

BJ Cementing Treatment Report

SERVICE SUPERVISOR	Roger Acuna	RIG	True 33
CLIENT FIELD REPRESENTATIVE	Arvid Mosnes	COUNTY	ADAMS
DISTRICT	Cheyenne, WY	STATE / PROVINCE	CO
SERVICE	Cementing		

WELL GEOMETRY

TYPE	OD (in)	ID (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)
Open Hole	0.00	13.50	0.00	1,558.00	1,558.00	30.00
Casing	9.63	8.92	36.00	1,545.00	1,545.00	

HARDWARE

Top Plug Used?	Yes	Tool Type	Float Collar
Top Plug Provided By	Non BJ	Tool Depth (ft)	1,503.00
Top Plug Size	9.625	Max Casing Pressure - Rated (psi)	2020.00
Centralizers Used	Yes	Max Casing Pressure - Operated (psi)	1150.00
Centralizers Quantity	16.00	Pipe Movement	None
Centralizers Type	Bow	Job Pumped Through	Manifold
Landing Collar Depth (ft)	1,503	Top Connection Thread	LTC
		Top Connection Size	9.625

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	PV Mud Out	2.3
Circulation Prior to Job	Yes	YP Mud In	1
Circulation Time (min)	30.00	YP Mud Out	1
Circulation Rate (bpm)	8.00	Solids Present at End of Circulation	No
Circulation Volume (bbls)	240.00	10 sec SGS	1
Lost Circulation Prior to Cement Job	No	10 min SGS	1
Mud Density In (ppg)	8.40	30 min SGS	1
Mud Density Out (ppg)	8.40	Flare Prior to / during the Cement Job	No
PV Mud In	2.3	Gas Present	No

TEMPERATURE

Ambient Temperature (°F)	25.00	Slurry Cement Temperature (°F)	50.00
Mix Water Temperature (°F)	50.00		

FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H ₂ O REQ (gals/sk)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	Water	8.3337					20.0000
Lead Slurry	BJCem S100.03.1C	12.0000	2.5298	14.86	250	635.0000	124.0000
Lead Slurry	BJCem S100.03.1C	13.0000	1.9869	10.80	170	336.0000	59.8000
Displacement Final	Water	8.3300				0.0000	116.2000

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	Water	Fresh Water	100.0000	PCT
Lead Slurry	BJCem S100.03.1C	IntegraSeal POLI	0.1300	LBS/SK
Lead Slurry	BJCem S100.03.1C	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem S100.03.1C	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Lead Slurry	BJCem S100.03.1C	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Lead Slurry	BJCem S100.03.1C	FOAM PREVENTER, FP-25	0.3000	BWOB
Lead Slurry	BJCem S100.03.1C	Cement Additive, Sodium Metasilicate A-2	2.0000	LBS/SK
Lead Slurry	BJCem S100.03.1C	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem S100.03.1C	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Lead Slurry	BJCem S100.03.1C	FOAM PREVENTER, FP-25	0.3000	BWOB
Lead Slurry	BJCem S100.03.1C	IntegraSeal POLI	0.1300	LBS/SK
Lead Slurry	BJCem S100.03.1C	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Lead Slurry	BJCem S100.03.1C	Cement Additive, Sodium Metasilicate A-2	2.0000	LBS/SK
Displacement Final	Water	Fresh Water	100.0000	PCT

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	26.00
Calculated Displacement Vol (bbls)	116.20	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	116.20	Amt of Spacer to Surface	20.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	1.00
Bump Plug Pressure (psi)	1150.00	Total Volume Pumped (bbls)	309.20
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement Returns During Job	Full	Lost Circulation During Cement Job	No

BJ Cementing Event Log

Surface - Cheyenne, WY - Roger Acuna

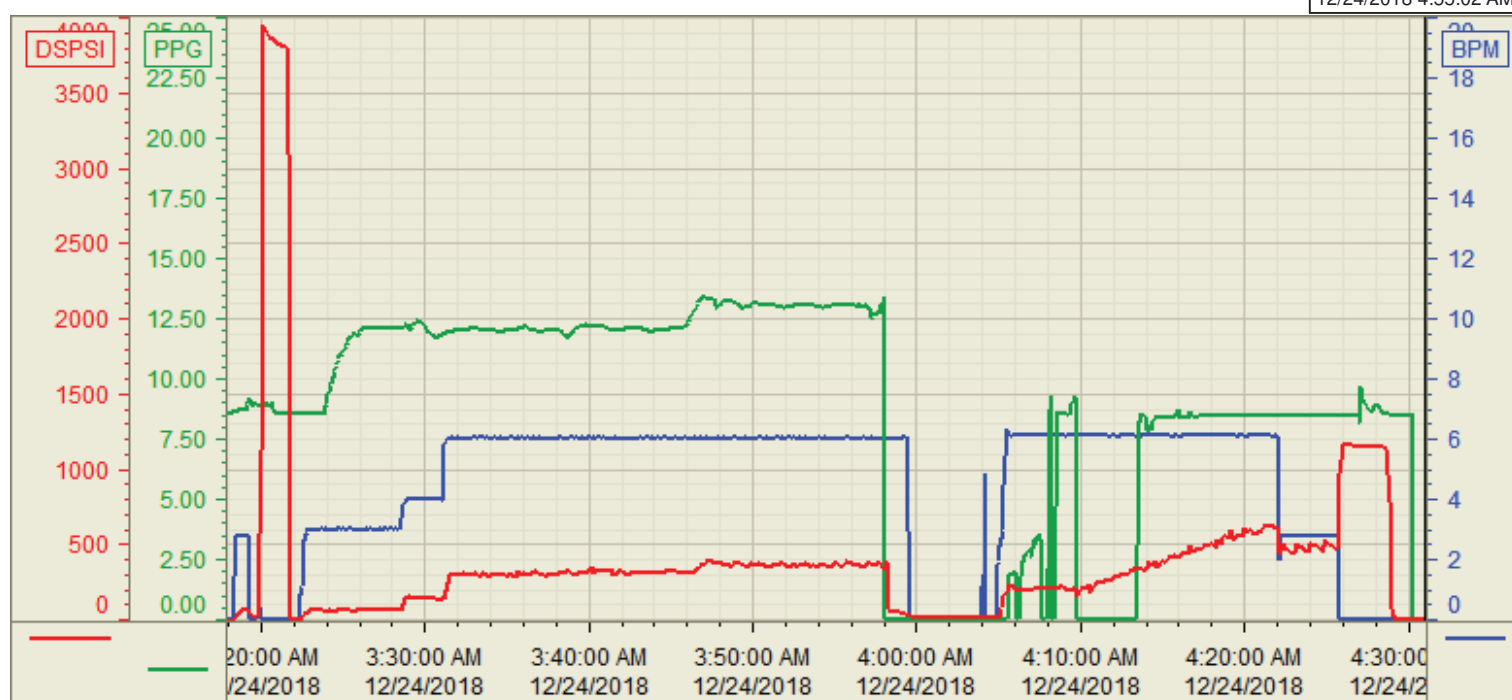
SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	12/23/2018 18:00	Callout					CALLED OUT RTS 0000
2	12/23/2018 21:00	Depart for Location					DEPART KERSEY CO
3	12/23/2018 22:00	Arrive on Location					ARRIVE TO LOCATION, CHECK IN WITH COMPANY MAN
4	12/23/2018 22:00	Rig					WAITING ON RIG TO POOH DRILL PIPE, RIH W/CASING
5	12/24/2018 01:00	STEACS Briefing					STEACS RIG UP
6	12/24/2018 01:15	Rig Up					RIG UP IRON AND HOSES
7	12/24/2018 01:45	Client	8.4000	8.00	240.00	150.00	WAITING ON RIG TO CIRCULATE WELL
8	12/24/2018 03:00	STEACS Briefing					PRE-JOB SAFETY MEETING TO DISCUSS JOB PROCEDURES
9	12/24/2018 03:21	Pump Spacer	8.3300	3.00	3.00	60.00	PUMP 3BBLS DYE WATER TO FILL LINES
10	12/24/2018 03:22	Pressure Test				3600.00	TEST LINES
11	12/24/2018 03:25	Pump Spacer	8.3300	3.00	17.00	60.00	PUMP 17BBLS FRESH WATER
12	12/24/2018 03:31	Pump Lead Cement	12.0000	6.00	124.00	300.00	PUMP 113BBLS BJCEM S100.03.1C @ 12PPG (275SKS 2.53YLD 14.86GPS) CALCULATED TO SURFACE
13	12/24/2018 03:49	Pump Tail Cement	13.0000	6.00	60.00	300.00	PUMP 60BBLS BJCEM S100.03.1C @ 13PPG (170SKS 1.99YLD 10.80GPS) CALCULATED TOP 890'
14	12/24/2018 04:02	End Pumping					SHUTDOWN
15	12/24/2018 04:03	Drop Top Plug					DROP TOP PLUG
16	12/24/2018 04:06	Pump Displacement	8.3300	6.00	100.00	600.00	PUMP FRESH WATER DISPLACEMENT
17	12/24/2018 04:23	Cement Back-to-Surface					CEMENT TO SURFACE 90BBLS INTO DISPLACEMENT
18	12/24/2018 04:25	Pump Displacement	8.3300	2.00	16.20	650.00	PUMP FRESH WATER DISPLACEMENT
19	12/24/2018 04:28	Land Plug				1150.00	LAND PLUG 500PSI OVER FINAL CIRCULATING PRESSURE
20	12/24/2018 04:31	Check Floats					CHECK FLOATS, FLOATS HELD GETTING 1BBLS BACK TO THE PUMP
21	12/24/2018 04:32	End Pumping					END JOB
22	12/24/2018 04:32	STEACS Briefing					STEACS RIG DOWN
23	12/24/2018 04:45	Rig Down					RIG DOWN IRON AND HOSES
24	12/24/2018 05:15	Leave Location					DEPART LOCATION

Customer: PETRO OPERATING
Well Number: 19
Lease Info: BEF WEST



Print Date/Time

12/24/2018 4:55:02 AM



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press(PSI)	0.2	12/24/2018 4:31:00 AM	Cementer\DS_DISCHARGE_PRESS_DIAL
2	Recirc - Density (PPG)	0.01 i.	12/24/2018 4:31:00 AM i.	Cementer\DENSITY_ACTUAL_RATE
3	Combined rate (BPM)	0.00 i.	12/24/2018 4:31:00 AM i.	Cementer\Flow_Combined
4				
5				

Source: Control1 4:54:57 AM