

BJ Cementing Treatment Report

SERVICE SUPERVISOR	Hector Montoya	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	15,235.00	6,970.00	
Open Hole	8.50	0.00	0.00	15,247.00	6,970.00	0.00
Previous Casing	8.92	9.63	36.00	1,569.00	1,569.00	

HARDWARE

Bottom Plug Used?	No	Centralizers Type	Bow
Top Plug Used?	Yes	Landing Collar Depth (ft)	15,209
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	12640.00
Top Plug Size	5.500	Max Casing Pressure - Operated (psi)	2900.00
Centralizers Used	Yes	Job Pumped Through	Choke Manifold
Centralizers Quantity	240.00	Top Connection Size	5.5

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	PV Mud Out	20
Circulation Prior to Job	Yes	YP Mud In	6
Circulation Time (min)	120.00	YP Mud Out	6
Circulation Rate (bpm)	8.00	Solids Present at End of Circulation	No
Circulation Volume (bbls)	960.00	10 sec SGS	5
Lost Circulation Prior to Cement Job	No	10 min SGS	5
Mud Density In (ppg)	9.60	30 min SGS	6
Mud Density Out (ppg)	9.60	Flare Prior to / during the Cement Job	No
PV Mud In	20	Gas Present	No

TEMPERATURE

Ambient Temperature (°F)	50.00	Slurry Cement Temperature (°F)	55.00
Mix Water Temperature (°F)	50.00	Flow Line Temperature (°F)	120.00

Client Name: Petro Operating Company

Well: FLASCHENRIEM #5

Well API: 05-123-49815

Start Date: 4/23/2019

End Date: 4/23/2019



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				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	7,423.00	820	1764.0000	314.0000
Tail Slurry	BJCem P50.6.02C	13.5000	1.7507	8.71	7,423.00	7,820.00	1025	1797.0000	320.0000
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	327.2000

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FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	SPACER SURFACTANT, SS-267	1.0000	GPB
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	243.3100	PPB
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
Lead Slurry	BJCem P100.3.01C	FLUID LOSS, FL-24	0.3000	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
Lead Slurry	BJCem P100.3.01C	EXTENDER, BENTONITE	4.0000	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	IntegraGuard GW-86	0.2000	BWOB
Lead Slurry	BJCem P100.3.01C	BONDING AGENT, BA-60	0.4000	BWOB
Tail Slurry	BJCem P50.6.02C	FOAM PREVENTER, FP-25	0.3000	BWOB
Tail Slurry	BJCem P50.6.02C	EXTENDER, BENTONITE	2.0000	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	FLUID LOSS, FL-66	0.4000	BWOB
Tail Slurry	BJCem P50.6.02C	IntegraGuard GW-86	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	CEMENT, CLASS G	50.0000	PCT
Displacement 2	Retarded Water	BIOCIDE, BIOC11139W	0.0100	GPB
Displacement 2	Retarded Water	RETARDER, SR-61L	0.1000	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

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DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ
Calculated Displacement Vol (bbls)	337.00
Actual Displacement Vol (bbls)	337.00
Did Float Hold?	Yes
Bump Plug	Yes
Bump Plug Pressure (psi)	2900.00
Were Returns Planned at Surface	Yes
Cement Returns During Job	Full

Amt of Cement Returned / Reversed	35.00
Method Used to Verify Returns	Visual
Amt of Spacer to Surface	80.00
Pressure Left on Casing (psi)	0.00
Amt Bled Back After Job	2.50
Total Volume Pumped (bbls)	1051.00
Top Out Cement Spotted	No
Lost Circulation During Cement Job	No

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BJ Cementing Event Log

Long String - Cheyenne, WY - Hector Montoya

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	04/23/2019 02:30	Callout					BJ Crew gets called out
2	04/23/2019 03:30	Other (See comment)					Load up for the job
3	04/23/2019 05:00	STEACS Briefing					BJ Crew talks about the hazards of driving to location
4	04/23/2019 05:10	Arrive on Location					BJ Crew safely arrives on location
5	04/23/2019 06:30	STEACS Briefing					BJ Crew talks about the hazards of rigging up
6	04/23/2019 06:45	Rig Up					Rig Up
7	04/23/2019 09:30	STEACS Briefing					BJ Crew and rig crew talk about the hazards of pumping the job
8	04/23/2019 10:05	Prime Up					Fill lines
9	04/23/2019 10:10	Pressure Test					Pressure test to 3000psi
10	04/23/2019 10:18	Pump Spacer	12.0000	4.00	26.00	600.00	Pump 26bbl at 12ppg
11	04/23/2019 10:26	Pump Spacer	11.5000	4.00	28.00	500.00	Pump 28bbl at 11.5ppg
12	04/23/2019 10:36	Pump Spacer	11.0000	4.00	26.00	400.00	Pump 26bbl at 11ppg
13	04/23/2019 10:44	Pump Lead Cement	12.5000	6.50	314.00	500.00	Pump 314bbl Lead at 12.5ppg, 820sks BJcem P100.3.01C, yield 2.156, gps- 12.22, mix water 238bbl
14	04/23/2019 11:36	Pump Tail Cement	13.5000	6.00	320.00	320.00	Pump 320bbl Tail at 13.5ppg, 1025sks BJcem P50.6.02C, yield 1.75, gps- 8.71, 212bbl mis water
15	04/23/2019 12:32	Wash Pumps and Lines					Clean pumps and lines to the pit
16	04/23/2019 12:41	Drop Top Plug					Customer witnesses plug go
17	04/23/2019 12:43	Pump Displacement	8.3300	8.00	317.00	2800.00	Pump TOTAL 337bbl displacement, first 10bbl with Retarder, Biocide and ResCare throughout displacement
18	04/23/2019 13:24	Pump Displacement	8.3300	3.00	20.00	1800.00	Slow rate to 3bpm last 20bbl to land plug

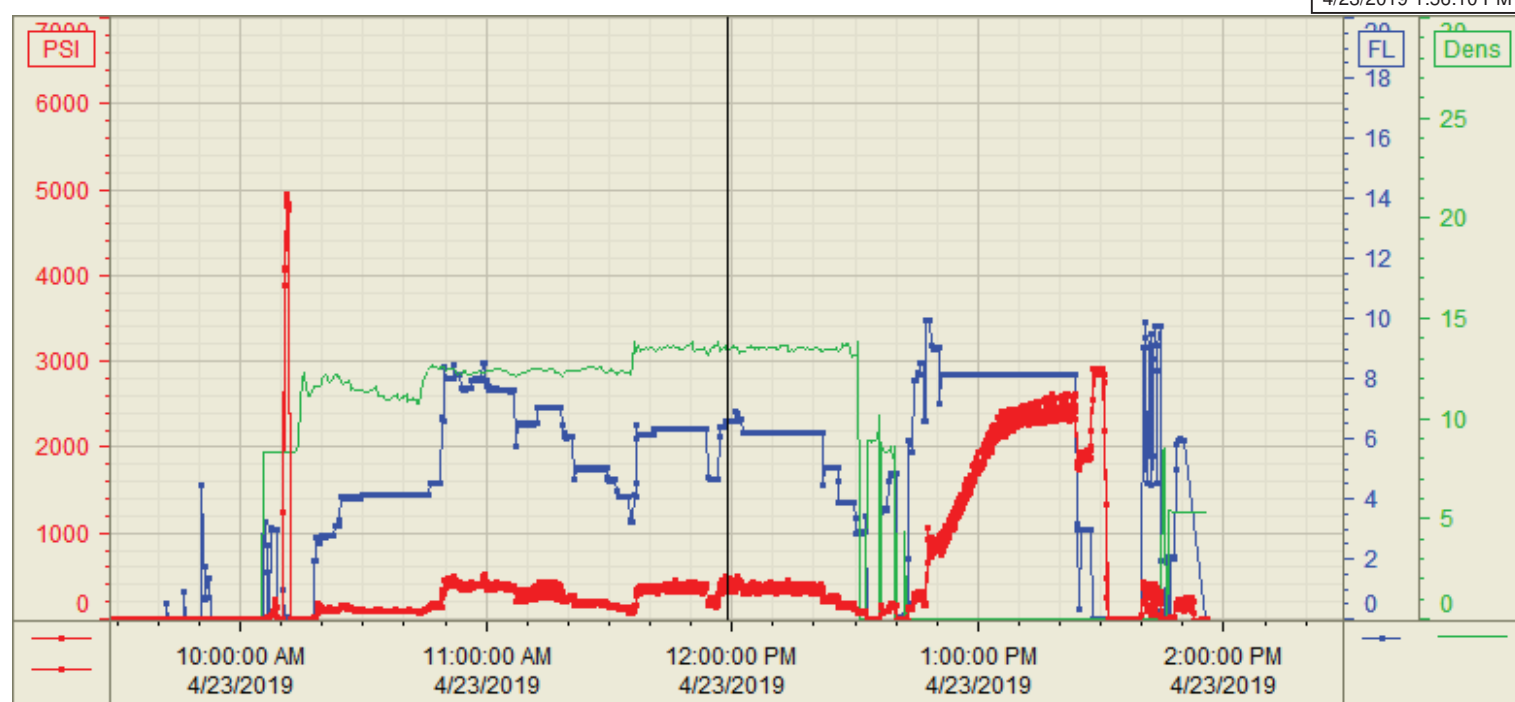
19	04/23/2019 13:28	Land Plug				2900.00	Land Plug, Final circulating pressure was 1900psi took to 2900psi
20	04/23/2019 13:33	Check Floats					Floats held, 2.5bbl back. 35bbl of cement to surface
21	04/23/2019 13:35	STEACS Briefing					BJ Crew talks about the hazards of rigging down
22	04/23/2019 13:45	Rig Down					Rig Down
23	04/23/2019 15:00	STEACS Briefing					BJ Crew talks about the hazards of leaving location
24	04/23/2019 15:30	Leave Location					Depart location

Customer: Petro Operating
Well Number: 5
Lease Info: Flaschenriem



Print Date/Time

4/23/2019 1:56:10 PM



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	394.1	4/23/2019 11:58:52 AM	CementerDS_DISCHARGE_PRESS_DIAL
2	PS - Press (PSI)	439.5	4/23/2019 11:58:44 AM	CementerPS_DISCHARGE_PRESS_DIAL
3	Den - Density (PPG)	13.51	4/23/2019 11:58:42 AM	CementerDENSITY_ACTUAL_RATE
4	Pump Rate	6.56	4/23/2019 11:58:44 AM	CementerFlow_Combined
5				

Source: Control1 1:56:11 PM