

## 1 Job Details & Summary

### 1.1 Geometry

| Type      | Function | OD (in) | ID (in) | Weight (lb/ft) | Thread | Top (ft) | Bottom (ft) | Excess (%) |
|-----------|----------|---------|---------|----------------|--------|----------|-------------|------------|
| Casing    | Outer    | 8.625   | 8.097   | 24             | n/a    | 0        | 180         | 0          |
| Open Hole | Outer    | n/a     | 7.88    | n/a            | n/a    | 180      | 7826        | 0          |
| Tubing    | Inner    | 2.875   | 2.441   | 6.4            | n/a    | 0        | 7826        | 0          |

### 1.2 Equipment / People

| Unit Type          | Unit     | Employee #1      | Mileage |
|--------------------|----------|------------------|---------|
| Bulk Trailer       | PPC41312 | Garcia, Anthony  | 316     |
| Bulk Trailer       | PPC41314 | Montoya, Hector  | 316     |
| Cement Pump        | 101      | Vasquez, Mike    | 316     |
| Light Duty Pickups | 6        | Chambers, Andrew | 316     |

### 1.3 Timing

| Event           | Date/Time      |
|-----------------|----------------|
| Call Out        | 9/1/2017 02:00 |
| Depart Facility | 9/1/2017 02:45 |
| On Location     | 9/1/2017 06:30 |
| Rig Up Iron     | 9/1/2017 07:15 |
| Job Started     | 9/1/2017 10:03 |
| Job Completed   | 9/2/2017 17:00 |
| Rig Down Iron   | 9/2/2017 18:15 |
| Depart Location | 9/2/2017 20:00 |

### 1.4 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   | 9.2 lb/gal |
| Well Fluid Density Out of Well | 9.2 lb/gal |

### 1.5 Job Details (cont.)

| Metrics | Value  |
|---------|--------|
| BHCT    | 133 °F |
| BHST    | 182 °F |

### 1.6 Circulation

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



### 1.7 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>(sk) | Volume<br>(bbl) | Top<br>(ft) |
|-----|-------|----------|-------------------|---------------------|--------------------------------|--------------------------|---------------------------|----------------|-----------------|-------------|
| 1   | 1     | Water    | Flush             | 8.33                |                                |                          | 42.00                     |                | 10.00           | 0           |
| 1   | 2     | PL100-11 | Plug              | 15.80               | 1.15                           | 4.97                     |                           | 186.00         | 38.00           | 7176        |
| 1   | 3     | Water    | Displacement      | 8.33                |                                |                          | 42.00                     |                | 42.00           | 0           |
| 1   | 4     | Water    | Flush             | 8.33                |                                |                          | 42.00                     |                | 10.00           | 0           |
| 1   | 5     | PL100-11 | Plug              | 15.80               | 1.15                           | 4.98                     |                           | 90.00          | 15.93           | 1767        |
| 1   | 6     | Water    | Displacement      | 8.33                |                                |                          | 42.00                     |                | 10.00           | 0           |
| 1   | 7     | Water    | Flush             | 8.33                |                                |                          | 42.00                     |                | 10.00           | 0           |
| 1   | 8     | PL100-11 | Plug              | 15.80               | 1.15                           | 5.01                     |                           | 54.00          | 11.08           | 1300        |
| 1   | 9     | Water    | Displacement      | 8.33                |                                |                          | 42.00                     |                | 7.00            | 0           |
| 1   | 10    | Water    | Flush             | 8.33                |                                |                          | 42.00                     |                | 10.00           | 0           |
| 1   | 11    | PL100-11 | Plug              | 15.80               | 1.15                           | 5.01                     |                           | 54.00          | 11.08           | 757         |
| 1   | 12    | Water    | Displacement      | 8.33                |                                |                          | 42.00                     |                | 4.00            | 0           |
| 1   | 13    | Water    | Flush             | 8.33                |                                |                          | 42.00                     |                | 10.00           | 0           |
| 1   | 14    | PL100-11 | Plug              | 15.80               | 1.15                           | 5.01                     |                           | 90.00          | 20.10           | 0           |
| 1   | 15    | Water    | DisplacementFinal | 8.33                |                                |                          | 42.00                     |                | 1.00            | 0           |
|     |       |          |                   |                     |                                |                          |                           |                |                 |             |

### 1.8 Job Fluid Details

| Job | Fluid | Type | Fluid    | Product | Function    | Conc.  | Uom   |
|-----|-------|------|----------|---------|-------------|--------|-------|
| 1   | 2     | Plug | PL100-11 | ACG-10  | Cement      | 100.00 | %     |
| 1   | 2     | Plug | PL100-11 | AR-10   | Retarder    | 0.20   | %BWOB |
| 1   | 5     | Plug | PL100-11 | ACG-10  | Cement      | 100.00 | %     |
| 1   | 8     | Plug | PL100-11 | ACG-10  | Cement      | 100.00 | %     |
| 1   | 8     | Plug | PL100-11 | ACL-10  | Accelerator | 1.00   | %BWOW |
| 1   | 11    | Plug | PL100-11 | ACG-10  | Cement      | 100.00 | %     |
| 1   | 11    | Plug | PL100-11 | ACL-10  | Accelerator | 1.00   | %BWOW |
| 1   | 14    | Plug | PL100-11 | ACG-10  | Cement      | 100.00 | %     |
| 1   | 14    | Plug | PL100-11 | ACL-10  | Accelerator | 1.00   | %BWOW |
|     |       |      |          |         |             |        |       |



## 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                     | 9/1/2017           | 02:00           |                     |                       |                          |                           | BJ CREW CALLED OUT  |
| 2    | DEPART FOR<br>LOCATION       | 9/1/2017           | 02:45           |                     |                       |                          |                           | BJ CREW LEFT FOR LOCATION   |
| 3    | ASSESSMENT<br>OF LOCATION    | 9/1/2017           | 06:30           |                     |                       |                          |                           | MET WITH CUSTOMER REP<br>WENT OVER WHERE TO SPOT<br>EQUIPMENT   |
| 4    | PRE RIG UP                   | 9/1/2017           | 07:15           |                     |                       |                          |                           | DISCUSSED HAZARDS OF<br>RIGGING UP IRON   |
| 5    | RIG UP                       | 9/1/2017           | 07:30           |                     |                       |                          |                           | BJ CREW RIGGED UP IRON  |
| 6    | RIG UP<br>COMPLETE           | 9/1/2017           | 08:00           |                     |                       |                          |                           | RIG UP COMPLETED SAFELY   |
| 7    | PRE JOB                      | 9/1/2017           | 09:45           |                     |                       |                          |                           | CONDUCTED STEACS BRIEFING<br>WITH CREW  |
| 8    | FILL LINES                   | 9/1/2017           | 10:03           | 8.33                | 2                     | 2                        |                           | FILLED LINES WITH 2/BBL<br>FRESH WATER  |
| 9    | PRESSURE<br>TEST             | 9/1/2017           | 10:04           | 8.33                | 1                     | 1                        | 15                        | TESTED LINES TO 1500  |
| 10   | SPACER<br>AHEAD              | 9/1/2017           | 10:05           | 8.33                | 3                     | 10                       | 200                       | PUMPED 10 BBL WATER<br>SPACER AHEAD   |
| 11   | CEMENT                       | 9/1/2017           | 10:20           | 15.8                | 3                     | 38                       | 300                       | PUMPED 38BBL OF<br>15.8/LB,1.15, YLD,4.97 GAL/SK  |
| 12   | SPACER<br>BEHIND             | 9/1/2017           | 10:36           | 8.33                | 1                     | 1                        | 200                       | PUMPED 1/BBL BEHIND   |
| 13   | DISPLACEMEN<br>T             | 9/1/2017           | 10:39           | 9.2                 | 2                     | 3                        | 150                       | PUMPED 3 BBL OF MUD<br>DISPLACEMENT, PASSENGER<br>SIDE WATER LOAD BLEW OUT<br>SO SWITCHED TO RIG MUD<br>PUMP PER CUSTOMER                                 |
| 14   | DISPLACE<br>WITH RIG<br>PUMP | 9/1/2017           | 10:36           | 9.2                 | 3                     | 37                       | 300                       | DISPLACED 37 BBL OF MUD<br>WITH RIG PUMP  |
| 15   | DONE<br>DISPLACING           | 9/1/2017           | 10:50           |                     |                       | 40                       | 300                       | FINISHED DISPLACEMENT AT<br>40/BBL DISPLACED PRESURE<br>WAS 300   |
| 16   | PULL 8 STANDS                | 9/1/2017           | 10:55           |                     |                       |                          |                           | PULLED 8 STANDS OF WET<br>TUBING, CUSTOMER DID NOT<br>WANT TO REVERSE OUT<br>BECAUSE OF<br>FORMATION,ADVISED RIG TO<br>PULL ONE STAND EVERY 45<br>SECONDS |
| 17   | PUMP INTO IT                 | 9/1/2017           | 11:30           |                     |                       |                          | 3800                      | TRIED TO PUMP IN TO IT PUMP<br>KICKED OUT PRESSURE SPIKE<br>TO 3800 PSI   |



|    |                 |          |       |      |   |      |      |  |
|----|-----------------|----------|-------|------|---|------|------|--|
| 18 | PULL 12 STANDS  | 9/1/2017 | 11:32 |      |   |      |      | PULLED 12 MORE STANDS  |
| 19 | PUMP INTO IT    | 9/1/2017 | 11:56 |      | 3 | 27   | 700  | PUMPED 27 BBL OF MUD ESTABLISHED CIRCULATION                                       |
| 20 | WAIT            | 9/1/2017 | 12:00 |      |   |      |      | WAIT 4 HRS TO TAG FOR SECOND PLUG  |
| 21 | BACK IN HOLE    | 9/1/2017 | 16:00 |      |   |      |      | RIG TRIPPED IN TAGGED CEMENT 7176  |
| 22 | PRE JOB         | 9/1/2017 | 18:00 |      |   |      |      | CONDUCTED STEACS BRIEFING WITH CREW  |
| 23 | SPACER AHEAD    | 9/1/2017 | 18:38 | 8.33 | 2 | 10   | 90   | 10 BBL WATER SPACER AHEAD  |
| 24 | PUMP CEMENT     | 9/1/2017 | 18:45 | 15.8 | 2 | 18.4 | 70   | PUMPED 90 SKS OF 15.8,1.15YLD,4.98GAL/SK,18.4/ BBLs OF CEMENT                      |
| 25 | SHUT DOWN       | 9/1/2017 | 06:54 |      |   |      |      | ALL CEMENT PUMPING COMPLETE  |
| 26 | SPACER BEHIND   | 9/1/2017 | 06:55 | 8.33 | 1 |      |      | 1 BBL FRESH WATER SPACER BEHIND  |
| 27 | DISPLACEMENT    | 9/1/2017 | 06:56 | 9.2  | 3 | 29.2 | 100  | DISPLACED 9.2/BBL OF 9.2 MUD   |
| 28 | CAUGHT PRESSURE | 9/1/2017 | 06:59 |      |   |      | 450  | PRESSURED UP TO 450 PSI AT 9.2 BBL DISPLACED                                       |
| 29 | PULL OUT        | 9/1/2017 | 07:05 |      |   |      |      | RIG PULLED 10 DRY STANDS, CUSTOMER RELEASED US ON LOCATION AGAIN AT 7:00 AM 9/2/17 |
| 30 | OTHER           | 9/1/2017 | 07:30 |      |   |      |      | LEFT EQUIPMENT RIGGED IN, WASHED UP PUMP   |
| 31 | PRE CONVOY      | 9/1/2017 | 08:15 |      |   |      |      | DISCUSSED HAZARDS OF DRIVING   |
| 32 | DEPART LOCATION | 9/1/2017 | 08:45 |      |   |      |      |  |
| 33 |                 | 9/1/0207 | 00:00 |      |   |      |      |  |
| 53 | CALL OUT        | 9/2/2017 | 05:00 |      |   |      |      | BJ CREW CALLED OUT ON LOCATION AT 7:00   |
| 54 | PRE CONVOY      | 9/2/2017 | 05:45 |      |   |      |      | DISCUSSED HAZARDS OF DRIVING   |
| 55 | ON LOCATION     | 9/2/2017 | 06:30 |      |   |      |      | BJ CREW ARRIVED ON LOCATION  |
| 56 | OTHER           | 9/2/2017 | 06:35 |      |   |      |      | ALL EQUIPMENT STILL RIGGED IN FROM YESTERDAY                                       |
| 57 | PRE JOB         | 9/2/2017 | 07:45 |      |   |      |      | CONDUCTED STEACS WITH CREW   |
| 58 | PRESSURE TEST   | 9/2/2017 | 08:07 |      | 1 | 2    | 1500 | TESTED TO 1500 PSI   |
| 59 | OTHER           | 9/2/2017 | 08:15 |      |   |      |      | RIG TRIED TO CIRCULATE PRESSURED UP TO 3000 PSI SO PULLING 44 STANDS, TUBING       |



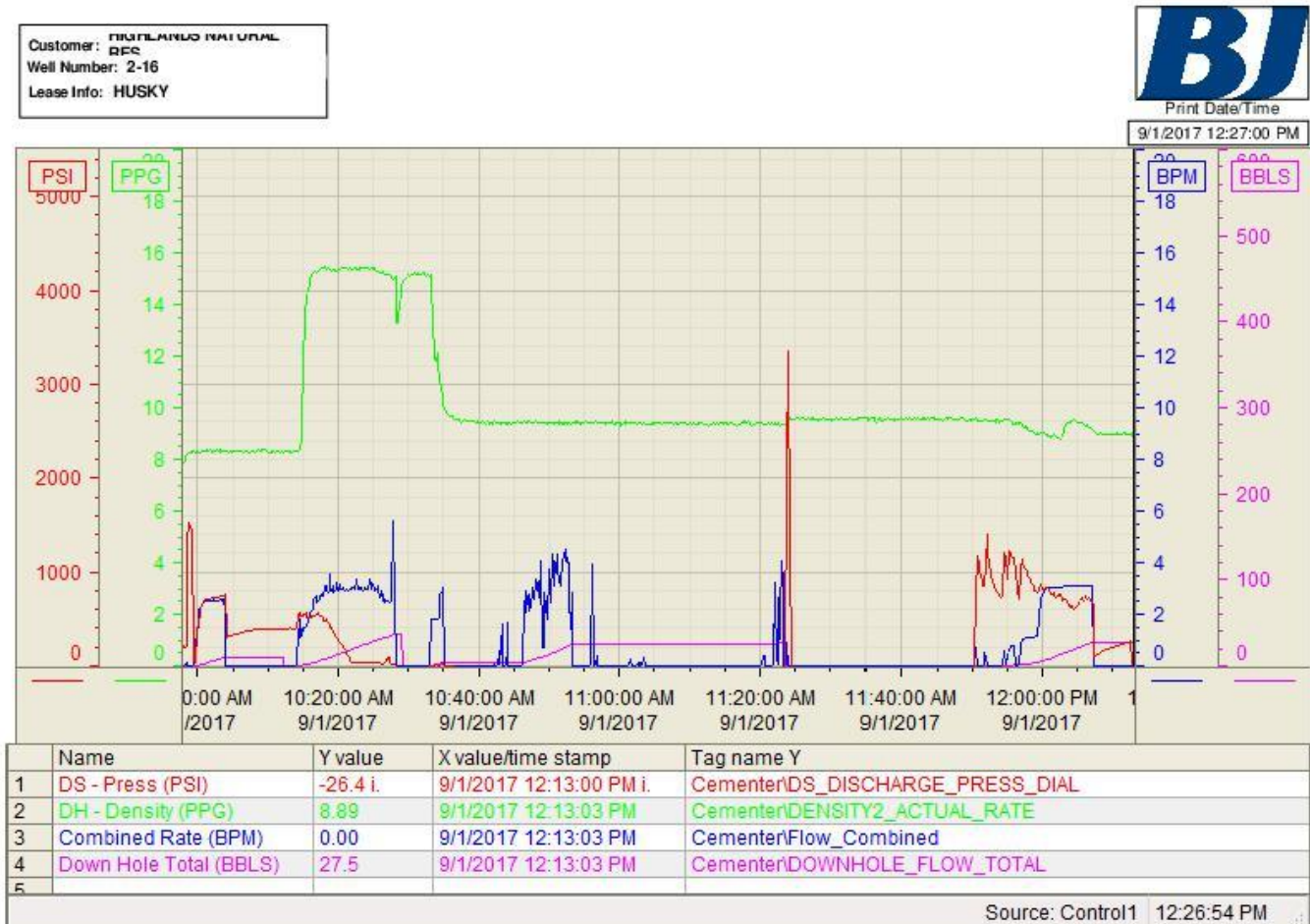
|    |                       |          |       |      |     |       |     |  |
|----|-----------------------|----------|-------|------|-----|-------|-----|--|
|    |                       |          |       |      |     |       |     | FULL OF CAKED UP MUD.AST<br>TEN HAD CEMENT IN THEM                               |
| 60 | SPACER<br>AHEAD       | 9/2/2017 | 11:29 | 8.33 | 2   | 10    | 100 | 10/BBL OF SPACER AHEAD   |
| 61 | CEMENT                | 9/2/2017 | 11:51 | 15.8 | 2.5 | 11.06 | 200 | PUMPED<br>54/SKS,15.8/LB,1.15YLD,5.01G<br>AL/SK OF CEMENT                        |
| 62 | SPACER<br>BEHIND      | 9/2/2017 | 11:59 | 8.33 | 1   | 1     | 200 | 1/BBL SPACER BEHIND  |
| 63 | DISPLACE              | 9/2/2017 | 12:00 | 9.2  | 2   | 6.41  | 500 | PUMPED 6.41 BBL OF MUD<br>DISPLACEMENT, PRESSURE OF<br>500 AT 6.4 DISPLACED      |
| 64 | PULL STANDS           | 9/2/2017 | 12:10 |      |     |       |     | RIG PULLED 15 STANDS FULL<br>OF THICK MUD  |
| 65 | PLUG 4                | 9/2/2017 | 00:00 |      |     |       |     |  |
| 66 | SPACER<br>AHEAD       | 9/2/2017 | 12:48 | 8.33 | 2   | 10    | 300 | 10/BBL SPACER AHEAD  |
| 67 | CEMENT                | 9/2/2017 | 12:59 | 15.8 | 2.5 | 11.06 | 180 | 54/SKS,15.8/LB,1.15,<br>YLD,5.01GAL/SK OF CEMENT                                 |
| 68 | SPACER<br>BEHIND      | 9/2/2017 | 13:00 | 8.33 | 1   | 1     | 100 | 1/BBL OF SPACER BEHIND   |
| 69 | DISPLACE              | 9/2/2017 | 13:01 | 9.2  | 2.5 | 3.31  | 80  | DISPLACED 3.31/BBL OF MUD<br>KICKED OUT AT PRESSURE OF<br>430 AT 3.31. DISPLACED |
| 70 | COME OUT OF<br>HOLE   | 9/2/2017 | 13:10 |      |     |       |     | RIG COMES ALL THE WAY OUT<br>OF HOLE   |
| 71 | OTHER                 | 9/2/2017 | 13:30 |      |     |       |     | WAITING ON RIG TO REMOVE<br>BOP  |
| 72 | PLUG 5                | 9/2/2017 | 00:00 |      |     |       |     |  |
| 73 | SPACER<br>AHEAD       | 9/2/2017 | 16:32 | 8.33 | 2.5 | 10    | 80  | PUMPED 10/BBL WATER<br>SPACER AHEAD  |
| 74 | CEMENT                | 9/2/2017 | 16:48 | 15.8 | 3   | 18.4  | 75  | 90/SKS OF 15.8,1.15YLD,5.01<br>GAL/SK OF CEMENT                                  |
| 75 | SPACER<br>BEHIND      | 9/2/2017 | 16:52 | 8.33 | 1   | 1     | 50  | 1/BBL WATER SPACER BEHIND  |
| 76 | DISPLACE              | 9/2/2017 | 16:52 | 8.33 | 2.5 | 2.07  | 300 | DISPLACED 2.07BBL OF MUD   |
| 77 | PUMPED<br>CEMENT      | 9/2/2017 | 17:09 | 15.8 | 2   | 2     | 150 | PUMPED 2/MORE BBL OF<br>CEMENT TO MAKE SURE IT<br>WAS TO SURFACE                 |
| 78 | TRIP OUT              | 9/2/2017 | 17:11 |      |     |       |     | RIG PUULS OUT OF HOLE  |
| 79 | PRE RIG<br>DOWN       | 9/2/2017 | 17:50 |      |     |       |     | DISSCUSSED HAZARDS OF RIG<br>DOWN  |
| 80 | RIG DOWN<br>EQUIPMENT | 9/2/2017 | 18:15 |      |     |       |     | BJ CREW RIGGED DOWN  |
| 81 | RIG DOWN<br>COMPLETE  | 9/2/2017 | 19:15 |      |     |       |     | RIG DOWN COMPLETED<br>SAFELY   |
| 82 | PRE CONVOY            | 9/2/2017 | 19:30 |      |     |       |     | DISSCUSSED HAZARDS OF<br>DRIVING   |
| 83 | DEPART<br>LOCATION    | 9/2/2017 | 20:00 |      |     |       |     | BJ CREW DEPARTS LOCATION   |

### 3 Water Analysis

| Metrics          | Value            | Recommended |
|------------------|------------------|-------------|
| Water Source     | Upright Rig Tank |             |
| Temperature      | 65 °F            | 50-80 °F    |
| pH Level         | 6                | 5.5-8.5     |
| Chlorides        | 72 mg/L          | 0-3000 mg/L |
| Total Alkalinity | 120              | 0-1000      |
| Total Hardness   | 300 mg/L         | 0-500 mg/L  |
| Carbonates       | 140 mg/L         | 0-100 mg/L  |
| Sulfates         | <200 mg/L        | 0-1500 mg/L |
| Potassium        | 300 mg/L         | 0-3000 mg/L |
| Iron             | 7 mg/L           | 0-300 mg/L  |

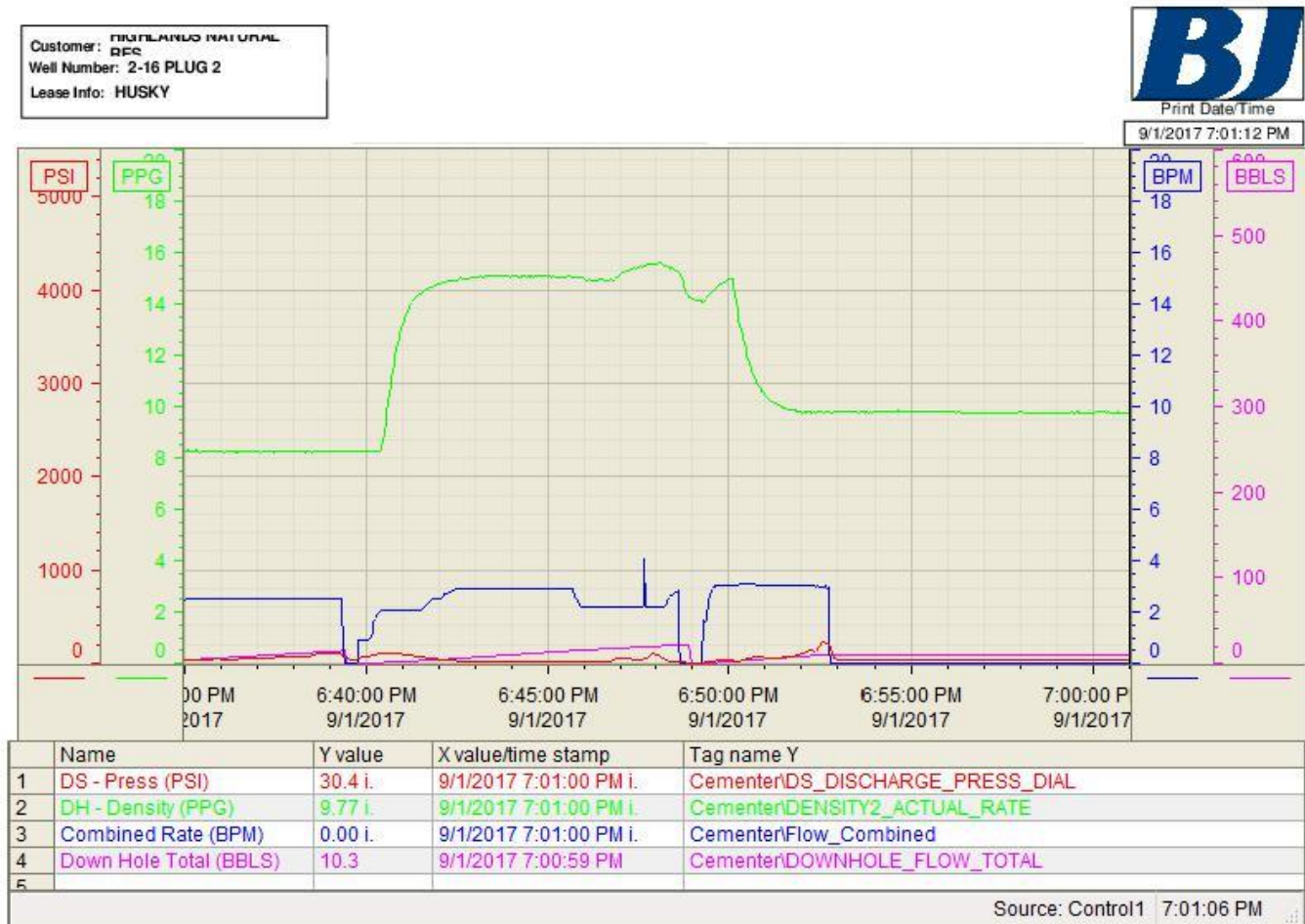
### 4 Pump Diagrams

Plug 1





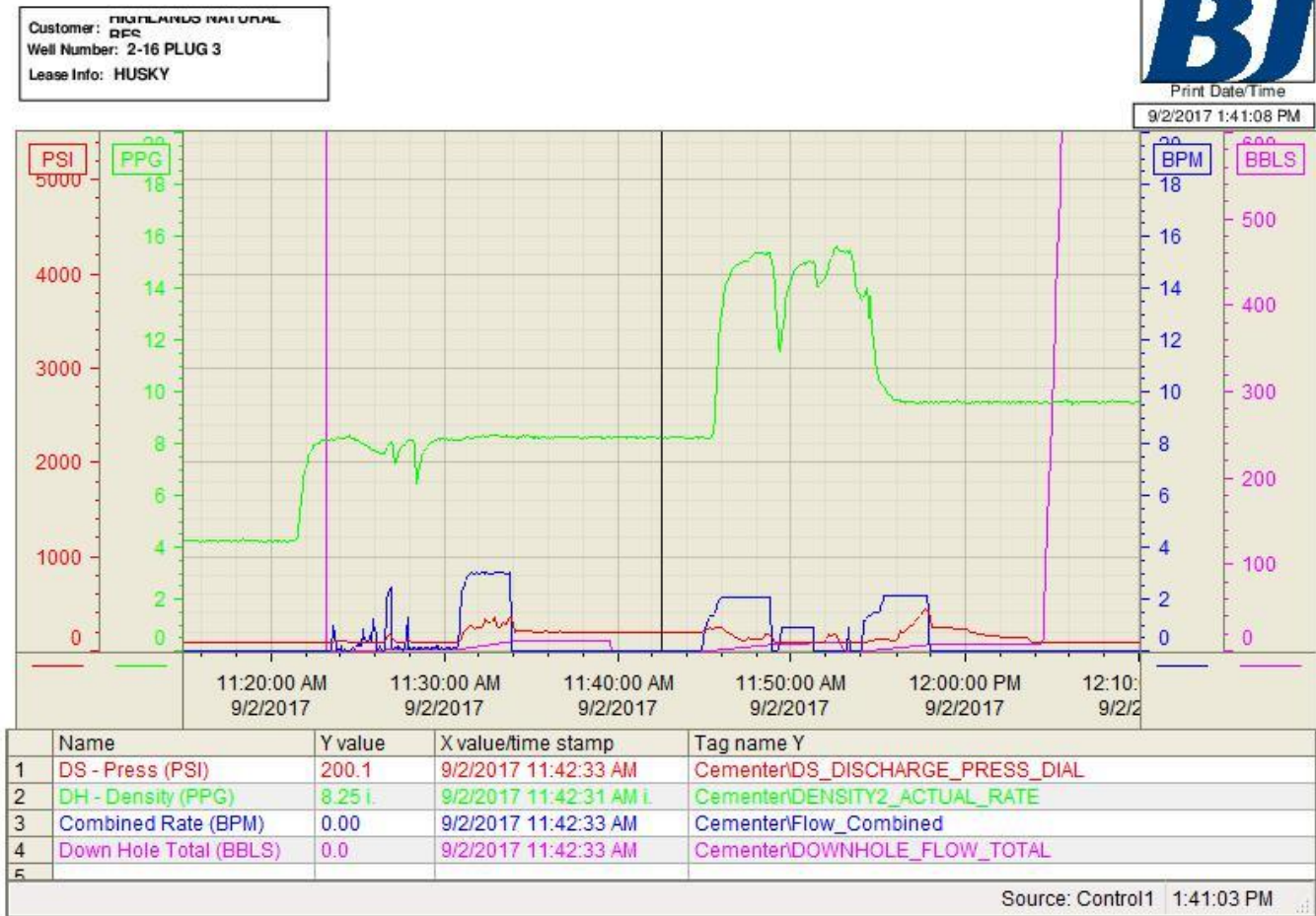
Plug 2







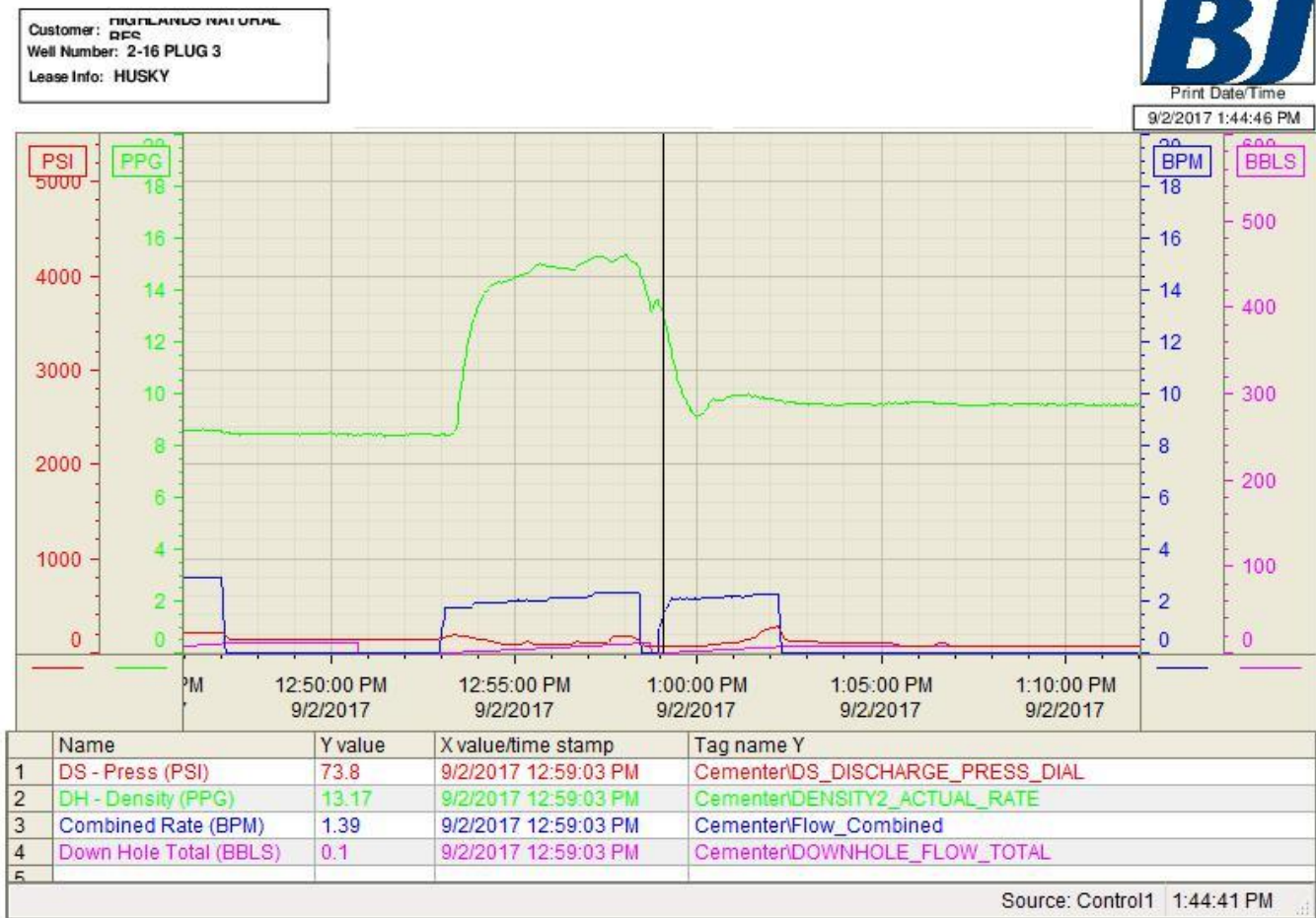
Plug 3







Plug 4





Plug 5

