

# HALLIBURTON

iCem<sup>®</sup> Service

## **TEP ROCKY MOUNTAIN LLC**

**For: Abe Alexander & Lynn Cass**

Date: Wednesday, November 30, 2016

**RU 413-7 Production**

**API/UWI #: 05-045-23257-00**

Sincerely,

**Grand Junction Cement Engineering**

## 1.0 Real-Time Job Summary

## 1.1 Job Event Log

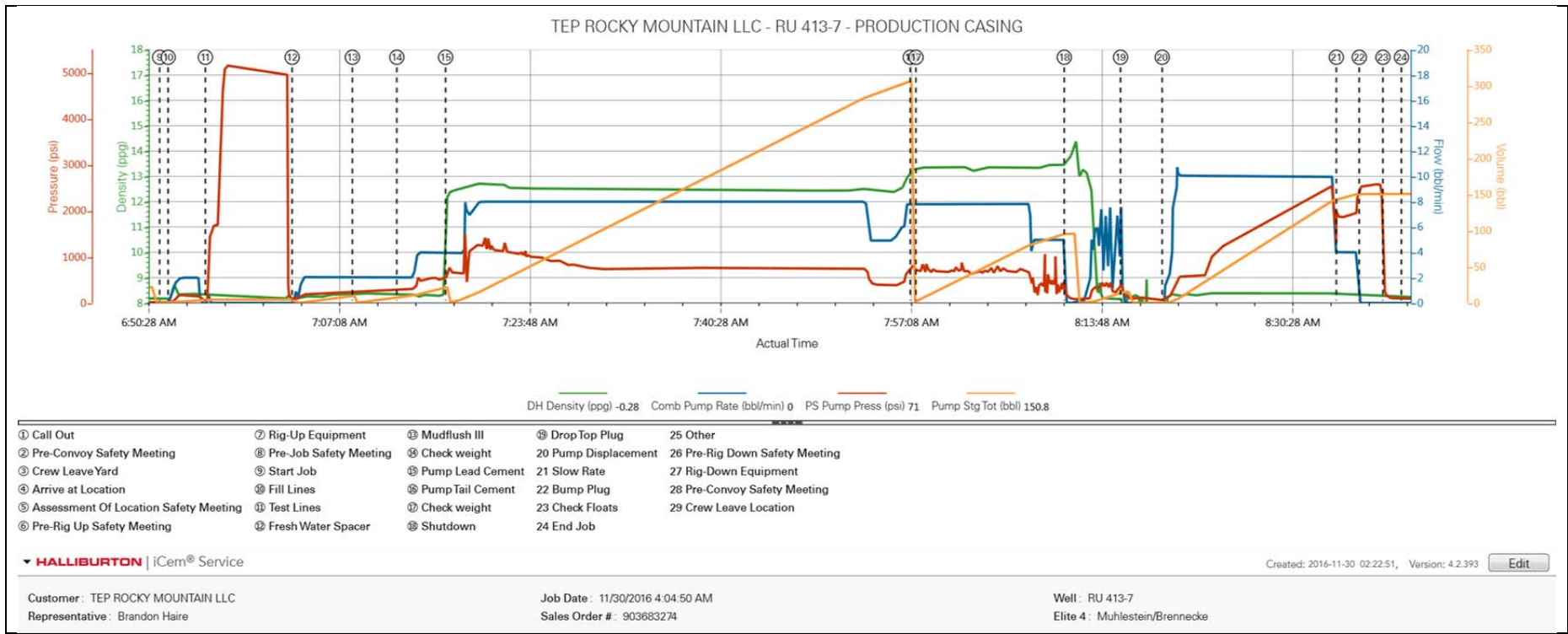
| Type  | Seq. No. | Graph Label                           | Date       | Time     | Source | DH Density<br>(ppg) | Comb Pump Rate<br>(bbl/min) | PS Pump Press<br>(psi) | Pump Stg Tot<br>(bbl) | Comments  |
|-------|----------|---------------------------------------|------------|----------|--------|---------------------|-----------------------------|------------------------|-----------------------|---|
| Event | 1        | Call Out                              | 11/29/2016 | 18:00:00 | USER   |                     |                             |                        |                       | Requested on Location @ 00:01   |
| Event | 2        | Pre-Convoy Safety Meeting             | 11/29/2016 | 19:45:00 | USER   |                     |                             |                        |                       |   |
| Event | 3        | Crew Leave Yard                       | 11/29/2016 | 20:00:00 | USER   |                     |                             |                        |                       | 1 Elite, 1 660, 1 pickup  |
| Event | 4        | Arrive at Location                    | 11/29/2016 | 23:00:00 | USER   |                     |                             |                        |                       | Rig still running casing  |
| Event | 5        | Assessment Of Location Safety Meeting | 11/30/2016 | 03:00:00 | USER   |                     |                             |                        |                       | JSA completed - Customer offered/received SDS - Water test pH 7.0, Cl <200, temp 80 degrees                               |
| Event | 6        | Pre-Rig Up Safety Meeting             | 11/30/2016 | 03:30:00 | USER   |                     |                             |                        |                       |   |
| Event | 7        | Rig-Up Equipment                      | 11/30/2016 | 04:00:00 | USER   |                     |                             |                        |                       | 2" iron to ground manifold, standpipe, hardline to pit. Water hoses to upright and day tank, bulk hoses to silo and 660.  |
| Event | 8        | Pre-Job Safety Meeting                | 11/30/2016 | 06:15:00 | USER   |                     |                             |                        |                       | All HES personnel, rig crew, and company rep  |
| Event | 9        | Start Job                             | 11/30/2016 | 06:51:38 | COM6   |                     |                             |                        |                       | TD 9422', TP 9414', SJ 28.9', FC 9358.1' OH 8.75", Csg 4.5" 11.6 lb/ft P-110, Prev. Csg. 9.625 32.3# @ 1152' Mud 10.1 ppg |
| Event | 10       | Fill Lines                            | 11/30/2016 | 06:52:22 | USER   | 8.4                 | 2                           | 190                    | 2                     | Fresh water   |

|       |    |                    |            |          |      |      |    |      |       |   |
|-------|----|--------------------|------------|----------|------|------|----|------|-------|---|
| Event | 11 | Test Lines         | 11/30/2016 | 06:55:37 | COM6 | 8.4  | .5 | 5050 | .5    | Held pressure 2 minutes   |
| Event | 12 | Fresh Water Spacer | 11/30/2016 | 07:03:12 | COM6 | 8.4  | 2  | 234  | 10    | Fresh water   |
| Event | 13 | Mudflush III       | 11/30/2016 | 07:08:28 | COM6 | 8.4  | 4  | 480  | 20    | 80 lbs Mud Flush III  |
| Event | 14 | Check weight       | 11/30/2016 | 07:12:21 | COM6 | 12.5 |    |      |       | Density verified via mud cup  |
| Event | 15 | Pump Lead Cement   | 11/30/2016 | 07:16:37 | COM6 | 12.5 | 8  | 780  | 288.5 | 835 Sks 12.5 ppg 1.94 yield 9.62 gal/sk, 45 lbs of Tuff Fiber add on the fly                      |
| Event | 16 | Pump Tail Cement   | 11/30/2016 | 07:57:14 | COM6 | 13.3 | 8  | 660  | 81.6  | 265 Sks 13.3 ppg 1.73 yield 7.81 gal/sk   |
| Event | 17 | Check weight       | 11/30/2016 | 07:57:44 | COM6 | 13.3 |    |      |       | Density verified via mud cup  |
| Event | 18 | Shutdown           | 11/30/2016 | 08:10:42 | USER |      |    |      |       | Wash lines to pit   |
| Event | 19 | Drop Top Plug      | 11/30/2016 | 08:15:37 | USER |      |    |      |       | Verify Plug Launched  |
| Event | 20 | Pump Displacement  | 11/30/2016 | 08:19:16 | COM6 | 8.4  | 10 | 2700 | 145.5 | 3 lbs BE-6, 1 gal MMCR, 2% KCl  |
| Event | 21 | Slow Rate          | 11/30/2016 | 08:34:29 | USER | 8.4  | 4  | 1920 | 135   | Slow Rate 10 bbls to Calculated Displacement  |
| Event | 22 | Bump Plug          | 11/30/2016 | 08:36:29 | COM6 | 8.4  | 4  | 1962 | 145.5 | Plug Bumped at 1962 psi, Brought up to 2560 psi   |
| Event | 23 | Check Floats       | 11/30/2016 | 08:38:34 | USER |      |    |      |       | Floats held – 1 bbl back to the truck   |
| Event | 24 | End Job            | 11/30/2016 | 08:40:11 | COM6 |      |    |      |       | Good Returns Throughout job, Pipe was reciprocated during cement                                  |
| Event | 25 | Other              | 11/30/2016 | 08:45:00 | USER |      |    |      |       | Rig Circulated 2.5 hrs prior to cement job at 12.8 bpm 892 psi. Mud report PV 15 YP 14 Gel 6,9,14 |
| Event | 26 | Pre-Rig Down       | 11/30/2016 | 08:50:00 | USER |      |    |      |       | No sugar, 1 add hour  |

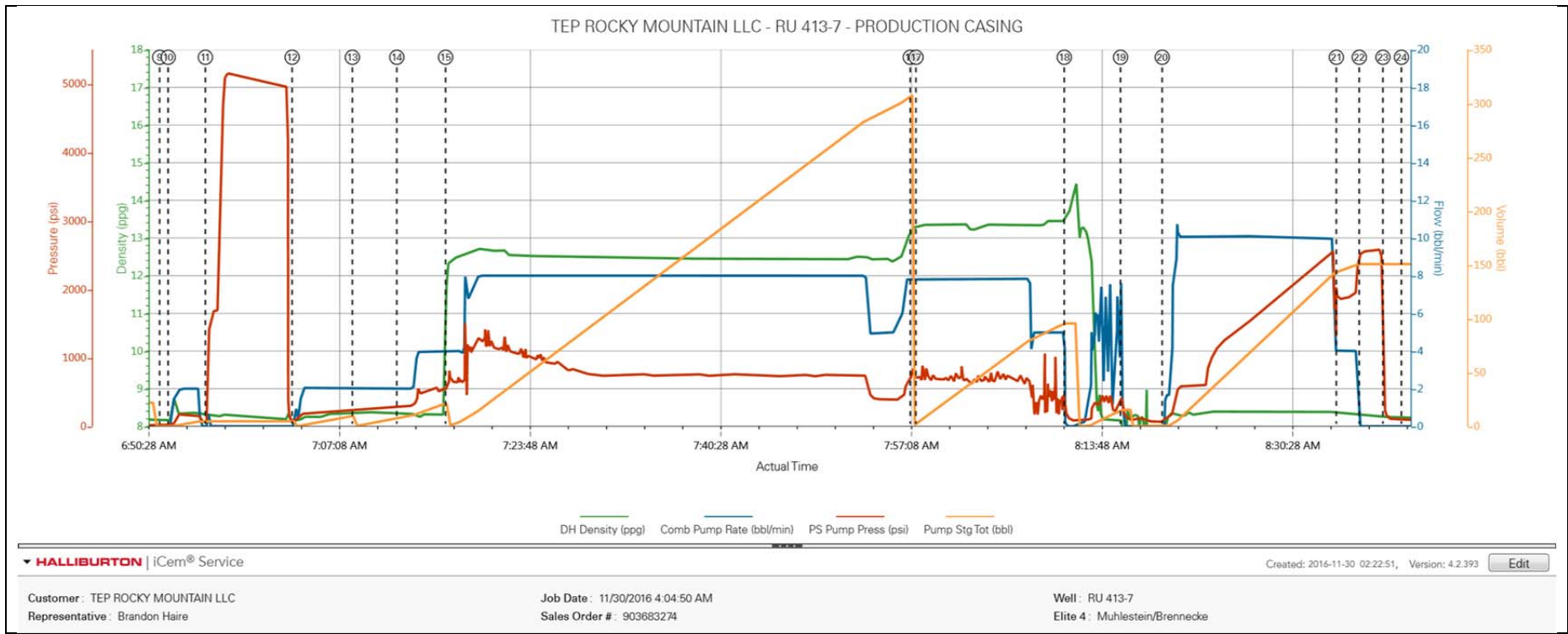
|                |    |                              |            |          |      |
|----------------|----|------------------------------|------------|----------|------|
| Safety Meeting |    |                              |            |          |      |
| Event          | 27 | Rig-Down<br>Equipment        | 11/30/2016 | 08:55:00 | USER |
| Event          | 28 | Pre-Convoy Safety<br>Meeting | 11/30/2016 | 09:15:00 | USER |
| Event          | 29 | Crew Leave<br>Location       | 11/30/2016 | 09:30:00 | USER |

Thank you for using Halliburton – Ryan  
Muhlestein and crew.

2.2 Results 1 with events.png



2.3 Results 2 without events.png



## Job Information

|                |                       |          |                   |            |                |
|----------------|-----------------------|----------|-------------------|------------|----------------|
| Request/Slurry | 2351482/2             | Rig Name | H&P 318           | Date       | 22/NOV/2016    |
| Submitted By   | Aaron Katz            | Job Type | Production Casing | Bulk Plant | Grand Junction |
| Customer       | Terra Energy Partners | Location | Garfield          | Well       | Ru 413-7       |

## Well Information

|                   |          |           |         |      |               |
|-------------------|----------|-----------|---------|------|---------------|
| Casing/Liner Size | 4.5 in   | Depth MD  | 9406 ft | BHST | 116°C / 240°F |
| Hole Size         | 8.75 in  | Depth TVD | 9393 ft | BHCT | 77°C / 170°F  |
| Pressure          | 5880 psi |           |         |      |               |

## Drilling Fluid Information

|                   |        |                |            |         |             |
|-------------------|--------|----------------|------------|---------|-------------|
| Mud Supplier Name | Baroid | Mud Trade Name | BARADRIL-N | Density | 9.9 lbm/gal |
|-------------------|--------|----------------|------------|---------|-------------|

## Cement Information - Lead Design



| Conc | UOM | Cement/Additive | Sample Type | Sample Date | Lot No. | Cement Properties |             |          |
|------|-----|-----------------|-------------|-------------|---------|-------------------|-------------|----------|
|      |     | NeoCem          |             |             |         | Slurry Density    | 12.5        | lbm/gal  |
|      |     |                 |             |             |         | Slurry Yield      | 1.941       | ft3/sack |
|      |     |                 |             |             |         | Water Requirement | 9.623       | gal/sack |
|      |     |                 |             |             |         | Total Mix Fluid   | 9.623       | gal/sack |
|      |     |                 |             |             |         | Water Source      | Fresh Water |          |
|      |     |                 |             |             |         | Water Chloride    |             |          |

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# Operation Test Results Request ID 2351482/2

## Thickening Time

25/NOV/2016

| Temp (°F) | Pressure (psi) | Reached in (min) | Start Bc | 30 Bc (hh:mm) | 40 Bc (hh:mm) | 50 Bc (hh:mm) | 70 Bc (hh:mm) | 100 Bc (hh:mm) |
|-----------|----------------|------------------|----------|---------------|---------------|---------------|---------------|----------------|
| 170       | 5880           | 47               | 11       | 7:32          | 7:32          | 7:32          | 7:32          | 7:47           |

Total Sacks= 835

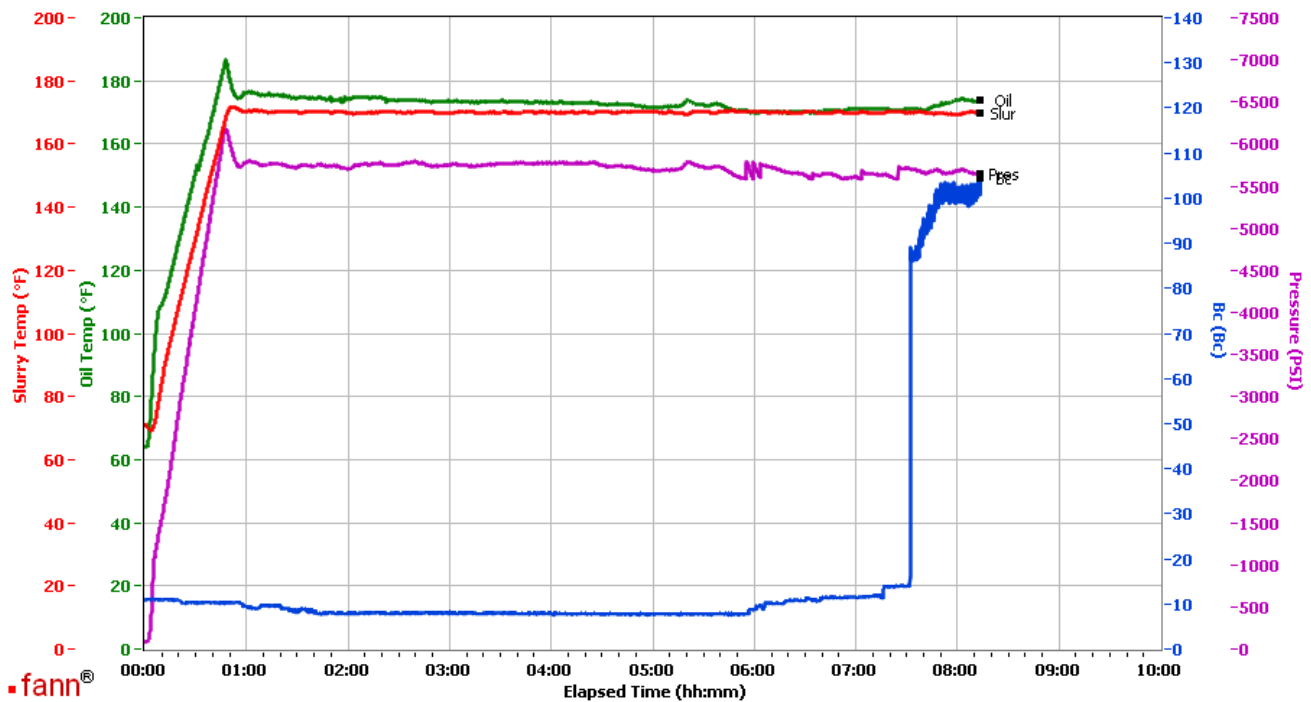
CS1128 TR 1513 417.5 SKS

## Grand Junction Colorado

| Fields            | Values                               |
|-------------------|--------------------------------------|
| Project Name      | GJ2351482-2 TERRA PRODUCTION BULK LE |
| Test ID           | 34140195                             |
| Request ID        | GJ2351482-2 TERRA PRODUCTION BULK LE |
| Tested by         | JASON                                |
| Customer          | TERRA ENERGY                         |
| Well No           | RU 413-7                             |
| Rig               | H&P 318                              |
| Casing/Liner Size | 4.5                                  |

| Fields         | Values       |
|----------------|--------------|
| Job Type       | PRODUCTION   |
| Cement Type    | NEOCEM       |
| Cement Weight  | Light Weight |
| Test Date      | 11/23/16     |
| Test Time      | 08:41 PM     |
| Temp. Units    | degF         |
| Pressure Units | PSI          |
| SW Version     | 2.1.0.507    |

| Events    | Results |
|-----------|---------|
| 30.00 Bc  | 07h:32m |
| 40.00 Bc  | 07h:32m |
| 50.00 Bc  | 07h:32m |
| 70.00 Bc  | 07h:32m |
| 100.00 Bc | 07h:47m |
| 00h:30m   | 10.22   |
| 01h:00m   | 9.14    |
| 01h:30m   | 8.39    |



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\0HU90BIZ\GJ2351482-2 TERRA PRODUCTION BULK LEAD[1].tdms

Comments CS1128 TR 1513 417.5 SKS

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# Operation Test Results Request ID 2351482/1

## Thickening Time

25/NOV/2016

| Temp (°F) | Pressure (psi) | Reached in (min) | Start BC | 30 Bc (hh:mm) | 40 Bc (hh:mm) | 50 Bc (hh:mm) | 70 Bc (hh:mm) | 100 Bc (hh:mm) |
|-----------|----------------|------------------|----------|---------------|---------------|---------------|---------------|----------------|
| 170       | 5880           | 47               | 9        | 6:38          | 7:21          | 9:02          | 16:09         | 16:09          |

Total Sacks= 835

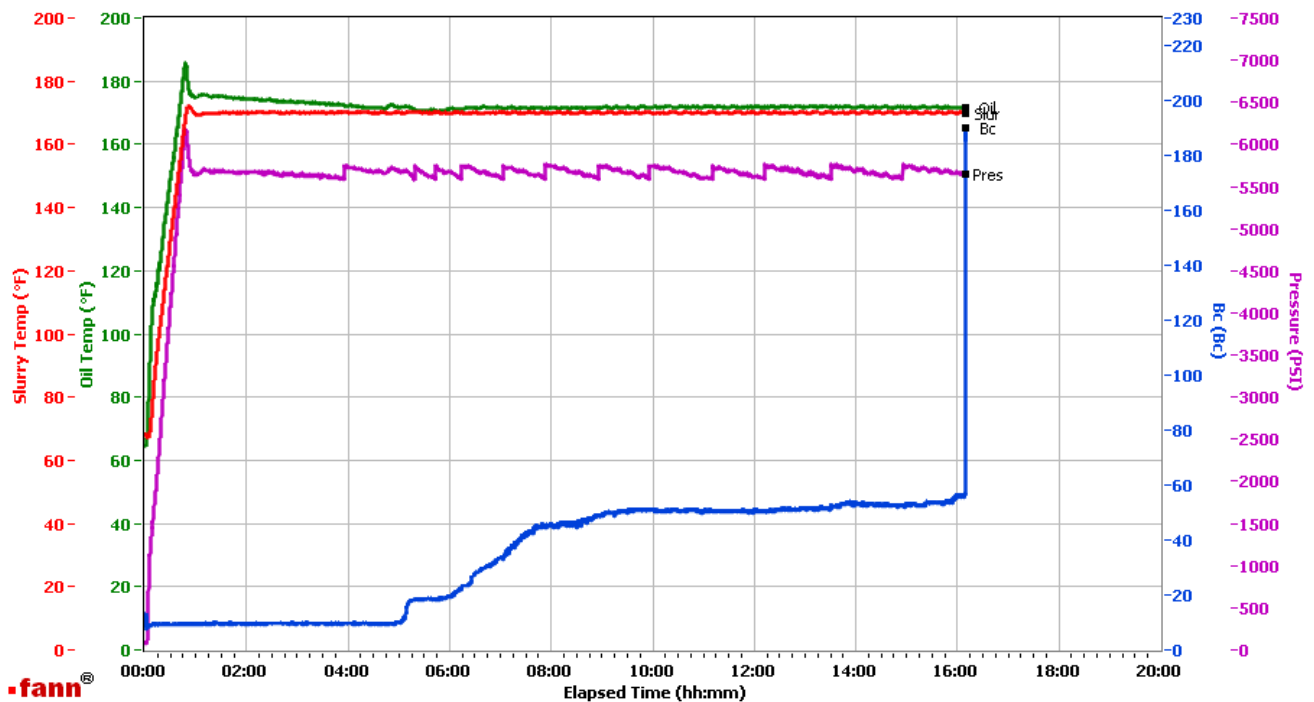
CS1127 TR 8678 417.5 SKS

## Grand Junction Colorado

| Fields            | Values                               |
|-------------------|--------------------------------------|
| Project Name      | GJ2351482-1 TERRA PRODUCTION BULK LE |
| Test ID           | 34137906                             |
| Request ID        | GJ2351482-1 TERRA PRODUCTION BULK LE |
| Tested by         | JASON                                |
| Customer          | TERRA ENERGY                         |
| Well No           | RU 413-7                             |
| Rig               | H8P 318                              |
| Casing/Liner Size | 4.5                                  |

| Fields         | Values       |
|----------------|--------------|
| Job Type       | PRODUCTION   |
| Cement Type    | NEOCEM       |
| Cement Weight  | Light Weight |
| Test Date      | 11/23/16     |
| Test Time      | 09:27 PM     |
| Temp. Units    | degF         |
| Pressure Units | PSI          |
| SW Version     | 2.1.0.507    |

| Events    | Results |
|-----------|---------|
| 30.00 Bc  | 06h:38m |
| 40.00 Bc  | 07h:21m |
| 50.00 Bc  | 09h:02m |
| 70.00 Bc  | 16h:09m |
| 100.00 Bc | 16h:09m |
| 00h:30m   | 9.36    |
| 01h:00m   | 9.36    |
| 01h:30m   | 9.36    |



Data File C:\Documents and Settings\Administrator\Local Settings\Temporary Internet Files\Content.IE5\OTUB09Y7\GJ2351482-1 TERRA PRODUCTION BULK LEAD1[1].tdms

Comments CS1127 TR 8678 417.5 SKS

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

|                |                       |          |                   |            |                |
|----------------|-----------------------|----------|-------------------|------------|----------------|
| Request/Slurry | 2351483/1             | Rig Name | H&P 318           | Date       | 22/NOV/2016    |
| Submitted By   | Aaron Katz            | Job Type | Production Casing | Bulk Plant | Grand Junction |
| Customer       | Terra Energy Partners | Location | Garfield          | Well       | Ru 413-7       |

### Well Information

|                   |          |           |         |      |               |
|-------------------|----------|-----------|---------|------|---------------|
| Casing/Liner Size | 4.5 in   | Depth MD  | 9406 ft | BHST | 116°C / 240°F |
| Hole Size         | 8.75 in  | Depth TVD | 9393 ft | BHCT | 77°C / 170°F  |
| Pressure          | 5880 psi |           |         |      |               |

### Drilling Fluid Information

|                   |        |                |            |         |             |
|-------------------|--------|----------------|------------|---------|-------------|
| Mud Supplier Name | Baroid | Mud Trade Name | BARADRIL-N | Density | 9.9 lbm/gal |
|-------------------|--------|----------------|------------|---------|-------------|

### Cement Information - Tail Design



| Conc | UOM | Cement/Additive | Sample Type | Sample Date | Lot No. | Cement Properties |             |          |
|------|-----|-----------------|-------------|-------------|---------|-------------------|-------------|----------|
|      |     | ThernaCem       |             |             |         | Slurry Density    | 13.3        | lbm/gal  |
|      |     |                 |             |             |         | Slurry Yield      | 1.733       | ft3/sack |
|      |     |                 |             |             |         | Water Requirement | 7.799       | gal/sack |
|      |     |                 |             |             |         | Total Mix Fluid   | 7.799       | gal/sack |
|      |     |                 |             |             |         | Water Source      | Fresh Water |          |
|      |     |                 |             |             |         | Water Chloride    |             |          |

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# Operation Test Results Request ID 2351483/1

## Thickening Time

26/NOV/2016

| Temp (°F) | Pressure (psi) | Reached in (min) | Start Bc | 30 Bc (hh:mm) | 40 Bc (hh:mm) | 50 Bc (hh:mm) | 70 Bc (hh:mm) | 100 Bc (hh:mm) |
|-----------|----------------|------------------|----------|---------------|---------------|---------------|---------------|----------------|
| 170       | 5880           | 47               | 13       | 3:05          | 3:05          | 3:05          | 3:05          | 3:36           |

Total Sacks= 265

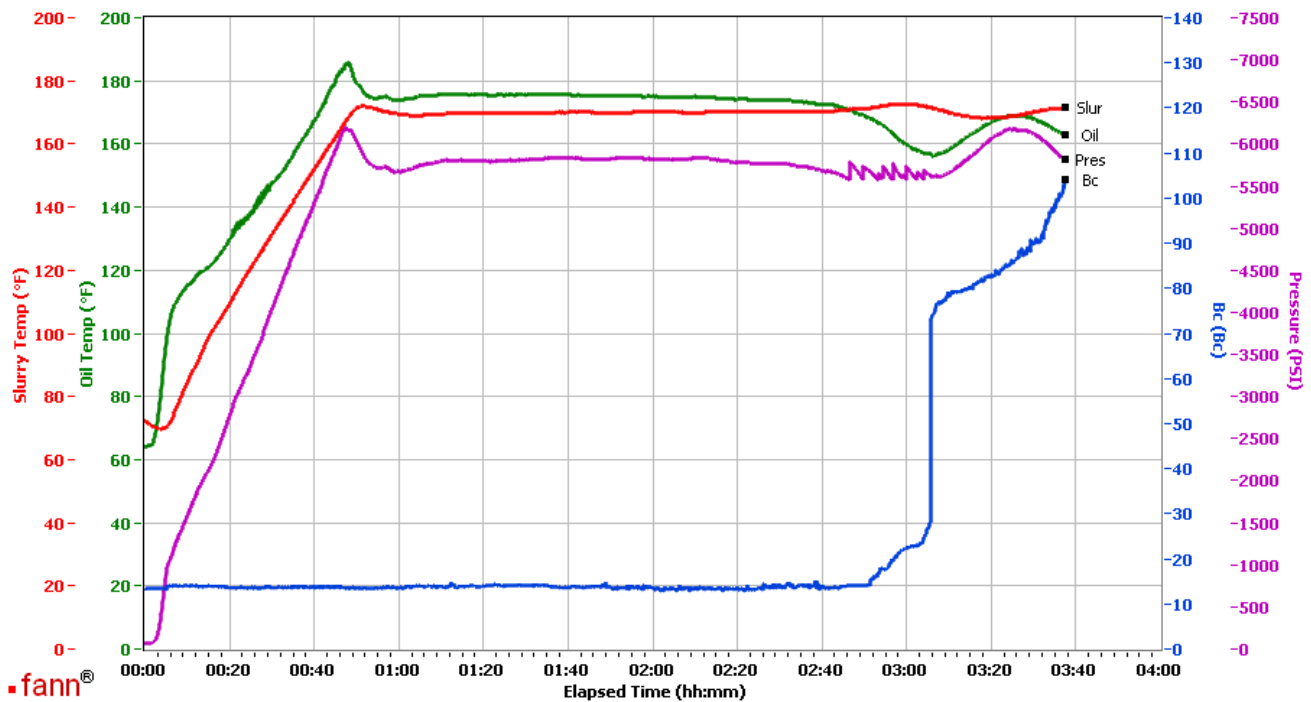
CS1129 TR 4064 265 SKS

## Grand Junction Colorado

| Fields            | Values                               |
|-------------------|--------------------------------------|
| Project Name      | GJ2351483-1 TERRA PRODUCTION BULK TA |
| Test ID           | 34137908                             |
| Request ID        | GJ2351483-1 TERRA PRODUCTION BULK TA |
| Tested by         | JASON                                |
| Customer          | TERRA ENERGY                         |
| Well No           | RU 413-7                             |
| Rig               | H&P 318                              |
| Casing/Liner Size | 4.5                                  |

| Fields         | Values       |
|----------------|--------------|
| Job Type       | PRODUCTION   |
| Cement Type    | THERMACEM    |
| Cement Weight  | Light Weight |
| Test Date      | 11/25/16     |
| Test Time      | 07:26 PM     |
| Temp. Units    | degF         |
| Pressure Units | PSI          |
| SW Version     | 2.1.0.507    |

| Events    | Results |
|-----------|---------|
| 30.00 Bc  | 03h:05m |
| 40.00 Bc  | 03h:05m |
| 50.00 Bc  | 03h:05m |
| 70.00 Bc  | 03h:05m |
| 100.00 Bc | 03h:36m |
| 00h:30m   | 13.56   |
| 01h:00m   | 13.88   |
| 01h:30m   | 14.09   |



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2351483-1 TERRA PRODUCTION BULK TAIL.tdms

Comments CS1129 TR 4064 265 SKS

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