

# HALLIBURTON

iCem<sup>®</sup> Service

## **TEP ROCKY MOUNTAIN LLC**

**For: Brandon Hilts and Abe Alexander**

Date: Monday, February 13, 2017

**TR 43-27-597 Surface**

**API/UWI #: 05-045-23330-00**

Sincerely,

Grand Junction Cement Engineering

## 1.0 Real-Time Job Summary

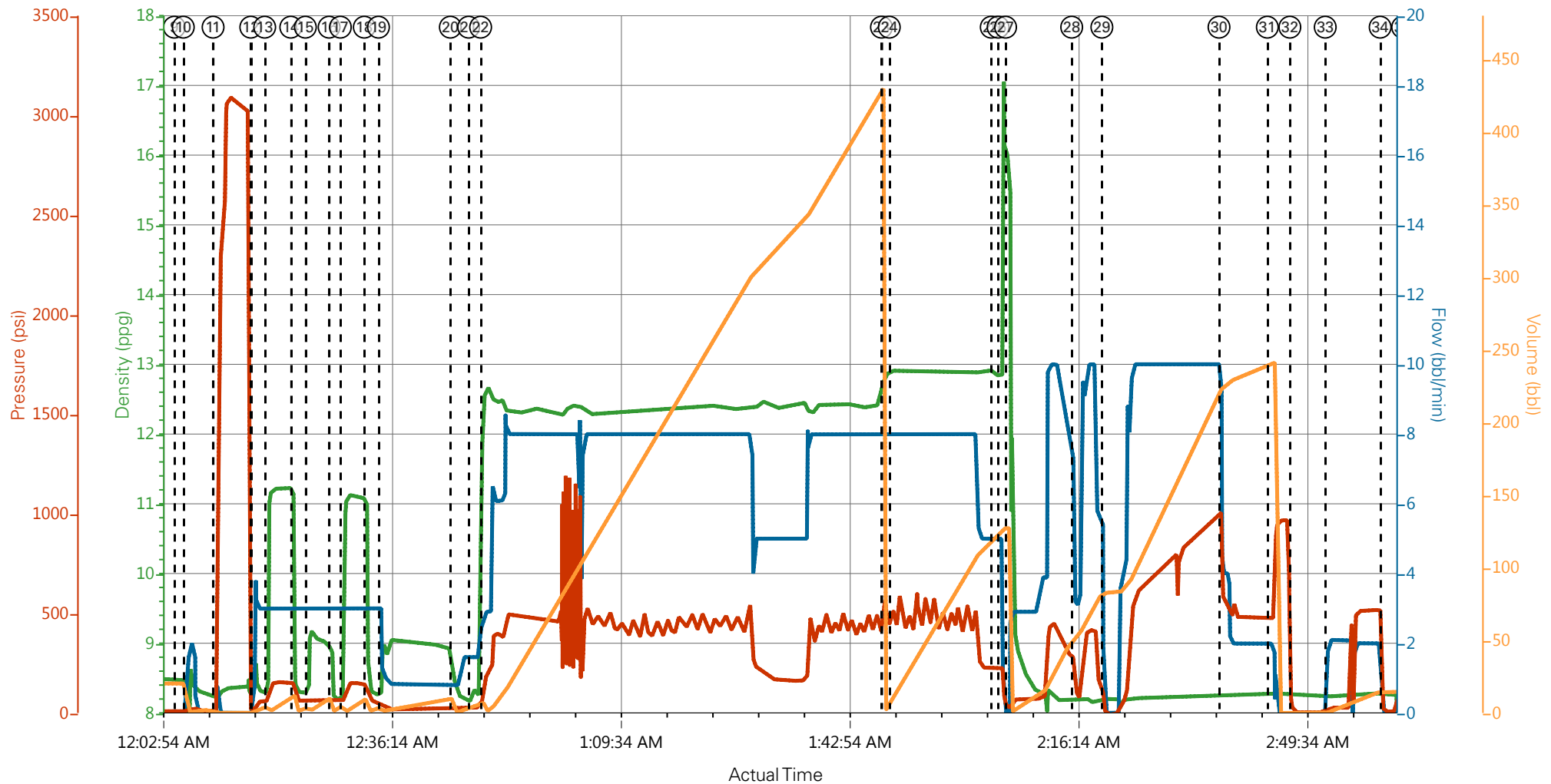
## 1.1 Job Event Log

| Type  | Seq. No. | Graph Label                           | Date      | Time     | Source | DH Density<br>(ppg) | Comb Pump Rate<br>(bbl/min) | PS Pump Press<br>(psi) | Pump Stg Tot<br>(bbl) | Comments   |
|-------|----------|---------------------------------------|-----------|----------|--------|---------------------|-----------------------------|------------------------|-----------------------|--|
| Event | 1        | Call Out                              | 2/11/2017 | 11:00:00 | USER   |                     |                             |                        |                       | Requested on Location @ 07:00  |
| Event | 2        | Pre-Convoy Safety Meeting             | 2/12/2017 | 00:45:00 | USER   |                     |                             |                        |                       |  |
| Event | 3        | Crew Leave Yard                       | 2/12/2017 | 01:00:00 | USER   |                     |                             |                        |                       | 1 Elite, 1 660, 1 pickup, 1 Transport  |
| Event | 4        | Arrive at Location                    | 2/12/2017 | 12:00:00 | USER   |                     |                             |                        |                       | Rig running casing. All equipment and cement crew waiting off location, Crew arriving from other TEP location, begin job hours.  |
| Event | 5        | Assessment Of Location Safety Meeting | 2/12/2017 | 12:30:00 | USER   |                     |                             |                        |                       | JSA completed - Customer offered/received SDS - water test pH 7.0, Cl <200, temp 75 degrees  |
| Event | 6        | Pre-Rig Up Safety Meeting             | 2/12/2017 | 20:00:00 | USER   |                     |                             |                        |                       |  |
| Event | 7        | Rig-Up Equipment                      | 2/12/2017 | 20:15:00 | USER   |                     |                             |                        |                       | 1 hardline to standpipe, water hoses to upright and day tank, bulk hoses to silo and 660.  |
| Event | 8        | Pre-Job Safety Meeting                | 2/12/2017 | 22:30:00 | USER   |                     |                             |                        |                       | All HES personnel, Rig crew, and Company Rep   |
| Event | 9        | Start Job                             | 2/13/2017 | 00:05:00 | COM6   |                     |                             |                        |                       | TD 3062' OF 14 3/4" OH, 18" Conductor @84', TP 3062', 2062' OF 9 5/8" J-55 36#/FT, 1000' OF 9 5/8" J-55 40#/FT, SJ 23.6', Parasite 1.90" Total length 2952', Mud 8.6 PPG |
| Event | 10       | Fill Lines                            | 2/13/2017 | 00:06:18 | USER   | 8.4                 | 2                           | 40                     | 10                    | Fresh water  |
| Event | 11       | Test Lines                            | 2/13/2017 | 00:10:38 | COM6   | 8.4                 | .5                          | 3100                   | .5                    | Held pressure 2 minutes no leaks   |
| Event | 12       | Pump H2O Spacer                       | 2/13/2017 | 00:16:08 | COM6   | 8.4                 | 3                           | 40                     | 5                     | 5 bbls Fresh water   |
| Event | 13       | Pump Super Flush 100                  | 2/13/2017 | 00:18:09 | COM6   | 11                  | 3                           | 90                     | 10                    | 10 bbls Super Flush 100  |
| Event | 14       | Pump H2O Spacer                       | 2/13/2017 | 00:21:57 | COM6   | 8.4                 | 3                           | 53                     | 5                     | 5 bbls Fresh water   |
| Event | 15       | Pump Calcium Chloride Spacer          | 2/13/2017 | 00:24:05 | COM6   | 9                   | 3                           | 60                     | 10                    | 10 sks Calcium Chloride in 10 bbls H2O   |

|       |    |                              |           |          |      |      |     |     |       |   |
|-------|----|------------------------------|-----------|----------|------|------|-----|-----|-------|---|
| Event | 16 | Pump H2O Spacer              | 2/13/2017 | 00:27:32 | COM6 | 8.4  | 3   | 60  | 5     | 5 bbls Fresh water  |
| Event | 17 | Pump Super Flush 100         | 2/13/2017 | 00:29:11 | COM6 | 11   | 3   | 140 | 10    | 10 bbls Super Flush 100   |
| Event | 18 | Pump H2O Spacer              | 2/13/2017 | 00:32:40 | COM6 | 8.4  | 3   | 60  | 5     | 5 bbls Fresh water  |
| Event | 19 | Pump Calcium Chloride Spacer | 2/13/2017 | 00:34:44 | COM6 | 9    | 3   | 60  | 10    | 10 sks Calcium Chloride in 10 bbls H2O  |
| Event | 20 | Pump H2O Spacer              | 2/13/2017 | 00:45:12 | USER | 8.4  | .8  | 18  | 10    | 10 bbls Fresh water   |
| Event | 21 | Check weight                 | 2/13/2017 | 00:47:52 | COM6 | 12.3 |     |     |       | Density Verified via Mud Scales   |
| Event | 22 | Pump Lead Cement             | 2/13/2017 | 00:49:37 | COM6 | 12.3 | 7.5 | 480 | 447.2 | 1055 sks Varicem 12.3 PPG, 2.38 Ft3/sk, 13.76 Gal/sk. with 45 lbs Tuf-Fiber throughout Cement after first 20 bbls away. |
| Event | 23 | Pump Tail Cement             | 2/13/2017 | 01:48:00 | COM6 | 12.8 | 7   | 440 | 129.6 | 345 Sks Varicem 12.8 PPG, 2.11 Ft3/sk, 11.78 Gal/sk   |
| Event | 24 | Check weight                 | 2/13/2017 | 01:49:08 | COM6 | 12.8 |     |     |       | Density Verified via Mud Scales   |
| Event | 25 | Shutdown                     | 2/13/2017 | 02:04:00 | USER |      |     |     |       | Wash up on top of plug  |
| Event | 26 | Drop Top Plug                | 2/13/2017 | 02:05:00 | USER |      |     |     |       | Verify Plug Launched  |
| Event | 27 | Pump Displacement            | 2/13/2017 | 02:06:05 | COM6 | 8.4  | 10  | 620 | 233.4 | Fresh Water   |
| Event | 28 | Slow Rate                    | 2/13/2017 | 02:15:43 | USER |      |     |     |       | Slow rate to prime up the line from the day tank to insufficient esolve water delivery                                  |
| Event | 29 | Shutdown                     | 2/13/2017 | 02:20:06 | USER |      |     |     |       | Shutdown to tighten plug container leaking on casing connection.  |
| Event | 30 | Slow Rate                    | 2/13/2017 | 02:37:10 | USER |      |     |     |       | Slow Rate 15 bbls to Calculated Displacement  |
| Event | 31 | Bump Plug                    | 2/13/2017 | 02:44:13 | COM6 |      |     |     |       | Plug Bumped at 497 psi, Brought up to 950 psi   |
| Event | 32 | Check Floats                 | 2/13/2017 | 02:47:29 | USER |      |     |     |       | Floats held – 1 bbl back to the truck   |
| Event | 33 | Clear Parasite String:       | 2/13/2017 | 02:52:39 | USER |      |     |     |       | 16 lbs sugar in 15 bbls H2O   |
| Event | 34 | Shutdown                     | 2/13/2017 | 03:00:39 | USER |      |     |     |       | Circulation broke at 850 psi  |
| Event | 35 | Wait on Cement               | 2/13/2017 | 03:03:55 | USER |      |     |     |       | Waiting to topout. No returns throughout job  |
| Event | 36 | Start Topout:                | 2/13/2017 | 07:28:12 | USER |      |     |     |       |   |
| Event | 37 | H2O Spacer:                  | 2/13/2017 | 07:28:27 | USER |      |     |     |       | 1 bbl Freshwater  |

|       |    |                               |           |          |      |   |
|-------|----|-------------------------------|-----------|----------|------|---|
| Event | 38 | Pump Cement                   | 2/13/2017 | 07:30:43 | COM6 | 200 sks Topout, 15.6 ppg, 1.19 Ft3/sk, 5.24 Gal/sk. 10 bbl Superflush and 4 50 lb bags of CCL   |
| Event | 39 | Check weight                  | 2/13/2017 | 07:31:46 | COM6 |   |
| Event | 40 | Shutdown                      | 2/13/2017 | 07:58:02 | USER |   |
| Event | 41 | End Job                       | 2/13/2017 | 07:59:00 | USER | No returns throughout job, pipe was not reciprocated during cement, 1 bbls of cement to surface |
| Event | 42 | Other                         | 2/13/2017 | 08:30:00 | USER | Rig Circulated prior to cement job 120 total bbls at 50 psi                                     |
| Event | 43 | Pre-Rig Down Safety Meeting   | 2/13/2017 | 08:45:00 | USER | Ticket adjustments, 10 lbs sugar, 5 add hours, 45 lbs tuff fiber, 10 bbls SF, 200 sks top out.  |
| Event | 44 | Rig-Down Equipment            | 2/13/2017 | 09:00:00 | USER |   |
| Event | 45 | Pre-Rig Convoy Safety Meeting | 2/13/2017 | 09:45:00 | USER |   |
| Event | 46 | Crew Leave Location           | 2/13/2017 | 10:00:00 | USER | Thank you for using Halliburton – Ryan Muhlestein and crew.                                     |

# Terra Energy - TR 43-27-597 - Surface Casing



- |   |                          |                                |                      |                           |
|---|--------------------------|--------------------------------|----------------------|---------------------------|
| ① Call Out                              | ⑧ Pre-Job Safety Meeting | ⑮ Pump Calcium Chloride Spacer | 22 Pump Lead Cement  | 29 Shutdown               |
| ② Pre-Convoy Safety Meeting             | ⑨ Start Job              | ⑯ Pump H2O Spacer              | 23 Pump Tail Cement  | 30 Slow Rate              |
| ③ Crew Leave Yard                       | ⑩ Fill Lines             | ⑰ Pump Super Flush 100         | 24 Check weight      | 31 Bump Plug              |
| ④ Arrive at Location                    | ⑪ Test Lines             | ⑱ Pump H2O Spacer              | 25 Shutdown          | 32 Check Floats           |
| ⑤ Assessment Of Location Safety Meeting | ⑫ Pump H2O Spacer        | ⑲ Pump Calcium Chloride Spacer | 26 Drop Top Plug     | 33 Clear Parasite String: |
| ⑥ Pre-Rig Up Safety Meeting             | ⑬ Pump Super Flush 100   | 20 Pump H2O Spacer             | 27 Pump Displacement | 34 Shutdown               |
| ⑦ Rig-Up Equipment                      | ⑭ Pump H2O Spacer        | 21 Check weight                | 28 Slow Rate         | 35 Wait on Cement         |

▼ **HALLIBURTON** | iCem® Service

Created: 2017-02-12 21:28:08, Version: 4.2.393

Edit

Customer: TEP ROCKY MOUNTAIN LLC

Job Date: 2/12/2017

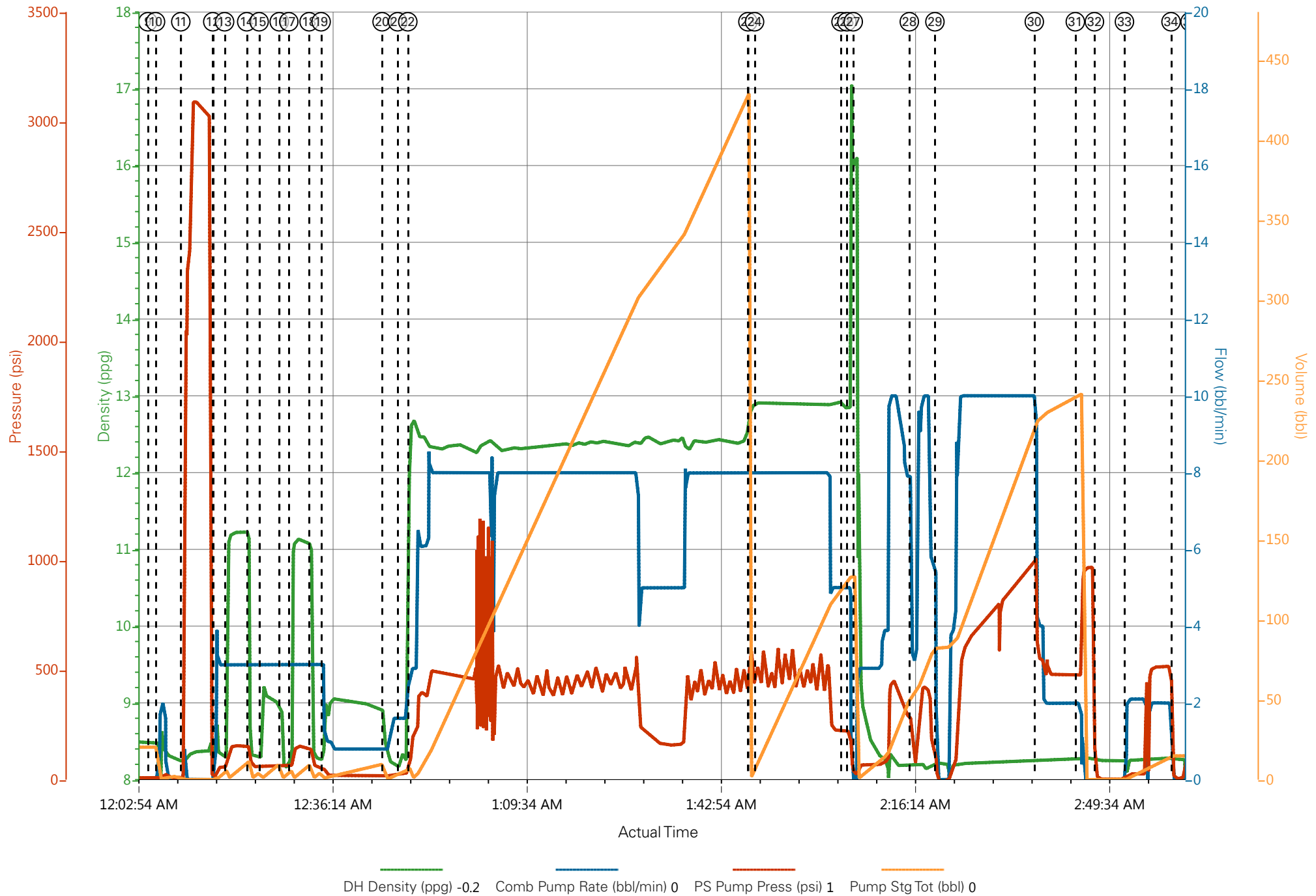
Well: TR 43-27-597

Representative: Jarvis Abbey

Sales Order #: 903838403

Elite 1: Muhlestein/Angelo

# Terra Energy - TR 43-27-597 - Surface Casing



# Terra Energy - TR 43-27-597 - Topout #1

