



Caerus

Well Name: NPR 23C-8-596

API #: 05-045-23950

Job Type: Surface

Date Job Completed: 5/1/2019

Quote #: QUO-30616

Execution #: EXC-17687



Caerus

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

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

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

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

BJ Cementing Treatment Report

SERVICE SUPERVISOR	Francisco Castillo	FORMATION	
CLIENT FIELD REPRESENTATIVE		RIG	H&P 330
DISTRICT	Rifle, CO	COUNTY	GARFIELD
SERVICE	Cementing	STATE / PROVINCE	CO

WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	EXCESS (%)	GRADE	THREAD
Previous Casing	19.50	20.00	52.73	130.00			
Open Hole	14.75			2,520.00			
Casing	8.92	9.63	36.00	2,470.29		J-55	LTC

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	2,425.79
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	3520.00
Top Plug Size	9.625	Max Casing Pressure - Operated (psi)	2816.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	5.00	Job Pumped Through	Manifold
Centralizers Type	Bow	Top Connection Thread	8RD
Landing Collar Depth (ft)	2,426	Top Connection Size	9.625

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End Date: 5/1/2019

Field Ticket #: FT-17687-R3W4W60202-69383



CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	YP Mud In	16
Circulation Prior to Job	Yes	Solids Present at End of Circulation	No
Circulation Time (min)	30.00	10 sec SGS	8
Circulation Rate (bpm)	6.00	10 min SGS	18
Circulation Volume (bbls)	180.00	30 min SGS	42
Lost Circulation Prior to Cement Job	Yes	Flare Prior to / during the Cement Job	No
Mud Density In (ppg)	9.10	Gas Present	No
PV Mud In	19		

TEMPERATURE

Ambient Temperature (°F)	30.00	Slurry Cement Temperature (°F)	53.00
Mix Water Temperature (°F)	44.00	Flow Line Temperature (°F)	74.00

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	Water	8.3300			0.00				20.0000
Lead Slurry	BJCem S100.3.01D	12.0000	2.5298	14.86	0.00	2,000.00	584	1477.0000	263.0000
Tail Slurry	BJCem S100.3.01D	12.5000	2.2256	12.59	2,000.00	500.00	161	358.0000	64.0000
Displacement Final	Displacement	8.3300			0.00			0.0000	187.5000

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

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Start Date: 5/1/2019

End Date: 5/1/2019

Field Ticket #: FT-17687-R3W4W60202-69383



TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESS (psi)	ANNULUS PRESS (psi)	COMMENTS
5/1/2019 3:43:00 PM	Water	5.00	20.00	139.00		SPACER
5/1/2019 3:45:00 PM	BJCem S100.3.01D	6.50	263.00	291.00		LEAD CEMENT
5/1/2019 4:32:00 PM	BJCem S100.3.01D	4.70	64.00	159.00		TAIL CEMENT
5/1/2019 4:58:00 PM	Displacement	6.50	187.50	339.00		DISPLACEMENT

MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	139.00	339.00	232.00
Rate (bpm)	4.70	6.50	5.68

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	187.50	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	187.50	Amt of Spacer to Surface	0.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	0.50
Bump Plug Pressure (psi)	800.00	Total Volume Pumped (bbls)	827.00
Were Returns Planned at Surface	No	Top Out Cement Spotted	Yes
Cement Returns During Job	None	Lost Circulation During Cement Job	Yes

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BJ Cementing Event Log

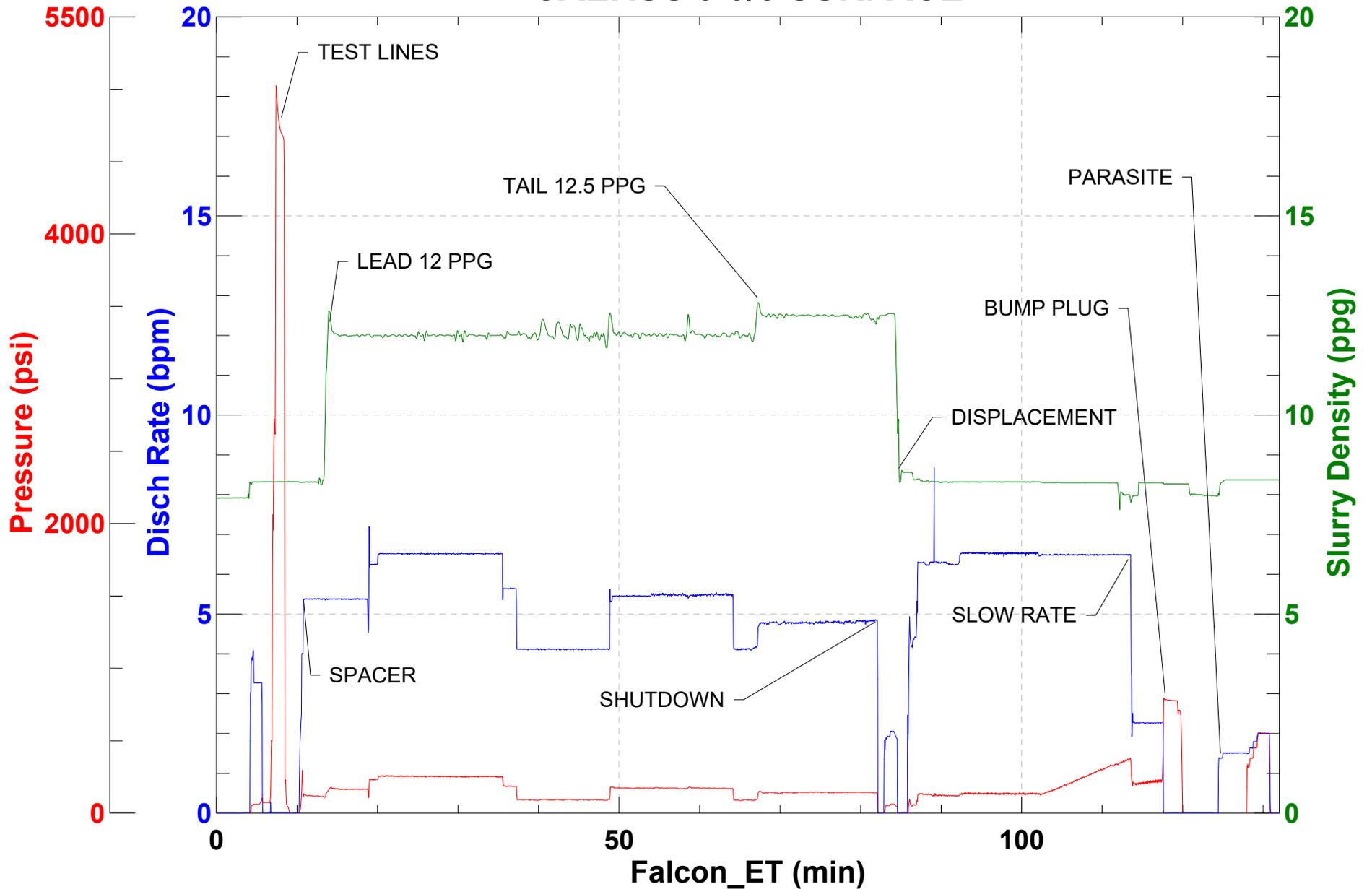
Surface - Rifle, CO - Francisco Castillo

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	05/01/2019 07:30	Callout					ON LOCATION AT NOON
2	05/01/2019 09:10	Depart for Location					JM MEETING, LEAVE THE YARD
3	05/01/2019 11:25	Arrive on Location					ARRIVE ON LOCATION, RIG RUNNING CASING
4	05/01/2019 11:35	Rig Up					RIG UP EQUIPMENT
5	05/01/2019 14:10	Other (See comment)	9.1000	6.00	190.00	133.00	RIG LAND CASING, CIRCULATED WELL 6 BPM, 30 MINUTES, 190 BBLS
6	05/01/2019 14:15	STEACS Briefing					PRE-JOB SAFETY MEETING WITH RIG CREW
7	05/01/2019 15:39	Pressure Test				5000.00	PRESSURE TEST LINES
8	05/01/2019 15:43	Pump Spacer	8.3400	5.00	20.00	139.00	WATER SPACER
9	05/01/2019 15:45	Pump Lead Cement	12.0000	6.50	50.00	291.00	LEAD 584SKS/263BBLS AT 12PPG, 2.53YLD, 14.86GPS
10	05/01/2019 15:54	Pump Lead Cement	12.0000	6.50	50.00	289.00	100 BBLS LEAD CEMENT PUMPED
11	05/01/2019 16:02	Pump Lead Cement	12.0000	5.50	50.00	185.00	150 BBLS LEAD CEMENT PUMPED
12	05/01/2019 16:10	Pump Lead Cement	12.0000	5.50	50.00	201.00	200 BBLS LEAD CEMENT PUMPED
13	05/01/2019 16:22	Pump Lead Cement	12.0000	5.50	63.00	197.00	263 BBLS LEAD CEMENT PUMPED
14	05/01/2019 16:32	Pump Tail Cement	12.5000	4.70	64.00	159.00	TAIL 161SKS/64BBLS AT 12.5PPG, 2.23YLD, 12.59GPS, CALCULATED TOP OF TAIL 1,968'
15	05/01/2019 16:55	End Pumping					SHUTDOWN, PUMPED 3 BBLS IN PREVIOUS PARASITE, DROP TOP PLUG WITH 2 BBLS CEMENT ON TOP
16	05/01/2019 16:58	Pump Displacement	8.3400				BEGIN DISPLACEMENT FRESH WATER

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
17	05/01/2019 17:07	Pump Displacement	8.3400	6.50	50.00	169.00	50 BBLS DISPLACEMENT PUMPED
18	05/01/2019 17:14	Pump Displacement	8.3400	6.50	50.00	173.00	100 BBLS DISPLACEMENT PUMPED
19	05/01/2019 17:22	Pump Displacement	8.3400	6.50	77.00	239.00	177 BBLS DISPLACEMENT PUMPED
20	05/01/2019 17:26	Pump Displacement	8.3400	2.00	10.50	271.00	SLOW RATE
21	05/01/2019 17:30	Land Plug				800.00	LAND TOP PLUG, NO RETURNS
22	05/01/2019 17:34	Check Floats					FLOATS HELD, 0.5 BBL FLOW BACK
23	05/01/2019 17:37	Other (See comment)	8.3400	1.50	10.00	448.00	SUGAR WATER THROUGH PARASITE, BROKE AT 448 PSI
24	05/01/2019 17:44	End Pumping					SHUTDOWN, GET READY FOR TOPOUT
25	05/01/2019 18:15	Pump Spacer	9.0000	3.00	2.00	91.00	CALCIUM CHLORIDE SPACER
26	05/01/2019 18:16	Pump Spacer	8.3400	3.00	2.00	93.00	WATER SPACER
27	05/01/2019 18:22	Pumping Cement	12.5000	3.50	288.00	211.00	TOPOUT 725SKS/288BBLS AT 12.5 PPG
28	05/01/2019 20:00	End Pumping					SHUTDOWN, USED 420 GAL OF SODIUM SILICATE ON TOPOUT
29	05/01/2019 20:15	Rig Down					RIG DOWN MEETING, WASH PUMP, BLOW DOWN SILO 24, RIG DOWN
30	05/01/2019 22:00	Depart for Location					AAR, JM STEACS, LEAVE LOCATION
31	05/01/2019 22:01	Other (See comment)					THANK YOU FOR YOUR BUSINESS FROM JAVIER AND CREW



CAERUS 9 5/8 SURFACE





CAERUS TOPOUT

