

BJ Cementing Treatment Report

SERVICE SUPERVISOR	Scott Beal JR	FORMATION	NIOBRARA
CLIENT FIELD REPRESENTATIVE	Petro	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 (%)
Casing	4.78	5.50	20.00	15,641.00	7,116.00	
Open Hole	8.50	0.00	0.00	15,655.00	7,116.00	0.00
Previous Casing	8.92	9.63	36.00	1,569.00	1,569.00	

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	15,643.00
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	12640.00
Top Plug Size	5.500	Max Casing Pressure - Operated (psi)	3000.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	248.00	Job Pumped Through	Manifold
Centralizers Type	Rigid	Top Connection Thread	BTC
Landing Collar Depth (ft)	15,643	Top Connection Size	5.5

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	YP Mud In	7
Circulation Prior to Job	Yes	Solids Present at End of Circulation	No
Circulation Time (min)	120.00	10 sec SGS	7
Circulation Rate (bpm)	12.00	10 min SGS	16
Circulation Volume (bbls)	1440.00	30 min SGS	19
Lost Circulation Prior to Cement Job	No	Flare Prior to / during the Cement Job	No
Mud Density In (ppg)	9.70	Gas Present	No
PV Mud In	20		

Client Name: Petro Operating Company

Well: FLASCHENRIEM #3

Well API: 05-123-49819

Start Date: 5/16/2019

End Date: 5/16/2019



TEMPERATURE

Ambient Temperature (°F)	80.00
Mix Water Temperature (°F)	75.00

Slurry Cement Temperature (°F)	80.00
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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	IntegraGuard EZ Spacer II	12.0000			0.00				28.0000
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	11.5000			0.00				26.0000
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	7,650.00	845	1816.0000	323.3000
Tail Slurry	BJCem P50.6.02C	13.5000	1.7507	8.71	7,650.00	7,987.00	1045	1835.0000	326.8000
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	335.9000

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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	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	SPACER SURFACTANT, SS-267	1.0000	GPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	WEIGHTING ADDITIVE, W-11	243.3100	PPB
Lead Slurry	BJCem P100.3.01C	BONDING AGENT, BA-60	0.4000	BWOB
Lead Slurry	BJCem P100.3.01C	RETARDER, SR-20	0.6000	BWOB
Lead Slurry	BJCem P100.3.01C	IntegraSeal POLI	0.1300	LBS/SK
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	FLUID LOSS, FL-24	0.3000	BWOB
Lead Slurry	BJCem P100.3.01C	EXTENDER, BENTONITE	4.0000	BWOB
Tail Slurry	BJCem P50.6.02C	IntegraGuard GW-86	0.1000	BWOB
Tail Slurry	BJCem P50.6.02C	EXTENDER, BENTONITE	2.0000	BWOB
Tail Slurry	BJCem P50.6.02C	CEMENT, CLASS G	50.0000	PCT
Tail Slurry	BJCem P50.6.02C	FOAM PREVENTER, FP-25	0.3000	BWOB
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	SAND, S-8, Silica Flour, 200 Mesh	20.0000	BWOB
Tail Slurry	BJCem P50.6.02C	FLUID LOSS, FL-66	0.4000	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)	347.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	345.00	Amt of Spacer to Surface	65.00
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)	1080.00
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 - Scott Beal JR

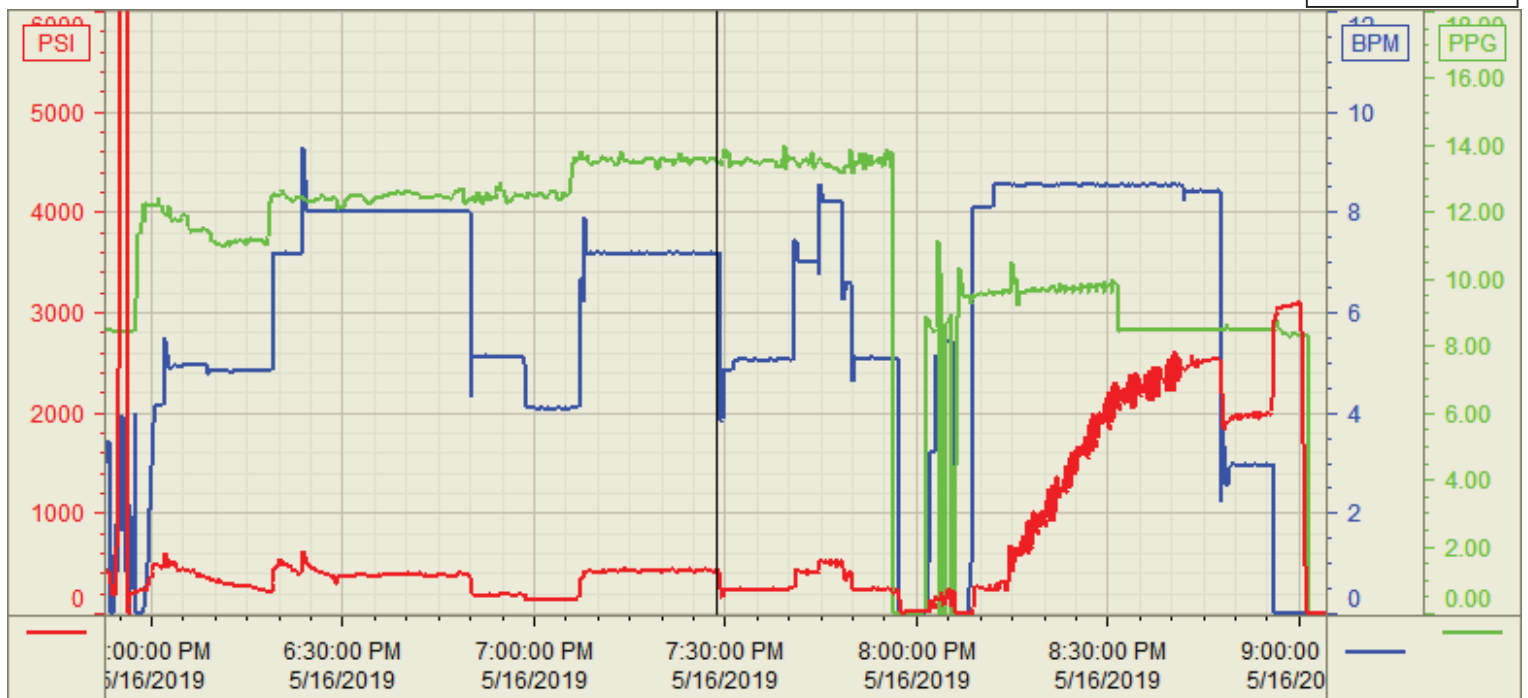
SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	05/16/2019 10:30	Callout					BJ crew gets called out for Petro production
2	05/16/2019 11:30	STEACS Briefing					BJ crew discuss driving to location
3	05/16/2019 12:00	Depart for Location					Left for location
4	05/16/2019 15:00	Arrive on Location					Arrived on location
5	05/16/2019 15:30	STEACS Briefing					BJ crew discuss how to rig and spot in equipment
6	05/16/2019 15:40	Rig Up					Rigged up all equipment
7	05/16/2019 16:15	Client					Waited on rig to Circulate
8	05/16/2019 17:15	STEACS Briefing					BJ crew and rig crew discuss job and safety procedure
9	05/16/2019 17:56	Prime Up	8.3300	3.00	5.00	50.00	Filled pumps and lines 5 bbls fresh water
10	05/16/2019 17:58	Pressure Test				6000.00	Pressure test to 6000psi
11	05/16/2019 18:03	Pump Spacer	12.0000	5.00	28.00	500.00	Pumped 28 bbls of spacer at 12 ppg
12	05/16/2019 18:09	Pump Spacer	11.5000	5.00	26.00	500.00	Pumped 26 bbls of spacer at 11.5 ppg
13	05/16/2019 18:15	Pump Spacer	11.0000	5.00	26.00	500.00	Pumped 26 bbls of spacer at 11 ppg
14	05/16/2019 18:24	Pump Lead Cement	12.5000	7.00	324.00	750.00	Pumped 324 bbls of lead cement at 12.5ppg (845sks, 2.15y, 12.22 wr)
15	05/16/2019 19:11	Pump Tail Cement	13.5000	7.00	326.00	500.00	Pumped 326 bbls of tail cement at 13.5 ppg (1045sks, 1.75y, 8.71wr)
16	05/16/2019 20:01	Drop Top Plug					Client witnessed plug leave head
17	05/16/2019 20:11	Pump Displacement	8.3300	8.00	325.00	2200.00	Pumped 325 bbls of displacement
18	05/16/2019 20:52	Other (See comment)	8.3300	3.00	20.00		Slowed last 20 bbls to 3bpm
19	05/16/2019 21:00	Land Plug					Landed plug final circulating psi was 2000, took to 3000 psi, got 65 bbls of spacer back
20	05/16/2019 21:00	Check Floats					Checked floats got 4 bbls back
21	05/16/2019 21:03	STEACS Briefing					BJ crew discuss rigging down
22	05/16/2019 21:10	Rig Down					Rigged down all equipment
23	05/16/2019 22:00	Leave Location					Left location

Customer: Petro Operating
Well Number: 3
Lease Info: Flaschenriem



Print Date/Time

5/16/2019 9:17:08 PM



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	431.6 i.	5/16/2019 7:28:35 PM i.	CementerDS_DISCHARGE_PRESS_DIAL
2	Recirc - Density (PPG)	13.61	5/16/2019 7:28:39 PM	CementerDENSITY_ACTUAL_RATE
3	Combined Rate	7.18 i.	5/16/2019 7:28:35 PM i.	CementerFlow_Combined
4				
5				

Source: Control1 9:17:04 PM