



1 Job Details & Summary

1.1 Geometry

| Type | Function | OD (in) | ID (in) | Weight (lb/ft) | Thread | Top (ft) | Bottom (ft) | Excess (%) |
|-----------|----------|---------|---------|----------------|----------|----------|-------------|------------|
| Casing | Outer | 9.625 | 8.921 | 36 | n/a | 0 | 1552 | 0 |
| Open Hole | Outer | n/a | 8.5 | n/a | n/a | 1555 | 17865 | 18 |
| Casing | Inner | 5.5 | 4.892 | 17 | Buttress | 0 | 14732 | 18 |

1.2 Equipment / People

| Unit Type | Unit | Employee #1 | Employee #2 | Mileage |
|--------------------|------|------------------|-----------------|---------|
| Silo | 660 | | | |
| Silo | 656 | | | |
| Bulk Trailer | E467 | Philman, Douglas | | 120 |
| Pneumatic Trailer | 703 | | | |
| Pneumatic Trailer | 704 | | | |
| Light Duty Pickups | | Agosto, Miguel | | 120 |
| Light Duty Pickups | 5 | Fuentes, Orlando | | 120 |
| Cement Pump | 101 | Chaparro, Hector | Montoya, Hector | 120 |

1.3 Timing

| Event | Date/Time |
|-----------------|-----------------|
| Call Out | 7/24/2017 16:30 |
| Depart Facility | 7/24/2017 19:00 |
| On Location | 7/24/2017 21:00 |
| Rig Up Iron | 7/24/2017 21:30 |
| Job Started | 7/24/2017 23:30 |
| Job Completed | 7/25/2017 04:10 |
| Rig Down Iron | 7/25/2017 04:30 |
| Depart Location | 7/25/2017 07:00 |

1.4 General Job Information

| Metrics | Value |
|-------------------------|------------|
| Well Fluid Density | 8.5 lb/gal |
| Well Fluid Type | WBM |
| Rig Circulation Vol | 900 bbls |
| Rig Circulation Time | 2 hours |
| Calculated Displacement | 325.9 bbls |
| Actual Displacement | 311 bbls |
| Total Spacer to Surface | 60 bbls |
| Total CMT to Surface | 5 bbls |

1.5 Well Fluid Details

| Metrics | Value |
|-------------------|-------|
| Plastic Viscosity | 11 |
| Yield Point | 8 |
| 10 sec. SGS | 3 |
| 10 min. SGS | 8 |
| 30 min. SGS | 15 |
| Filtrate | 5.8 |

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 | Yes |
| Well Fluid Density Into Well | 8.5 lb/gal |
| Well Fluid Density Out of Well | 8.5 lb/gal |

1.7 Job Details (cont.)

| Metrics | Value |
|---------|--------|
| BHCT | 220 °F |
| BHST | 220 °F |



1.8 Circulation

| |
|------------------------------|
| Lost Circulation Experienced |
| No |

Circulation Details:

1.9 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 | Mud Flush | Flush | 8.33 | | | 42.00 | | 60.00 | 0 |
| 1 | 2 | CD Spacer | Spacer | 11.00 | | | 33.78 | | 60.00 | 0 |
| 1 | 3 | ALTCem P100-X2 | Lead | 13.20 | 1.82 | 9.89 | | 990.00 | 321.00 | 0 |
| 1 | 4 | ALTCem P50-X1 | Tail | 13.50 | 1.47 | 7.43 | | 1900.00 | 498.00 | 2568 |
| 1 | 6 | Water w/ Clay Protection and Biocide | DisplacementFinal | 8.33 | | | 41.91 | | 326.00 | 0 |

1.10 Job Fluid Details

| Job | Fluid | Type | Fluid | Product | Function | Conc. | Uom |
|-----|-------|-------------------|--------------------------------------|---------|-----------------------|--------|---------|
| 1 | 2 | Spacer | CD Spacer | ASR-20 | StrengthRetrogression | 179.59 | lb/bbl |
| 1 | 2 | Spacer | CD Spacer | AVS-10 | Viscosifier | 1.00 | lb/bbl |
| 1 | 3 | Lead | ALTCem P100-X2 | AC3-10 | Cement | 100.00 | % |
| 1 | 3 | Lead | ALTCem P100-X2 | ABX-20 | BondEnhancer | 3.00 | %BWOB |
| 1 | 3 | Lead | ALTCem P100-X2 | ADF-11 | Defoamer | 0.30 | %BWOB |
| 1 | 3 | Lead | ALTCem P100-X2 | AFL-50 | FluidLoss | 0.50 | %BWOB |
| 1 | 3 | Lead | ALTCem P100-X2 | AR-31 | Retarder | 0.17 | %BWOB |
| 1 | 3 | Lead | ALTCem P100-X2 | AVS-20 | Viscosifier | 0.10 | %BWOB |
| 1 | 4 | Tail | ALTCem P50-X1 | ACG-10 | Cement | 50.00 | % |
| 1 | 4 | Tail | ALTCem P50-X1 | AFA-10 | Extender | 50.00 | % |
| 1 | 4 | Tail | ALTCem P50-X1 | ADF-11 | Defoamer | 0.30 | %BWOB |
| 1 | 4 | Tail | ALTCem P50-X1 | AFL-50 | FluidLoss | 0.20 | %BWOB |
| 1 | 4 | Tail | ALTCem P50-X1 | AR-20 | Retarder | 0.10 | %BWOB |
| 1 | 4 | Tail | ALTCem P50-X1 | AVS-10 | Viscosifier | 0.10 | %BWOB |
| 1 | 4 | Tail | ALTCem P50-X1 | AVS-50 | Viscosifier | 2.00 | %BWOB |
| 1 | 6 | DisplacementFinal | Water w/ Clay Protection and Biocide | ASF-50 | ClayProtection | 0.08 | gal/bbl |
| 1 | 6 | DisplacementFinal | Water w/ Clay Protection and Biocide | Biocide | Other | 0.01 | gal/bbl |



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 | 7/24/2017 | 16:30 | | | | | BJ Services Crew Gets Called Out |
| 2 | Depart Facility | 7/24/2017 | 19:00 | | | | | BJ Services Crew Depart Facility Cheyenne WY |
| 3 | Arrive On Location | 7/24/2017 | 21:00 | | | | | BJ Services Crew Arrives On Location |
| 4 | Pre Rig Up Meeting | 7/24/2017 | 21:30 | | | | | BJ Services Crew Had A Pre Rig up Meeting |
| 5 | Rig Up | 7/24/2017 | 21:30 | | | | | BJ Services Crew Rigs Up Pump and Iron |
| 6 | Safety Meeting | 7/24/2017 | 22:30 | | | | | BJ Services Crew Had A Safety Meeting With Rig Hands And CoMan - Went Over Job Procedure |
| 7 | Pressure Test | 7/24/2017 | 23:53 | | | | 5500 | Pressure Test Lines To 5500 Psi |
| 8 | Pump Flush | 7/25/2017 | 00:15 | 8.33 | 6 | 60 | 500 | Pumped 60 BBL Of H2o Flush At 6 BPM W/500 psi |
| 9 | Pump CD Spacer | 7/25/2017 | 00:25 | 11 | 6 | 60 | 700 | Pumped 60 BBL Of 11 PPG Cd Spacer At 6 BPM W/700 psi |
| 10 | Pump Lead Cement | 7/25/2017 | 00:36 | 13.2 | 6 | 321 | 750 | Pumped 321 BBL (990sk 13.2ppg 1.82yld 9.89g/sk) Of Lead Cement At 6 BPM W/750 Psi |
| 11 | Pump Tail Cement | 7/25/2017 | 01:39 | 13.5 | 6 | 498 | 400 | Pumped 498 BBL (1900sk 13.5ppg 1.47yld 7.43g/sk) Of Tail Cement At 6 BPM W/400 psi |
| 12 | Shut Down | 7/25/2017 | 03:12 | | | | | Shut Down Pumping Cement |
| 13 | Wash Pump/Lines | 7/25/2017 | 03:14 | | | | | Wash Pump And Lines To pit |
| 14 | Drop Plugs | 7/25/2017 | 03:19 | | | | | Drop top And Bottom Plug |
| 15 | Start Disp. | 7/25/2017 | 03:19 | 8.33 | 8 | | 500 | Start H2o Disp. W/ Chems At 8 BPM W/500psi |
| 16 | Spacer To Surface | 7/25/2017 | 03:51 | 8.33 | 8 | 246 | 2400 | At 246 BBL away into Disp. Got Spacer To Surface At 8 BPM W/2400 Psi |
| 17 | Shut Down | 7/25/2017 | 03:52 | 8.33 | | 250 | | Shut Down Rig Diverted Returns To Cement Tanks |
| 18 | Start Pumping | 7/25/2017 | 03:54 | 8.33 | 8 | 250 | 2500 | Came Back On Line At 8 BPM W/2500 Psi |
| 19 | Slow Rate | 7/25/2017 | 04:04 | 8.33 | 3 | 300 | 2000 | Slow Down Rate To 3 BPM W/2000 psi |
| 20 | Cement To Surface | 7/25/2017 | 04:06 | 8.33 | 3 | 306 | 2100 | At 306 BBL Away Got Cement Back to Surface At 3 BPM W/2100 Psi |
| 21 | Land Plug | 7/25/2017 | 04:08 | 8.33 | 3 | 311 | 3400 | Land Plug At 311 BBL away Final Circ. Pressure Was 2200 Psi , Bumped Plug To 3400 Psi |
| 22 | Check Floats | 7/25/2017 | 04:10 | | | | | Check Floats Got 3 bbl Back |
| 23 | Pre Rig Down Meeting | 7/25/2017 | 04:30 | | | | | BJ Services Crew Had A Pre Rig Down Meeting |
| 24 | Rig Down | 7/25/2017 | 04:30 | | | | | BJ Services Crew Rigs Down Pump And Iron |
| 25 | Depart Location | 7/25/2017 | 07:00 | | | | | BJ Services Crew Departs Location |

3 Water Analysis

| Metrics | Value | Recommended |
|------------------|------------------|-------------|
| Water Source | Upright Rig Tank | |
| Temperature | 756 °F | 50-80 °F |
| pH Level | 6 | 5.5-8.5 |
| Chlorides | 200 mg/L | 0-3000 mg/L |
| Total Alkalinity | 180 | 0-1000 |
| Total Hardness | 0 mg/L | 0-500 mg/L |
| Carbonates | 75 mg/L | 0-100 mg/L |
| Sulfates | >200 mg/L | 0-1500 mg/L |
| Potassium | 450 mg/L | 0-3000 mg/L |
| Iron | 0.15 mg/L | 0-300 mg/L |

4 Pump Diagrams

