	Displacement Final (Water)	ResCare CS-2	0.0800	GPB
Displacement Final	Displacement Final (Water)	BIOCIDE, BIOC11139W	0.0100	GPB

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## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	345.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	333.50	Amt of Spacer to Surface	43.50
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	4.00
Bump Plug Pressure (psi)	3000.00	Total Volume Pumped (bbls)	1063.50
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement Returns During Job	Full	Lost Circulation During Cement Job	No

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# BJ Cementing Event Log

Long String - Cheyenne, WY - Roger Acuna

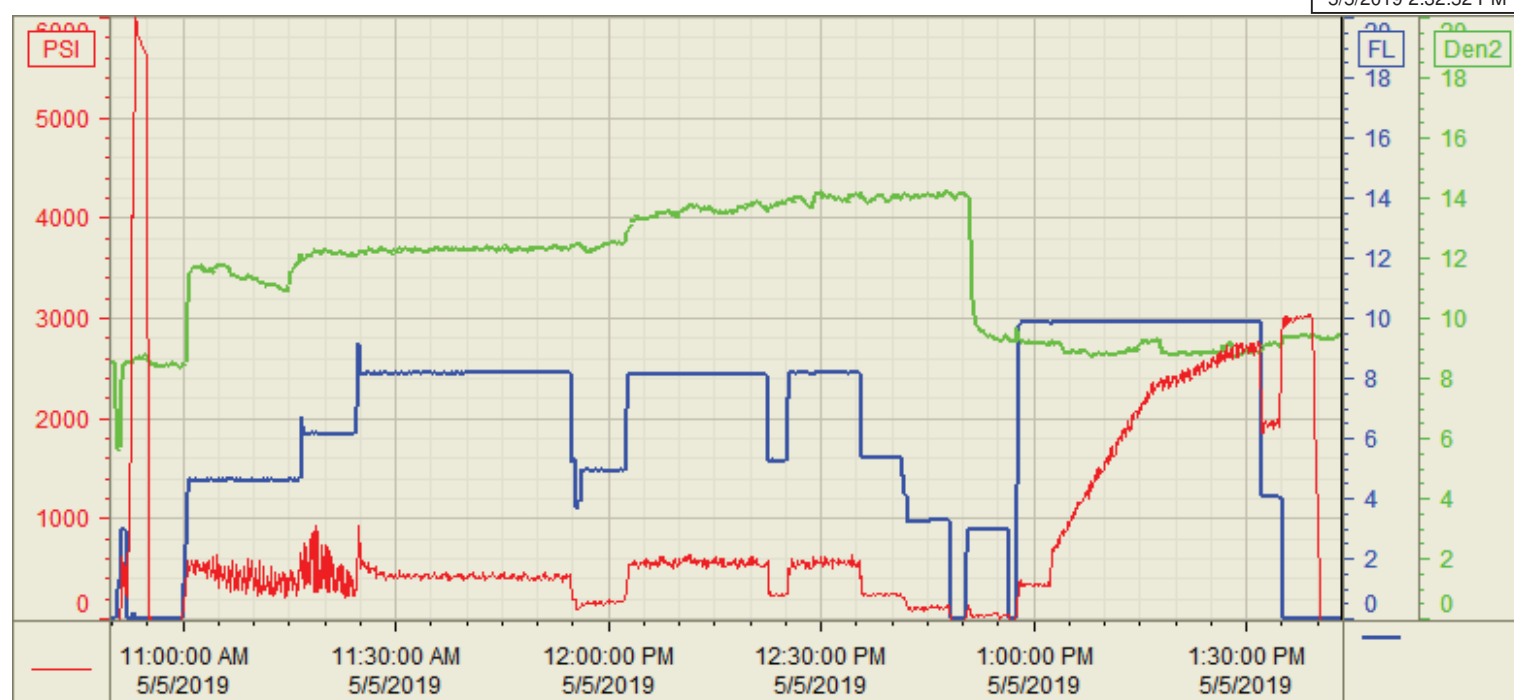
SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	05/05/2019 00:00	Callout					CALLED OUT RTS 0500
2	05/05/2019 01:30	Depart for Location					DEPART CHEYENNE WY CAMP
3	05/05/2019 02:45	Arrive on Location					ARRIVE TO LOCATION, CHECK IN WITH COMPANY MAN
4	05/05/2019 03:00	STEACS Briefing					STEACS RIG UP
5	05/05/2019 03:15	Rig Up					RIG UP IRON AND HOSES
6	05/05/2019 04:15	Rig					WAITING ON RIG TO RIH W/CASING AND CIRCULATE
7	05/05/2019 10:30	STEACS Briefing					PRE JOB SAFETY MEETING TO DISCUSS JOB PROCEDURES
8	05/05/2019 10:50	Pump Spacer	8.4000	3.00	3.00	250.00	FILL LINES 3BBLS FRESH WATER
9	05/05/2019 10:51	Pressure Test				5000.00	PRESSURE TEST LINES
10	05/05/2019 11:00	Pump Spacer	12.0000	4.50	26.00	400.00	PUMP 26BBLS INTEGRAGUARD SPACER W/SURFACTANTS @ 12PPG
11	05/05/2019 11:05	Pump Spacer	11.5000	4.50	28.00	400.00	PUMP 28BBLS INTEGRAGUARD SPACER W/SURFACTANTS @ 11.5PPG
12	05/05/2019 11:10	Pump Spacer	11.0000	4.50	26.00	400.00	PUMP 26BBLS INTEGRAGUARD SPACER W/SURFACTANTS @ 11PPG
13	05/05/2019 11:15	Pump Lead Cement	12.5000	8.00	332.00	600.00	PUMP 332BBLS BJCEM P100.3.01C @ 12.5PPG (865SKS 2.16YLD 12.22GPS) CALCULATED TOP 700'
14	05/05/2019 12:03	Pump Tail Cement	13.5000	8.00	315.00	800.00	PUMP 315BBLS BJCEM P50.6.02C @ 13.5PPG (1005SKS 1.75YLD 8.71GPS) CALCULATED TOP 7830'
15	05/05/2019 12:48	End Pumping					SHUTDOWN
16	05/05/2019 12:50	Wash Pumps and Lines					WASH PUMPS AND LINES TO THE PIT
17	05/05/2019 12:56	Drop Top Plug					DROP TOP PLUG
18	05/05/2019 12:57	Pump Displacement	8.4000	10.00	325.00	2800.00	PUMP 333.5BBLS FRESH WATER W/ RESCARE AND BIOCID
19	05/05/2019 13:28	Spacer Back-to-Surface					SPACER TO SURFACE @ 290BBLS INTO DISPLACEMENT
20	05/05/2019 13:32	Pump Displacement	8.4000	4.00	13.50	2000.00	SLOW RATE TO LAND PLUG

21	05/05/2019 13:35	Land Plug				3000.00	LAND PLUG 1000PSI OVER FINAL CIRCULATING PRESSURE
22	05/05/2019 13:38	Check Floats					CHECK FLOATS, FLOATS HELD GETTING 4BBLs BACK TO THE PUMP
23	05/05/2019 13:40	End Pumping					END JOB
24	05/05/2019 13:45	STEACS Briefing					STEACS RIG DOWN
25	05/05/2019 14:00	Rig Down					RIG DOWN IRON AND HOSES
26	05/05/2019 15:00	Leave Location					DEPART LOCATION

Customer: Petro  
Well Number: #1  
Lease Info: Flaschenriem



Print Date/Time  
5/5/2019 2:32:52 PM



	Name	Y value	X value/time stamp	Tag name Y
1	PS - Press (PSI)	-26.0	5/5/2019 1:43:18 PM	Cementer\PS_DISCHARGE_PRESS_DIAL
2	DH Density (PPG)	9	5/5/2019 1:43:18 PM	Cementer\DENSITY2_ACTUAL_RATE
3	Combined pump rate	0.00	5/5/2019 1:43:18 PM	Cementer\Flow_Combined
4				
5				

Source: Control1 2:32:53 PM