

## 1 Job Details & Summary

### 1.1 Geometry

| Type      | Function | OD (in) | ID (in) | Weight (lb/ft) | Thread | Top (ft) | Bottom (ft) | Excess (%) |
|-----------|----------|---------|---------|----------------|--------|----------|-------------|------------|
| Open Hole | Outer    | n/a     | 13.5    | n/a            | n/a    | 0        | 1551        | 25         |
| Casing    | Inner    | 9.625   | 8.921   | 36             | LTC    | 0        | 1541        | 0          |

### 1.2 Equipment / People

| Unit Type          | Unit | Employee #1    | Mileage |
|--------------------|------|----------------|---------|
| Bulk Trailer       | 502  | Vasquez, Mike  | 150     |
| Bulk Trailer       | E435 | Groneman, Josh | 150     |
| Cement Pump        | 101  | Casciato, Luke | 150     |
| Light Duty Pickups | 3    | Dent, Jerod    | 150     |
| Cement Chemical    | 402  |                | 150     |

### 1.3 Timing

| Event           | Date/Time       |
|-----------------|-----------------|
| Call Out        | 5/17/2017 03:30 |
| Depart Facility | 5/17/2017 05:00 |
| On Location     | 5/17/2017 06:30 |
| Rig Up Iron     | 5/17/2017 10:00 |
| Job Started     | 5/17/2017 13:01 |
| Job Completed   | 5/17/2017 14:15 |
| Rig Down Iron   | 5/17/2017 14:30 |
| Depart Location | 5/17/2017 16:00 |

### 1.4 General Job Information

| Metrics                 | Value      |
|-------------------------|------------|
| Well Fluid Density      | 9.8 lb/gal |
| Well Fluid Type         | WBM        |
| Rig Circulation Vol     | 250 bbls   |
| Rig Circulation Time    | 0.5 hours  |
| Calculated Displacement | 115.5 bbls |
| Actual Displacement     | 115.5 bbls |
| Total Spacer to Surface | 20 bbls    |
| Total CMT to Surface    | 33 bbls    |
| Well Topped Out         | No         |
| Top Out Volume          | 0 bbls     |

### 1.5 Well Fluid Details

| Metrics           | Value |
|-------------------|-------|
| Plastic Viscosity | 1     |
| Yield Point       | 4     |
| 10 sec. SGS       | 1     |
| 10 min. SGS       | 2     |
| 30 min. SGS       | 3     |
| Filtrate          | 0.3   |
| Flow Line Temp.   | 70    |

### 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   | 9.8 lb/gal |
| Well Fluid Density Out of Well | 9.8 lb/gal |

### 1.7 Job Details (cont.)

| Metrics | Value  |
|---------|--------|
| BHCT    | 88 °F  |
| BHST    | 110 °F |

### 1.8 Circulation

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



### 1.9 Job Execution Information

| Job | Fluid | Product           | Function          | Density<br>(lb/gal) | Yield<br>(ft <sup>3</sup> /sk) | Water<br>Rq.<br>(gal/sk) | Water<br>Rq.<br>(gal/bbl) | Volume<br>(sks) | Volume<br>(bbl) | Top<br>(ft) |
|-----|-------|-------------------|-------------------|---------------------|--------------------------------|--------------------------|---------------------------|-----------------|-----------------|-------------|
| 1   | 1     | Water             | Flush             | 8.33                |                                |                          | 42.00                     |                 | 20.00           | 0           |
| 1   | 2     | ALTCem<br>S100-12 | Lead              | 12.00               | 2.53                           | 14.85                    |                           | 260.00          | 116.99          | 0           |
| 1   | 3     | ALTCem<br>S100-12 | Tail              | 12.50               | 2.22                           | 12.58                    |                           | 146.00          | 57.82           | 1045        |
| 1   | 4     | Water             | DisplacementFinal | 8.33                |                                |                          | 42.00                     |                 | 117.00          | 0           |

### 1.10 Job Fluid Details

| Job | Fluid | Type | Fluid          | Product | Function        | Conc.  | Uom   |
|-----|-------|------|----------------|---------|-----------------|--------|-------|
| 1   | 2     | Lead | ALTCem S100-12 | AC3-10  | Cement          | 100.00 | %     |
| 1   | 2     | Lead | ALTCem S100-12 | ACL-10  | Accelerator     | 2.00   | lb/sk |
| 1   | 2     | Lead | ALTCem S100-12 | ACL-20  | Accelerator     | 5.00   | %BWOB |
| 1   | 2     | Lead | ALTCem S100-12 | ADF-11  | Defoamer        | 0.30   | %BWOB |
| 1   | 2     | Lead | ALTCem S100-12 | ALC-10  | LostCirculation | 0.13   | lb/sk |
| 1   | 2     | Lead | ALTCem S100-12 | AXE-30  | Extender        | 2.00   | lb/sk |
| 1   | 3     | Tail | ALTCem S100-12 | AC3-10  | Cement          | 100.00 | %     |
| 1   | 3     | Tail | ALTCem S100-12 | ACL-10  | Accelerator     | 2.00   | lb/sk |
| 1   | 3     | Tail | ALTCem S100-12 | ACL-20  | Accelerator     | 5.00   | %BWOB |
| 1   | 3     | Tail | ALTCem S100-12 | ADF-11  | Defoamer        | 0.30   | %BWOB |
| 1   | 3     | Tail | ALTCem S100-12 | ALC-10  | LostCirculation | 0.13   | lb/sk |
| 1   | 3     | Tail | ALTCem S100-12 | AXE-30  | Extender        | 2.00   | lb/sk |

## 2 Job Logs

| Line | Event                        | Date<br>(MM/DD/YY) | Time<br>(HH:MM) | Density<br>(lb/gal) | Pump<br>Rate<br>(bpm) | Pump<br>Volume<br>(bbls) | Pipe<br>Pressure<br>(psi) | Comment   |
|------|------------------------------|--------------------|-----------------|---------------------|-----------------------|--------------------------|---------------------------|---|
| 1    | Call Out                     | 5/17/2017          | 03:30           |                     |                       |                          |                           | BJ Crew was called out  |
| 2    | Pre-Convoy<br>Safety meeting | 5/17/2017          | 04:00           |                     |                       |                          |                           | BJ Crew discussed hazards of driving, such as wildlife, road conditions, etc.   |
| 3    | Departs Facility             | 5/17/2017          | 05:00           |                     |                       |                          |                           | BJ Crew departs facility  |
| 4    | Arrive on<br>Location        | 5/17/2017          | 06:30           |                     |                       |                          |                           | Crew arrives on location and conducts safety meeting prior to spotting in   |
| 5    | Assess location              | 5/17/2017          | 07:00           |                     |                       |                          |                           | BJ Crew walked location to decide and understand where equipment was to be spotted.   |
| 6    | Spot<br>equipment in         | 5/17/2017          | 10:00           |                     |                       |                          |                           | BJ Crew spotted equipment   |
| 7    | Rig up Iron                  | 5/17/2017          | 10:30           |                     |                       |                          |                           | Crew Rigged up all iron and fitting on ground and rig floor   |
| 8    | Safety Meeting               | 5/17/2017          | 12:00           |                     |                       |                          |                           | BJ Crew, Rig Crew, and company representative discussed Job procedures, and possible hazards such as, slips trips and falls, pinch points overhead loads, and red zones |
| 9    | Fill Lines                   | 5/17/2017          | 13:00           | 8.33                | 2                     | 2                        | 50                        | 2BBL of H2O ahead to fill lines   |
| 10   | Pressure Test                | 5/17/2017          | 13:03           | 8.33                |                       |                          | 3000                      | Tested all Iron to 3000psi, after holding bled pressure back to pump  |
| 11   | Pump Spacer                  | 5/17/2017          | 13:07           | 8.33                | 6                     | 18                       | 180                       | pumped 20 BBL of H2O spacer with Dye, at 6bpm, 180psi   |
| 12   | Pump Lead<br>Cement          | 5/17/2017          | 13:30           | 12                  | 6                     | 117                      | 180                       | Pumped 117 BBL of lead cmt, at 12.0 ppg, at 6BPM, full returns  |
| 13   | Pump Tail<br>Cement          | 5/17/2017          | 13:36           | 12.5                | 6                     | 57                       | 220                       | Pumped 57 BBL of tail cmt at 12.5ppg, 6bpm, full returns  |
| 14   | Shutdown                     | 5/17/2017          | 13:47           |                     |                       |                          |                           | Shutdown to drop top plug   |
| 15   | Drop Top Plug                | 5/17/2017          | 13:48           | 8.33                | 2                     |                          |                           | Plug left plug container, verified by company representative  |
| 16   | Pump<br>Displacement         | 5/17/2017          | 13:50           | 8.33                | 6                     | 100                      | 400                       | Displaced H2O at 8 bpm, 400psi, full returns  |
| 17   | Pump<br>Displacement         | 5/17/2017          | 14:10           | 8.33                | 2                     | 15                       | 320                       | Slowed rate for last 15 bbl in order to land plug.  |
| 18   | Land Plug                    | 5/17/2017          | 14:12           | 8.33                |                       |                          | 320                       | Landed plug at 115 BBL pumped, final circulating pressure was 320. pressured up to 850psi. Held for 3 Min.  |
| 19   | Check Floats                 | 5/17/2017          | 14:15           |                     |                       |                          |                           | Floats held, received .5BBL back to pump.   |



|    |                                |           |       |  |  |  |  |  |
|----|--------------------------------|-----------|-------|--|--|--|--|--|
| 20 | Pre-Rig Down<br>Safety meeting | 5/17/2017 | 14:30 |  |  |  |  | BJ Crew, Rig Crew discussed hazards of rig down such as overhead loads, pinch points, etc. |
| 21 | Rig down                       | 5/17/2017 | 14:45 |  |  |  |  | Bj Crew Rigged down all iron and fitting on ground and rig floor                           |
| 22 | Depart<br>Location             | 5/17/2017 | 16:00 |  |  |  |  | BJ Crew departs location for facility  |

### 3 Water Analysis

| Metrics          | Value     | Recommended |
|------------------|-----------|-------------|
| Water Source     | None      |             |
| Temperature      | 55 °F     | 50-80 °F    |
| pH Level         | 6         | 5.5-8.5     |
| Chlorides        | 29 mg/L   | 0-3000 mg/L |
| Total Alkalinity | 120       | 0-1000      |
| Total Hardness   | >375 mg/L | 0-500 mg/L  |
| Carbonates       | 0 mg/L    | 0-100 mg/L  |
| Sulfates         | >200 mg/L | 0-1500 mg/L |
| Potassium        | 1000 mg/L | 0-3000 mg/L |
| Iron             | 0 mg/L    | 0-300 mg/L  |

### 4 Pump Diagrams

