

# HALLIBURTON

iCem<sup>®</sup> Service

**TAPSTONE ENERGY LLC**

**For:**

Date: Thursday, December 04, 2014

**Mangen 1H**

Case 1

Sincerely,

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# HALLIBURTON

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## 1.0 Job Design

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### 1.1 Time of Stages

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| Graph Label | Time<br>(min) | Stage Starts Pumping        | Stage Enters Annulus |
|-------------|---------------|-----------------------------|----------------------|
| ①           | 0             | Depart Location             |                      |
| ②           | 0             | Pre-Rig Down Safety Meeting |                      |
| ③           | 0             | Pre-Convoy Safety Meeting   |                      |
| ④           | 0             | Rig-Down Completed          |                      |
| ⑤           | 0             | Other                       |                      |

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2.0 Hydraulics Summary

3.0 Temperature Modeling

4.0 Real-Time Job Summary

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4.1 Stage Summary - Liquid Volume, Density, & Design Shutdown

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4.2 Stage Summary - Pump Pressure & ECD

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4.3 Stage Summary - Pump Rate & Nitrogen Rate

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4.4 Shutdown Summary

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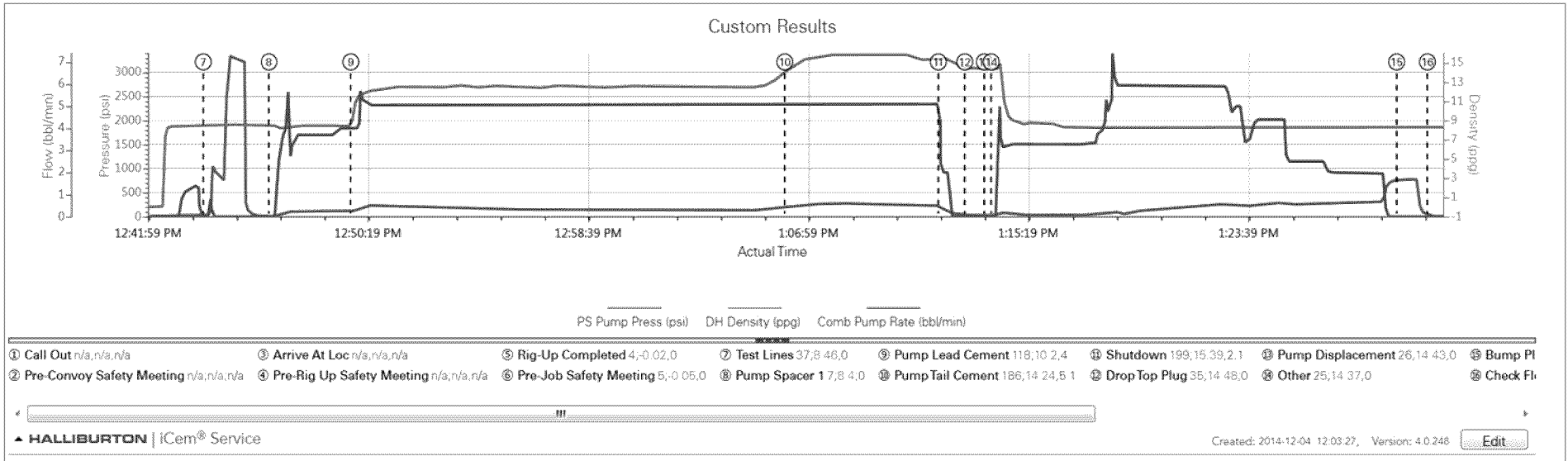
## 4.5 Job Event Log

| Type  | Seq. No. | Activity                    | Graph Label                 | Date      | Time     | Source | PS Pump Press (psi) | DH Density (ppg) | Comb Pump Rate (bbl/min) | Comments   |
|-------|----------|-----------------------------|-----------------------------|-----------|----------|--------|---------------------|------------------|--------------------------|--|
| Event | 1        | Call Out                    | Call Out                    | 12/4/2014 | 07:00:00 | USER   |                     |                  |                          |  |
| Event | 2        | Pre-Convoy Safety Meeting   | Pre-Convoy Safety Meeting   | 12/4/2014 | 08:30:00 | USER   |                     |                  |                          | use smith driving skills know route                  |
| Event | 3        | Arrive At Loc               | Arrive At Loc               | 12/4/2014 | 11:30:00 | USER   |                     |                  |                          |  |
| Event | 4        | Pre-Rig Up Safety Meeting   | Pre-Rig Up Safety Meeting   | 12/4/2014 | 11:45:00 | USER   |                     |                  |                          | watch pinch points slips falls stay hydrated         |
| Event | 5        | Rig-Up Completed            | Rig-Up Completed            | 12/4/2014 | 12:30:00 | USER   |                     |                  |                          |  |
| Event | 6        | Pre-Job Safety Meeting      | Pre-Job Safety Meeting      | 12/4/2014 | 12:40:00 | USER   |                     |                  |                          | Stay away from red iron dont step over stay hydrated |
| Event | 7        | Test Lines                  | Test Lines                  | 12/4/2014 | 12:44:09 | COM5   | 3000.00             | 8.34             | 0.00                     | test 500psi low 3000psi high good test               |
| Event | 8        | Pump Spacer 1               | Pump Spacer 1               | 12/4/2014 | 12:46:39 | COM5   | 87.00               | 8.34             | 4.00                     | pumped 10bbls water ahead good returns               |
| Event | 9        | Pump Lead Cement            | Pump Lead Cement            | 12/4/2014 | 12:49:45 | COM5   | 118.00              | 12.40            | 4.00                     | pumped 87bbls (230sks) 12.4# good returns            |
| Event | 10       | Pump Tail Cement            | Pump Tail Cement            | 12/4/2014 | 13:06:10 | COM5   | 186.00              | 15.60            | 5.00                     | pumped 32bbls (150sks) 15.6# good returns            |
| Event | 11       | Shutdown                    | Shutdown                    | 12/4/2014 | 13:12:00 | USER   |                     |                  |                          |  |
| Event | 12       | Drop Top Plug               | Drop Top Plug               | 12/4/2014 | 13:13:00 | USER   |                     |                  |                          |  |
| Event | 13       | Pump Displacement           | Pump Displacement           | 12/4/2014 | 13:13:44 | COM5   | 126.00              | 8.34             | 5.00                     | pumped 59bbls of water good returns                  |
| Event | 14       | Other                       | Other                       | 12/4/2014 | 13:14:00 | USER   | 125.00              | 8.34             | 5.00                     | cement to surface 59bbls back                        |
| Event | 15       | Bump Plug                   | Bump Plug                   | 12/4/2014 | 13:29:20 | COM5   | 770.00              | 8.34             | 0.00                     | bumped plug 500 over 3 800psi                        |
| Event | 16       | Check Floats                | Check Floats                | 12/4/2014 | 13:30:30 | USER   |                     |                  |                          | floats held 1/2 bbl back                             |
| Event | 17       | Pre-Rig Down Safety Meeting | Pre-Rig Down Safety Meeting | 12/4/2014 | 13:45:00 | USER   |                     |                  |                          | watch pinch points slips falls stay hydrated         |
| Event | 18       | Rig-Down Completed          | Rig-Down Completed          | 12/4/2014 | 14:10:00 | USER   |                     |                  |                          |  |
| Event | 19       | Pre-Convoy Safety Meeting   | Pre-Convoy Safety Meeting   | 12/4/2014 | 14:15:00 | USER   |                     |                  |                          | use smith driving skills know route                  |

| Type  | Seq. No. | Activity        | Graph Label     | Date      | Time     | Source | PS Pump Press<br>(psi) | DH Density<br>(ppg) | Comb Pump Rate<br>(bbl/min) | Comments |
|-------|----------|-----------------|-----------------|-----------|----------|--------|------------------------|---------------------|-----------------------------|----------|
| Event | 20       | Depart Location | Depart Location | 12/4/2014 | 14:45:00 | USER   |                        |                     |                             |          |

## 5.0 Attachments

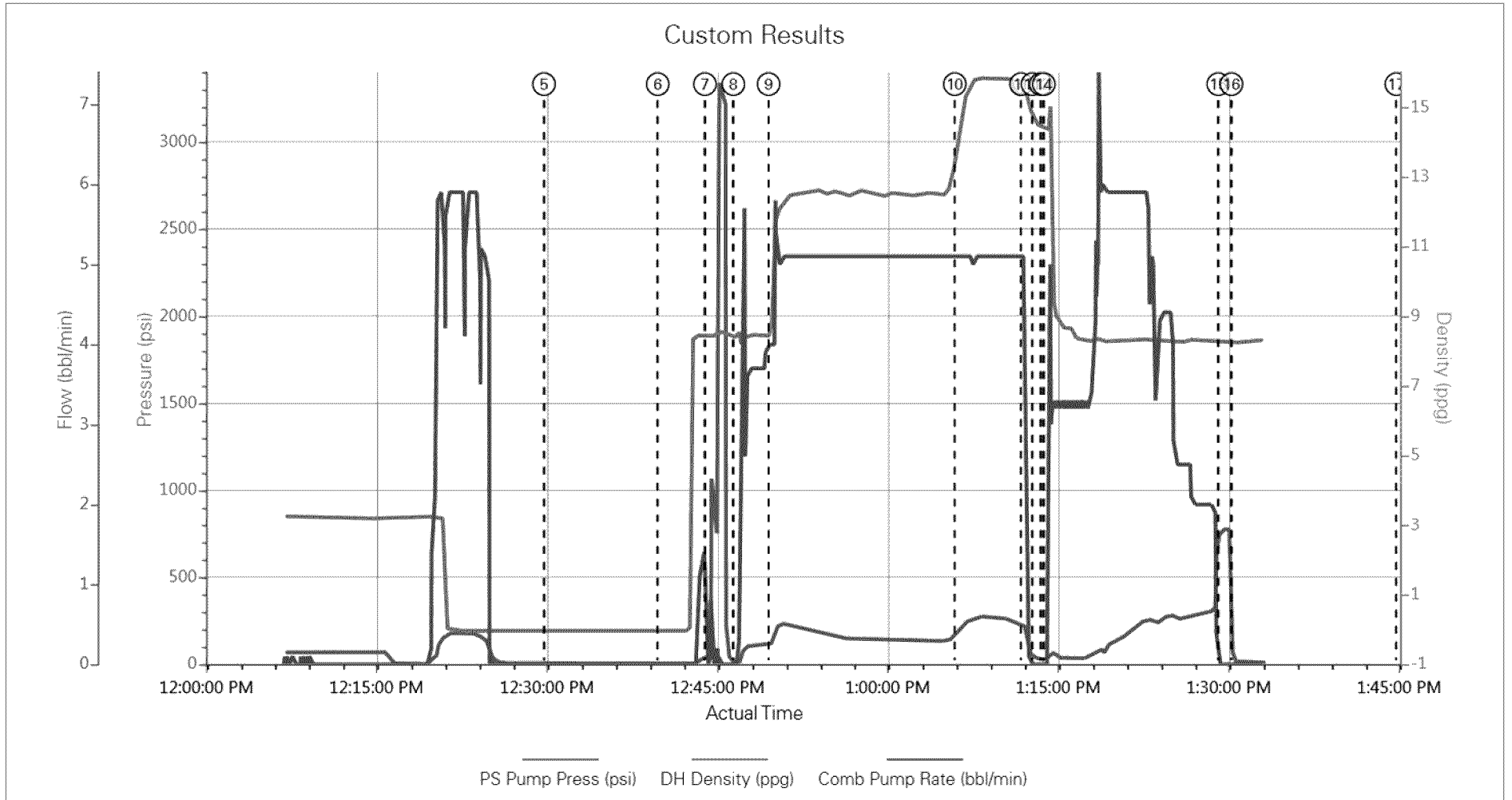
### 5.1 Case 1-Custom Results.png





6.0 Custom Graphs

6.1 Custom Graph



7.0 Appendix

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7.1 One-Minutes Real-Time Data Listing

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