COGCC Doc # 2597233

Cement Post Job Report

Caerus
1001 17th Street, Suite 1600
Denver, CO 80202

Puckett #31D-23
05-045-14857
S:23 T:6S R:97W
Garfield, CO

Prepared For:

Mr. Steve Schmitz
sschmitz@caerusoilandgas.com
(720) 880-6412

Job Completion Data:

9/26/2016
CallSheet #: 293
Proposal #: 12555

Submitted by:

Zen Keith
(307) 757-7178
zenkeith@altcem.com

ALTCEM

Dear Mr. Schmitz,

Thank you for the opportunity to provide cementing services on this well. ALTCem strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact ALTCem at any time.

Sincerely,

Zen Keith

Field Office

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

Sales Office

475 17th St. Suite 460 Denver Co., 80202
Phone: (303) 296-1158

Contents

Job Details & Summary

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	2522	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	2545	0
Casing	Outer	20	19.5	53	n/a	0	100	0

Equipment / People

Unit Type	Unit	Power Unit	Employee #1	Mileage
Cement Pump	103	203	Hyde, Zack	620
Field Bin	604			
Bulk Trailer	506		Allred, David	620
Bulk Trailer	507		Caswall, Eric	620
Cement Chemical	401		Bell, Wesley	620
Light Duty Pickups	4		Johnson, Chad	620

Timing

Event	Date/Time
Call Out	9/26/2016 08:00
Depart Facility	9/26/2016 08:30
On Location	9/26/2016 09:30
Rig Up Iron	9/26/2016 09:45
Job Started	9/26/2016 12:33
Job Completed	9/26/2016 19:54
Rig Down Iron	9/26/2016 20:00
Depart Location	9/26/2016 22:00

General Job Information

Metrics	Value
Well Fluid Density	9.3 lb/gal
Well Fluid Type	WBM
Rig Circulation Vol	136 bbls
Rig Circulation Time	0.5 hours
Calculated Displacement	192 bbls
Actual Displacement	192 bbls
Total Spacer to Surface	0 bbls
Total CMT to Surface	0 bbls
Well Topped Out	Yes
Top Out Volume	10 bbls

Well Fluid Details

Metrics	Value
Plastic Viscosity	24
Yield Point	22
10 sec. SGS	10
10 min. SGS	26
30 min. SGS	49
Filtrate	11.6
Flow Line Temp.	76

Job Details

Metrics	Value
Flare Prior to Job	No
Flare During Job	No
Flare at End of Job	No
Well Full Prior to Job	Yes
Well Fluid Density Into Well	9 lb/gal
Well Fluid Density Out of Well	9 lb/gal

Job Details (cont.)

Metrics	Value
BHCT	94 °F
BHST	128 °F

Circulation

Lost Circulation Experienced
Yes

Circulation Details:

No returns were seen during all of the spacers before cement or during cementing. At 120bbls away on displacement fluid returns started and continued until plug bump. No cement returns were seen during displacement

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)	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	2.52	14.80		704.00	316.16	0
1	5	ALTCem S100-12	Tail	12.50	2.22	12.53		162.00	64.03	2000
1	6	Water	DisplacementFinal	8.33			42.00		187.00	0
1	7	ALTCem S100-12	Topout	12.50	2.22	12.53		43.00	17.00	0

Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom	Start (gal)	End (gal)	Used (gal)
1	2	Flush	Sodium Silicate	ASF-10	Extender	21.00	gal/bbl			0
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-20	Defoamer	0.03	gal/sk	35.1	22	13.1
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-20	Defoamer	0.03	gal/sk	13.1	5	8.1
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-20	Defoamer	0.03	gal/sk	8.1	8	0.1
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			

Job Logs

Line	#	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Annular Pressure (psi)	Comment
1		Arrive on location	9/26/2016	09:30						Arrive on location, called out at 08:00am
2		Spot Units	9/26/2016	09:40						Spot pump truck, curtain side, bulk truck
3		Rig Up Iron	9/26/2016	09:50						Rig cement lines to cellar, attach bulk product hose from bulk truck and bin to pump
4		Waiting	9/26/2016	11:00						Wait on rig to finish running surface casing
5		Safety Meeting	9/26/2016	11:50						Hold Pre-job safety meeting with ALTCem crew and rig crew, review hazards and pump procedure, Casing landed@ 11:30 and circulated 30minutes, 136bbls
6		Finish Rigging Up Iron	9/26/2016	12:20						Stab cement head and tie in to treating line
7	1	Fill Lines	9/26/2016	12:33	8.34	2	5	30		Fill lines with 5bbls H2O
8		Pressure Test Lines	9/26/2016	12:37				2000		Pressure Test treating lines to 2000psi
9	2	Pump Spacer	9/26/2016	12:40	8.34	2	15	100		Pump 15bbls H20
10	3	Pump Spacer	9/26/2016	12:44	10	2.5	20	100		Pump 20bbls Sodium Silicate Spacer
11	4	Pump Spacer	9/26/2016	12:51	8.34	5	20	120		Pump 20bbls Fresh water spacer
12	5	Pump Lead Cement	9/26/2016	12:56	12	5	316	100		Pump 316bbls of lead cement, Density:12ppg, Y:2.52, WR: 14.8, 704sks, 248bbls mix water
13	6	Pump Tail Cement	9/26/2016	14:03	12.5	4	64	40		Pump 64bbls Tail Cement Density:12.5ppg, Y: 2.22, WR: 12.53, 162sks, 49bbls mix water
14		Shut Down	9/26/2016	14:19						Shut down at end of Tail Cement
15		Drop Plug	9/26/2016	14:23						Drop Top rubber plug, verified by wire tattle tail
16	7	Displace	9/26/2016	14:25	8.34	4	182	355		Displace Top Rubber plug with 192bbls fresh water, returns started at 120bbls away at 120psi of pressure, no cement returns seen at surface
17	8	Decrease Rate	9/26/2016	15:07	8.34	2	10	350		Slow pump rate before plug bump, returns slowed to almost nothing but did not completely stop, no cement returns were seen to surface
18		Bump Plug	9/26/2016	15:09				930		Bump plug at 350psi circulating pressure and brought pressure up to 930psi
19		Check Floats	9/26/2016	15:12						Floats held, 0.5bbls back to pump truck
20		Test Casing	9/26/2016	15:15				1500		Test casing to 1500psi and hold for 30minutes, pressure held at 1560 for entire test
21		Pump Spacer	9/26/2016	15:47	8.34	1	10	150		Pump 10bbls of Sugar water(25lbs/10bbl) down parasite line, 150psi was max pressure while pumping and flow was coming to surface through cement head
22		Clean Pumps and Lines	9/26/2016	16:00						Clean pump unit to 3sided tank
23		Waiting	9/26/2016	16:20						Wait 4hrs from time of plug bump before topping off well(plug bumped at 15:09, top out at 19:26)

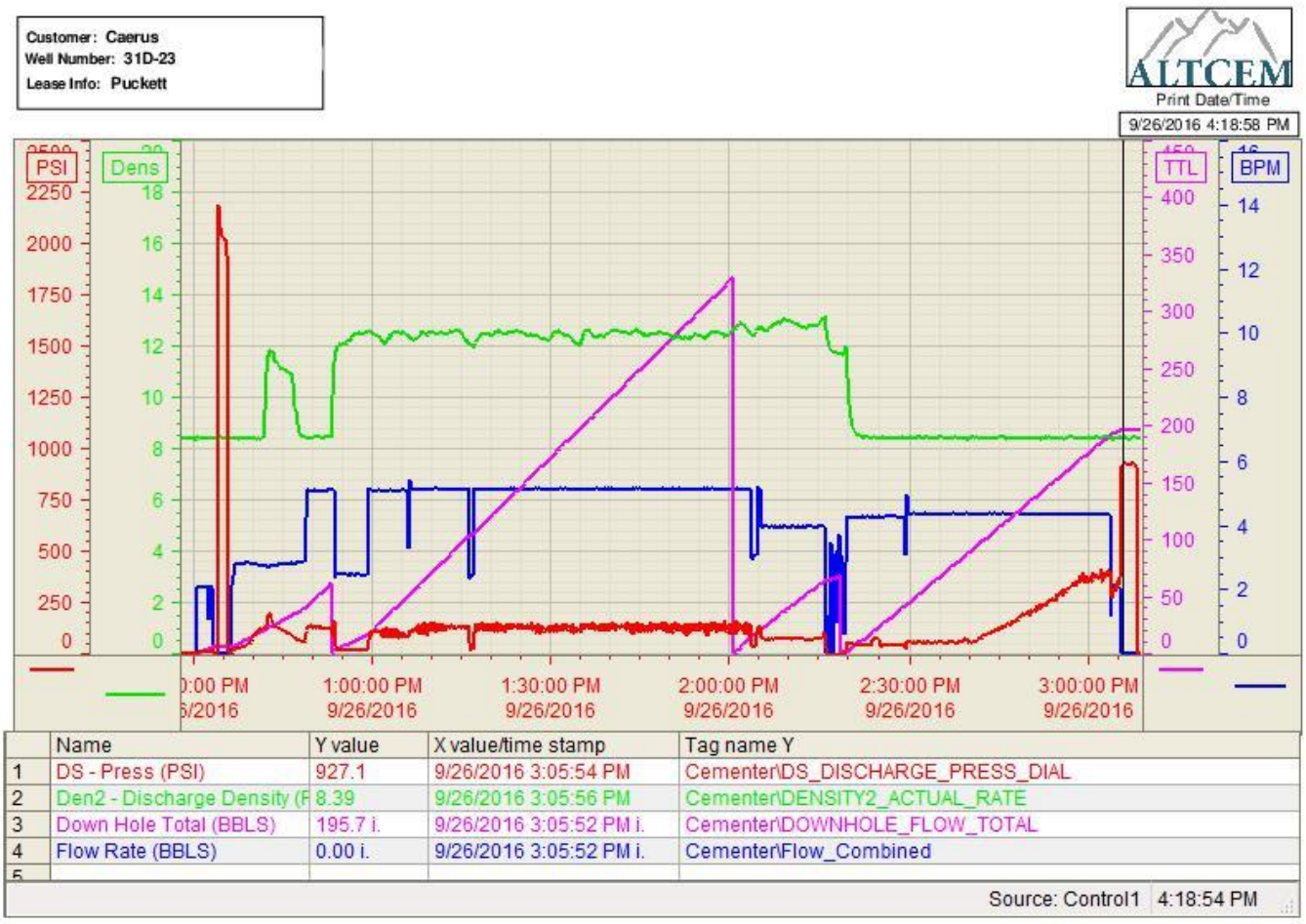
24	9	Top Off	9/26/2016	19:26	12.5		10			Topped of Casing with 10bbls(25sks) down casing at 12.5ppg, Y:2.22, WR: 12.53, Mixed a total of 17bbls(43sks) with 21gals of Sodium Sillicate, the 7bbls that was mixed but not needed for top off was pumped into the next cellar on the pad at customer request
25		Shutdown	9/26/2016	19:54						Top off complete and lines taken off casing
26		Clean Pumps and Lines	9/26/2016	20:00						Clean pump unit to 3sided tank
27		Rig Down Iron	9/26/2016	20:20						Rig out all treating lines, bulk lines, and water hoses
28		Leave Location	9/26/2016	22:00						All units left location except for bulk bin

Water Analysis

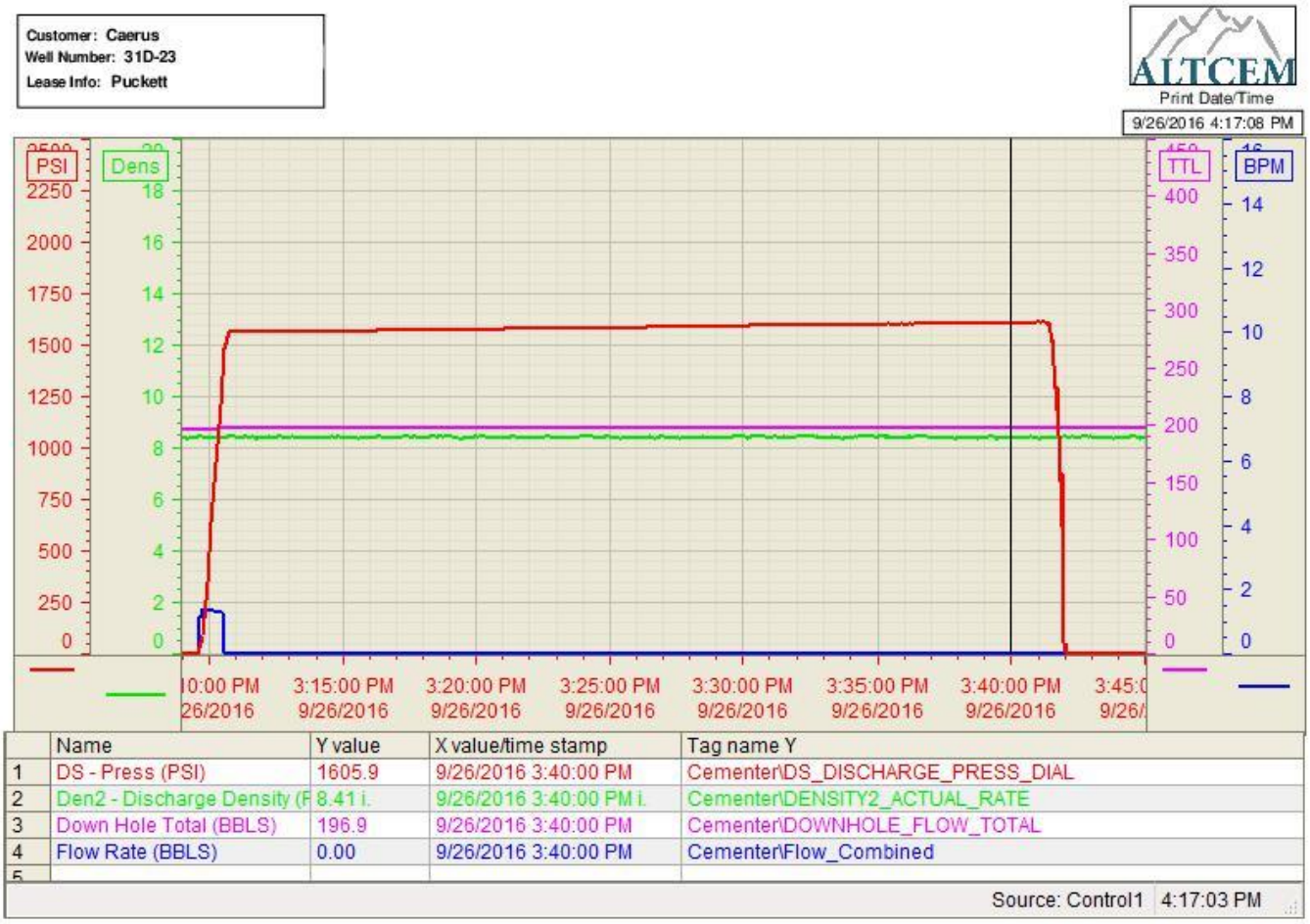
Metrics	Value	Recommended
Water Source	None	
Temperature	50 °F	50-80 °F
pH Level	7	5.5-8.5
Chlorides	0 mg/L	0-3000 mg/L
Total Alkalinity	110	0-1000
Total Hardness	>12.5 mg/L	0-500 mg/L
Carbonates	75 mg/L	0-100 mg/L
Sulfates	<200 mg/L	0-1500 mg/L
Potassium	250 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

Pump Diagrams

Job Chart



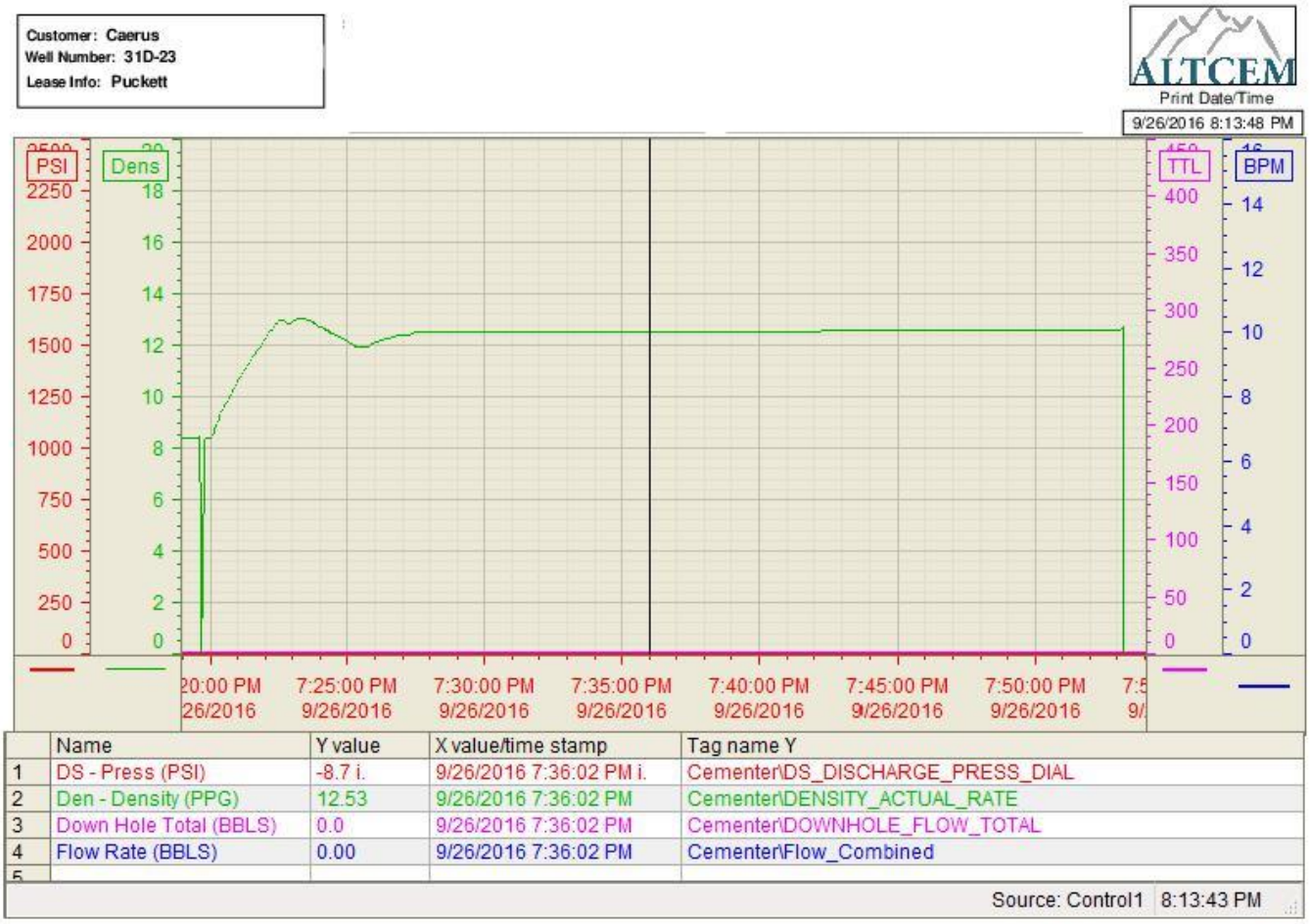
Casing Test



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	1605.9	9/26/2016 3:40:00 PM	Cementer\DS_DISCHARGE_PRESS_DIAL
2	Den2 - Discharge Density (P	8.41 i.	9/26/2016 3:40:00 PM i.	Cementer\DENSITY2_ACTUAL_RATE
3	Down Hole Total (BBLS)	196.9	9/26/2016 3:40:00 PM	Cementer\DOWNHOLE_FLOW_TOTAL
4	Flow Rate (BBLS)	0.00	9/26/2016 3:40:00 PM	Cementer\Flow_Combined
5				

Source: Control1 4:17:03 PM

Top Out



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	-8.7 i.	9/26/2016 7:36:02 PM i.	Cementer\DS_DISCHARGE_PRESS_DIAL
2	Den - Density (PPG)	12.53	9/26/2016 7:36:02 PM	Cementer\DENSITY_ACTUAL_RATE
3	Down Hole Total (BBLS)	0.0	9/26/2016 7:36:02 PM	Cementer\DOWNHOLE_FLOW_TOTAL
4	Flow Rate (BBLS)	0.00	9/26/2016 7:36:02 PM	Cementer\Flow_Combined
5				

Source: Control1 8:13:43 PM