



# Caerus

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## Surface Post Job Report

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Puckett 11B-26 697 05-045-23395

S:23 T:6S R:97W Garfield CO

Quote #:

I Execution #:



## Caerus

Attention: Mr. Steve Schmitz | (720) 880-6412 | [sschmitz@caerusoilandgas.com](mailto: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,

Gage Putnam  
Field Engineer I | (970) 632-2006 | [Gage.Putnam@BJServices.com](mailto:Gage.Putnam@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

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# Cementing Treatment



|                           |                           |                       |                    |
|---------------------------|---------------------------|-----------------------|--------------------|
| <b>Start Date</b>         | 11/26/2017                | <b>Well</b>           | Puckett 11B-26 697 |
| <b>End Date</b>           | 11/27/2017                | <b>County</b>         | GARFIELD           |
| <b>Client</b>             | CAERUS OPERATING, LLC     | <b>State/Province</b> | CO                 |
| <b>Client Field Rep</b>   | Doug McAdams              | <b>API</b>            | 05-045-23395       |
| <b>Service Supervisor</b> | James Roush               | <b>Formation</b>      | -                  |
| <b>Field Ticket No.</b>   | FT-01286-M5G4K30202-68900 | <b>Rig</b>            | H&P 330            |
| <b>District</b>           | Rifle, CO                 | <b>Type of Job</b>    | Surface            |

## WELL GEOMETRY

| Type            | ID (in) | OD (in) | Wt. (lb/ft) | MD (ft)  | TVD (ft) | Excess(%) | Grade | Thread |
|-----------------|---------|---------|-------------|----------|----------|-----------|-------|--------|
| Previous Casing | 19.50   | 20.00   | 52.73       | 100.00   | 100.00   |           |       |        |
| Open Hole       | 14.75   |         |             | 2,000.00 | 2,000.00 | 25.00     |       |        |
| Open Hole       | 14.75   |         |             | 2,558.00 | 2,558.00 |           |       |        |
| Casing          | 8.92    | 9.63    | 36.00       | 2,521.00 | 2,521.00 |           |       |        |

**Shoe Length (ft):** 43

## HARDWARE

|                                  |        |   |              |
|----------------------------------|--------|---|--------------|
| <b>Bottom Plug Used?</b>         | No     | <b>Tool Type</b>                            | Float Collar |
| <b>Bottom Plug Provided By</b>   | -      | <b>Tool Depth (ft)</b>                      | 2,477.00     |
| <b>Bottom Plug Size</b>          | -      | <b>Max Tubing Pressure - Rated (psi)</b>    | -            |
| <b>Top Plug Used?</b>            | Yes    | <b>Max Tubing Pressure - Operated (psi)</b> | -            |
| <b>Top Plug Provided By</b>      | Non BJ | <b>Max Casing Pressure - Rated (psi)</b>    | 3,520.00     |
| <b>Top Plug Size</b>             | 9.625  | <b>Max Casing Pressure - Operated (psi)</b> | 2,000.00     |
| <b>Centralizers Used</b>         | Yes    | <b>Pipe Movement</b>                        | None         |
| <b>Centralizers Quantity</b>     |        | <b>Job Pumped Through</b>                   | No Manifold  |
| <b>Centralizers Type</b>         | Bow    | <b>Top Connection Thread</b>                | 8rd          |
| <b>Landing Collar Depth (ft)</b> | 2,477  | <b>Top Connection Size</b>                  | 9.625        |

# Cementing Treatment



## CIRCULATION PRIOR TO JOB

|                                      |        |                                      |       |
|--------------------------------------|--------|--------------------------------------|-------|
| Well Circulated By                   | Rig    | Solids Present at End of Circulation | No    |
| Circulation Prior to Job             | No     | 10 sec SGS                           | 4.00  |
| Circulation Time (min)               | 60.00  | 10 min SGS                           | 6.00  |
| Circulation Rate (bpm)               | 7.00   | 30 min SGS                           | 10.00 |
| Circulation Volume (bbls)            | 192.00 | Flare Prior to/during the Cement Job | Yes   |
| Lost Circulation Prior to Cement Job | Yes    | Gas Present                          | No    |
| Mud Density In (ppg)                 | 8.34   | Gas Units                            | 0     |
| Mud Density Out (ppg)                | -      |                                      |       |
| PV Mud In                            | 9      |                                      |       |
| PV Mud Out                           | -      |                                      |       |
| YP Mud In                            | 6      |                                      |       |
| YP Mud Out                           | -      |                                      |       |

## TEMPERATURE

|                            |       |                                |       |
|----------------------------|-------|--------------------------------|-------|
| Ambient Temperature (°F)   | 60.00 | Slurry Cement Temperature (°F) | 76.00 |
| Mix Water Temperature (°F) | 70.00 | Flow Line Temperature (°F)     | 64.00 |

## BJ FLUID DETAILS

| Fluid Type                 | Fluid Name      | Density (ppg) | Yield (Cu Ft/sk) | H2O Req. (gals/sk) | Vol (sk) | Vol (Cu Ft) | Vol (bbls) |
|----------------------------|-----------------|---------------|------------------|--------------------|----------|-------------|------------|
| Spacer / Pre Flush / Flush | Water           | 8.3300        |                  |                    |          |             | 20.0000    |
| Spacer / Pre Flush / Flush | Water           | 8.3300        |                  |                    |          |             | 20.0000    |
| Spacer / Pre Flush / Flush | Sodium Silicate | 10.0000       |                  |                    |          |             | 20.0000    |
| Lead Slurry                | S100-12         | 12.0000       | 2.5329           | 14.89              | 704      | 1,774.0000  | 315.9000   |
| Tail Slurry                | S100-12         | 12.5000       | 2.2282           | 12.62              | 162      | 358.0000    | 63.7000    |
| Top-Out / Scavenger Slurry | S100-12         | 12.5000       | 2.2282           |                    | 81       | 179.6700    | 32.0000    |
| Displacement Final         | Displacement    | 8.3300        |                  |                    |          | 0.0000      | 190.2000   |

# Cementing Treatment



| Fluid Type                 | Fluid Name      | Component   | Concentration | UOM    |
|----------------------------|-----------------|---|---------------|--------|
| Spacer / Pre Flush / Flush | Sodium Silicate | SILICATE, SODIUM, A-3L                              | 21.00         | GPB    |
| Lead Slurry                | S100-12         | CEMENT, ASTM TYPE III                               | 100.00        | PCT    |
| Lead Slurry                | S100-12         | CEMENT EXTENDER, GYPSUM, A-10                       | 5.00          | BWOB   |
| Lead Slurry                | S100-12         | ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS | 2.00          | LBS/SK |
| Lead Slurry                | S100-12         | CEMENT EXTENDER, SODIUM METASILICATE, A-2           | 2.00          | LBS/SK |
| Lead Slurry                | S100-12         | FP-25, Dry Foam Preventer (BJS Only)                | 0.30          | BWOB   |
| Lead Slurry                | S100-12         | IntegraSeal CELLO                                   | 0.13          | LBS/SK |
| Tail Slurry                | S100-12         | CEMENT EXTENDER, GYPSUM, A-10                       | 5.00          | BWOB   |
| Tail Slurry                | S100-12         | CEMENT, ASTM TYPE III                               | 100.00        | PCT    |
| Tail Slurry                | S100-12         | CEMENT EXTENDER, SODIUM METASILICATE, A-2           | 2.00          | LBS/SK |
| Tail Slurry                | S100-12         | IntegraSeal CELLO                                   | 0.13          | LBS/SK |
| Tail Slurry                | S100-12         | ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS | 2.00          | LBS/SK |
| Tail Slurry                | S100-12         | FP-25, Dry Foam Preventer (BJS Only)                | 0.30          | BWOB   |
| Top-Out / Scavenger Slurry | S100-12         | CEMENT, ASTM TYPE III                               | 100.00        | PCT    |
| Top-Out / Scavenger Slurry | S100-12         | CEMENT EXTENDER, GYPSUM, A-10                       | 5.00          | BWOB   |
| Top-Out / Scavenger Slurry | S100-12         | CEMENT EXTENDER, SODIUM METASILICATE, A-2           | 2.00          | LBS/SK |
| Top-Out / Scavenger Slurry | S100-12         | IntegraSeal CELLO                                   | 0.13          | LBS/SK |
| Top-Out / Scavenger Slurry | S100-12         | ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS | 2.00          | LBS/SK |
| Top-Out / Scavenger Slurry | S100-12         | FP-25, Dry Foam Preventer (BJS Only)                | 0.30          | BWOB   |

# Cementing Treatment



## TREATMENT SUMMARY

| Time               | Fluid           | Rate (bpm) | Fluid Vol. (bbls) | Pipe Pressure (psi) | Comments      |
|--------------------|-----------------|------------|-------------------|---------------------|---------------|
| 11/26/2017 5:41 PM | Water           | 5.00       | 20.00             | 102.00              |               |
| 11/26/2017 5:44 PM | Sodium Silicate | 5.00       | 20.00             | 146.00              |               |
| 11/26/2017 5:48 PM | Water           | 5.00       | 20.00             | 136.00              |               |
| 11/26/2017 5:53 PM | S100-12         | 5.50       | 315.90            | 116.00              |               |
| 11/26/2017 6:50 PM | S100-12         | 5.00       | 63.70             | 76.00               |               |
| 11/26/2017 7:01 PM | Displacement    | 5.00       | 190.20            | 65.00               |               |
| 11/27/2017 1:42 AM | S100-12         | 3.50       | 32.00             | 87.00               | Topout Cement |

|                | Min   | Max    | Avg    |
|----------------|-------|--------|--------|
| Pressure (psi) | 65.00 | 146.00 | 104.00 |
| Rate (bpm)     | 3.50  | 5.50   | 4.86   |

## DISPLACEMENT AND END OF JOB SUMMARY

|                                       |        |                                    |        |
|---------------------------------------|--------|------------------------------------|--------|
| Displaced By                          | BJ     | Amount of Cement Returned/Reversed | 1.00   |
| Calculated Displacement Volume (bbls) | 191.50 | Method Used to Verify Returns      | Visual |
| Actual Displacement Volume (bbls)     | 191.50 | Amount of Spacer to Surface        | 0.00   |
| Did Float Hold?                       | Yes    | Pressure Left on Casing (psi)      | 0.00   |
| Bump Plug                             | Yes    | Amount Bled Back After Job         | 0.50   |
| Bump Plug Pressure (psi)              | 678.00 | Total Volume Pumped (bbls)         | 632.50 |
| Were Returns Planned at Surface       | No     | Top Out Cement Spotted             | Yes    |
| Cement returns During Job             | None   | Lost Circulation During Cement Job | Yes    |

Customer Name CAERUS District Rifle  
 Well Name PUCKETT 11B-26 Supervisor JAMES ROUSH  
 Job Type Surface Engineer GAGE PUTNAM



| Seq No. | Start Date | Start Time | Event                | Equipment | Density (lb/gal) | Pump Rate (bpm) | Pump Vol (bbls) | Pipe Pressure (psi) | Comments   |
|---------|------------|------------|----------------------|-----------|------------------|-----------------|-----------------|---------------------|--|
| 1       | 11/26/2017 | 10:00      | CREW CALLOUT         |           |                  |                 |                 |                     | BJ CREW CALLED WITH A RTS OF 17:00 11/26/17  |
| 2       | 11/26/2017 | 11:15      | J.M.                 |           |                  |                 |                 |                     | JOURNEY MANAGEMENT MEETING WITH BJ CREW  |
| 3       | 11/26/2017 | 13:00      | ARRIVE LOCATION      |           |                  |                 |                 |                     | ARRIVE ON LOCATION   |
| 4       | 11/26/2017 | 13:10      | STEACS               |           |                  |                 |                 |                     | STEACS BRIEFNG WITH CREW, SPOT PUMP TRUCK  |
| 5       | 11/26/2017 | 13:25      | RIG UP               |           |                  |                 |                 |                     | RIG UP EQUIPMENT   |
| 6       | 11/26/2017 | 14:30      | ON STANDBY           |           |                  |                 |                 |                     | BJ ON STANDBY RIG RUNNING PIPE   |
| 7       | 11/26/2017 | 16:30      | PIPE ON BOTTOM       |           |                  |                 |                 |                     | PIPE ON BOTTOM   |
| 8       | 11/26/2017 | 17:00      | SAFETY MEETING       |           |                  |                 |                 |                     | SAFETY MEETING WITH RIG CREW AND COMPANY MAN   |
| 9       | 11/26/2017 | 17:28      | RIG UP               |           |                  |                 |                 |                     | RIG UP CEMENT HEAD TO CASING   |
| 10      | 11/26/2017 | 17:36      | FILL LINES           |           | 8.34             | 4               | 5               | 48                  | BREAK CIRCULATION  |
| 11      | 11/26/2017 | 17:38      | TEST LINES           |           |                  |                 |                 |                     | TEST LINES 3000 PSI  |
| 12      | 11/26/2017 | 17:41      | FW SPACER            |           | 8.34             | 5               | 15              | 102                 | FW SPACER  |
| 13      | 11/26/2017 | 17:44      | SODIUM SILICATE      |           | 8.55             | 5               | 20              | 146                 | SODIUM SILICATE SPACER   |
| 14      | 11/26/2017 | 17:48      | FW SPACER            |           | 8.34             | 5               | 20              | 136                 | FW SPACER  |
| 15      | 11/26/2017 | 17:52      | LEAD CEMENT          |           | 12               |                 |                 |                     | BATCH UP LEAD CEMENT @ 12.0 PPG  |
| 16      | 11/26/2017 | 17:53      | LEAD CEMENT          |           | 12               | 5.5             | 317             | 116                 | LEAD CEMENT DOWNHOLE (704 SXS Y-2.53 MW-14.89)   |
| 17      | 11/26/2017 | 18:04      | LEAD CEMENT          |           | 12               | 5.5             |                 | 111                 | 50 BBLs GONE LEAD SLURRY   |
| 18      | 11/26/2017 | 18:12      | LEAD CEMENT          |           | 12               | 6               |                 | 143                 | 100 BBLs GONE LEAD SLURRY  |
| 19      | 11/26/2017 | 18:21      | LEAD CEMENT          |           | 12               | 6               |                 | 117                 | 150 BBLs GONE LEAD SLURRY  |
| 20      | 11/26/2017 | 18:29      | LEAD CEMENT          |           | 12               | 6               |                 | 126                 | 200 BBLs GONE LEAD SLURRY  |
| 21      | 11/26/2017 | 18:38      | LEAD CEMENT          |           | 12               | 6               |                 | 130                 | 250 BBLs GONE LEAD SLURRY  |
| 22      | 11/26/2017 | 18:47      | LEAD CEMENT          |           | 12               | 6               |                 | 115                 | 300 BBLs GONE LEAD SLURRY  |
| 23      | 11/26/2017 | 18:49      | BATCH UP TAIL CEMENT |           | 12.5             |                 |                 |                     | BATCH UP TAIL SLURRY @ 12.5 PPG  |
| 24      | 11/26/2017 | 18:50      | TAIL CEMENT          |           | 12.5             | 5               |                 | 76                  | TAIL SLURRY @ 12.5 PPG (162 SXS Y-2.22 MW-12.58)   |
| 25      | 11/26/2017 | 18:57      | TAIL CEMENT          |           | 12.5             | 4.5             |                 | 59                  | 50 BBLs GONE TAIL SLURRY   |
| 26      | 11/26/2017 | 18:59      | SHUTDOWN             |           |                  |                 |                 |                     | SHUTDOWN DROP TOP PLUG   |
| 27      | 11/26/2017 | 19:01      | DISPLACEMENT         |           | 12.5             | 2               | 4               | 65                  | PUMP 4 BBLs TAIL CEMENT ON TOP OF PLUG   |
| 28      | 11/26/2017 | 19:02      | DISPLACEMENT         |           | 8.34             | 6               | 177.5           | 110                 | START FW DISPLACEMENT  |
| 29      | 11/26/2017 | 19:11      | DISPLACEMENT         |           | 8.34             | 6               |                 | 53                  | 50 BBLs GONE DISPLACEMENT  |
| 30      | 11/26/2017 | 19:21      | DISPLACEMENT         |           | 8.34             | 6               |                 | 224                 | 100 BBLs GONE DISPLACEMENT   |
| 31      | 11/26/2017 | 19:30      | DISPLACEMENT         |           | 8.34             | 6               |                 | 321                 | 150 BBLs GONE DISPLACEMENT   |
| 32      | 11/26/2017 | 19:36      | SLOW RATE            |           | 8.34             | 2               |                 | 144                 | SLOW RATE TO BUMP PLUG   |
| 33      | 11/26/2017 | 19:41      | BUMP PLUG            |           | 8.34             |                 |                 | 678                 | BUMP PLUG TO 678 PSI   |
| 34      | 11/26/2017 | 19:45      | BLEED PRESSURE       |           |                  |                 |                 |                     | BLEED PRESSURE CHECK FLOATS 0.5 BBLs BACK  |
| 35      | 11/26/2017 | 19:52      | PUMP PARASITE        |           | 8.34             | 1               | 10              | 151                 | PUMP 10 BBLs SUGAR WATER DOWN PARASITE LINE  |
| 36      | 11/26/2017 | 20:15      | WASH PUMP            |           |                  |                 |                 |                     | WASH PUMP AND BJ ON STANDBY  |
| 37      | 11/27/2017 | 1:00       | RIG UP               |           |                  |                 |                 |                     | RIG UP IN CELLAR TO DO TOP OUT JOB   |
| 38      | 11/27/2017 | 1:36       | CACL                 |           | 9.2              | 3               | 3               | 44                  | PUMP CACL WATER AHEAD  |
| 39      | 11/27/2017 | 1:37       | FW SPACER            |           | 8.34             | 2               | 3               | 36                  | FW SPACER  |
| 40      | 11/27/2017 | 1:38       | SODIUM SILICATE      |           |                  |                 |                 |                     | START INJECTING SODIUM SILICATE INTO ANNULUS   |
| 41      | 11/27/2017 | 1:40       | BATCH UP CEMENT      |           | 12.5             |                 |                 |                     | BATCH UP SLURRY @ 12.5 PPG   |
| 42      | 11/27/2017 | 1:42       | TOP OUT SLURRY       |           | 12.5             | 3.5             | 32              | 87                  | TOP OUT CEMENT DOWNHOLE ( 81 SXS Y-2.22 MW- 12.58)   |
| 43      | 11/27/2017 | 1:52       | CEMENT TO SURFACE    |           |                  |                 |                 |                     | CEMENT TO SURFACE  |
| 44      | 11/27/2017 | 1:54       | PUMP PARASITE        |           | 12.5             | 2               | 3               | 39                  | PUMP 3 BBLs CEMENT DOWN PREVIOUS WELL PARASITE LINE  |
| 45      | 11/27/2017 | 2:05       | RIG DOWN MEETING     |           |                  |                 |                 |                     | RIG DOWN MEETING WITH CREW, WASH UP PUMP TRUCK   |
| 46      | 11/27/2017 | 2:30       | RIG DOWN             |           |                  |                 |                 |                     | START RIG DOWN   |
| 47      | 11/27/2017 | 3:30       | JOURNEY MANAGEMENT   |           |                  |                 |                 |                     | JOURNEY MANAGEMENT MEETING WITH BJ CREW  |
| 48      | 11/27/2017 | 3:45       | LEAVE LOCATION       |           |                  |                 |                 |                     | LEAVE LOCATION   |
| 49      |            |            |                      |           |                  |                 |                 |                     |  |
| 50      |            |            |                      |           |                  |                 |                 |                     |  |
| 51      | 11/27/2017 |            | *MISC*               |           |                  |                 |                 |                     | FCP- 202 PSI BUMP PLUG- 678 PSI FLOATS HELD 0.5 BBLs BACK                                      |
| 52      |            |            |                      |           |                  |                 |                 |                     | CALCUATED CEMENT TOPS- LEAD 0' TAIL 2054'  |
| 53      |            |            |                      |           |                  |                 |                 |                     | TOP OUT- 81 SXS 32 BBLs PUMPED 1 BBL TO SURFACE PUMPED 3 BBLs DOWN PREVIOUS WELL PARASITE LINE |





