



Caerus

SURFACE POST JOB REPORT

Puckett 22B-26-697 05-045-23371
S:26 T:6S R:97W GARFIELD CO

1/13/2017
CallSheet #: 454
Proposal #: 12787



SURFACE Post Job Report

Attention: Mr. Steve Schmitz | (720) 880-6412 | sschmitz@caerusoilandgas.com
Caerus
1001 17th Street, Suite 1600 | Denver, CO 80202
1/13/2017

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

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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 | 2505 | 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 | 2520 | 0 |
| Casing | Outer | 20 | 19.5 | 53 | n/a | 0 | 100 | 0 |

1.2 Equipment / People

| Unit Type | Unit | Power Unit | Employee #1 | Mileage |
|--------------------|--------|------------|-----------------|---------|
| Cement Chemical | 401 | 211 | Havel, Casey | 660 |
| Cement Pump | 105 | | Montoya, Hector | 660 |
| Bulk Trailer | 504 | 212 | Jimenez, Edgar | 660 |
| Bulk Trailer | 509 | 221 | Nepgen, AJ | 660 |
| Light Duty Pickups | 3 | | Hall, Roland | 660 |
| Plug Container | 150519 | | | 660 |
| Swage | 150539 | | | 660 |
| Pneumatic Trailer | 703 | | | 660 |

1.3 Timing

| Event | Date/Time |
|-----------------|-----------------|
| Call Out | 1/12/2017 22:00 |
| Depart Facility | 1/12/2017 22:00 |
| On Location | 1/12/2017 23:00 |
| Rig Up Iron | 1/13/2017 01:00 |
| Job Started | 1/13/2017 06:18 |
| Job Completed | 1/13/2017 23:01 |
| Rig Down Iron | 1/14/2017 01:00 |
| Depart Location | 1/14/2017 01:30 |

1.5 General Job Information

| Metrics | Value |
|-------------------------|-------------|
| Well Fluid Density | 9.1 lb/gal |
| Well Fluid Type | WBM |
| Rig Circulation Vol | 190 bbls |
| Rig Circulation Time | 0.5 hours |
| Calculated Displacement | 190 bbls |
| Actual Displacement | 189 bbls |
| Total Spacer to Surface | 0 bbls |
| Total CMT to Surface | 4 bbls |
| Well Topped Out | Yes |
| Top Out Volume | 217.46 bbls |

1.6 Well Fluid Details

| Metrics | Value |
|-------------------|-------|
| Plastic Viscosity | 75 |
| Yield Point | 31 |
| 10 sec. SGS | 24 |
| 10 min. SGS | 34 |
| 30 min. SGS | 41 |
| Filtrate | 3 |
| Flow Line Temp. | 46 |

1.7 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 | 9.1 lb/gal |
| Well Fluid Density Out of Well | - lb/gal |

1.8 Job Details (cont.)

| Metrics | Value |
|---------|--------|
| BHCT | 94 °F |
| BHST | 128 °F |



1.9 Circulation

| |
|------------------------------|
| Lost Circulation Experienced |
| Yes |

Circulation Details:

We did not have returns at anytime during the job

1.10 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 | 2.53 | 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 | | 550.00 | 134.64 | 0 |

1.11 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) | Annular Pressure (psi) | Comment |
|------|---|----------------------|-----------------|--------------|------------------|-----------------|--------------------|---------------------|------------------------|---------------------------------------------------------------------------------------------------------------------|
| 1 | | Call out | 1/12/2017 | 22:00 | | | | | | Call out |
| 2 | | Arrive on location | 1/12/2017 | 23:00 | | | | | | Arrive on location |
| 3 | | Safety meeting | 1/12/2017 | 23:30 | | | | | | Safety meeting to rig up iron |
| 4 | | Rig up | 1/13/2017 | 01:00 | | | | | | Rig up iron |
| 5 | | Wait | 1/13/2017 | 04:30 | | | | | | Wait for casing to be ran |
| 6 | | Safety meeting | 1/13/2017 | 05:00 | | | | | | Safety meeting with the rig crew |
| 7 | | Rig up | 1/13/2017 | 06:13 | | | | | | Rig up, prime up trucks, load chemicals on truck |
| 8 | | Fill lines | 1/13/2017 | 06:18 | 8.33 | 2 | 10 | 20 | | Pump 10 bbls water to fill and warm up lines |
| 9 | | Test lines | 1/13/2017 | 06:21 | | | | 2000 | | Test lines to 2000psi |
| 10 | | Pump water | 1/13/2017 | 06:30 | 8.33 | 2 | 10 | 20 | | Pump 10 bbls water |
| 11 | | Pump sodium silicate | 1/13/2017 | 06:40 | 9.8 | 5 | 20 | 60 | | Pump 50/50 sodium silicate |
| 12 | | Pump water | 1/13/2017 | 06:44 | 8.33 | 5 | 20 | 70 | | Pump 20 bbls water |
| 13 | | Pump lead cement | 1/13/2017 | 07:56 | 12 | 5 | 316.76 | 100 | | Pumped 316.76 bbls lead cement @ 12.0ppg (703sks, 2.53 yield, 14.85 gals/sk) Calculated top of cement is to surface |
| 14 | | Pump tail cement | 1/13/2017 | 08:12 | 12.5 | 5 | 63.65 | 100 | | Pumped 63.65 bbls tail cement @ 12.5ppg (161sks, 2.22 yield, 12.58 gals/sk) Calculated top of cement is at 2011.35' |
| 15 | | Shut down | 1/13/2017 | 08:13 | | | | | | Shut down |
| 16 | | Drop plug | 1/13/2017 | 08:17 | | | | | | Drop plug (Washed up on top of the plug) |
| 17 | | Displace | 1/13/2017 | 08:50 | 8.33 | 5 | 180 | 450 | | Pumped 180 bbls fresh water displacement |
| 18 | | Slow rates | 1/13/2017 | 09:00 | 8.33 | 2 | 10 | 100 | | Slow rates to 2bbl/min for the last 10 bbls |
| 19 | | Land plug | 1/13/2017 | 09:01 | | | | | | Landed the plug at 100 psi and bumped it to 750 psi |



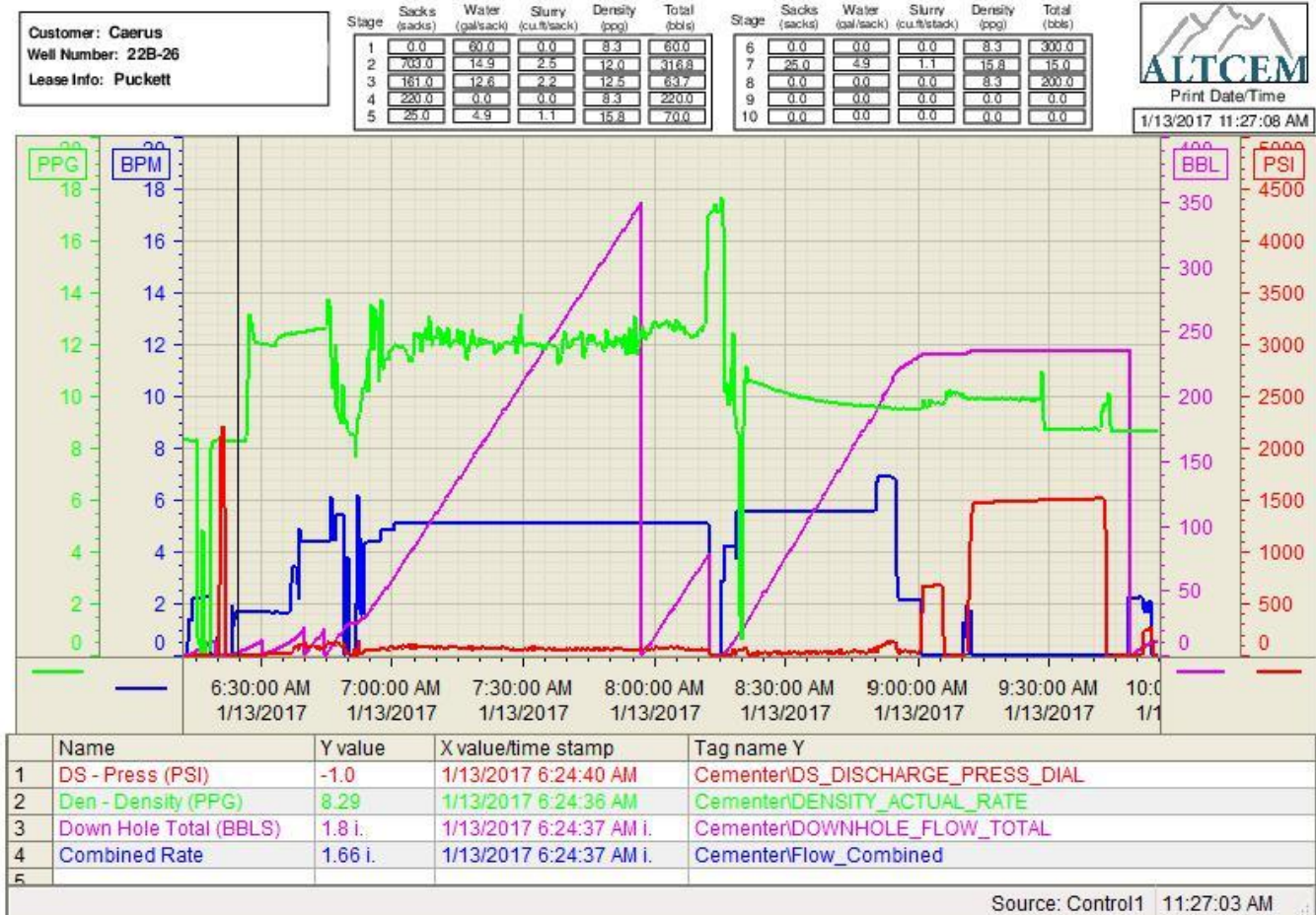
| | | | | | | | | | | |
|----|--|----------------|-----------|-------|------|---|--------|------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20 | | Check floats | 1/13/2017 | 09:05 | | | | | | Checked floats got 1bbl back to the truck floats held |
| 21 | | Casing test | 1/13/2017 | 09:35 | | | | 1500 | | Pressured up the casing to 1500psi and monitered for 30 min |
| 22 | | Water | 1/13/2017 | 09:50 | 8.33 | 2 | 10 | 1100 | | Pumped 10 bbls sugar water down the parasite line the check valve open at 1100psi and broke back to 300 psi |
| 23 | | Wait | 1/13/2017 | 14:26 | | | | | | Wait to do the top job |
| 24 | | Top out | 1/13/2017 | 16:15 | 12.5 | 2 | 118.61 | 40 | | Pumped 5 bbls 6% calcium chloride followed by 2 bbls fresh water than pumped 118.61 bbls top out cement at 12.5# (300 sks, 2.22 yield, 12.58 gals/sk) |
| 25 | | Wait | 1/13/2017 | 17:26 | | | | | | Wait to top out |
| 26 | | Top out | 1/13/2017 | 18:05 | 12.5 | 2 | 31.63 | 30 | | Pumped 5 bbls 7% calcium chloride followed by 2 bbls fresh water than pumped 31.63 bbls top out cement at 12.5# (80 sks, 2.22 yield, 12.58 gals/sk) |
| 27 | | wait | 1/13/2017 | 21:44 | | | | | | Wait to top out |
| 28 | | Top out | 1/13/2017 | 23:00 | 12.5 | 2 | 67.21 | 40 | | Pumped 5 bbls 10% calcium chloride followed by 2 bbls fresh water than pumped 67.21 bbls top out cement at 12.5# (170 sks, 2.22 yield, 12.58 gals/sk) we got 4 bbls cement to surface |
| 29 | | End job | 1/13/2017 | 23:01 | | | | | | End job |
| 30 | | Safety meeting | 1/13/2017 | 23:15 | | | | | | Safety meeting to rig down |
| 31 | | Rig down | 1/14/2016 | 01:00 | | | | | | Rig down |
| 32 | | Leave location | 1/14/2016 | 01:30 | | | | | | Leave location |

3 Water Analysis

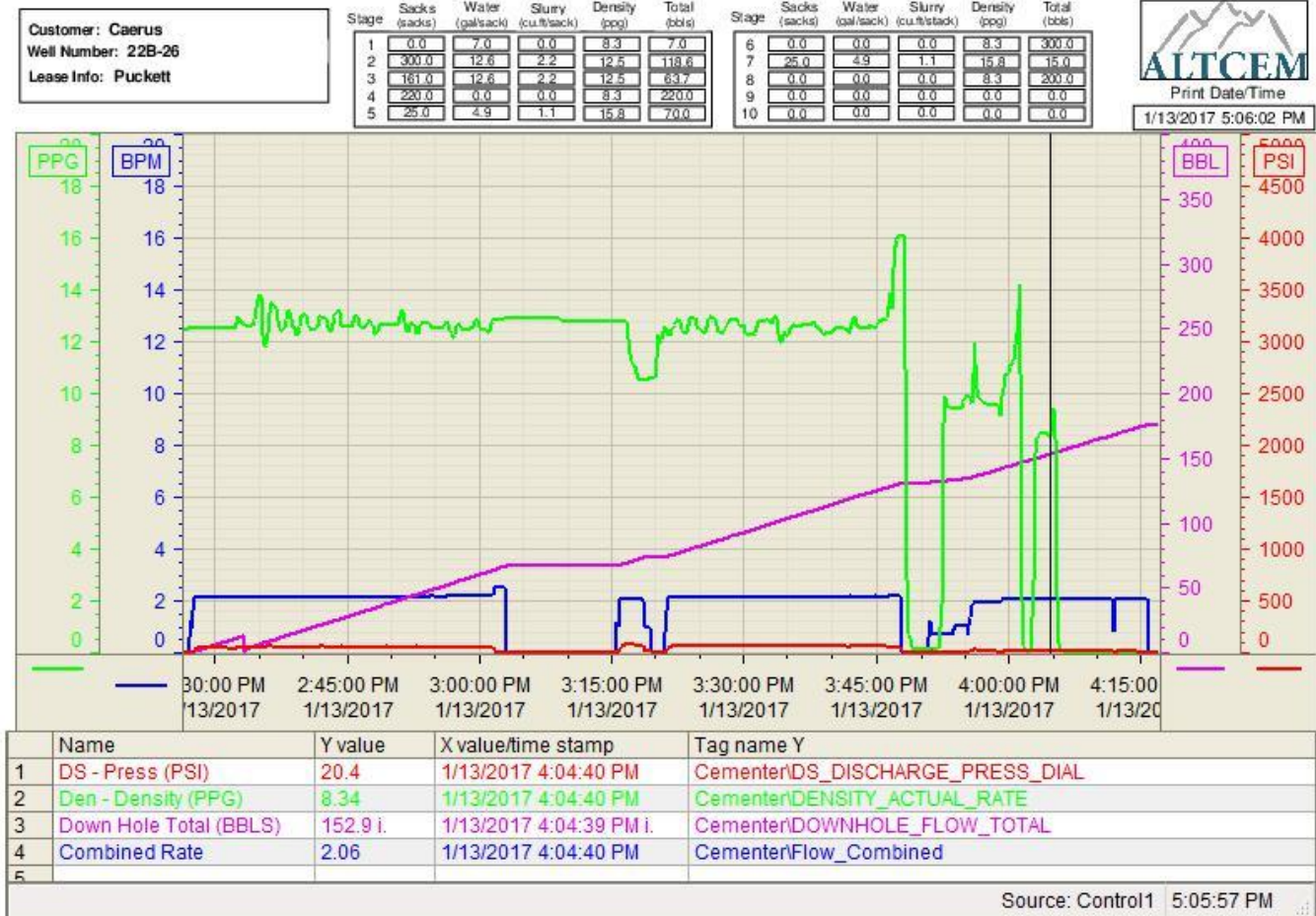
| Metrics | Value | Recommended |
|------------------|------------------|-------------|
| Water Source | Upright Rig Tank | |
| Temperature | 80 °F | 50-80 °F |
| pH Level | 7 | 5.5-8.5 |
| Chlorides | 0 mg/L | 0-3000 mg/L |
| Total Alkalinity | 180 | 0-1000 |
| Total Hardness | 250 mg/L | 0-500 mg/L |
| Carbonates | 215 mg/L | 0-100 mg/L |
| Sulfates | >400 mg/L | 0-1500 mg/L |
| Potassium | 250 mg/L | 0-3000 mg/L |
| Iron | 1 mg/L | 0-300 mg/L |

4 Pump Diagrams

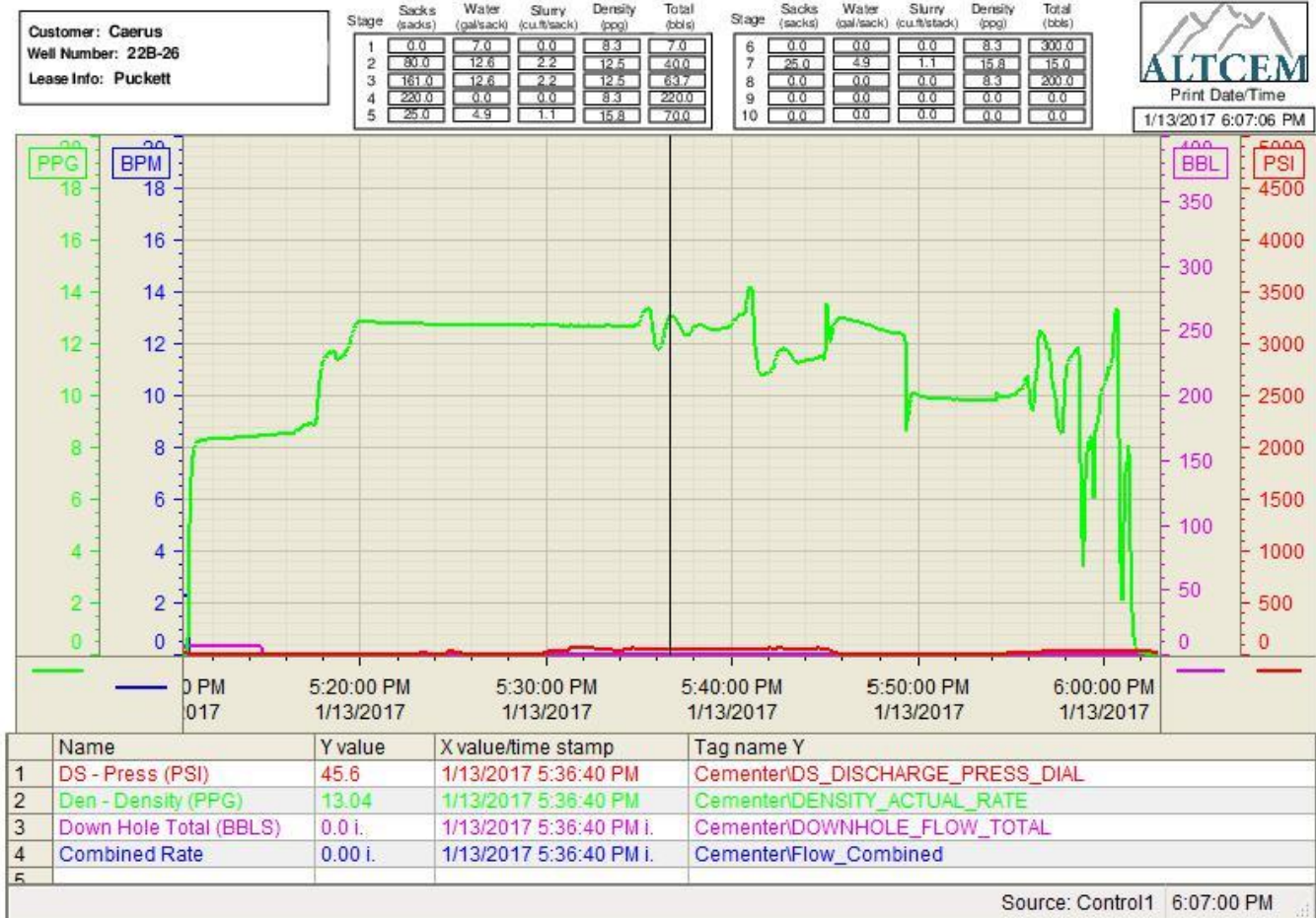
Job Chart



Top Out 1



Top Out 2





Top Out 3

