

# Cementing Treatment



**Start Date** 11-13-2017 **Well** Ward T-20-19HC  
**End Date** 11-13-2017 **County** WELD  
**Client** BAYSWATER EXPLORATION & PRODUCTION, LLC **State/Province** CO  
**Service Supervisor** Andrew Hyde **API** 05-123-43656  
**District** Cheyenne, WY **Type of Job** Long String

## WELL GEOMETRY

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Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)
Previous Casing	8.92	9.63	36.00	1,549.00	1,549.00	
Open Hole	8.50			17,838.00	7,092.00	5.00
Casing	4.78	5.50	20.00	10,205.00	7,092.00	

**Shoe Length (ft):** 29

## HARDWARE

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**Bottom Plug Used?** No **Max Casing Pressure - Rated (psi)** 8440 psi  
**Bottom Plug Size** 5.5 **Pipe Movement** No  
**Top Plug Used?** yes **Job Pumped Through** 5.5 cement head  
**Top Plug Provided By** Customer **Top Connection Thread** BTC  
**Top Plug Size** 5.5 **Top Connection Size** 5.5  
**Centralizers Used** No  
**Landing Collar Depth (ft)** 10,207

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## CIRCULATION PRIOR TO JOB

Well Circulated By	rig	Solids Present at End of Circulation	No
Circulation Prior to Job	No	10 sec SGS	13
Circulation Time (min)	120	10 min SGS	17
Circulation Rate (bpm)	8	30 min SGS	22
Lost Circulation Prior to Cement Job	No	Flare Prior to/during the Cement Job	No
Mud Density In (ppg)	11.9	Gas Present	No
Mud Density Out (ppg)	11.9		
PV Mud In	32		
PV Mud Out	32		
YP Mud In	14		
YP Mud Out	14		

## TEMPERATURE

Ambient Temperature (°F)	30	Slurry Cement Temperature (°F)	60
Mix Water Temperature (°F)	60	Flow Line Temperature (°F)	135

## BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	CD Spacer	12.0000					40.0000
Lead Slurry	P100-X2 (Lead)	13.2000	1.8257	9.88	890	1,612.0000	287.0000
Tail Slurry	P50-X1 (Tail)	13.5000	1.4777	7.45	1,850	2,725.0000	175.0000
Displacement Final	Water w/ Clay Protection & Biocide	8.3331				0.0000	226.0000

# Cementing Treatment



Fluid Type	Fluid Name	Component	Concentration	UOM
Spacer / Pre Flush / Flush	CD Spacer	SAND, S-8, Silica Flour, 200 Mesh	247.52	PPB
Spacer / Pre Flush / Flush	CD Spacer	ASF-80	0.50	PPB
Spacer / Pre Flush / Flush	CD Spacer	AVS-10	1.00	PPB
Spacer / Pre Flush / Flush	CD Spacer	ASF-20	0.50	PPB
Lead Slurry	P100-X2 (Lead)	SPECIAL ADDITIVE, MPA-300	0.10	BWOB
Lead Slurry	P100-X2 (Lead)	BONDING AGENT, EC-2	3.00	BWOB
Lead Slurry	P100-X2 (Lead)	CEMENT, ASTM TYPE III	100.00	PCT
Lead Slurry	P100-X2 (Lead)	FLUID LOSS, FL-66	0.50	BWOB
Lead Slurry	P100-X2 (Lead)	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Lead Slurry	P100-X2 (Lead)	RETARDER, HIGH TEMP, R-31 (BJS Only)	0.17	BWOB
Tail Slurry	P50-X1 (Tail)	AFA-10	50.00	PCT
Tail Slurry	P50-X1 (Tail)	FP-25, Dry Foam Preventer (BJS Only)	0.30	BWOB
Tail Slurry	P50-X1 (Tail)	FLUID LOSS, FL-66	0.20	BWOB
Tail Slurry	P50-X1 (Tail)	CEMENT, CLASS G	50.00	PCT
Tail Slurry	P50-X1 (Tail)	EXTENDER, BENTONITE	2.00	BWOB
Tail Slurry	P50-X1 (Tail)	GELLANT WATER, GW-86	0.10	BWOB
Tail Slurry	P50-X1 (Tail)	AR-20	0.15	BWOB
Displacement Final	Water w/ Clay Protection & Biocide	ASF-50	0.08	GPB
Displacement Final	Water w/ Clay Protection & Biocide	BIOCIDE, ALPHA 1427	0.01	GPB

# Cementing Treatment



## TREATMENT SUMMARY

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Fluid	Rate (bpm)	Fluid Vol. (bbls)
CD Spacer	5.00	40.00
P100-X2 (Lead)	6.00	287.00
P50-X1 (Tail)	6.00	175.20
Water w/ Clay Protection & Biocide	8.00	226.00

## DISPLACEMENT AND END OF JOB SUMMARY

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Calculated Displacement Volume (bbls)	226	Pressure Left on Casing (psi)	0
Did Float Hold?	Yes	Total Volume Pumped (bbls)	734
Bump Plug	No	Top Out Cement Spotted	No
Were Returned Planned at Surface	No	Lost Circulation During Cement Job	No

## CEMENT PLUG

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Bottom of Cement Plug?	No	Wiper Balls Used?	No
		Plug Catcher	No

11/3/2017

Customer Name Bayswater  
 Well Name Ward 1-20-19hc  
 Job Type Long String

District Cheyenne  
 Supervisor Andrew Hyde  
 Engineer \_\_\_\_\_



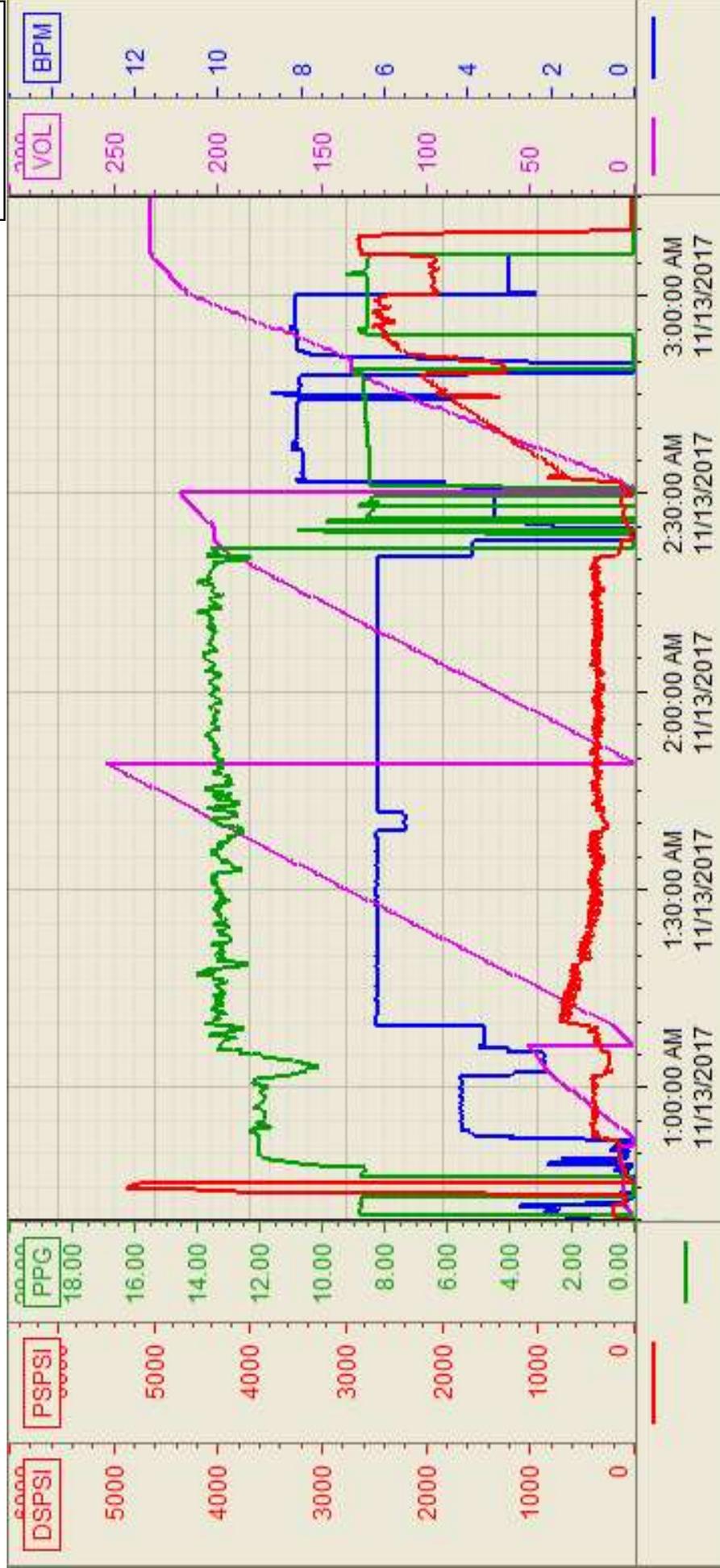
Seq No.	Start Date/Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1		Mobilization	Call out for job							BJ crew gets called out and requested on location at 22:00
2		Mobilization	Steacs journey							Discuss journey to location
3		Mobilization	Depart to location							all follow in convoy
4		Mobilization	arrive at location							Arrive on location
5		Operational	Steacs briefing							BJ crew talks about the hazards of spotting in equipment and rigging up
6		Operational	rig up							Rig up
7		Operational	Steacs briefing							BJ and rig crew talk about the hazards of pumping the job
8	11/13/2017 0:48	Operational	fill lines			8.33	2	3	200	Pump 3 bbls of water to fill lines
9	11/13/2017 0:52	Operational	Test iron			8.33				Pressure test pumps and lines to 5000 psi
10	11/13/2017 1:00	Operational	Pump Cd Spacer			12	4	40	500	Pump cd spacer at 12# with chemicals
11	11/13/2017 1:15	Operational	Pump lead Cement		58	13.2	6	289	750	Mix and pump 890 sks of p100x2 at 13.2 with 1.82 yield and 9.89 water requirement
12	11/13/2017 1:59	Operational	Pump Tail cement		60	13.5	6	176	400	mix and pump 1850 sks of p50-x1 at 1.5# with 1.47 yield 7.43 water requirement
13	11/13/2017 2:28	Operational	wash pumps and lines			8.33	4	10		wash lines to the pit
14	11/13/2017 2:38	Operational	drop plug							Company man witness plug leave manifold
15	11/13/2017 2:39	Operational	Displace			8.33	8	206	2400	Pump 226 bbls of displacement, chemicals
16	11/13/2017 3:08	Operational	slow rate			8.33	3	20	2100	Slow rate the last 20 bbls to 3 bpm
17	11/13/2017 3:14	Operational	Land the plug							Bump plug at 2200 psi, took it up to 3000 psi
18	11/13/2017 3:17	Operational	Check the float							Got 1.5 bbls back to the truck
19	11/13/2017 3:30	Operational	Steacs briefing							BJ crew talked about the hazards of rigging down
20	11/13/2017 3:50	Operational	rig down		73					Rig down
21	11/13/2017 5:00	Mobilization	Move off Location							Move off location
22	11/13/2017 5:15	Mobilization	After action review							
23	11/13/2017 5:20	Mobilization	Steacs journey							BJ crew talks about the hazards driving to the yard
24	11/13/2017 5:30	Mobilization	Depart loaction							Depart location
32	11/13/2017 5:30		Other							Estimated top of tail at 5894 ft, got 45 bbls of cement to surface



Print Date/Time

11/13/2017 3:59:04 AM

Customer: BAYSWATER  
 Well Number: T-20-19HC  
 Lease Info: WARD



Name	Y value	X value/time stamp	Tag name Y
1 DS - Press(Psi)		11/13/2017 3:15:00 AM i.	CementerDS_DISCHARGE_PRESS_DIAL
2 Recirc - Density (PPG)	0.01	11/13/2017 3:15:03 AM	CementerDENSITY_ACTUAL_RATE
3 Down Hole Total (BBSL)	232.5	11/13/2017 3:15:03 AM	CementerDOWNHOLE_FLOW_TOTAL
4 Combined rate (BPM)	0.00	11/13/2017 3:15:03 AM	CementerFlow_Combined
5			

Source: Control1 3:58:58 AM