



# Caerus

**Well Name: NPR 12A-9-596**

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**API #: 05-045-23878**

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**Job Type: Surface**

Date Job Completed: 12/24/2018

**Quote #:** QUO-24578

**Execution #:** EXC-14233



# 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>	Wendell Youngberg	<b>FORMATION</b>	
<b>CLIENT FIELD REPRESENTATIVE</b>	Jarvis Abbey	<b>RIG</b>	H&P 273
<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
Open Hole	0.00	14.75	0.00	2,510.00			
Casing	9.63	8.92	36.00	2,498.00		J-55	LTC
Previous Casing	20.00	19.50	52.73	130.00			

## HARDWARE

<b>Bottom Plug Used?</b>	No	<b>Tool Type</b>	Float Collar
<b>Top Plug Used?</b>	Yes	<b>Tool Depth (ft)</b>	2,456.30
<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>	2000.00
<b>Centralizers Used</b>	Yes	<b>Pipe Movement</b>	None
<b>Centralizers Quantity</b>	7.00	<b>Job Pumped Through</b>	Manifold
<b>Centralizers Type</b>	Bow	<b>Top Connection Thread</b>	8 rd
<b>Landing Collar Depth (ft)</b>	2,498	<b>Top Connection Size</b>	9.625



## CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	YP Mud In	13
Circulation Prior to Job	Yes	Solids Present at End of Circulation	No
Circulation Time (min)	120.00	10 sec SGS	4
Circulation Rate (bpm)	6.50	10 min SGS	8
Circulation Volume (bbls)	780.00	30 min SGS	17
Lost Circulation Prior to Cement Job	No	Flare Prior to / during the Cement Job	No
Mud Density In (ppg)	9.60	Gas Present	No
PV Mud In	11	Gas Units	0

## TEMPERATURE

Ambient Temperature (°F)	30.00	Slurry Cement Temperature (°F)	70.00
Mix Water Temperature (°F)	68.00	Flow Line Temperature (°F)	70.00

## 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	584	1477.0000	263.0000
Tail Slurry	BJCem S100.3.01D	12.5000	2.2256	12.59	161	358.0000	63.7000
Displacement Final	Displacement	8.3300				0.0000	189.8900
Top Out Slurry	BJCem S100.3.01D	12.5000	2.2256	12.59	25	56.0000	10.0000

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

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESSURE (psi)
12/24/2018 6:38:00 AM	Water 1	5.00	20.00	190.00
12/24/2018 6:42:00 AM	Sodium Silicate	5.00	20.00	198.00
12/24/2018 6:46:00 AM	Water 2	5.00	20.00	182.00
12/24/2018 6:54:00 AM	BJCem S100.3.01D	5.00	263.00	172.00
12/24/2018 7:46:00 AM	BJCem S100.3.01D	5.00	63.70	168.00
12/24/2018 8:08:00 AM	Displacement	7.00	190.20	736.00

### MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	168.00	736.00	274.33
Rate (bpm)	5.00	7.00	5.33



## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ
Calculated Displacement Vol (bbls)	189.89
Actual Displacement Vol (bbls)	189.89
Did Float Hold?	Yes
Bump Plug	Yes
Bump Plug Pressure (psi)	655.00
Were Returns Planned at Surface	Yes
Cement Returns During Job	None

Amt of Cement Returned / Reversed	0.00
Method Used to Verify Returns	Visual
Amt of Spacer to Surface	0.00
Pressure Left on Casing (psi)	0.00
Amt Bled Back After Job	0.50
Total Volume Pumped (bbls)	596.00
Top Out Cement Spotted	Yes
Lost Circulation During Cement Job	No



# BJ Cementing Event Log

Surface - Rifle, CO - Wendell Youngberg

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	12/23/2018 18:30	Callout					Yard Time 18:30 Ready to Service At 23:30
2	12/23/2018 20:30	Leave Location					Leave Rifle Yard
3	12/23/2018 22:30	Arrive on Location					Arrive on Location and Spot Trucks
4	12/23/2018 22:45	Rig Up					Rig Up STEACS And Rig in Water, Bulk, Iron
5	12/23/2018 23:30	Rig					Rig Still Running Casing And 2 Bottoms Up
6	12/24/2018 05:00	STEACS Briefing					STEACS Meeting with Rig
7	12/24/2018 05:20	Prime Up					Prime Up for Job
8	12/24/2018 06:00	Open Wellhead					Stab Head and Open
9	12/24/2018 06:30	Pump Spacer	8.3400	3.00	5.00	91.00	Pump Fresh Water Spacer Fill Lines
10	12/24/2018 06:34	Pump Spacer				3000.00	Test Lines
11	12/24/2018 06:38	Pump Spacer	8.3400	5.00	15.00	190.00	Pump Fresh Water Spacer
12	12/24/2018 06:42	Pump Spacer	8.3400	5.00	20.00	198.00	S.S. Water mix Spacer
13	12/24/2018 06:46	Pump Spacer	8.3400	5.00	20.00	182.00	Fresh Water Spacer
14	12/24/2018 06:51	Pump Lead Cement					Batch Up Lead Cement
15	12/24/2018 06:53	Pump Lead Cement	12.0000	5.00	263.00	172.00	Batch Up Lead Cement
16	12/24/2018 06:54	Pump Lead Cement	12.0000	5.00		164.00	50 BBLS Pumped Lead Cement
17	12/24/2018 07:05	Pump Lead Cement	12.0000	5.00		158.00	100 BBLS Pumped Lead Cement



SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
18	12/24/2018 07:15	Pump Lead Cement	12.0000	5.00		171.00	150 BBLs Pumped Lead Cement
19	12/24/2018 07:27	Pump Lead Cement	12.0000	5.00		159.00	200 BBLs Pumped Lead Cement
20	12/24/2018 07:38	Pump Lead Cement	12.0000	5.00		151.00	263 BBLs Pumped Lead Cement
21	12/24/2018 07:46	Pump Tail Cement	12.5000	4.00	63.00	99.00	Start Tail Cement
22	12/24/2018 07:47	Pump Tail Cement	12.5000	5.00		168.00	39 BBLs Pumped Tail Cement
23	12/24/2018 07:55	Pump Tail Cement	12.5000	5.00		160.00	63 BBLs Pumped Tail Cement
24	12/24/2018 08:00	Wash Pumps and Lines					Wash Lines
25	12/24/2018 08:08	Drop Top Plug					Drop Plug
26	12/24/2018 08:09	Pump Displacement	8.3400	5.00	190.00	81.00	Start Displacement
27	12/24/2018 08:17	Pump Displacement	8.3400	7.00		292.00	50 BBLs Pumped Displacement
28	12/24/2018 08:24	Pump Displacement	8.3400	7.00		686.00	100 BBLs Pumped Displacement
29	12/24/2018 08:31	Pump Displacement	8.3400	7.00		655.00	190 BBLs Pumped Displacement
30	12/24/2018 08:39	Land Plug		2.00		655.00	Land Plug
31	12/24/2018 08:40	Pressure Test				1040.00	Hold PSI
32	12/24/2018 08:45	Check Floats				0.00	Check Floats
33	12/24/2018 08:46	Rig Up				0.00	Rig Up to Parasite Line
34	12/24/2018 08:48	Pump Spacer	8.3400	1.50	10.00	240.00	Pump Sugar Water Down Parasite Line
35	12/24/2018 08:56	Wash Pumps and Lines					Wash Pump and Lines
36	12/24/2018 09:20	Client					Wait 4 Hours for Top Out Job
37	12/24/2018 12:30	Prime Up					Rig Top Out and Prime Up
38	12/24/2018 13:00	Pump Spacer	8.5000	2.00	3.00	86.00	Cal. Water Spacer
39	12/24/2018 13:05	Run Top Out	12.5000	2.00	10.00	98.00	Top Out Cement
40	12/24/2018 13:20	STEACS Briefing					Rig Down STEACS
41	12/24/2018 13:30	Rig Down					Rig Down Iron, Bulk, Water, Wash Pump
42	12/24/2018 15:00	STEACS Briefing					Travel STEACS

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
43	12/24/2018 15:15	Depart for Location					Leave Rig Location





Caerus NPR 12A-9 Surface Chart



