

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

United States of America, COLORADO

### **For: Terra**

Date: Thursday, February 14, 2019

### **FEDERAL SG 421-22 Production**

### **API#05-045-24134**

Job Date: Thursday, February 14, 2019

Sincerely,

**Grand Junction Cement Engineering**

## 2.0 Real-Time Job Summary

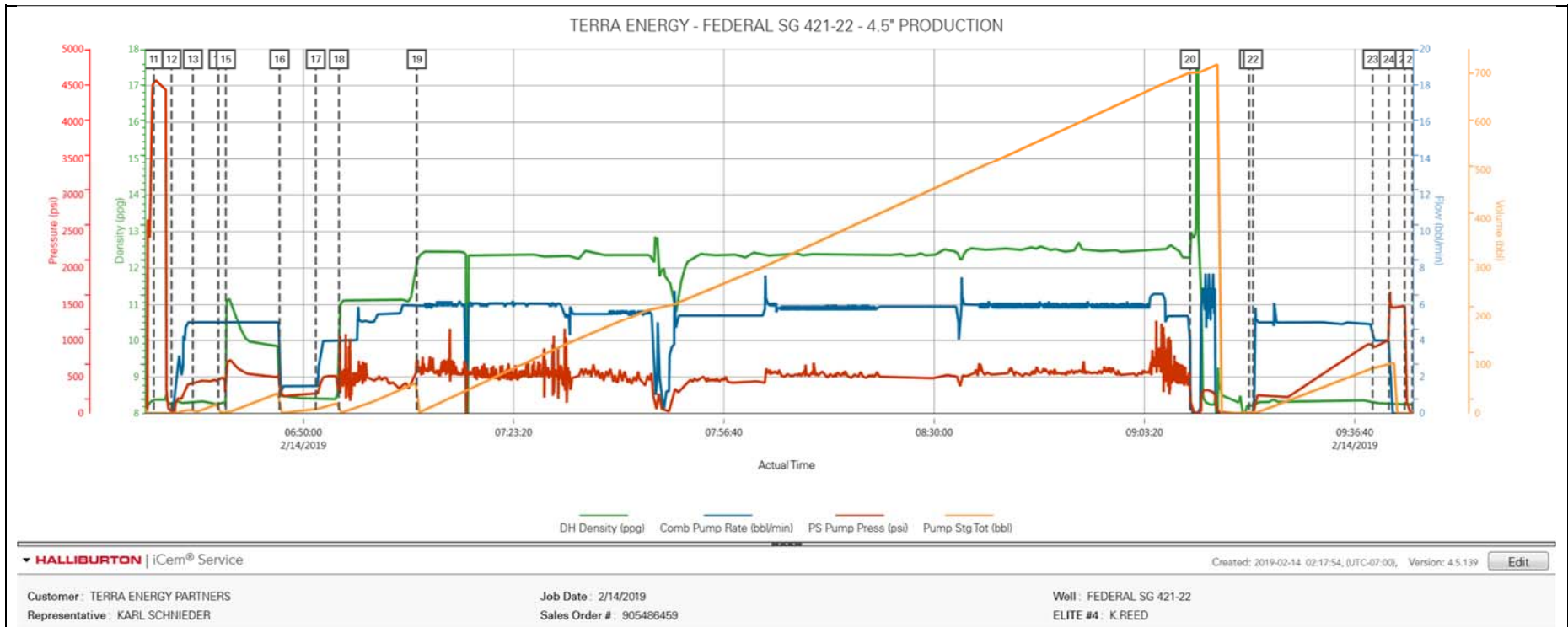
### 2.1 Job Event Log

| Type  | Seq. No. | Graph Label                            | Date      | Time     | Source | DH Density<br><i>(ppg)</i> | Comb Pump Rate<br><i>(bbl/min)</i> | PS Pump Press<br><i>(psi)</i> | Pump Stg Tot<br><i>(bbl)</i> | Comments   |
|-------|----------|--|-----------|----------|--------|----------------------------|------------------------------------|-------------------------------|------------------------------|--|
| Event | 1        | Call Out                               | 2/13/2019 | 20:00:00 | USER   |                            |                                    |                               |                              | Requested on Location @ 1:00   |
| Event | 2        | Pre-Convoy Safety Meeting              | 2/13/2019 | 21:00:00 | USER   |                            |                                    |                               |                              |  |
| Event | 3        | Crew Leave Yard                        | 2/13/2019 | 21:15:00 | USER   |                            |                                    |                               |                              | 1 Elite, 1 660, 1 pickup, 1 transport  |
| Event | 4        | Arrive at Location from Service Center | 2/14/2019 | 00:01:00 | USER   |                            |                                    |                               |                              | Rig running casing   |
| Event | 5        | Assessment Of Location Safety Meeting  | 2/14/2019 | 00:10:00 | USER   |                            |                                    |                               |                              | JSA completed - Customer offered/received SDS - water test pH 7.0, Cl <200, temp 64 degrees                              |
| Event | 6        | Pre-Rig Up Safety Meeting              | 2/14/2019 | 00:30:00 | USER   |                            |                                    |                               |                              | 1 hardline to standpipe, water hoses to upright, bulk hose to 660 and silos.   |
| Event | 7        | Other                                  | 2/14/2019 | 04:50:55 | USER   |                            |                                    |                               |                              | Rig Circulated 90 mins prior to cement job at 450 gpm 760 psi  |
| Event | 8        | Pre-Job Safety Meeting                 | 2/14/2019 | 04:56:30 | USER   |                            |                                    |                               |                              | All HES personnel, rig crew, and company rep   |
| Event | 9        | Start Job                              | 2/14/2019 | 05:56:54 | USER   | 8.33                       | 0.00                               | 0.00                          | 0.00                         | TD 6488', TP 6482.44', SJ 31.04', OH 8 3/4", Csg 4.5", 11.6 lb/ft P110, sCsg 9.625" 32.3 lb/ft shoe @ 1011' Mud 9.5 ppg. |
| Event | 10       | Fill Lines                             | 2/14/2019 | 05:58:21 | USER   | 8.33                       | 0.90                               | 63.00                         | 3.00                         | Fresh Water  |
| Event | 11       | Test Lines                             | 2/14/2019 | 06:26:17 | USER   | 8.38                       | 0.00                               | 4586.00                       | 3.00                         | Held pressure no leaks   |
| Event | 12       | Pump Water Spacer                      | 2/14/2019 | 06:29:05 | COM5   | 8.33                       | 5.00                               | 395.00                        | 20.00                        | Fresh Water  |
| Event | 13       | Pump Mud Flush                         | 2/14/2019 | 06:32:28 | COM5   | 8.38                       | 5.00                               | 416.00                        | 10.40                        | 20 BBLS Mud Flush  |
| Event | 14       | Pump Water Spacer                      | 2/14/2019 | 06:36:31 | COM5   | 8.35                       | 5.00                               | 482.00                        | 5.00                         | Fresh water  |

|       |    |  |           |          |      |       |      |         |        |   |
|-------|----|--|-----------|----------|------|-------|------|---------|--------|---|
| Event | 15 | Pump Super Flush                       | 2/14/2019 | 06:37:41 | COM5 | 10.00 | 5.00 | 654.00  | 40.00  | 40 bbls Super Flush   |
| Event | 16 | Pump Water Spacer                      | 2/14/2019 | 06:46:12 | COM5 | 8.33  | 4.00 | 417.00  | 20.00  | Fresh Water   |
| Event | 17 | Check Weight                           | 2/14/2019 | 06:51:57 | USER |       |      |         |        | Density Verified via Mud Scales   |
| Event | 18 | Pump Scavenger                         | 2/14/2019 | 06:55:37 | COM5 | 11.00 | 5.00 | 627.00  | 49.99  | Scanverger 121 Sks 11.0 ppg 2.32 yield, 12.67 gal/sk                                |
| Event | 19 | Pump Tail Cement                       | 2/14/2019 | 07:07:58 | USER | 12.30 | 6.00 | 743.00  | 548.86 | 1496 Sks 12.3 ppg 2.06 yield, 10.11 gal/sk 150 lbs Well life added through 300 bbls |
| Event | 20 | Shutdown                               | 2/14/2019 | 09:10:33 | USER | 12.29 | 4.00 | 380.00  | 701.90 | Clean lines to pit  |
| Event | 21 | Drop Top Plug                          | 2/14/2019 | 09:19:55 | USER |       |      |         |        | Co-Rep Verify Plug Launched   |
| Event | 22 | Pump Displacement                      | 2/14/2019 | 09:20:31 | USER | 8.40  | 5.00 | 900.00  | 100.00 | 3 lbs BE-6, 1 gal MMCR, 2% KCl  |
| Event | 23 | Slow Rate                              | 2/14/2019 | 09:39:29 | USER | 8.35  | 4.00 | 913.00  | 90.00  | Slow Rate 10 bbls to calculated displacement  |
| Event | 24 | Bump Plug                              | 2/14/2019 | 09:42:04 | USER | 8.28  | 4.00 | 1013.00 | 100.00 | Plug Bumped at 1013 psi, Brought up to 1490 psi                                     |
| Event | 25 | Check Floats                           | 2/14/2019 | 09:44:34 | USER | 8.28  | 0.00 | 1490.00 | 0.00   | Floats held – ½ bbl back to the truck   |
| Event | 26 | End Job                                | 2/14/2019 | 09:45:47 | USER | 8.25  | 0.00 | 12.00   | 0.00   | Partial returns throughout job. Pipe was reciprocated during job.                   |
| Event | 27 | Post-Job Safety Meeting (Pre Rig-Down) | 2/14/2019 | 09:48:31 | USER |       |      |         |        | No sugar, HES top plug used, 1 add hour   |
| Event | 28 | Pre-Convoy Safety Meeting              | 2/14/2019 | 10:45:00 | USER |       |      |         |        |   |
| Event | 29 | Crew Leave Location                    | 2/14/2019 | 11:00:00 | USER |       |      |         |        | Thanks For Using Halliburton Cement. Andrew Brennecke And Crew.                     |

3.0 Attachments

3.1 FEDERAL SG 421-22-Custom Results.png



4.0 Custom Graphs

4.1 Custom Graph

