



Crestone Peak Resources Operating

Herren 1D-33H-H367

API # 05-123-47730

Production

12/16/2018

Quote #: 24304

Execution #: 13988



Crestone Peak Resources Operating

Attention: Mr. Jerry Thorstad | (303) 829-8179 | Jerry.Thorstad@Crestonepr.com

Crestone Peak Resources Operating | 10188 E I25 Frontage Rd. | Firestone, CO. 80504

Dear Mr. Jerry Thorstad,

Thank you for the opportunity to provide cementing services on this well. BJ Services strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact BJ Services at any time.

Sincerely,
Jason Creel
Field Engineer I | (307) 256-0306 | Jason.Creel@bjsservices.com

Field Office 1716 East Allison Rd., Cheyenne WY, 82007
Phone: (307) 638-5585

Sales Office 999 18th St. Suite 1200 Denver, CO 80202
Phone: (281) 408-2361

BJ Cementing Treatment Report

SERVICE SUPERVISOR	Brian Boyd	FORMATION	NIOBRARA
CLIENT FIELD REPRESENTATIVE	Nate	RIG	Ensign 153
DISTRICT	Cheyenne, WY	COUNTY	WELD
SERVICE	Cementing	STATE / PROVINCE	CO

WELL GEOMETRY

TYPE	OD (in)	ID (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)
Open Hole	0.00	8.50	0.00	12,050.00	7,132.00	10.00
Previous Casing	9.63	8.84	40.00	2,008.00	2,008.00	
Casing	5.50	4.78	20.00	12,045.00	7,132.00	

HARDWARE

Top Plug Used?	Yes	Max Casing Pressure - Rated (psi)	12640.00
Top Plug Provided By	Non BJ	Max Casing Pressure - Operated (psi)	10112.00
Top Plug Size	5.500	Pipe Movement	None
Centralizers Used	Yes	Job Pumped Through	Manifold
Landing Collar Depth (ft)	12,026	Top Connection Thread	BTC
Tool Type	Float Collar	Top Connection Size	5.5
Tool Depth (ft)	12,026.00		

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	YP Mud In	9
Circulation Prior to Job	Yes	Solids Present at End of Circulation	No
Circulation Time (min)	200.00	10 sec SGS	4
Circulation Rate (bpm)	9.00	10 min SGS	5
Circulation Volume (bbls)	800.00	30 min SGS	6
Lost Circulation Prior to Cement Job	No	Flare Prior to / during the Cement Job	No
Mud Density In (ppg)	10.40	Gas Present	No
PV Mud In	17		

TEMPERATURE

Ambient Temperature (°F)	28.00	Slurry Cement Temperature (°F)	71.00
Mix Water Temperature (°F)	62.00	Flow Line Temperature (°F)	118.00

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	IntegraGuard EZ Spacer II	12.0000					90.0000
Lead Slurry	BJCem P100.3.01C	13.0000	1.9262	9.46	736	1418.0000	252.4000
Tail Slurry	BJCem P50.6.02C	13.5000	1.7523	8.70	946	1656.0000	294.9000
Displacement 1	Retarded Water	8.3300				0.0000	10.0000
Displacement Final	Displacement Final (Water)	8.3308				0.0000	257.6000

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	WEIGHTING ADDITIVE, W-11	243.6000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	IntegraGuard GW-86	1.2000	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
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer II	SPACER SURFACTANT, SS-267	1.0000	GPB
Lead Slurry	BJCem P100.3.01C	IntegraGuard GW-86	0.0500	BWOB
Lead Slurry	BJCem P100.3.01C	CEMENT, ASTM TYPE III	100.0000	PCT
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	FLUID LOSS, FL-24	0.6000	BWOB
Lead Slurry	BJCem P100.3.01C	FOAM PREVENTER, FP-25	0.3000	BWOB
Lead Slurry	BJCem P100.3.01C	BONDING AGENT, BA-86L	1.0000	GALS/SK
Lead Slurry	BJCem P100.3.01C	EXTENDER, BENTONITE	4.0000	BWOB
Lead Slurry	BJCem P100.3.01C	FLUID LOSS, FL-66	0.6000	BWOB
Tail Slurry	BJCem P50.6.02C	RETARDER, R-6	0.2000	BWOB
Tail Slurry	BJCem P50.6.02C	IntegraGuard GW-86	0.1000	BWOB
Tail Slurry	BJCem P50.6.02C	FLUID LOSS, FL-66	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	Flyash (Rockies)	50.0000	PCT
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

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	91.00
Calculated Displacement Vol (bbls)	268.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	262.00	Amt of Spacer to Surface	100.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	3.00
Bump Plug Pressure (psi)	3300.00	Total Volume Pumped (bbls)	898.00
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

Long String - Cheyenne, WY - Brian Boyd

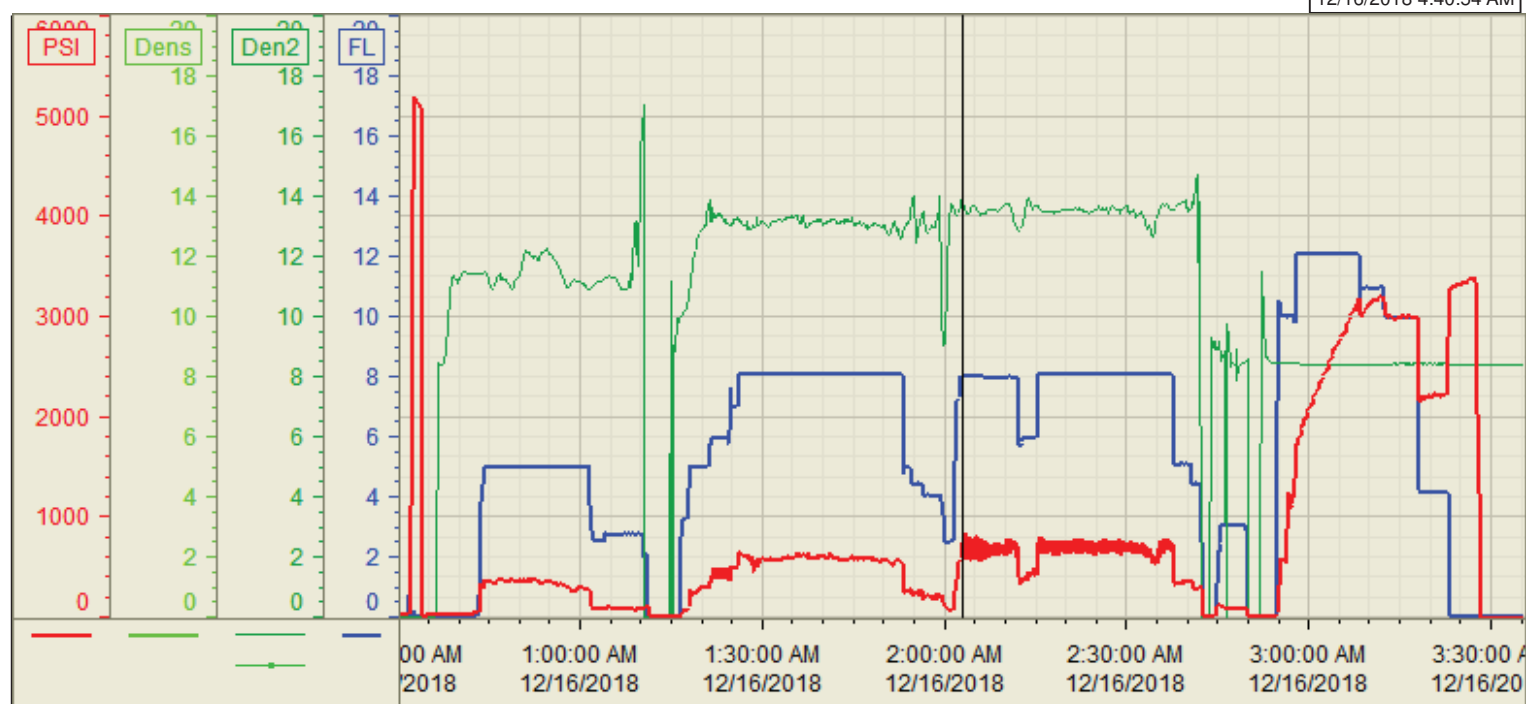
SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	12/15/2018 14:34	Callout					Customer requested crew to be on location at 19:30
2	12/15/2018 16:30	Arrive on Location					BJ crew has journey management and departs from shop to location, BJ crew arrives on location and meet up with company man
3	12/15/2018 18:21	STEACS Briefing					BJ crew has STEACS over rigging up iron and hoses and spotting equipment
4	12/15/2018 18:30	Rig Up					BJ crew spots equipment and rigs up iron and hoses
5	12/15/2018 23:06	STEACS Briefing					Rig preformed two bottoms up to circulate well. BJ crew, rig crew and company man have a STEACS briefing over the job and hazards surrounding the job
6	12/16/2018 00:27	Prime Up	8.3300	3.00	3.00	300.00	Start job, fill pumps and lines
7	12/16/2018 00:31	Pressure Test	8.3300	0.50	0.50	5210.00	Pressure test iron and cement head to 5000 PSI
8	12/16/2018 00:43	Pump Spacer	11.0000	5.00	90.00	600.00	Pump 90 bbls of spacer with surfactants, First 30 bbls at 11PPG, 30 bbls at 12 PPG, Last 30 bbls at 11 PPG
9	12/16/2018 01:16	Pump Lead Cement	13.0000	8.00	252.00	950.00	Pump 252 bbls Of Lead Latex cement (736 Sks, 1.92 Yield, 9.46 Gals/Sks) from 1:11 To 1:16 shut down due to latex gelled up and had bad delivery from tanker boosted back to tanker and free lined and continued mixing lead cement
10	12/16/2018 02:01	Pump Tail Cement	13.5000	8.00	294.00	1100.00	Pump 294 bbls Of 13.5 PPG Tail cement (946 Sks, 1.75 Yield, 8.70 Gals/Sks)
11	12/16/2018 02:42	End Pumping					Shut down pumping
12	12/16/2018 02:44	Wash Pumps and Lines	8.3300	4.00	12.00	45.00	Swap values on cement head and wash pumps and lines to three-way tank
13	12/16/2018 02:51	Drop Top Plug					Drop top plug with company man and tool hand to verify plug went down hole
14	12/16/2018 02:51	Pump Displacement	8.3300	11.00	262.00	1600.00	Pump 262 bbls of fresh water displacement o
15	12/16/2018 03:09	Cement Back-to-Surface	8.3300	11.00	170.00	2100.00	170 bbls into displacement got cement to surface for total of 91 bbls back to surface
16	12/16/2018 03:20	Pump Displacement	8.3300	4.00	240.00	2300.00	Last 20 bbls of displacement slow rate to 5 bpm
17	12/16/2018 03:23	Land Plug			262.00	3300.00	Bump plug to 3300 PSI, FCP of 2300 PSI
18	12/16/2018 03:28	Check Floats					Hold for 5 mins and check floats, got 3 bbls back to pump truck
19	12/16/2018 03:31	STEACS Briefing					BJ crew has STEACS over rigging down iron and hoses
20	12/16/2018 03:36	Rig Down					BJ crew rigs down iron and hoses
21	12/16/2018 05:00	Leave Location					BJ crew has journey management and departs from location

Customer: Crestone
Well Number: 1D-33H-H367
Lease Info: Herren



Print Date/Time

12/16/2018 4:40:54 AM



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	776.8 i.	12/16/2018 2:03:00 AM i.	CementerDS_DISCHARGE_PRESS_DIAL
2	Recirc - Density (PPG)	13.83	12/16/2018 2:02:56 AM	CementerDENSITY_ACTUAL_RATE
3	DH Density (PPG)	-29.63	12/16/2018 2:02:56 AM	CementerDENSITY2_ACTUAL_RATE
4	Combined pump rate	7.96	12/16/2018 2:02:58 AM	CementerFlow_Combined
5	Trend 1			

Source: Control1 4:40:54 AM