



Caerus

Well Name: NPR 15B-11-596

API # 05-045-23853

Job Type: Surface

Date Job Completed: 09/30/18

Quote #: QUO-20369

Execution #: EXC-11660



Caerus

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
Field Engineer III | (307) 757-7178 | Zen.Keith@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

Cementing Treatment



| | | | |
|--------------------------|-----------------------|----------------------------|----------------|
| Start Date | 9/30/2018 | Field Ticket# | |
| End Date | 9/30/2018 | Well | NPR 15B-11-596 |
| Client | CAERUS OPERATING, LLC | API# | 05-045-23853 |
| Client Field Rep. | Pat Blackmer | Well Classification | |
| Service Sup. | Hamza Busheri | County | GARFIELD |
| District | Rifle, CO | State/Province | CO |
| Type of Job | Surface | Formation | |
| Execution ID | EXC-11660-N1Y7V002 | Rig | H&P 330 |
| Project ID | PRJ1011326 | | |

WELL GEOMETRY

| Type | ID (in) | OD (in) | Wt. (lb/ft) | MD (ft) | Excess(%) | Grade | Thread |
|-----------------|---------|---------|-------------|----------|-----------|-------|--------|
| Previous Casing | 15.50 | 16.00 | 42.05 | 100.00 | | | |
| Open Hole | 14.75 | | | 2,440.00 | | | |
| Casing | 8.92 | 9.63 | 36.00 | 2,360.00 | | J-55 | LTC |

Shoe Length (ft): 40

HARDWARE

| | | | |
|----------------------------------|--------|---|--------------|
| Bottom Plug Used? | No | Tool Type | Float Collar |
| Top Plug Used? | Yes | Tool Depth (ft) | 2,316.00 |
| Top Plug Provided By | Non BJ | Max Casing Pressure - Rated (psi) | 3,520.00 |
| Top Plug Size | 9.625 | Max Casing Pressure - Operated (psi) | 2,700.00 |
| Centralizers Used | Yes | Pipe Movement | None |
| Centralizers Quantity | 5.00 | Job Pumped Through | No Manifold |
| Centralizers Type | Bow | Top Connection Thread | 8rd |
| Landing Collar Depth (ft) | 2,360 | Top Connection Size | 9.625 |

Cementing Treatment



CIRCULATION PRIOR TO JOB

| | | | |
|--------------------------------------|--------|--------------------------------------|-------|
| Well Circulated By | Rig | Solids Present at End of Circulation | No |
| Circulation Prior to Job | Yes | 10 sec SGS | 8.00 |
| Circulation Time (min) | 60.00 | 10 min SGS | 17.00 |
| Circulation Rate (bpm) | 4.00 | 30 min SGS | 45.00 |
| Circulation Volume (bbls) | 185.00 | Flare Prior to/during the Cement Job | No |
| Lost Circulation Prior to Cement Job | Yes | Gas Present | No |
| Mud Density In (ppg) | 9.65 | Gas Units | 0 |
| PV Mud In | 21 | | |
| YP Mud In | 14 | | |

TEMPERATURE

| | | | |
|----------------------------|-------|--------------------------------|--------|
| Ambient Temperature (°F) | 63.00 | Slurry Cement Temperature (°F) | 65.00 |
| Mix Water Temperature (°F) | 61.00 | Flow Line Temperature (°F) | 113.00 |

BJ FLUID DETAILS

| Fluid Type | Fluid Name | Density (ppg) | Yield (Cu Ft/sk) | H2O Req. (gals/sk) | Planned Top of Fluid (Ft) | Length (Ft) | Vol (sk) | Vol (Cu Ft) | Vol (bbls) |
|--------------------|------------------|---------------|------------------|--------------------|---------------------------|-------------|----------|-------------|------------|
| Spacer | Water 1 | 8.3300 | | | 0.00 | | | | 20.0000 |
| Spacer | Sodium Silicate | 10.0000 | | | 0.00 | | | | 20.0000 |
| Spacer | Water 2 | 8.3300 | | | 0.00 | | | | 20.0000 |
| Lead Slurry | BJCem S100.3.01D | 12.0000 | 2.5298 | 14.86 | 0.00 | 1,900.00 | 517 | 1,306.0000 | 232.6000 |
| Tail Slurry | BJCem S100.3.01D | 12.5000 | 2.2256 | 12.59 | 1,900.00 | 500.00 | 161 | 358.0000 | 63.7000 |
| Displacement Final | Displacement | 8.3300 | | | 0.00 | | | 0.0000 | 182.5000 |
| Top-Out Slurry | BJCem S100.3.01D | 12.5000 | 2.2256 | 12.59 | | | 52 | | |

Cementing Treatment



| Fluid Type | Fluid Name | Component | Concentration | UOM |
|----------------------------|------------------|---|---------------|--------|
| Spacer / Pre Flush / Flush | Sodium Silicate | SILICATE, SODIUM, A-3L | 21.0000 | GPB |
| Lead Slurry | BJCem S100.3.01D | FOAM PREVENTER, FP-25 | 0.3000 | BWOB |
| Lead Slurry | BJCem S100.3.01D | Cement Additive, Sodium Metasilicate A-2 | 2.0000 | LBS/SK |
| Lead Slurry | BJCem S100.3.01D | IntegraSeal CELLO | 0.1300 | LBS/SK |
| Lead Slurry | BJCem S100.3.01D | CEMENT, ASTM TYPE III | 100.0000 | PCT |
| Lead Slurry | BJCem S100.3.01D | ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS | 2.0000 | LBS/SK |
| Lead Slurry | BJCem S100.3.01D | CEMENT EXTENDER, GYPSUM, A-10 | 5.0000 | BWOB |
| Tail Slurry | BJCem S100.3.01D | FOAM PREVENTER, FP-25 | 0.3000 | BWOB |
| Tail Slurry | BJCem S100.3.01D | IntegraSeal CELLO | 0.1300 | LBS/SK |
| Tail Slurry | BJCem S100.3.01D | Cement Additive, Sodium Metasilicate A-2 | 2.0000 | LBS/SK |
| Tail Slurry | BJCem S100.3.01D | CEMENT, ASTM TYPE III | 100.0000 | PCT |
| Tail Slurry | BJCem S100.3.01D | CEMENT EXTENDER, GYPSUM, A-10 | 5.0000 | BWOB |
| Tail Slurry | BJCem S100.3.01D | ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS | 2.0000 | LBS/SK |
| Top-Out Slurry | BJCem S100.3.01D | FOAM PREVENTER, FP-25 | 0.3000 | BWOB |
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| Top-Out Slurry | BJCem S100.3.01D | CEMENT EXTENDER, GYPSUM, A-10 | 5.0000 | BWOB |
| Top-Out Slurry | BJCem S100.3.01D | ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS | 2.0000 | LBS/SK |

TREATMENT SUMMARY

| Time | Fluid | Rate (bpm) | Fluid Vol. (bbls) | Pipe Pressure (psi) | Comments |
|--------------------|------------------|------------|-------------------|---------------------|-------------------|
| 9/30/2018 8:10 AM | Water 1 | 5.00 | 20.00 | 186.00 | |
| 9/30/2018 8:10 AM | Sodium Silicate | 5.00 | 20.00 | 257.00 | |
| 9/30/2018 8:15 AM | Water 2 | 5.00 | 20.00 | 192.00 | |
| 9/30/2018 9:00 AM | BJCem S100.3.01D | 5.00 | 232.60 | 233.00 | |
| 9/30/2018 9:20 AM | BJCem S100.3.01D | 4.00 | 63.70 | 164.00 | |
| 9/30/2018 10:00 AM | Displacement | 5.50 | 182.50 | 687.00 | |
| 9/30/2018 2:00 PM | BJCem S100.3.01D | 3.00 | 23.00 | 97.00 | Topout + Parasite |

Cementing Treatment



| | Min | Max | Avg |
|----------------|-------|--------|--------|
| Pressure (psi) | 97.00 | 687.00 | 259.43 |
| Rate (bpm) | 3.00 | 5.50 | 4.64 |

DISPLACEMENT AND END OF JOB SUMMARY

| | | | |
|---------------------------------------|----------|------------------------------------|--------|
| Displaced By | BJ | Amount of Cement Returned/Reversed | 2.00 |
| Calculated Displacement Volume (bbls) | 179.00 | Method Used to Verify Returns | Visual |
| Actual Displacement Volume (bbls) | 179.00 | Amount of Spacer to Surface | 30.00 |
| Did Float Hold? | Yes | Pressure Left on Casing (psi) | 0.00 |
| Bump Plug | Yes | Amount Bled Back After Job | 1.00 |
| Bump Plug Pressure (psi) | 1,345.00 | Total Volume Pumped (bbls) | 536.00 |
| Were Returns Planned at Surface | Yes | Top Out Cement Spotted | Yes |
| Cement returns During Job | Partial | Lost Circulation During Cement Job | Yes |

EVENT LOG



Customer Name: CAERUS OPERATING, LLC

Well Name: NPR 15B-11-596

Job Type: Surface

Quote ID: QUO-20369-M2H2V6

Plan ID: ORD-11660-N1Y7V0

Execution ID: EXC-11660-N1Y7V002

District: Rifle, CO

BJ Supervisor: Hamza Busheri

| Seq. | Start Dt./Time | Event | Density (ppg) | Pump Rate (bpm) | Pump Vol(bbls) | Pipe Pressure(psi) | Comments |
|------|------------------|--------------------|---------------|-----------------|----------------|--------------------|--|
| 1 | 09/30/2018 03:00 | Callout | | | | | Yard Call @ 0300, Pre-Trip, JM, Leave Location @ 0412 |
| 2 | 09/30/2018 04:12 | Arrive on Location | | | | | Convoy to Location, AOL @ 0523, RTS 0700 |
| 3 | 09/30/2018 05:23 | Spot Units | | | | | Meet w/ Co-Man, STEACS, Spot Equipment on location |
| 4 | 09/30/2018 05:30 | Rig Up | | | | | STEACS, Rig up all DH equip and lines to Buffer zone, Load SS onto pump, confirm Cmt MTS, Calculate Job, Prime up pump |
| 5 | 09/30/2018 07:04 | Safety Meeting | | | | | Safety meeting with Co-Man, Rig Crew, 3rd Party. |
| 6 | 09/30/2018 07:31 | Rig Up | | | | | Rig up PLH and lines to Head in Cellar |
| 7 | 09/30/2018 07:55 | Prime Up | 8.3400 | 4.00 | | 104.00 | Fill lines to head, Break Circulation |
| 8 | 09/30/2018 08:01 | Pressure Test | | | 0.00 | 4,600.00 | PSI Test 4600 PSI |
| 9 | 09/30/2018 08:07 | Pump Spacer | 8.3400 | 5.00 | 15.00 | 186.00 | 15 Bbls FW Spacer |
| 10 | 09/30/2018 08:10 | Pump Spacer | 10.0000 | 5.00 | 20.00 | 257.00 | 20 Bbls Sodium Silicate Spacer |
| 11 | 09/30/2018 08:15 | Pump Spacer | 8.3400 | 5.00 | 20.00 | 192.00 | 20 Bbls FW Spacer |
| 12 | 09/30/2018 08:20 | Start Pumping | | | | | Shutdown, Batch up Lead Cmt @ 12.0 PPG, Begin DH |
| 13 | 09/30/2018 08:24 | Pump Lead Cement | 12.0000 | 5.00 | 50.00 | 215.00 | 50 Bbls Lead Cmt Pumped |
| 14 | 09/30/2018 08:33 | Pump Lead Cement | 12.0000 | 5.00 | 100.00 | 152.00 | Mud Returns to Surface @ 60 Bbls Lead Pumped, 100 Bbls Lead Cmt Pumped |

EVENT LOG



| Seq. | Start Dt./Time | Event | Density (ppg) | Pump Rate (bpm) | Pump Vol(bbls) | Pipe Pressure(psi) | Comments |
|------|------------------|---------------------|---------------|-----------------|----------------|--------------------|--|
| 15 | 09/30/2018 08:44 | Pump Lead Cement | 12.0000 | 5.00 | 150.00 | 233.00 | 150 Bbls Lead Cmt Pumped |
| 16 | 09/30/2018 08:56 | Pump Lead Cement | 12.0000 | 5.00 | 200.00 | 148.00 | 200 Bbls Lead Cmt Pumped |
| 17 | 09/30/2018 09:05 | Pump Lead Cement | 12.0000 | 4.00 | 232.00 | 162.00 | 232 Bbls Lead Cmt Pumped Total |
| 18 | 09/30/2018 09:10 | Start Pumping | 12.5000 | 4.00 | | 164.00 | Swap to Tail Cmt @ 12.5 PPG |
| 19 | 09/30/2018 09:10 | Pump Tail Cement | 12.5000 | 35.00 | 50.00 | 126.00 | 50 Bbls Tail Pumped |
| 20 | 09/30/2018 09:20 | Pump Tail Cement | 12.5000 | 3.50 | 60.00 | 109.00 | 60 Bbls Tail Pumped Total |
| 21 | 09/30/2018 09:24 | Drop Top Plug | | | | | Shutdown, Wash up knife gate, Begin Disp |
| 22 | 09/30/2018 09:27 | Pump Displacement | 8.3400 | | 50.00 | 134.00 | 50 Bbls Disp Pumped |
| 23 | 09/30/2018 09:37 | Pump Displacement | 8.3400 | | 100.00 | 320.00 | 100 Bbls Disp Pumped |
| 24 | 09/30/2018 09:47 | Pump Displacement | 8.3400 | | 150.00 | 540.00 | 150 Bbls Disp Pumped |
| 25 | 09/30/2018 09:57 | Land Plug | 8.3400 | | 179.00 | 687.00 | 179 Bbls Disp Pumped total, Landed Plug @ 1345PSI, FCP @ 687 PSI, No Cement To surface, Mud Returns |
| 26 | 09/30/2018 10:05 | Check Floats | | | | 1,345.00 | Hold 5 mins, Floats Held, 1 Bbls FW Returned to truck |
| 27 | 09/30/2018 10:09 | Other (See comment) | | | | | Wait on welder to hook up crossover to parasite line, Tie-on/ Pump 10 Bbls Sugar Water, Break Over @ 224 PSI |
| 28 | 09/30/2018 10:52 | Other (See comment) | | | | | Shutdown, Top out Procedure |
| 29 | 09/30/2018 13:05 | Start Pumping | 8.7000 | 2.50 | 5.00 | 58.00 | Stab into Offside, Batch and Pump 100#s CaCl DH, Batch Topout Cement |
| 30 | 09/30/2018 13:20 | Pumping Cement | 12.0000 | 2.50 | 23.00 | 62.00 | Pumped 8 Bbls Topout Cmt, Cmt to Surface, Pumped 5 Bbls Cmt each Down Parasite Lines of previous 3 wells |
| 31 | 09/30/2018 13:55 | Pumping Cement | 12.0000 | 2.50 | 23.00 | 62.00 | Pumped 8 Bbls Topout Cmt, Cmt to Surface, Pumped 5 Bbls Cmt each Down Parasite Lines of previous 3 wells |
| 32 | 09/30/2018 13:55 | Rig Down | | | | | STEACS, Rig Down all DH Equipment |
| 33 | 09/30/2018 15:00 | Leave Location | | | | | JM, Convoy Back to Yard |



