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# Caerus

## SURFACE POST JOB REPORT

Puckett 22D-26-697 05-045-23364  
S:26 T:6S R:97W Garfield CO

CallSheet #: 510  
Proposal #: 12856



**SURFACE Post Job Report**

**Attention:** Mr. Steve Schmitz | (720) 880-6412 | 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**

Technical Specialist-II | (307) 757-7178 | zenkeith@altcem.com

**Field Office**      1716 East Allison Rd., Cheyenne WY, 82007  
Phone: (307) 638-5585

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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 (%)
Casing	Inner	9.625	8.835	40	LTC	0	2523	0
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

### 1.2 Equipment / People

Unit Type	Unit	Employee #1	Employee #2	Mileage
Cement Pump	104	Casciato, Luke	Henderson, Ethan	480
Light Duty Pickups	5	Dent, Jerod		480
Pneumatic Trailer	705			480

### 1.3 Timing

Event	Date/Time
Call Out	2/1/2017 10:00
Depart Facility	2/1/2017 10:30
On Location	2/1/2017 12:00
Rig Up Iron	2/1/2017 12:30
Job Started	2/1/2017 17:37
Job Completed	2/2/2017 03:45
Rig Down Iron	2/2/2017 04:00
Depart Location	2/2/2017 07:00

### 1.4 General Job Information

Metrics	Value
Well Fluid Density	9.5 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	0 bbls
Rig Circulation Time	0 hours
Calculated Displacement	191.8 bbls
Actual Displacement	192 bbls
Total Spacer to Surface	0 bbls
Total CMT to Surface	0 bbls
Well Topped Out	Yes
Top Out Volume	35.2 bbls

### 1.5 Well Fluid Details

Metrics	Value
Plastic Viscosity	13
Yield Point	11
10 sec. SGS	8
10 min. SGS	22
30 min. SGS	34
Filtrate	7
Flow Line Temp.	74

### 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	9.5 lb/gal
Well Fluid Density Out of Well	0 lb/gal

### 1.7 Job Details (cont.)

Metrics	Value
BHCT	94 °F
BHST	128 °F



## 1.8 Circulation

Lost Circulation Experienced
Yes

### Circulation Details:

Never received returns during job.

## 1.9 Job Execution Information

Job	Fluid	Product	Function	Density (lb/gal)	Yield (ft <sup>3</sup> /sk)	Water Rq. (gal/sk)	Water Rq. (gal/bbl)	Volume (sks)	Volume (bbl)	Top (ft)
1	1	Water	Flush	8.33			42.00		20.00	0
1	2	Sodium Silicate	Flush	10.00			21.00		20.00	0
1	3	Water	Flush	8.33			42.00		20.00	0
1	4	ALTCem S100-12	Lead	12.00	2.53	14.85		703.00	316.33	0
1	5	ALTCem S100-12	Tail	12.50	2.22	12.58		161.00	63.76	2000
1	6	Water	DisplacementFinal	8.33			42.00		187.00	0
1	7	ALTCem S100-12	Topout	12.50	2.22	12.58		89.00	35.20	0

## 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	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	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	Call out	2/1/2017	10:00					BJ crew called to Caerus Puckett 22D-26-697 surface cement job.
2	Pre convoy meeting	2/1/2017	10:20					BJ crew discuss route and hazards associated with driving to location.
3	Depart facility	2/1/2017	10:30					BJ crew depart facility for Caerus location.
4	Arrive on location	2/1/2017	12:00					BJ crew arrive at Caerus location.
5	Assess location	2/1/2017	12:05					BJ crew assess location to identify hazards of spotting in equipment.
6	Safety meeting	2/1/2017	12:15					BJ crew discuss hazards of spotting equipment and rig up of ground fittings such as congested location, slips/falls, pinch points, lifting lowering etc;
7	Spot equipment	2/1/2017	12:20					BJ crew spot in all essential equipment.
8	Rig up	2/1/2017	12:30					BJ crew rig up all ground fittings and equipment.
9	Other	2/1/2017	17:00					9.625", 36 lb, J-55 casing set at 2,523' on bottom at 17:00 hrs.
10	Safety meeting	2/1/2017	17:01					BJ crew, customer representative and rig crew discuss job procedure and hazards of job such as muster area, emergency contacts, evacuation plans, trapped pressure, pinch points, slips/falls, weather and ground conditions, good communication etc;
11	Start job	2/1/2017	17:37					BJ crew begin surface casing cement job.
12	Fill lines	2/1/2017	17:38	8.33	2	2	24	Fill lines with 2 bbls fresh water ahead at 2 bbl/min.
13	Shutdown	2/1/2017	17:39					Shutdown to pressure test lines.
14	Pressure test	2/1/2017	17:47					Pressure test lines to 3,000 psi.
15	Release pressure	2/1/2017	17:49					Release pressure back to truck.
16	Pump spacer	2/1/2017	17:51	8.33	5	20	55	Pump remaining 18 bbls of fresh water spacer ahead at 5 bbl/min.
17	Pump spacer	2/1/2017	17:55	10	5	40	62	Pump 20 bbls of 50/50 sodium silicate and fresh water spacer at 5 bbl/min. ( Totl of 420 gallons of sodium silicate and 10 bbls water ).
18	Slow rate	2/1/2017	17:59	8.33	2	60	28	Slow rate and pump remaining 20 bbls fresh water spacer behind

								sodium silicate at 2 bbl/min and begin weighing up cement.
19	Shutdown	2/1/2017	18:10					Shutdown to line out cement density.
20	Pump lead cement	2/1/2017	18:21	12	5	376.8	2589	Mix and pump 703 sks of S100-12 lead cement at 12 ppg, 2.53 yield, 14.85 gal/sk for a total of 316.8 bbls slurry at 5 bbl/min
21	Pump tail cement	2/1/2017	19:55	12.5	5	440.5	236	Mix and pump 161 sks of S100-12 tail cement at 12.5 ppg, 2.22 yield, 12.58 gal/sk for a total of 63.7 bbls slurry at 5 bbl/min.
22	Shutdown	2/1/2017	20:19					Shutdown to drop top plug
23	Drop top plug	2/1/2017	20:20					Drop top plug and line out cement head to pump displacement..
24	Pump displacement	2/1/2017	20:21	8.33	5	180	270	Pump 180 bbls fresh water displacement at 5 bbl/min.
25	Slow rate	2/1/2017	20:59	8.33	2	191.8	450	Slow rate with 180 bbls displacement away and pump remaining 11.8 bbls displacement at 2 bbl/min.
26	Land plug	2/1/2017	21:04	8.33	2	191.8	401	Land plug with 191.8 bbls displacement away. Final circulating pressure was 401 psi and brought pressure to 845 psi. Held for 5 minutes per customer request.
27	Pressure up	2/1/2017	21:09					Pressure up on casing to 1,498 psi to begin 25 minute casing test.
28	Other	2/1/2017	21:16					
29	Other	2/1/2017	21:20					
30	Pressure up	2/1/2017	21:25	8.33	2	196.8	386	
31	Shutdown	2/1/2017	21:28					
32	Rig down	2/1/2017	21:30					Rig down hard line off of cement head and tie on to parasite line on well bore to pump 10 bbls sugar retarded water.
33	Pump water	2/1/2017	21:32	8.33	2	10	500	Pump minto parasite line and break open line with 500 psi at 6 bbls away.
34	Shutdown	2/1/2017	21:37					Shutdown to begin rig up of top out job.
35	Pump spacer	2/2/2017	02:40	8.33	2	3	0	Pump 3 bbls water ahead with calcium chloride ( 200 lbs ) and 100 gallons of sodium silicate.
36	Pump cement	2/2/2017	02:45	12.5	2	38.2	30	Mix and pump 89 sks of S100-12 top out cement at 12.5 ppg, 2.22 yield, 12.58 gal/sk for a total of 35.2 bbls cement slurry with 188 gallons of sodium silicate added while pumping.



37	End job	2/2/2017	03:40					Received 0.5 bbl cement to surface. Well topped out.
38	Safety meeting	2/2/2017	03:50					BJ crew discuss rig down procedures and discuss hazards such as icy ground surface, lifting/lowering, pinch points and good communication.
39	Rig down	2/2/2017	04:00					BJ crew rig down all ground fittings and equipment.
40	Pre convoy meeting	2/2/2017	06:50					BJ crew discuss route and hazards associated with driving to facility.
41	Depart location	2/2/2017	07:00					BJ crew depart location for facility.

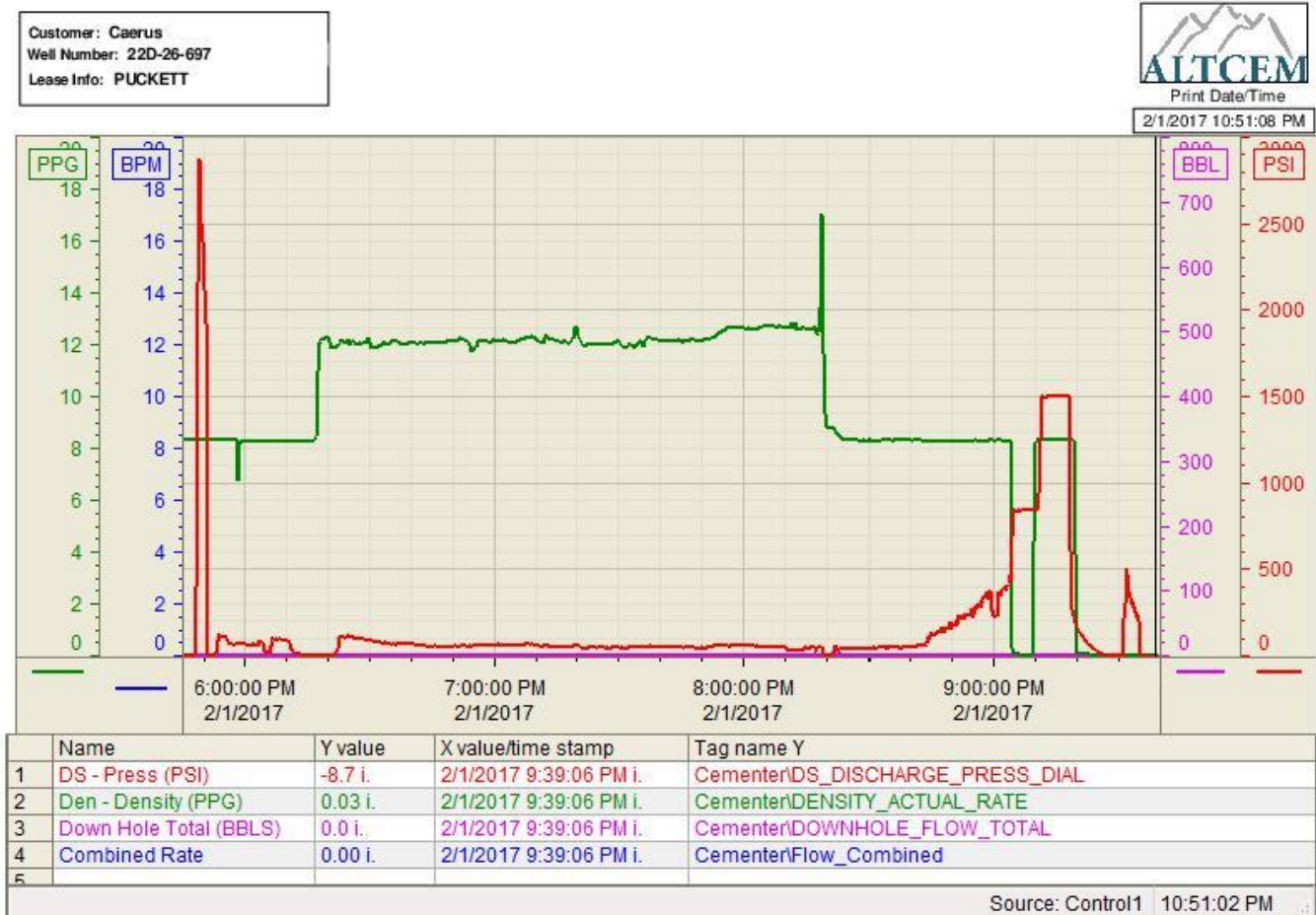


### 3 Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	65 °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	250 mg/L	0-500 mg/L
Carbonates	215 mg/L	0-100 mg/L
Sulfates	<200 mg/L	0-1500 mg/L
Potassium	450 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

### 4 Pump Diagrams

Job Chart



Top Out

