



Caerus

SURFACE POST JOB REPORT

Puckett 34B-23 697 05-045-23384
S:23 T:6S R:97W Garfield CO

CallSheet #: 1016
Proposal #: 13508



SURFACE Post Job Report

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

Technical Specialist-II | (307) 757-7178 | Zen.Keith@bjservices.com

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1 Job Details & Summary

1.1 Geometry

Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Thread	Top (ft)	Bottom (ft)	Excess (%)
Open Hole	Outer	n/a	14.75	n/a	n/a	100	2000	25
Open Hole	Outer	n/a	14.75	n/a	n/a	2000	2550	0
Casing	Outer	20	19.5	53	n/a	0	100	0
Casing	Inner	9.625	8.921	36	LTC	0	2522	0

1.2 Equipment / People

Unit Type	Unit	Employee #1	Employee #2	Mileage
Silo	651			50
Bulk Trailer	E949	Ham, Robert	Youngberg, Wendell	50
Cement Pump	104	Kresge, Adam		50
Light Duty Pickups	2	McVay Jr., Jerry	Dent, Jerod	50
Cement Chemical	401	Linn, Andrew		50

1.3 Timing

Event	Date/Time
Call Out	7/15/2017 08:30
Depart Facility	7/15/2017 10:30
On Location	7/15/2017 12:10
Rig Up Iron	7/15/2017 12:30
Job Started	7/15/2017 20:35
Job Completed	7/16/2017 06:15
Rig Down Iron	7/16/2017 06:20
Depart Location	7/16/2017 07:30

1.4 General Job Information

Metrics	Value
Well Fluid Density	9.8 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	190 bbls
Rig Circulation Time	1 hours
Calculated Displacement	192 bbls
Actual Displacement	196 bbls
Total Spacer to Surface	0 bbls
Total CMT to Surface	0 bbls
Well Topped Out	Yes
Top Out Volume	37 bbls

1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	24
Yield Point	17
10 sec. SGS	10
10 min. SGS	30
30 min. SGS	55
Filtrate	10
Flow Line Temp.	98

1.6 Job Details

Metrics	Value
Flare Prior to Job	No
Flare During Job	No
Flare at End of Job	No
Well Full Prior to Job	No
Well Fluid Density Into Well	8.9 lb/gal
Well Fluid Density Out of Well	8.9 lb/gal

1.7 Job Details (cont.)

Metrics	Value
BHCT	94 °F
BHST	128 °F

1.8 Circulation

Lost Circulation Experienced
Yes

Circulation Details:

Had no circulation from the very start of job and rig did not have circulation after landing the casing and circulating on it.

1.9 Job Execution Information

Job	Fluid	Product	Function	Density (lb/gal)	Yield (ft ³ /sk)	Water Rq. (gal/sk)	Water Rq. (gal/bbl)	Volume (sks)	Volume (bbl)
1	1	Water	Flush	8.33			42.00		20.00
1	2	Sodium Silicate	Flush	10.00			21.00		20.00
1	3	Water	Flush	8.33			42.00		20.00
1	4	ALTCem S100-12	Lead	12.00	2.53	14.85		703.00	316.33
1	5	ALTCem S100-12	Tail	12.50	2.22	12.58		162.00	64.15
1	6	Water	DisplacementFinal	8.33			42.00		191.00
1	7	ALTCem S100-12	Topout	12.50	2.22	12.58		300.00	118.80

1.10 Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	2	Flush	Sodium Silicate	ASF-10	Extender	21.00	gal/bbl
1	4	Lead	ALTCem S100-12	AC3-10	Cement	100.00	%
1	4	Lead	ALTCem S100-12	ACL-10	Accelerator	2.00	lb/sk
1	4	Lead	ALTCem S100-12	ACL-20	Accelerator	5.00	%BWOB
1	4	Lead	ALTCem S100-12	ADF-11	Defoamer	0.30	%BWOB
1	4	Lead	ALTCem S100-12	ALC-10	LostCirculation	0.13	lb/sk
1	4	Lead	ALTCem S100-12	AXE-30	Extender	2.00	lb/sk
1	4	Lead	ALTCem S100-12	ADF-20	Defoamer	0.00	
1	5	Tail	ALTCem S100-12	AC3-10	Cement	100.00	%
1	5	Tail	ALTCem S100-12	ACL-10	Accelerator	2.00	lb/sk
1	5	Tail	ALTCem S100-12	ACL-20	Accelerator	5.00	%BWOB
1	5	Tail	ALTCem S100-12	ADF-11	Defoamer	0.30	%BWOB
1	5	Tail	ALTCem S100-12	ALC-10	LostCirculation	0.13	lb/sk
1	5	Tail	ALTCem S100-12	AXE-30	Extender	2.00	lb/sk
1	5	Tail	ALTCem S100-12	ADF-20	Defoamer	0.00	
1	7	Topout	ALTCem S100-12	AC3-10	Cement	100.00	%
1	7	Topout	ALTCem S100-12	ACL-10	Accelerator	2.00	lb/sk
1	7	Topout	ALTCem S100-12	ACL-20	Accelerator	5.00	%BWOB
1	7	Topout	ALTCem S100-12	ADF-11	Defoamer	0.30	%BWOB
1	7	Topout	ALTCem S100-12	ALC-10	LostCirculation	0.13	lb/sk
1	7	Topout	ALTCem S100-12	AXE-30	Extender	2.00	lb/sk

2 Job Logs

Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Comment
1	Callout	7/15/2017	08:30					Crew Called Out
2	Arrive Rifle District	7/15/2017	09:22					Arrive Rifle District for Caerus Surface
3	STEACS/Journey Management	7/15/2017	10:15					STEACS/Journey Management Discussed Lease Road Hazards
4	Depart Rifle District Facility	7/15/2017	10:30					Departed Rifle District Facility
5	Arrive On Location	7/15/2017	12:10					Met with Customer Rep to get job numbers.
6	Safety Meeting	7/15/2017	12:20					STEACS, discussed hazards of rig-up and Rig Hazards.
7	Start Rig-up	7/15/2017	12:30					Start Rig-up
8	Rig-up Complete/WOR	7/15/2017	13:30					Rig-up complete/Waiting on Rig (running casing with parasite line)
9	Pre-job STEACS/Safety meeting	7/15/2017	20:00					Pre-job STEACS/Safety meeting Discussed Hazard of job with Rig Crew
10	Start Job	7/15/2017	20:35					Job Started.
11	Fill Line to Pressure Test	7/15/2017	20:36	8.33	2	3	70	Filled Line with 3bbls Fresh Water
12	Pressure Test Lines	7/15/2017	20:38	8.33			3000	Tested Line to 3000psi.
13	Pump Fresh Water Spacer	7/15/2017	20:42	8.33	3	17	58	Pumped 20bbls Fresh Water Spacer
14	Pumped Sodium Silicate	7/15/2017	20:52	10	3.5	20	56	Pumped 20bbls 50/50 Sodium Silicate. 40bbls
15	SS Complete/Pump Fresh Water Spacer/Batch Lead	7/15/2017	20:56	8.33	3		56	Pumped 20bbls Fresh Water Spacer. 60bbls/Batch Lead Cement
16	Pump Fresh Water Spacer	7/15/2017	20:58	8.33	3	10	40	Pump Fresh Water Spacer
17	Fresh Water Spacer Complete/Pump Lead Cement	7/15/2017	21:01	12	3	10	85	Pumped 703sk, 316.7669bbls of (12.0lb, 2.53Cf/sk, 14.85gal/sk) Lead
18	Lead Downhole	7/15/2017	21:03	12	5	10	150	Lead Downhole 10bbls
19	Lead Downhole	7/15/2017	21:11	12	5	40	180	Lead Downhole 50bbls
20	Lead Downhole	7/15/2017	21:21	12	5	50	150	Lead Downhole 100bbls
21	Lead Downhole	7/15/2017	21:42	12	5	100	170	Lead Downhole 200bbls
22	Lead Downhole/Batch Tail	7/15/2017	22:04	12	5	100	140	Lead Downhole 300bbls/Batch Tail



23	Lead Downhole Complete/Tail Downhole	7/15/2017	22:07	12	5	16	145	Lead Downhole Complete 316bbls/Tail Downhole
24	Tail Cement Downhole	7/15/2017	22:12	12.5	5	35	175	Pumped 161sk,63.8bbls of (12.5lb, 2.22cf/sk,12.58gal/sk)
25	Tail Downhole/Slowed Rate	7/15/2017	22:15	12.5	3	15	104	Tail Downhole 50bbls
26	Tail Downhole Complete/Shut Down	7/15/2017	22:21	12.5	3	14	110	Tail Downhole Complet 64bbls/Shut down
27	Drop Plug/Begin Displacement	7/15/2017	22:24					Drop plug, begin displacement
28	Pump Displacement	7/15/2017	22:26	8.33	3	10	100	Start pumping 189bbls of fresh water displacement
29	Pump Displacement	7/15/2017	22:31	8.33	5	28	170	Pump Displacement 38bbls
30	Pump Displacement	7/15/2017	22:33	8.33	5	12	100	Pump Displacement 50bbls
31	Pump Displacement	7/15/2017	22:50	8.33	5	100	95	Pump Displacement 150bbls
32	Pump Displacement/Slowed rate	7/15/2017	22:56	8.33	3	29	440	Pump Displacement, slowed rate to 3bpm, 179bbls
33	Slow Pump Rate to land plug	7/15/2017	23:00	8.33	3	13	110	Pumped Displacement, 192bbls. Discussed with customer. Customer requested to pump 3-4 more barrels.
34	Land Plug	7/15/2017	23:03	8.33	3	4	1445	Pumped 195bbls, shut down, confirmed with customer to continue for 2-3bbls. Pumped 1bbls and landed plug at 480psi at 196bbls. Calculated Displacement 192bbls, pressured up to 1445psi. Check floats. Pump 10bbls of sugar water in to parasite line to ensure flow up through casing to cement head. Parasite diaphragm burst at 250psi at 6bbls pumped. Finished the 10bbls getting fluid back at 8bbls, then shut down. Closed head and pressure tested parasite line to 380psi. Bled-off pressure and customer requested to pump an additional 10bbls of sugar water through parasite line.



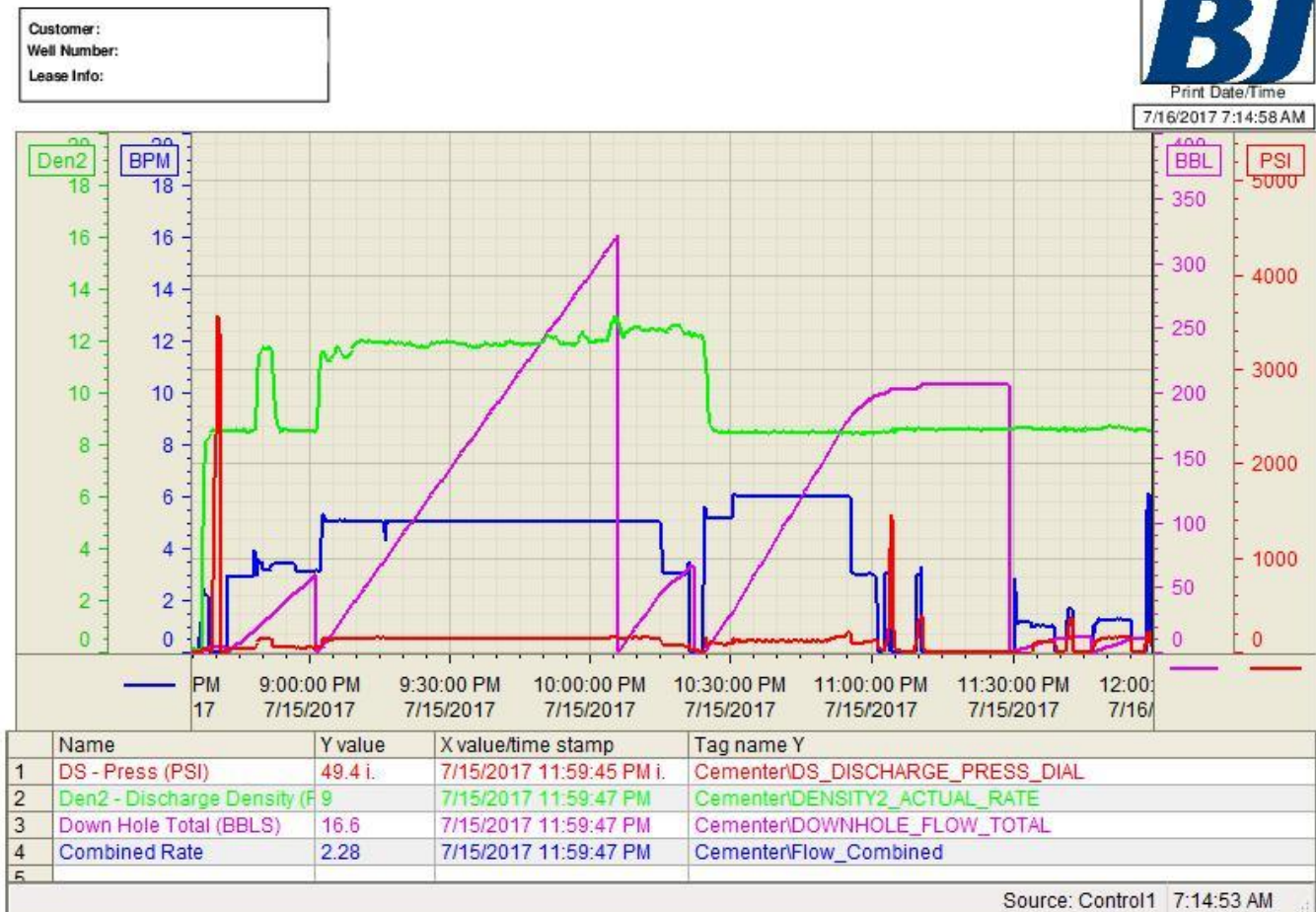
35	Rig Down Head/washed up pump/prepped for top out/WOR to top out at 0400	7/16/2017	01:00					Rigged down head/washed up pump/prepped for top out/WOR to top out at 0400
36	Begin Top out	7/16/2017	04:00					Begin top out
37	Pump C/C Water	7/16/2017	04:03					Pumped 10bbls of C/C water followed by 3bbls to clean pump.
38	Batch-up Topout	7/16/2017	04:05					Pumped 55sks, 21.74bbl 12.5 TOP OUT, (2.58cf/sk, 12.58gal/sk)
39	Top Out Downhole	7/16/2017	04:10					Top Out Downhole
40	Cement to Surface/shut down	7/16/2017	04:30					Cement to Surface/22bbls Top Out pumped. 2 bbls of cement to surface
41	Cement fell	7/16/2017	04:45					Cement fell
42	Batch up Top Out Cement	7/16/2017	05:15					Batch up Top Out/Pumped 40sks, 15.80bbl 12.5 TOP OUT, (2.22cf/sk, 12.58gal/sk)
43	Pump Top Out	7/16/2017	05:19					Pump Top Out
44	Cement to Surface/pump 1 bbl/shut down	7/16/2017	05:33					Cement to Surface/pump 1bbl/shut down
45	Pump 1.5bbl Top Out/Shut Down	7/16/2017	05:37					Pump 1.5bbl Top Out.
46	Job Complete/Begin Rig-down	7/16/2017	06:15					Job Complete/Pumped 95sks of Top Out. 4 bbls of cement to surface
47	Rig Down Complete	7/16/2017	06:50					Rig Down Completed Safely
48	AAR, Journey Management	7/16/2017	07:00					Discussed job results and hazards driving down the mountain.
49	Depart Location	7/16/2017	07:30					Crew departed location, returning to Rifle District

3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	60 °F	50-80 °F
pH Level	7	5.5-8.5
Chlorides	0 mg/L	0-3000 mg/L
Total Alkalinity	240	0-1000
Total Hardness	>375 mg/L	0-500 mg/L
Carbonates	215 mg/L	0-100 mg/L
Sulfates	<200 mg/L	0-1500 mg/L
Potassium	1500 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

4 Pump Diagrams

Job Chart



Top Out Chart

