



Caerus

Well Name: NPR 11C-2-596

API #: 05-045-23993

Job Type: Surface

Date Job Completed: 02/27/2019

Quote #: QUO-27496

Execution #: EXC-16014



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	Mark Rust	FORMATION	
CLIENT FIELD REPRESENTATIVE	Bud Wenzel	RIG	H&P 330
DISTRICT	Rifle, CO	COUNTY	GARFIELD
SERVICE	Cementing	STATE / PROVINCE	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		14.75	0.00	3,014.00			
Casing	9.63	8.92	36.00	2,964.59		J-55	LTC

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	2,917.00
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	7.00	Job Pumped Through	No Manifold
Centralizers Type	Bow	Top Connection Thread	8rd
Landing Collar Depth (ft)	2,917	Top Connection Size	9.625



CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	YP Mud In	3
Circulation Prior to Job	Yes	YP Mud Out	3
Circulation Time (min)	60.00	Solids Present at End of Circulation	No
Circulation Rate (bpm)	8.00	10 sec SGS	1
Circulation Volume (bbls)	480.00	10 min SGS	1
Lost Circulation Prior to Cement Job	Yes	30 min SGS	2
Mud Density In (ppg)	8.50	Flare Prior to / during the Cement Job	No
Mud Density Out (ppg)	8.50	Gas Present	No
PV Mud In	3		
PV Mud Out	3		

TEMPERATURE

Ambient Temperature (°F)	45.00	Slurry Cement Temperature (°F)	85.00
Mix Water Temperature (°F)	85.00	Flow Line Temperature (°F)	68.00

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	Water	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	225.0000
Top-Out Slurry	BJCem S100.3.01D	12.5000	2.2256	12.59	1042	2319.0800	413.0000



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

TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESSURE (psi)	ANNULUS PRESSURE (psi)	COMMENTS
2/26/2019 5:30:00 PM	Water	3.00	20.00	92.00		
2/27/2019 5:35:00 PM	BJCem S100.3.01D	6.00	323.70	233.00		
2/26/2019 6:30:00 PM	BJCem S100.3.01D	5.00	63.70	130.00		
2/26/2019 6:54:00 PM	Displacement	7.50	225.00	302.00		
2/26/2019 8:25:00 PM	BJCem S100.3.01D	3.00	413.00	100.00		

MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	92.00	302.00	189.25
Rate (bpm)	3.00	7.50	5.38



DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	225.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	225.00	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	1.00
Bump Plug Pressure (psi)	740.00	Total Volume Pumped (bbls)	1043.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	Yes
Cement Returns During Job	None	Lost Circulation During Cement Job	Yes

Client Name: Caerus Operating LLC

Well: NPR 11C-2-596

Well API: 05-045-23993



Start Date: 2/26/2019

End Date: 2/27/2019

Field Ticket #: FT-16014-K4X5B90202-17289

BJ Cementing Event Log

Surface - Rifle, CO - Mark Rust

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	02/26/2019 10:30	Callout					Crew Gathers at yard to prepare for job
2	02/26/2019 11:30	Depart for Location					Depart Rifle yard
3	02/26/2019 14:30	Arrive on Location					Arrive on Location (RTS 14:30)
4	02/26/2019 14:30	STEACS Briefing					Safety meeting to spot trucks
5	02/26/2019 14:45	Spot Units					Spot units
6	02/26/2019 15:30	STEACS Briefing					Rig up safety meeting
7	02/26/2019 15:45	Rig Up					Begin Rig UP
8	02/26/2019 16:45	STEACS Briefing					Safety meeting with customer and rig crew
9	02/26/2019 17:00	Prime Up					Prime up pump
10	02/26/2019 17:15	Rig Up					Rig up cement head
11	02/26/2019 17:24	Prime Up	8.3400	2.50	5.00	61.00	Load lines
12	02/26/2019 17:26	Pressure Test	8.3400			3500.00	Test Lines
13	02/26/2019 17:30	Pump Spacer	8.3400	3.00	15.00	92.00	Pump water Spacer
14	02/26/2019 17:35	Pump Lead Cement	12.0000	3.00	0.00	68.00	Start pumping lead
15	02/26/2019 17:35	Pump Lead Cement	12.0000	5.50	50.00	237.00	Pumping Lead
16	02/26/2019 17:45	Pump Lead Cement	12.0000	6.00	100.00	225.00	Pumping Lead
17	02/26/2019 17:53	Pump Lead Cement	12.0000	6.00	150.00	231.00	Pumping Lead



SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
18	02/26/2019 18:00	Pump Lead Cement	12.0000	6.00	200.00	233.00	Pumping Lead
19	02/26/2019 18:09	Pump Lead Cement	12.0000	6.00	250.00	239.00	Pumping Lead
20	02/26/2019 18:17	Pump Lead Cement	12.0000	4.00	300.00	98.00	Pumping Lead
21	02/26/2019 18:28	Pump Lead Cement	12.0000	4.00	323.00	98.00	Finish Pumping Lead
22	02/26/2019 18:33	Pump Tail Cement	12.5000	4.00	0.00	85.00	Start pumping Tail
23	02/26/2019 18:33	Pump Tail Cement	12.5000	5.00	50.00	130.00	Pumping Tail
24	02/26/2019 18:45	Pump Tail Cement	12.5000	4.00	63.00	85.00	Finish Pumping Tail
25	02/26/2019 18:50	Drop Top Plug	12.5000	2.00	5.00	250.00	Pump cement down previous Parasite/Drop Top Plug
26	02/26/2019 18:54	Pump Displacement	8.3400	4.00	0.00	100.00	Start pumping displacement
27	02/26/2019 18:54	Pump Displacement	8.3400	7.50	50.00	253.00	Pumping Displacement
28	02/26/2019 19:02	Pump Displacement	8.3400	7.50	100.00	265.00	Pumping Displacement
29	02/26/2019 19:09	Pump Displacement	8.3400	7.50	150.00	207.00	Pumping Displacement
30	02/26/2019 19:15	Pump Displacement	8.3400	7.50	200.00	302.00	Pumping Displacement
31	02/26/2019 19:22	Pump Displacement	8.3400	2.00	223.00	130.00	Finish Pumping Displacement
32	02/26/2019 19:27	Land Plug	8.3400	2.00	223.00	740.00	Bump Plug (F.C. 130psi)
33	02/26/2019 19:27	Other (See comment)					Hold pressure
34	02/26/2019 19:33	Check Floats					Bleed pressure/CHEck FLoats 1bbl back
35	02/26/2019 19:33	Rig Up					Rig up to top out
36	02/26/2019 19:39	Other (See comment)					Wait on rig to land BOP stack
37	02/26/2019 19:44	Rig Up					Rig up to top out
38	02/26/2019 20:25	Pumping Cement	12.5000	3.00	240.00	100.00	Pump first top out
39	02/26/2019 22:00	Wash Pumps and Lines					Wash up pump
40	02/26/2019 23:00	Other (See comment)					Waiting on cement delivery

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
41	02/27/2019 04:00	Rig Up					Rig up to top out
42	02/27/2019 04:45	Pumping Cement	12.5000	3.00	92.00	100.00	Pump top out #2
43	02/27/2019 05:40	Wash Pumps and Lines					Wash up pump
44	02/27/2019 06:20	Other (See comment)					Waiting on cement to be delivered
45	02/27/2019 08:30	Rig Up					Rig up to top out
46	02/27/2019 09:30	Pumping Cement	12.5000	3.00	80.00	100.00	Pump top out #3/Cement to surface
47	02/27/2019 10:30	Wash Pumps and Lines					Wash up pump
48	02/27/2019 11:00	STEACS Briefing					Rig down safety meeting
49	02/27/2019 11:15	Rig Down					Rig down
50	02/27/2019 13:00	STEACS Briefing					Journey Management meeting
51	02/27/2019 13:15	Leave Location					Leave Location







