



# Caerus

**Well Name: NPR 24C-3**

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**API #: 05-045-23994**

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**Job Type: Surface**

Date Job Completed: 01/15/2019

**Quote #:** QUO-25369

**Execution #:** EXC-14848



# Caerus

Attention: Mr. Steve Schmitz | (720) 880-6412 | [sschmitz@caerusoilandgas.com](mailto:sschmitz@caerusoilandgas.com)

Caerus | 1001 17th Street, Suite 1600 | Denver, CO 80202

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Dear Mr. Schmitz,

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,

Zen Keith  
Field Engineer III | (307) 757-7178 | [Zen.Keith@BJServices.com](mailto:Zen.Keith@BJServices.com)

Field Office 28730 US-6, Rifle, CO 81650  
Phone: (970) 632-2412

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

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# BJ Cementing Treatment Report

<b>SERVICE SUPERVISOR</b>	Hamza Busheri	<b>FORMATION</b>	
<b>CLIENT FIELD REPRESENTATIVE</b>	George Urban	<b>RIG</b>	H&P 330
<b>DISTRICT</b>	Rifle, CO	<b>COUNTY</b>	GARFIELD
<b>SERVICE</b>	Cementing	<b>STATE / PROVINCE</b>	CO

TYPE	OD (in)	ID (in)	WEIGHT (lb/ft)	MD (ft)	EXCESS (%)	GRADE	THREAD
Previous Casing	20.00	19.50	52.73	130.00			
Open Hole	0.00	14.75	0.00	2,796.00			
Casing	9.63	8.92	36.00	2,747.00		J-55	LTC

## HARDWARE

<b>Bottom Plug Used?</b>	No	<b>Tool Type</b>	Float Collar
<b>Top Plug Used?</b>	Yes	<b>Tool Depth (ft)</b>	2,707.63
<b>Top Plug Provided By</b>	Non BJ	<b>Max Casing Pressure - Rated (psi)</b>	3520.00
<b>Top Plug Size</b>	9.625	<b>Max Casing Pressure - Operated (psi)</b>	2800.00
<b>Centralizers Used</b>	Yes	<b>Pipe Movement</b>	None
<b>Centralizers Quantity</b>	5.00	<b>Job Pumped Through</b>	No Manifold
<b>Centralizers Type</b>	Rigid	<b>Top Connection Thread</b>	8rd
<b>Landing Collar Depth (ft)</b>	2,708	<b>Top Connection Size</b>	9.625



**CIRCULATION PRIOR TO JOB**

Well Circulated By	Rig	YP Mud Out	18
Circulation Prior to Job	Yes	Solids Present at End of Circulation	No
Circulation Time (min)	180.00	10 sec SGS	8
Circulation Rate (bpm)	4.00	10 min SGS	19
Circulation Volume (bbls)	400.00	30 min SGS	38
Lost Circulation Prior to Cement Job	Yes	Flare Prior to / during the Cement Job	No
Mud Density Out (ppg)	8.95	Gas Present	No
PV Mud Out	20		

**TEMPERATURE**

Ambient Temperature (°F)	34.00	Slurry Cement Temperature (°F)	62.00
Mix Water Temperature (°F)	57.00		

**FLUID DETAILS**

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H <sub>2</sub> O REQ (gals/sk)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	Water 1	8.3300					20.0000
Spacer / Pre Flush / Flush	Sodium Silicate	10.0000					20.0000
Spacer / Pre Flush / Flush	Water 2	8.3300					20.0000
Lead Slurry	BJCem S100.3.01D	12.0000	2.5298	14.86	719	1818.0000	323.7000
Tail Slurry	BJCem S100.3.01D	12.5000	2.2256	12.59	161	358.0000	63.7000
Displacement Final	Displacement	8.3300				0.0000	228.8000
Top Out Slurry	BJCem S100.3.01D	12.5000	2.2256	12.59	124	275.9740	49.0000



FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	Sodium Silicate	SILICATE, SODIUM, A-3L	21.0000	GPB
Lead Slurry	BJCem S100.3.01D	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem S100.3.01D	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Lead Slurry	BJCem S100.3.01D	IntegraSeal CELLO	0.1300	LBS/SK
Lead Slurry	BJCem S100.3.01D	FOAM PREVENTER, FP-25	0.3000	BWOB
Lead Slurry	BJCem S100.3.01D	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Lead Slurry	BJCem S100.3.01D	Cement Additive, Sodium Metasilicate A-2	2.0000	LBS/SK
Tail Slurry	BJCem S100.3.01D	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Tail Slurry	BJCem S100.3.01D	CEMENT, ASTM TYPE III	100.0000	PCT
Tail Slurry	BJCem S100.3.01D	Cement Additive, Sodium Metasilicate A-2	2.0000	LBS/SK
Tail Slurry	BJCem S100.3.01D	FOAM PREVENTER, FP-25	0.3000	BWOB
Tail Slurry	BJCem S100.3.01D	IntegraSeal CELLO	0.1300	LBS/SK
Tail Slurry	BJCem S100.3.01D	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB

### TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESSURE (psi)	ANNULUS PRESSURE (psi)	COMMENTS
1/14/2019 5:00 PM	Water 1	5.00	20.00	196.00		
1/14/2019 5:20 PM	Sodium Silicate	5.00	20.00	235.00		
1/14/2019 5:30 PM	Water 2	5.00	20.00	271.00		
1/14/2019 6:00 PM	BJCem S100.3.01D	5.00	323.70	274.00		
1/14/2019 6:30 PM	BJCem S100.3.01D	4.50	63.70	178.00		
1/14/2019 7:00 PM	Displacement	7.00	209.50	550.00		
1/14/2019 9:30 PM	BJCem S100.3.01D	2.50	20.00	131.00		Topout

### MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	131.00	550.00	262.14
Rate (bpm)	2.50	7.00	4.86

## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ
Calculated Displacement Vol (bbls)	209.50
Actual Displacement Vol (bbls)	209.50
Did Float Hold?	Yes
Bump Plug	Yes
Bump Plug Pressure (psi)	1170.00
Were Returns Planned at Surface	Yes
Cement Returns During Job	Partial

Amt of Cement Returned / Reversed	0.00
Method Used to Verify Returns	Visual
Amt of Spacer to Surface	40.00
Pressure Left on Casing (psi)	0.00
Amt Bled Back After Job	1.00
Total Volume Pumped (bbls)	734.00
Top Out Cement Spotted	Yes
Lost Circulation During Cement Job	Yes

## CEMENT PLUG

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



# BJ Cementing Event Log

Surface - Rifle, CO - Hamza Busheri/Wendell Youngberg

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	01/14/2019 07:00	Callout	0.0000	0.00	0.00	0.00	Yard Call @ 0700, STEACS, Pre-trip, JM, Leave Yard @ 0840
2	01/14/2019 08:40	Arrive on Location	0.0000	0.00	0.00	0.00	Convoy to Location, AOL @ 1040
3	01/14/2019 10:40	STEACS Briefing	0.0000	0.00	0.00	0.00	STEACS w/ Co-Man
4	01/14/2019 10:50	Spot Units	0.0000	0.00	0.00	0.00	Spot Units on Location
5	01/14/2019 11:05	Rig Up	0.0000	0.00	0.00	0.00	Rig up All DH Equipment to Buffer Zone
6	01/14/2019 12:00	Rig	0.0000	0.00	0.00	0.00	Rig Running Casing, Stuck in Hole, Circulate 400 Bbls, @ 4 BPM, 180 mins
7	01/14/2019 16:10	STEACS Briefing	0.0000	0.00	0.00	0.00	STEACS w/ Co-Man, Rig Crew, All 3rd Party on Location
8	01/14/2019 16:30	Rig Up	0.0000	0.00	0.00	0.00	Rig up Lines and PLH to Floor
9	01/14/2019 17:08	Pump Spacer	8.4000	3.50	5.00	107.00	Fill Lines, Break Circulation
10	01/14/2019 17:11	Pressure Test	0.0000	0.00	0.00	3500.00	Pressure Test Lines and Pump
11	01/14/2019 17:18	Pump Spacer	8.4000	5.00	15.00	196.00	15 Bbls FW Spacer
12	01/14/2019 17:21	Pump Spacer	9.6000	3.50	20.00	235.00	20 Bbls SS Spacer
13	01/14/2019 17:27	Pump Spacer	8.4000	4.00	20.00	271.00	20 Bbls FW Spacer, Swap to Lead @ 12.0 PPG DH
14	01/14/2019 17:33	Pump Lead Cement	12.0000	4.50	50.00	190.00	50 Bbls Lead Cmt
15	01/14/2019 17:43	Pump Lead Cement	12.0000	5.50	100.00	271.00	100 Bbls Lead Cmt
16	01/14/2019 17:55	Pump Lead Cement	12.0000	5.50	150.00	274.00	150 Bbls Lead Cmt

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Client: Caerus Operating LLC

Well: NPR 24C-3-596

Well API:05-045-23994

Plan #: ORD-14848-C7T2L1

Execution #: EXC-14848-C7T2L102

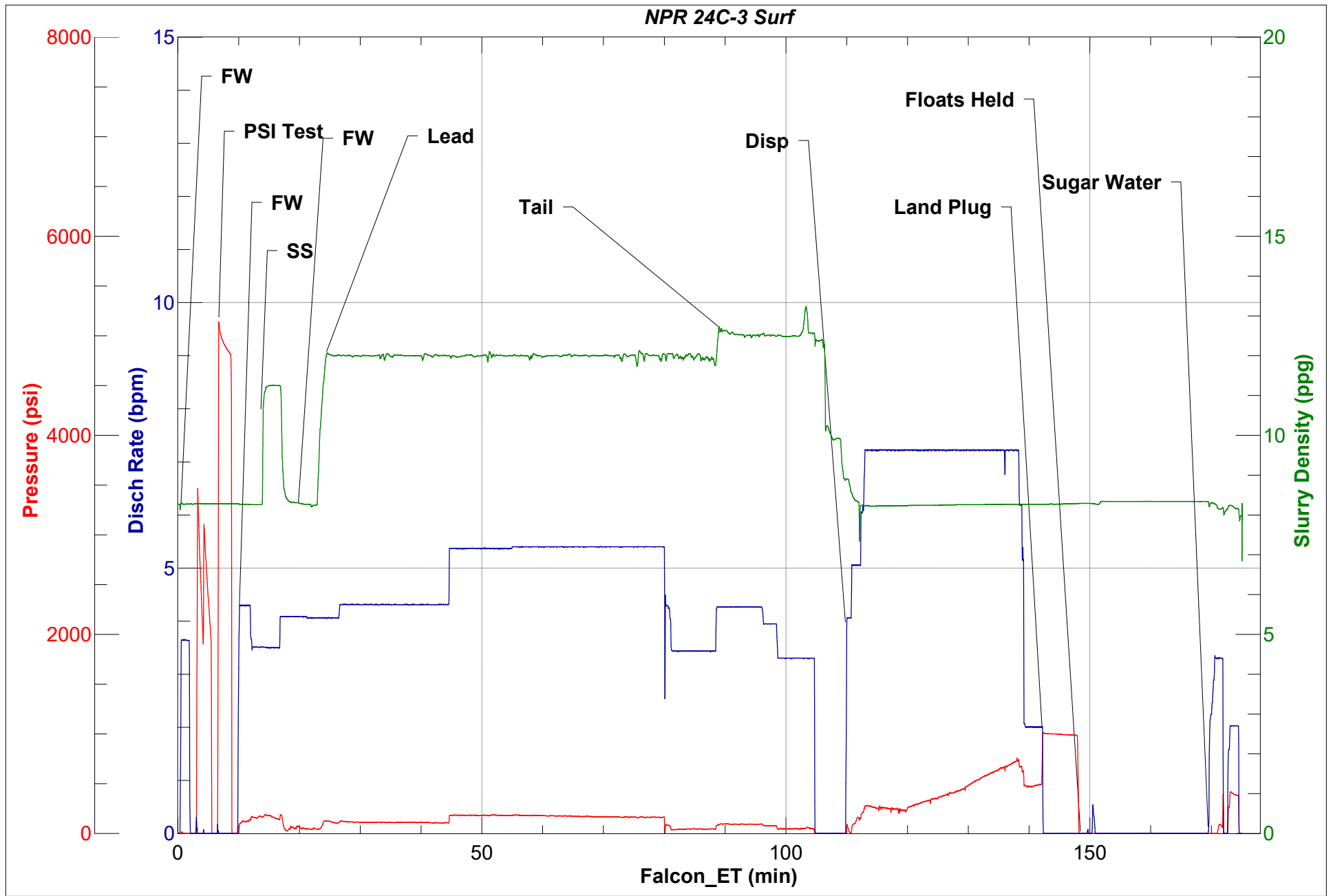
Quote #: QUO-25369-R8Q8C8

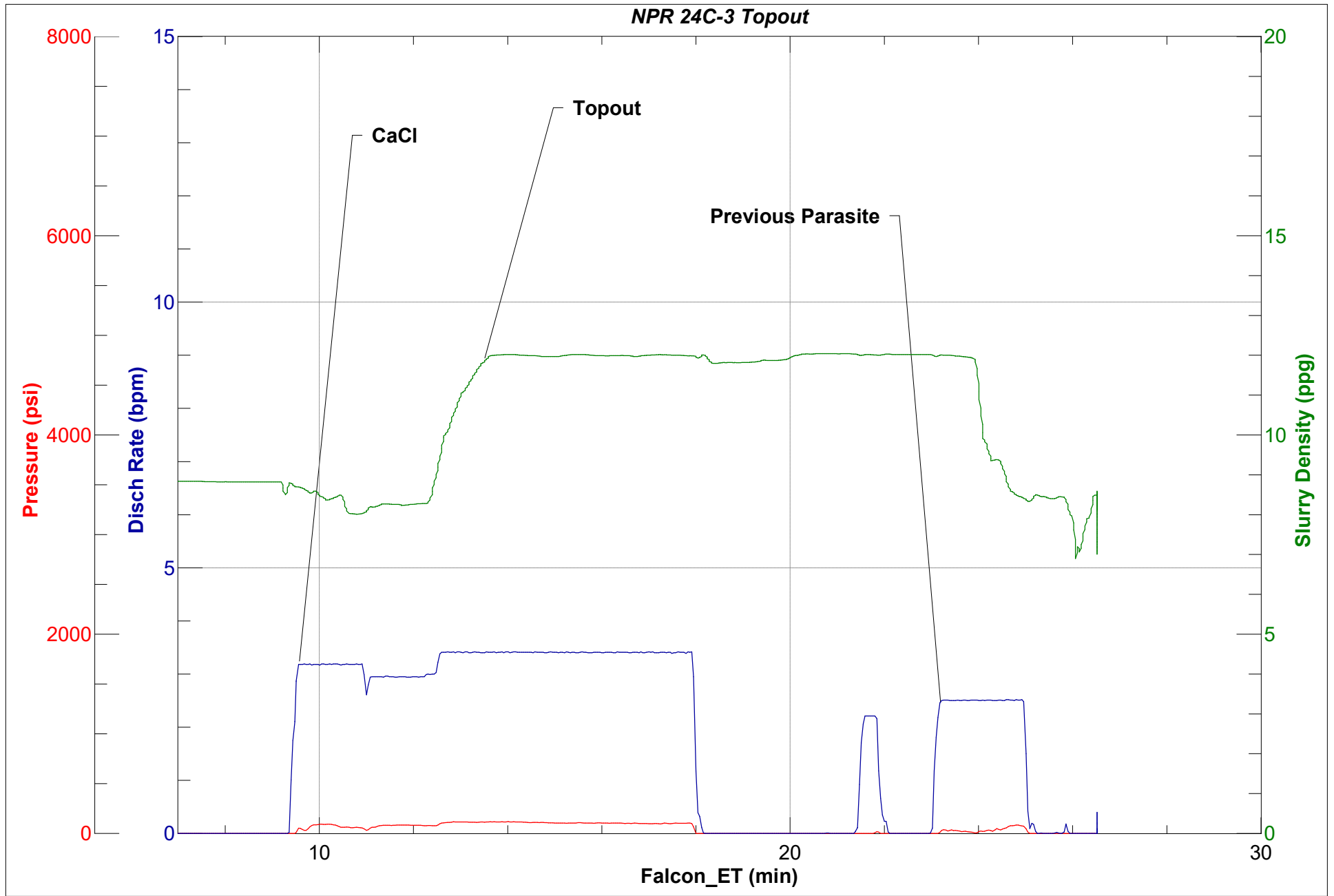


SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
17	01/14/2019 18:04	Pump Lead Cement	12.0000	5.50	200.00	251.00	200 Bbls Lead Cmt
18	01/14/2019 18:14	Pump Lead Cement	12.0000	5.50	250.00	250.00	250 Bbls Lead Cmt
19	01/14/2019 18:23	Pump Lead Cement	12.0000	5.50	300.00	124.00	300 Bbls Lead Cmt
20	01/14/2019 18:33	Pump Lead Cement	12.0000	4.50	323.70	174.00	323.7 Bbls Lead Cmt Pumped Total, Swap to Tail @ 12.5 PPG
21	01/14/2019 18:38	Pump Tail Cement	12.5000	4.50	50.00	174.00	50 Bbls Tail Cmt
22	01/14/2019 18:49	Pump Tail Cement	12.5000	3.50	63.70	118.00	63.7 Bbls Tail Cmt Pumped, Shutdown
23	01/14/2019 18:55	Drop Top Plug	0.0000	5.00	0.00	169.00	Drop Top Plug, Pump 2 Bbls Cmt on top of Plug, Begin FW Disp
24	01/14/2019 18:57	Pump Displacement	8.4000	7.00	50.00	348.00	50 Bbls FW Disp
25	01/14/2019 19:06	Pump Displacement	8.4000	7.00	100.00	433.00	100 Bbls FW Disp
26	01/14/2019 19:13	Pump Displacement	8.4000	7.00	150.00	660.00	150 Bbls FW Disp, Spacer Returns to Surf @ 160 Bbls Away
27	01/14/2019 19:20	Pump Displacement	8.4000	2.00	200.00	476.00	200 Bbls FW Disp
28	01/14/2019 19:28	Land Plug	8.4000	2.00	209.50	550.00	209.5 Bbls FW Disp Total, Land Plug @ 1170 PSI, FCP @ 550 PSI
29	01/14/2019 19:31	Check Floats	0.0000	0.00	0.00	0.00	Floats Held
30	01/14/2019 19:37	Other (See comment)	8.5000	2.50	10.00	316.00	Rig up and Tie onto Parasite Line on BOP Deck. Pump 10 Bbls Sugar Water, Breakover @ 316 PSI, 4.5 Bbls Away
31	01/14/2019 19:59	Rig Up	0.0000	0.00	0.00	0.00	Rig up to Cellar to Pump Topout
32	01/14/2019 21:30	Top Out	12.0000	3.00	21.00	135.00	2 Bbls CaCl Pumped, 19 Bbls Topout Cmt Pumped, Cmt to Surf. Pumped 2 Bbls Cmt down previous well Parasite Line
33	01/14/2019 21:50	Rig Down	0.0000	0.00	0.00	0.00	STEACS, Rig Down all DH Equipment
34	01/14/2019 23:30	Leave Location	0.0000	0.00	0.00	0.00	JM, Convoy back to Yard
35	01/14/2019 23:59	Other (See comment)	0.0000	0.00	0.00	0.00	Wait on cement to Topout
36	01/15/2019 07:00	Callout	0.0000	0.00	0.00	0.00	Yard Rifle
37	01/15/2019 08:00	Leave Location					Leave Rifle Yard

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
38	01/15/2019 10:00	Arrive on Location					Arrive at Rig and Spot Trucks
39	01/15/2019 10:15	STEACS Briefing					Rig Up STEACS
40	01/15/2019 10:30	Rig Up					Rig Up
41	01/15/2019 11:30	Prime Up					Prime Up Pump
42	01/15/2019 11:40	Pump Spacer	9.0000	2.00	4.00	20.00	Cal. Chlor. Water Spacer
43	01/15/2019 11:50	Top Out	12.5000				Batch Up Top Out Cement
44	01/15/2019 12:06	Top Out	12.5000	2.50	30.00	73.00	Top Out Cement
45	01/15/2019 13:00	Wash Pumps and Lines					Wash Up Pump
46	01/15/2019 13:30	Rig Down					Rig Down Iron, Bulk, Water
47	01/15/2019 14:00	STEACS Briefing					Travel STEACS
48	01/15/2019 14:15	Depart for Location					Leave Rig Location









Caerus NPR 24C-3 Top Out #2 Chart

