

BJ Cementing Treatment Report

SERVICE SUPERVISOR	Chad Johnson	RIG	Cyclone 3
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 (%)
Previous Casing	10.05	10.75	40.50	1,255.00	1,255.00	
Open Hole	8.75	0.00	0.00	10,235.00	9,183.00	30.00
Casing	6.28	7.00	26.00	10,229.00	9,183.00	

HARDWARE

Bottom Plug Used?	No	Tool Type	DV Tool
Top Plug Used?	Yes	Tool Depth (ft)	8,817.00
Top Plug Provided By	Non BJ	Pipe Movement	None
Top Plug Size	7.000	Job Pumped Through	Manifold
Centralizers Used	Yes	Top Connection Thread	LTC
Centralizers Type	Bow	Top Connection Size	7
Landing Collar Depth (ft)	10,148		

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	PV Mud Out	15
Circulation Prior to Job	Yes	YP Mud In	10
Circulation Time (min)	120.00	YP Mud Out	10
Circulation Rate (bpm)	6.00	Solids Present at End of Circulation	No
Circulation Volume (bbls)	720.00	10 sec SGS	7
Lost Circulation Prior to Cement Job	No	10 min SGS	20
Mud Density In (ppg)	9.30	Flare Prior to / during the Cement Job	No
Mud Density Out (ppg)	9.30	Gas Present	No
PV Mud In	15		

TEMPERATURE

Ambient Temperature (°F)	60.00	Mix Water Temperature (°F)	65.00
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Client Name:	NGL Energy Partners LP	Well:	ROY SWD #5	Well API:	05-123-49501
Start Date:	4/27/2019	End Date:	4/28/2019		



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	11.0000			5,516.00				50.0000
Tail Slurry	BJCem I70.6.1XC	13.5000	1.8507	9.32	8,900.00	1,300.00	145	264.0000	46.9000
Displacement Final	Fresh Water	8.3300			0.00	0.00		0.0000	388.6000
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	11.0000			5,516.00				30.0000
Lead Slurry	BJCem I100.3.01C	12.5000	2.0749	11.82	0.00	7,400.00	750	1557.0000	277.3000
Tail Slurry	BJCem I70.6.1C	13.5000	1.5190	7.79	7,400.00	1,500.00	195	294.0000	52.2000
Displacement Final	Water	8.3300			0.00			0.0000	340.5000

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FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SPACER SURFACTANT, SS-247	0.5000	GPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	IntegraGuard GW-86	0.9000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SAND, S-8, Silica Flour, 200 Mesh	180.8700	PPB
Tail Slurry	BJCem I70.6.1XC	FLUID LOSS, FL-24	0.4000	BWOB
Tail Slurry	BJCem I70.6.1XC	RETARDER, R-6	0.4000	BWOB
Tail Slurry	BJCem I70.6.1XC	EXTENDER, BENTONITE	6.0000	BWOB
Tail Slurry	BJCem I70.6.1XC	BONDING AGENT, BA-60	0.2000	BWOB
Tail Slurry	BJCem I70.6.1XC	SAND, S-8, Silica Flour, 200 Mesh	25.0000	BWOB
Tail Slurry	BJCem I70.6.1XC	CEMENT, CLASS G	70.0000	PCT
Tail Slurry	BJCem I70.6.1XC	Flyash (Rockies)	20.0000	PCT
Tail Slurry	BJCem I70.6.1XC	BONDING AGENT, BA-90	10.0000	PCT
Tail Slurry	BJCem I70.6.1XC	FOAM PREVENTER, FP-25	0.3000	BWOB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SPACER SURFACTANT, SS-247	0.5000	GPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SAND, S-8, Silica Flour, 200 Mesh	180.8700	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	IntegraGuard GW-86	0.9000	PPB
Lead Slurry	BJCem I100.3.01C	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem I100.3.01C	FLUID LOSS, FL-24	0.3000	BWOB
Lead Slurry	BJCem I100.3.01C	BONDING AGENT, BA-60	0.3000	BWOB
Lead Slurry	BJCem I100.3.01C	RETARDER, R-6	0.6000	BWOB
Lead Slurry	BJCem I100.3.01C	FOAM PREVENTER, FP-25	0.3000	BWOB
Tail Slurry	BJCem I70.6.1C	FLUID LOSS, FL-24	0.4000	BWOB
Tail Slurry	BJCem I70.6.1C	CEMENT, CLASS G	70.0000	PCT
Tail Slurry	BJCem I70.6.1C	BONDING AGENT, BA-90	10.0000	PCT
Tail Slurry	BJCem I70.6.1C	RETARDER, R-6	0.3000	BWOB
Tail Slurry	BJCem I70.6.1C	Flyash (Rockies)	20.0000	PCT
Tail Slurry	BJCem I70.6.1C	BONDING AGENT, BA-60	0.2000	BWOB
Tail Slurry	BJCem I70.6.1C	EXTENDER, BENTONITE	6.0000	BWOB
Tail Slurry	BJCem I70.6.1C	FOAM PREVENTER, FP-25	0.3000	BWOB

Client Name: NGL Energy Partners LP

Well: ROY SWD #5

Well API: 05-123-49501

Start Date: 4/27/2019

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DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	42.00
Calculated Displacement Vol (bbls)	388.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	388.00	Amt of Spacer to Surface	30.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	2.00
Bump Plug Pressure (psi)	1100.00	Total Volume Pumped (bbls)	1211.00
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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Start Date: 4/27/2019

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BJ Cementing Event Log

Intermediate - Cheyenne, WY - Chad Johnson

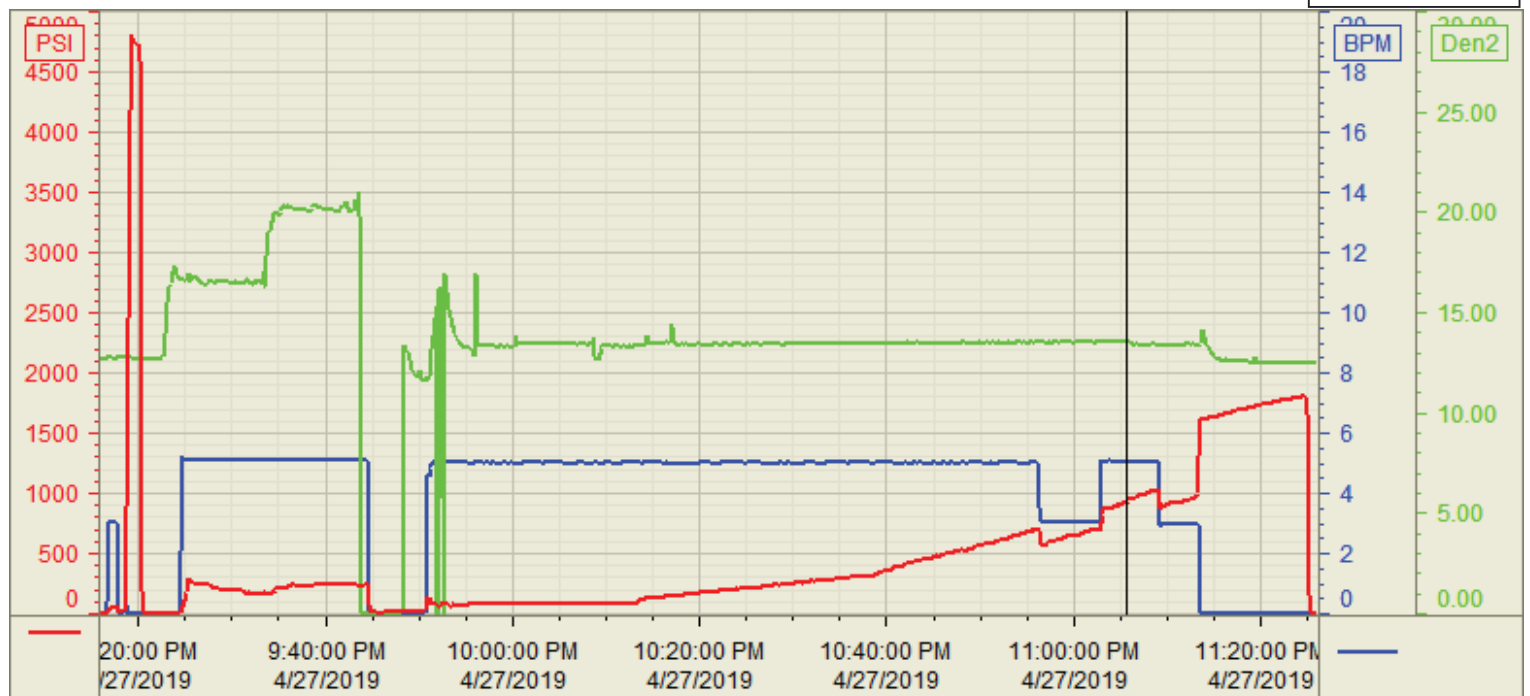
SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	04/27/2019 09:30	Callout					Crew called out requested on location for 1700
2	04/27/2019 15:00	Arrive on Location					Crew arrived on location
3	04/27/2019 15:10	STEACS Briefing					Safety meeting
4	04/27/2019 15:20	Spot Units					Spotted all units
5	04/27/2019 15:30	Rig Up					Rigged up all equipment
6	04/27/2019 17:00	Client					Waiting on rig to finish running casing and circulate the well
7	04/27/2019 20:45	STEACS Briefing					Safety meeting
8	04/27/2019 21:19	Prime Up	8.3400	3.00	5.00	100.00	Fill lines
9	04/27/2019 21:21	Pressure Test					Pressure test lines to 4000 psi
10	04/27/2019 21:26	Pump Spacer	11.0000	5.00	50.00	150.00	Pump spacer
11	04/27/2019 21:35	Pump Tail Cement	13.5000	5.00	45.00	200.00	Pump tail cement (145 sks, 1.85 Y, 9.32 gal/sk)
12	04/27/2019 21:47	Other (See comment)					Shutdown
13	04/27/2019 21:52	Drop Top Plug					Drop top plug
14	04/27/2019 21:53	Pump Displacement	8.3400	5.00	320.00	500.00	Pump displacement
15	04/27/2019 22:59	Other (See comment)	8.3400	3.00	20.00	500.00	Slow pump rate for 20 bbls
16	04/27/2019 23:06	Other (See comment)	8.3400	3.00	30.00	800.00	Pump Displacement
17	04/27/2019 23:11	Other (See comment)	8.3400	3.00	18.00	1100.00	Slow pump rate
18	04/27/2019 23:16	Land Plug					Land plug at 1100 psi, took to 1600 psi
19	04/27/2019 23:26	Check Floats					Check floats, floats holding, bbls back
20	04/27/2019 23:30	Other (See comment)					Drop free fall opening device
21	04/28/2019 00:01	Circulate Well					Pressure up to 900 psi, break circulation, circulate well for 5 hours
22	04/28/2019 04:45	STEACS Briefing					Safety meeting
23	04/28/2019 05:20	Prime Up	8.3400	3.00	5.00	100.00	Fill lines
24	04/28/2019 05:24	Pressure Test					Pressure test lines to 4000 psi

25	04/28/2019 05:30	Pump Spacer	11.0000	5.00	30.00	150.00	Pump spacer
26	04/28/2019 05:37	Pump Lead Cement	12.5000	5.00	278.00	200.00	Pump lead cement (750 sks, 2.08 Y, 11.82 gal/sk)
27	04/28/2019 06:30	Pump Tail Cement	13.5000	5.00	53.00	200.00	Pump tail cement (195 sks, 1.52 Y, 7.79 gal/sk)
28	04/28/2019 06:41	Other (See comment)					Shutdown
29	04/28/2019 06:45	Drop Top Plug					Drop top plug
30	04/28/2019 06:46	Pump Displacement	8.3400	5.00	300.00	1000.00	Pump displacement
31	04/28/2019 07:40	Spacer Back-to-Surface					Spacer back to surface, 30 bbls spacer to surface
32	04/28/2019 07:50	Cement Back-to-Surface					Cement back to surface, 42 bbls cement to surface
33	04/28/2019 07:55	Other (See comment)	8.3400	3.00	37.00	1100.00	Slow pump rate
34	04/28/2019 08:01	Land Plug					Land plug at 1300 psi, took to 2600 psi
35	04/28/2019 08:11	Check Floats					Check floats, floats holding, bbls back
36	04/28/2019 08:20	STEACS Briefing					Safety meeting
37	04/28/2019 08:40	Rig Down					Rigged down all equipment
38	04/28/2019 10:00	Leave Location					Crew departed location

Customer: NGL
Well Number: #5
Lease Info: Roy SWD



Print Date/Time
4/27/2019 11:51:02 PM



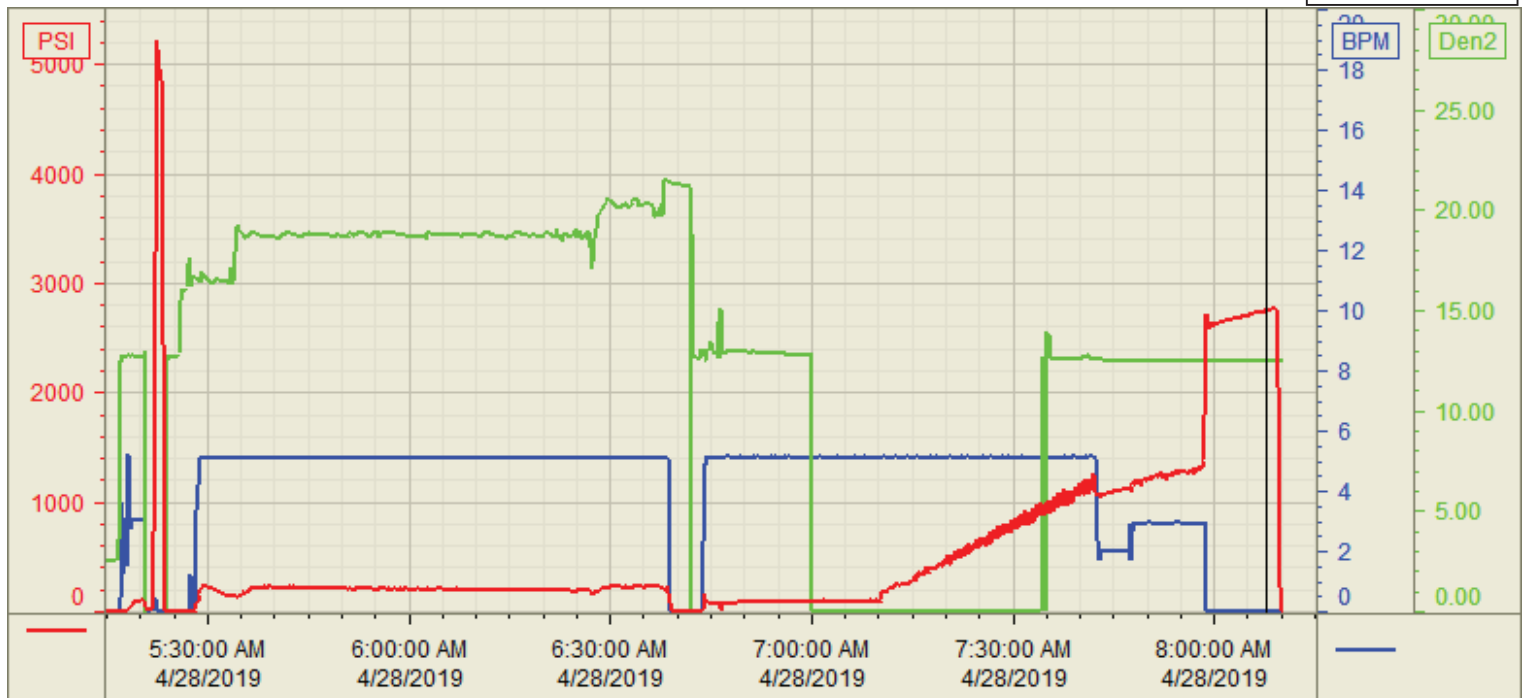
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2	Recirc - Density (PPG)	9 i.	4/27/2019 11:05:40 PM i.	CementerDENSITY_ACTUAL_RATE
3	Combined Rate	5.06 i.	4/27/2019 11:05:40 PM i.	CementerFlow_Combined
4				
5				

Source: Control1 11:50:56 PM

Customer: NGL
Well Number: #5
Lease Info: Roy SWD



Print Date/Time
4/28/2019 8:10:20 AM



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	2747.4 i.	4/28/2019 8:07:48 AM i.	Cementer\DS_DISCHARGE_PRESS_DIAL
2	Recirc - Density (PPG)	8 i.	4/28/2019 8:07:48 AM i.	Cementer\DENSITY_ACTUAL_RATE
3	Combined Rate	0.00 i.	4/28/2019 8:07:48 AM i.	Cementer\Flow_Combined
4				
5				

Source: Control1 8:10:14 AM