



# Caerus

**Well Name: NPR 23B-8-596**

**API #: 05-045-23974**

**Job Type: Surface**

**Date Job Completed: 5/8/2019**

**Quote #:** QUO-30910

**Execution #:** EXC-17869



# 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

SERVICE SUPERVISOR	H. Zeke Busheri	FORMATION	
CLIENT FIELD REPRESENTATIVE	Kim Gritz	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			2,525.00			
Casing	8.92	9.63	36.00	2,505.00		J-55	LTC

## HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	2,460.90
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	3520.00
Top Plug Size	9.625	Max Casing Pressure - Operated (psi)	2800.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	5.00	Job Pumped Through	No Manifold
Centralizers Type	Bow	Top Connection Thread	8rd
Landing Collar Depth (ft)	2,461	Top Connection Size	9.625

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End Date: 5/8/2019

Field Ticket #: FT-17869-M7SON00202-06713



## CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	YP Mud In	12
Circulation Prior to Job	Yes	Solids Present at End of Circulation	No
Circulation Time (min)	100.00	10 sec SGS	9
Circulation Rate (bpm)	8.00	10 min SGS	22
Circulation Volume (bbls)	530.00	30 min SGS	36
Lost Circulation Prior to Cement Job	Yes	Flare Prior to / during the Cement Job	No
Mud Density In (ppg)	8.95	Gas Present	No
PV Mud In	16		

## TEMPERATURE

Ambient Temperature (°F)	43.00	Slurry Cement Temperature (°F)	52.00
Mix Water Temperature (°F)	50.00	Flow Line Temperature (°F)	

## FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H <sub>2</sub> O REQ (gals/sk)	PLN TOP FLD (ft)	LENGTH (ft)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	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	2.2255	12.59	2,000.00	500.00	161	358.0000	63.7000
Displacement Final	Displacement	8.3300			0.00			0.0000	190.2000

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

### TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESS (psi)	ANNULUS PRESS (psi)	COMMENTS
5/8/2019 12:00:00 PM	Water	5.00	20.00	125.00		
5/8/2019 12:30:00 PM	BJCem S100.3.01D	5.00	263.00	185.00		
5/8/2019 1:30:00 PM	BJCem S100.3.01D	5.00	63.70	162.00		
5/8/2019 2:00:00 PM	Displacement	5.00	190.25	353.00		
5/8/2019 4:30:00 PM	BJCem S100.3.01D	3.50	274.00	185.00		

### MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	125.00	353.00	202.00
Rate (bpm)	3.50	5.00	4.70

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## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	190.25	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	190.25	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)	1020.00	Total Volume Pumped (bbls)	811.00
Were Returns Planned at Surface	Yes	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 – H. Zeke Busheri

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	05/07/2019 23:00	Callout					Yard Call, STEACS, PreTrip, Load, JM
2	05/08/2019 00:30	Arrive on Location					Convoy to Location, AOL @ 0230, RTS @ 0330
3	05/08/2019 02:30	STEACS Briefing					STEACS w/ CoMan
4	05/08/2019 02:40	Spot Units					Spot All Equipment on Location
5	05/08/2019 02:50	Rig Up					STEACS, Rig up All DH Equipment to Buffer Zone
6	05/08/2019 04:00	Rig					Rig Running Casing, Rig Circulating 530 Bbls @ 8 BPM 100mins, No Returns to Surface
7	05/08/2019 10:50	STEACS Briefing					STEACS w/ CoMan, Rig Crew, 3rd Party
8	05/08/2019 11:05	Rig Up					Rig up PLH an Lines to Cellar
9	05/08/2019 12:05	Pump Spacer	8.3000	4.00	5.00	125.00	Fill Lines, Break Circulation
10	05/08/2019 12:10	Pressure Test				3580.00	Pressure Test Pump and Lines to Head
11	05/08/2019 12:15	Pump Spacer	8.3000	4.00	20.00	114.00	20 Bbls FW Spacer, Swap to Lead Cmt @ 12.0 PPG DH, 584 Sks, Y – 2.53, MW 14.86, 263 Bbls
12	05/08/2019 12:20	Pump Lead Cement	12.0000	5.00	50.00	160.00	50 Bbls Lead Cmt
13	05/08/2019 12:30	Pump Lead Cement	12.0000	4.50	100.00	184.00	100 Bbls Lead Cmt
14	05/08/2019 12:41	Pump Lead Cement	12.0000	4.50	150.00	141.00	150 Bbls Lead Cmt
15	05/08/2019 12:52	Pump Lead Cement	12.0000	4.50	200.00	157.00	200 Bbls Lead Cmt
16	05/08/2019 13:04	Pump Lead Cement	12.0000	4.00	250.00	136.00	250 Bbls Lead Cmt
17	05/08/2019 13:15	Pump Lead Cement	12.0000	4.00	263.00	103.00	263 Bbls Lead Cmt Pumped, Swap to Tail @ 12.5 PPG DH, 161 Sks, Y – 2.22, MW 12.59 , 63.7 Bbls
18	05/08/2019 13:20	Pump Tail Cement	12.5000	5.00	50.00	132.00	50 Bbls Tail Cmt
19	05/08/2019 13:30	Pump Tail Cement	12.5000	3.00	63.70	108.00	61 Bbls Tail Cmt, Shutdown
20	05/08/2019 13:35	Drop Top Plug	8.3000	5.00		93.00	Drop Top Plug, Pump 2 Bbls Cmt on top of Plug

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
21	05/08/2019 13:40	Pump Displacement	8.3300	5.00	50.00	58.00	50 Bbls FW Disp
22	05/08/2019 13:54	Pump Displacement	8.3300	5.00	100.00	97.00	100 Bbls FW Disp
23	05/08/2019 14:05	Pump Displacement	8.3300	5.00	150.00	353.00	150 Bbls FW Disp
24	05/08/2019 14:15	Land Plug	8.3300	2.00	190.25	1020.00	190.23 Bbls FW Disp Pumped, Land Plug @1020 PSI, FCP @ 340 PSI
25	05/08/2019 14:28	Check Floats					Floats Held, 1 Bbls Returned to Truck. Set Up for Top Out
26	05/08/2019 14:33	Other (See comment)	8.3400	2.50	10.00	920.00	10 Bbls Sugar Water Down Parasite String, Break Over @ 920 PSI 5 Bbls Away. Set up for TopOut
27	05/08/2019 14:38	Run Top Out	12.5000	3.50	50.00	65.00	50 Bbls TopOut
28	05/08/2019 15:18	Run Top Out	12.5000	3.50	100.00	185.00	100 Bbls TopOut
29	05/08/2019 15:33	Run Top Out	12.5000	3.50	150.00	187.00	150 Bbls TopOut
30	05/08/2019 15:48	Run Top Out	12.5000	3.50	200.00	181.00	200 Bbls TopOut
31	05/08/2019 16:13	Run Top Out	12.5000	3.50	250.00	192.00	250 Bbls TopOut
32	05/08/2019 16:31	Cement Back-to-Surface	12.5000	3.50	269.00	183.00	269 Bbls TopOut, Cmt to Surface 692 Sks
33	05/08/2019 16:42	Other (See comment)	12.5000	3.50	5.00	103.00	5 Bbls Cmt Pumped down previous Parasite String
34	05/08/2019 17:00	Rig Down					STEACS, Rig Down and Stow all DH Equip
35	05/08/2019 19:30	Leave Location					JM, Conoy Back to Yard





