



Caerus

Well Name: NPR 24B-3

API #: 05-045-24002

Job Type: Surface

Date Job Completed: 02/01/2019

Quote #: QUO-24614

Execution #: EXC-14294



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	Wendell Youngberg	FORMATION	
CLIENT FIELD REPRESENTATIVE	George Urban	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	0.00	14.75	0.00	3,008.00			
Casing	9.63	8.92	36.00	2,987.90		J-55	LTC

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	2,946.00
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	3,520.00
Top Plug Size	9.625	Max Casing Pressure - Operated (psi)	2,000.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	5.00	Job Pumped Through	Manifold
Centralizers Type	Bow	Top Connection Thread	8 rd
Landing Collar Depth (ft)	2,960	Top Connection Size	9.625

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)	80.00	10 sec SGS	6
Circulation Rate (bpm)	6.00	10 min SGS	23
Circulation Volume (bbls)	480.00	30 min SGS	30
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	18	Gas Units	0

TEMPERATURE

Ambient Temperature (°F)	36.00	Slurry Cement Temperature (°F)	81.00
Mix Water Temperature (°F)	80.00	Flow Line Temperature (°F)	70.00

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	227.8000
Top Out Slurry	BJCem S100.3.01D	12.5000	2.2256	12.59	328	729.9900	130.000



FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Lead Slurry	BJCem S100.3.01D	CEMENT, ASTM TYPE III	100.0000	PCT
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	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
Lead 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, 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 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

TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESSURE (psi)	ANNULUS PRESSURE (psi)	COMMENTS
2/1/2019 1:52:00 PM	Water	2.00	20.00	90.00		
2/1/2019 2:07:00 PM	BJCem S100.3.01D	5.00	323.70	180.00		
2/1/2019 3:15:00 PM	BJCem S100.3.01D	5.00	63.70	119.00		
2/1/2019 3:31:00 PM	Displacement	6.50	228.80	689.00		

MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	0.00	1190.00	450.00
Rate (bpm)	2.00	6.50	5.00

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ
Calculated Displacement Vol (bbls)	227.80
Actual Displacement Vol (bbls)	227.80
Did Float Hold?	Yes
Bump Plug	Yes
Bump Plug Pressure (psi)	689.00
Were Returns Planned at Surface	No
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	0.75
Total Volume Pumped (bbls)	763.00
Top Out Cement Spotted	Yes
Lost Circulation During Cement Job	Yes

Client Name: Caerus Operating LLC

Well: NPR 24B-3-596

Well API: 05-045-24002

Start Date: 2/1/2019

End Date: 2/1/2019

Field Ticket #: FT-15313-X9X0R70202-16960



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	02/01/2019 06:00	Callout					Call Out Yard Time 6:00 Ready to Service At 12:00
2	02/01/2019 08:50	Depart for Location					Leave Rifle Yard
3	02/01/2019 11:00	Arrive on Location					Arrive on Location and Spot Trucks
4	02/01/2019 11:15	STEACS Briefing					Rig Up STEACS
5	02/01/2019 11:20	Rig Up					Rig Up Iron, Bulk, Water
6	02/01/2019 11:55	Rig Up					Rig Installing Landing Joint
7	02/01/2019 12:00	Rig Up				74.00	Rig Starting Circulation, Pipe Capacity of Fresh Water
8	02/01/2019 12:02	Rig				74.00	Rig Starting Circulation, Pipe Capacity of Fresh Water
9	02/01/2019 13:00	STEACS Briefing					STEACS Meeting with Rig
10	02/01/2019 13:20	Rig					Rig End Circ. And Blow down Lines
11	02/01/2019 13:45	Open Wellhead					Stab Head and Open
12	02/01/2019 13:52	Pump Spacer	8.3400	2.00	5.00	92.00	Fresh Water Spacer to Fill Lines
13	02/01/2019 13:55	Pressure Test				3250.00	PSI Test Lines
14	02/01/2019 14:02	Pump Spacer	8.3400	3.50	15.00	90.00	Fresh Water Spacer to Fill Lines
15	02/01/2019 14:07	Pump Lead Cement	12.0000	4.50	323.00	119.00	Start Lead Cement
16	02/01/2019 14:18	Pump Lead Cement	12.0000	4.00		105.00	50 BBLs Pumped Lead Cement

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
17	02/01/2019 14:29	Pump Lead Cement	12.0000	5.00		163.00	100 BBLs Pumped Lead Cement
18	02/01/2019 14:39	Pump Lead Cement	12.0000	5.00		180.00	150 BBLs Pumped Lead Cement
19	02/01/2019 14:49	Pump Lead Cement	12.0000	5.00		174.00	200 BBLs Pumped Lead Cement
20	02/01/2019 14:59	Pump Lead Cement	12.0000	5.00		174.00	250 BBLs Pumped Lead Cement
21	02/01/2019 15:11	Pump Lead Cement	12.0000	5.00		174.00	323 BBLs Pumped Lead Cement
22	02/01/2019 15:15	Pump Tail Cement	12.5000	5.00		119.00	Start Tail Cement
23	02/01/2019 15:21	Pump Tail Cement	12.5000	5.00		112.00	30 BBLs Pumped Tail Cement
24	02/01/2019 15:27	Pump Tail Cement	12.5000	3.00		109.00	63 BBLs Pumped Tail Cement
25	02/01/2019 15:28	Wash Pumps and Lines					Wash Pump Get Ready to Drop Plug
26	02/01/2019 15:31	Drop Top Plug					Drop Plug
27	02/01/2019 15:32	Pump Displacement	8.3400	5.00	227.00	78.00	Start Displacement
28	02/01/2019 15:41	Pump Displacement	8.3400	6.50		178.00	50 BBLs Pumped Displacement
29	02/01/2019 15:50	Pump Displacement	8.3400	6.50		274.00	100 BBLs Pumped Displacement
30	02/01/2019 15:58	Pump Displacement	8.3400	6.50		458.00	150 BBLs Pumped Displacement
31	02/01/2019 16:06	Pump Displacement	8.3400	2.00		689.00	227 BBLs Pumped Displacement
32	02/01/2019 16:15	Land Plug				689.00	Land Plug, Final Circ. PSI 689
33	02/01/2019 16:16	Pressure Test				1190.00	Hold Psi For 5 Min.
34	02/01/2019 16:21	Check Floats				0.00	Check Floats
35	02/01/2019 16:22	Rig Up					Rig Up to Parasite Line
36	02/01/2019 16:26	Other (See comment)	8.3400	2.00	10.00	359.00	Sugar Water Down Parasite Line
37	02/01/2019 16:32	Rig Down					Rig Down Head
38	02/01/2019 16:56	Pump Spacer	9.0000	2.00	2.00	142.00	Cal. Chlor. Water Spacer
39	02/01/2019 16:58	Pump Spacer	8.3400	2.00	2.00	22.00	Fresh Water Spacer
40	02/01/2019 17:00	Run Top Out	12.5000				Batch Up Top Out Cement
41	02/01/2019 17:02	Run Top Out	12.5000	4.00	130.00	110.00	Start Top Out Cement

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
42	02/01/2019 17:25	Run Top Out	12.5000	4.00		235.00	50 BBLs Pumped Top Out Cement
43	02/01/2019 17:33	Run Top Out	12.5000	4.00		165.00	80 BBLs Pumped Top Out Cement
44	02/01/2019 17:35	Run Top Out	12.5000				Stop Pumping
45	02/01/2019 17:51	Run Top Out	12.5000	3.50			Start Pumping Top Out Cement
46	02/01/2019 17:56	Run Top Out	12.5000	3.50			100 BBLs Pumped Top Out Cement
47	02/01/2019 18:02	Run Top Out	12.5000	3.50			130 BBLs Pumped Top Out Cement
48	02/01/2019 18:20	Run Top Out					Top Out Cement To Surface
49	02/01/2019 18:21	STEACS Briefing					Rig Down STEACS
50	02/01/2019 18:30	Rig Down					Rig Down Iron, Bulk, Water
51	02/01/2019 20:00	STEACS Briefing					Travel STEACS
52	02/01/2019 20:15	Leave Location					Leave Rig Location

_____ 323 BBLs. Lead CMT. 719 SKS. 12.0 PPG. 2.53 FT3/SK. 14.86 GAL./SK.

_____ 63 BBLs. Tail CMT. 161 SKS. 12.5 PPG 2.23 FT3/SK. 12.59 GAL./SK.

_____ WASH UP on plug

_____ 227.8 BBLs. Total Displacement

_____ Slow to 2 BBLs. /MIN at 210

_____ Land Plug

_____ Take 500 PSI Over Circulating Pressure

_____ Pump 10 BBLs Sugar Water Down Parasite line



