

# HALLIBURTON

iCem<sup>®</sup> Service

## **Terra Energy Partners**

**For: Terra**

Date: Monday, July 10, 2017

**TR 12-24-597 Production PJR**

API# 05-045-23473-00

Sincerely,

**Grand Junction Cement Engineering**

## 2.0 Real-Time Job Summary

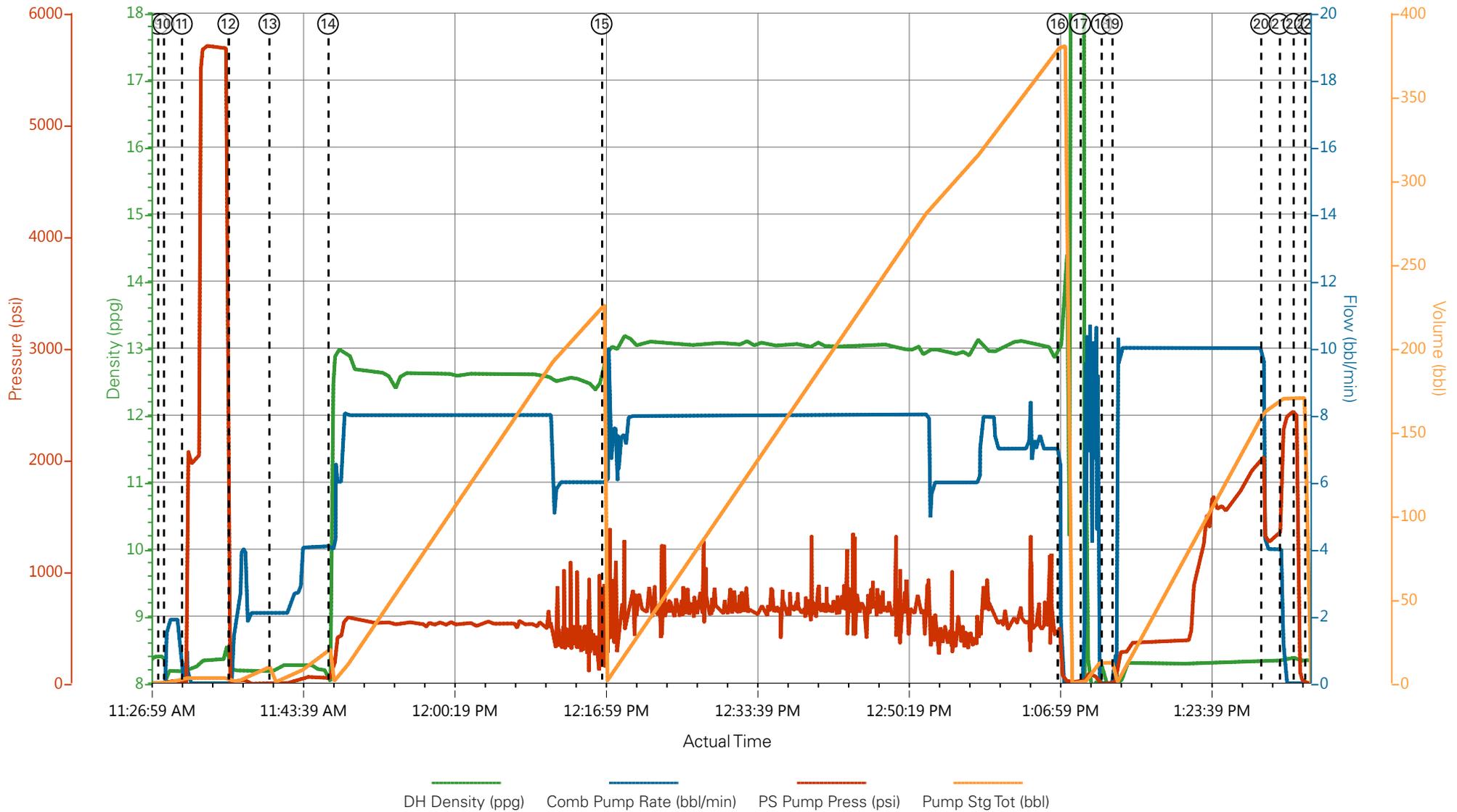
### 2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	7/10/2017	04:00:00	USER					ELITE #4
Event	2	Pre-Convoy Safety Meeting	7/10/2017	06:00:00	USER					ALL HES EMPLOYEES
Event	3	Arrive At Loc	7/10/2017	09:00:00	USER					ARRIVED ON LOCATION 1 HOUR EARLY RIG RUNNING CASING UPON HES ARRIVAL
Event	4	Meet With Company Rep	7/10/2017	09:10:00	USER					COMPANY REP OFFERED SDS WATER TEST: TEMP: 68 PH: 7 CHLORIDES: 0 IRON: 0
Event	5	Assessment Of Location Safety Meeting	7/10/2017	09:15:00	USER					ALL HES EMPLOYEES
Event	6	Pre-Rig Up Safety Meeting	7/10/2017	09:20:00	USER					ALL HES EMPLOYEES
Event	7	Rig-Up Equipment	7/10/2017	09:30:00	USER					1 HT-400 PUMP TRUCK 1 660 BULK TRUCK 2 SILOS 1 F-550 PICKUP
Event	8	Pre-Job Safety Meeting	7/10/2017	11:15:00	USER					ALL HES EMPLOYEES AND RIG CREW RIG CIRCULATED FOR 1 HOUR PRIOR TO THE JOB @ 530 GPM WITH AIR ON PARASITE @ 515 CFM
Event	9	Start Job	7/10/2017	11:28:01	COM5					TD: 10503 TP: 10493 SJ: 28.67 CSG: 4 1/2 11.6 P-110 OH: 8 3/4 SURFACE SHOE @3010 9 5/8 40# J-55 MUD WT: 8.8 PPG VIS 50
Event	10	Prime Lines	7/10/2017	11:28:37	USER	8.33	2	30	2.0	PRIME LINES WITH 2 BBLs FRESH WATER
Event	11	Test Lines	7/10/2017	11:30:39	COM5	8.33	0.0	5709	2.0	PRESSURE TEST OK
Event	12	Pump Fresh Water	7/10/2017	11:35:45	COM5	8.33	4	30	10	PUMP 10 BBL FRESH WATER SPACER

Spacer										
Event	13	Pump Mud Flush III Spacer	7/10/2017	11:40:16	COM5	8.4	4	58	20	PUMP 20 BBL MUD FLUSH III SPACER
Event	14	Pump Lead Cement	7/10/2017	11:46:44	COM5	12.5	8	650	201	580 SKS 12.5 PPG 1.94 YIELD 9.58 GAL/SK LEAD CEMENT WEIGHT VERIFIED VIA PRESSURIZED MUD SCALES TUF FIBER ADDED THROUGHOUT LEAD CEMENT
Event	15	Pump Tail Cement	7/10/2017	12:16:51	COM5	13.0	8	700	327	885 SKS 13.0 PPG 2.07 YIELD 9.43 GAL/SK TAIL CEMENT WEIGHT VERIFIED VIA PRESSURIZED MUD SCALES
Event	16	Shutdown	7/10/2017	13:07:02	USER					SHUTDOWN TO BLOW LINE CLEAR WITH AIR AND CLEAN PUMPS AND LINES TO THE PIT
Event	17	Clean Lines	7/10/2017	13:09:32	COM5	8.33			10	CLEAN PUMPS AND LINES TO THE PIT
Event	18	Drop Top Plug	7/10/2017	13:11:53	COM5					PLUG AWAY NO PROBLEMS COMPANY REP SUPPLIED LATCHDOWN PLUG REMOVED TOP PLUG FROM THE TICKET
Event	19	Pump Displacement	7/10/2017	13:13:01	COM5	8.4	10	2020	162.2	3#S BE-6 1 GAL MMCR 16 BAGS KCL FRESH WATER DISPLACEMENT
Event	20	Slow Rate	7/10/2017	13:29:26	USER	8.4	4	1360	152	SLOW RATE TO BUMP PLUG
Event	21	Bump Plug	7/10/2017	13:31:26	COM5	8.4	4	2440	162.2	PSI BEFORE BUMPING PLUG @ 1360 BUMPED PLUG UP TO 2440 PSI
Event	22	Check Floats	7/10/2017	13:33:00	USER					FLOATS HELD, 1 1/2 BBLS BACK TO DISPLACEMENT TANKS
Event	23	End Job	7/10/2017	13:34:16	COM5					MAINTAINED RETURNS THROUGHOUT SPACERS AND CEMENT, NO RETURNS DURING DISPLACEMENT AIR BETWEEN 1500-2000 CFM ON PARASITE
Event	24	Pre-Rig Down Safety Meeting	7/10/2017	13:35:00	USER					ALL HES EMPLOYEES

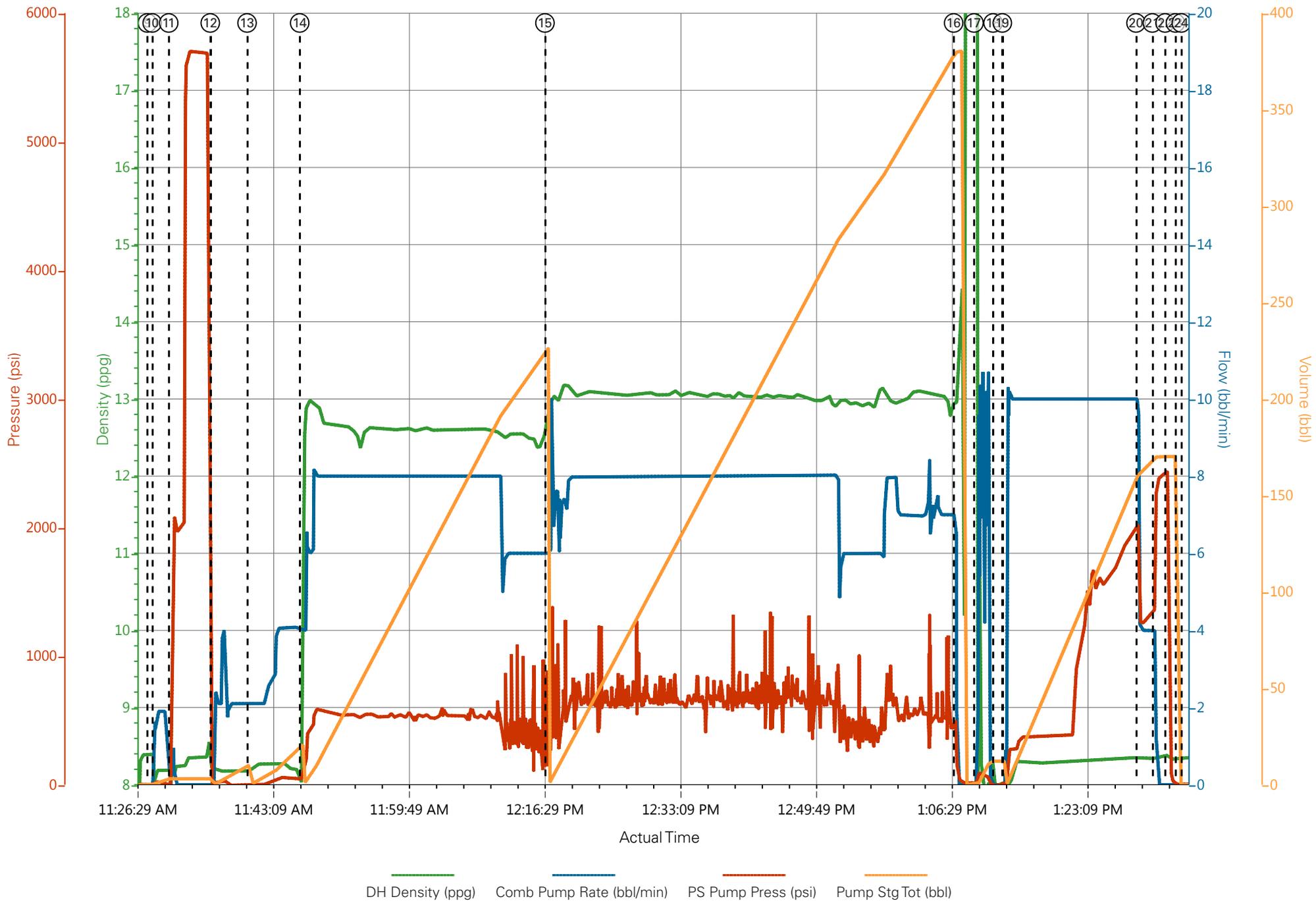
Event	25	Rig-Down Equipment	7/10/2017	13:45:00	USER	
Event	26	Pre-Convoy Safety Meeting	7/10/2017	14:50:00	USER	ALL HES EMPLOYEES
Event	27	Crew Leave Location	7/10/2017	15:00:00	USER	THANK YOU FOR USING HALLIBURTON CEMENT, DUSTIN SMITH AND CREW

# TEP - CHEVRON TR 12-24-597 - 4 1/2 PRODUCTION



- |   |                           |                             |                                |                              |
|---|---------------------------|-----------------------------|--------------------------------|------------------------------|
| ① Call Out                              | ⑦ Rig-Up Equipment        | ⑬ Pump Mud Flush III Spacer | ⑰ Pump Displacement            | 25 Rig-Down Equipment        |
| ② Pre-Convoy Safety Meeting             | ⑧ Pre-Job Safety Meeting  | ⑭ Pump Lead Cement          | 20 Slow Rate                   | 26 Pre-Convoy Safety Meeting |
| ③ Arrive At Loc                         | ⑨ Start Job               | ⑮ Pump Tail Cement          | 21 Bump Plug                   | 27 Crew Leave Location       |
| ④ Meet With Company Rep                 | ⑩ Prime Lines             | ⑯ Shutdown                  | 22 Check Floats                |                              |
| ⑤ Assessment Of Location Safety Meeting | ⑪ Test Lines              | ⑰ Clean Lines               | 23 End Job                     |                              |
| ⑥ Pre-Rig Up Safety Meeting             | ⑫ Pump Fresh Water Spacer | ⑱ Drop Top Plug             | 24 Pre-Rig Down Safety Meeting |                              |

# TEP - CHEVRON TR 12-24-597 - 4 1/2 PRODUCTION



— DH Density (ppg)   
 — Comb Pump Rate (bbl/min)   
 — PS Pump Press (psi)   
 — Pump Stg Tot (bbl)

### Job Information

<b>Request/Slurry</b>	2399608/2	<b>Rig Name</b>	H&P 271	<b>Date</b>	06/JUL/2017
<b>Submitted By</b>	Aaron Katz	<b>Job Type</b>	Production Casing	<b>Bulk Plant</b>	Grand Junction
<b>Customer</b>	Terra Energy Partners	<b>Location</b>	Garfield	<b>Well</b>	Trail Ridge 12-24-597

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10704 ft	<b>BHST</b>	125°C / 257°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	10392 ft	<b>BHCT</b>	91°C / 195°F
<b>Pressure</b>	6575 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	Baroid	<b>Mud Trade Name</b>	BARADRIL-N	<b>Density</b>	10.4 lbm/gal
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### Cement Information - Lead Design

<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<u>Cement Properties</u>		
						Slurry Density	12.5	lbm/gal
						Slurry Yield	1.941	ft <sup>3</sup> /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 2399608/2**

**Thickening Time - ON-OFF-ON**

**08/JUL/2017**

Test Temp (°F)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
195	6575	52	4:15	4:32	4:41	4:55	5	62	15	5

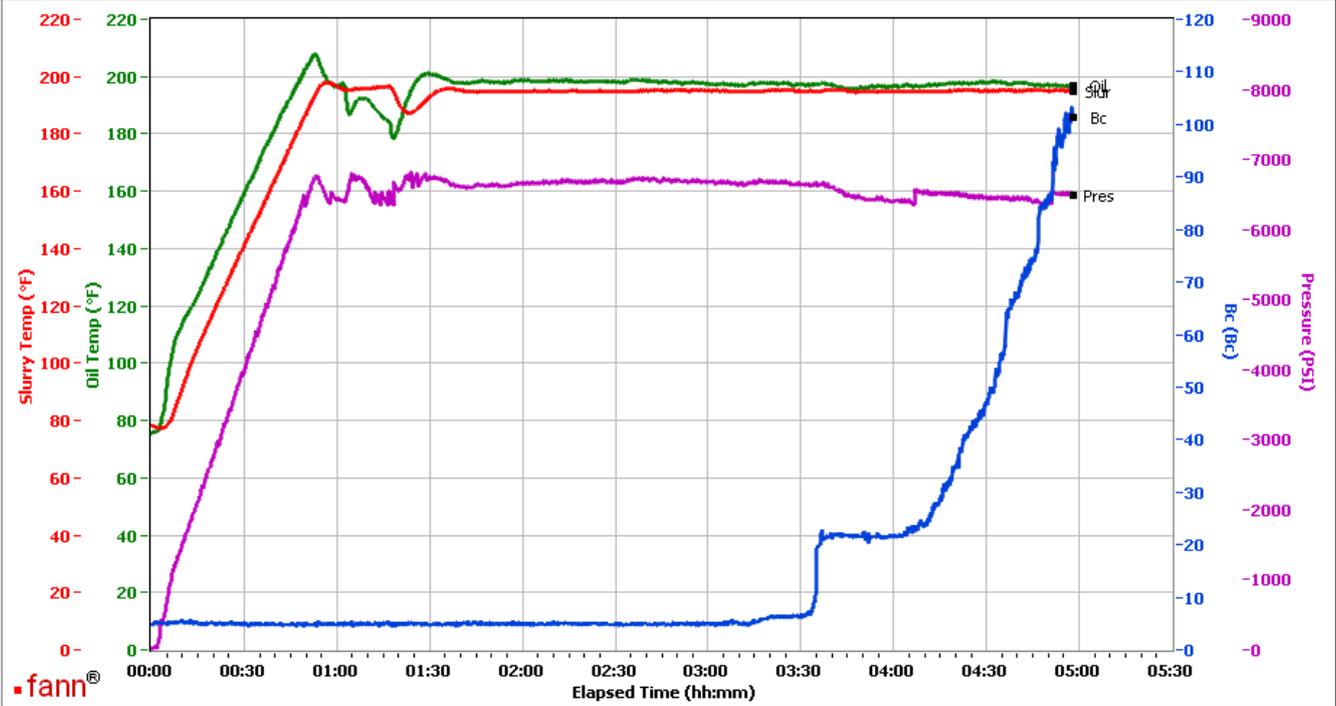
Total sks = 580  
 CS1728, Trailer 1283, 155 sks  
 Deflection: 5 - 5

**Grand Junction, Colorado**

Fields	Values
Project Name	2399608-2 TERRA ENERGY BULK PRODUCTI
Test ID	2399608-2 TT
Request ID	2399608-2
Tested by	CT
Customer	TERRA ENERGY
Well No	TR 12-24-597
Rig	H8P 271
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	TYPE I-II
Cement Weight	Standard
Test Date	07/08/17
Test Time	07:43 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	04h:15m
40.00 Bc	04h:22m
50.00 Bc	04h:32m
70.00 Bc	04h:41m
100.00 Bc	04h:55m
00h:30m	5.04
01h:00m	4.81
01h:30m	4.77



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\K9YZ0P2R\GJ2399608-2 TERRA ENERGY BULK PRODUCTION LEAD TT[1].tdms  
 Comments OPERATION TT - CS1728, TRAILER 1283, 155 SKS

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# Operation Test Results Request ID 2399608/1

## Thickening Time - ON-OFF-ON

07/JUL/2017

Test Temp (°F)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
195	6575	52	3:36	4:24	4:44	5:00	11	62	15	14

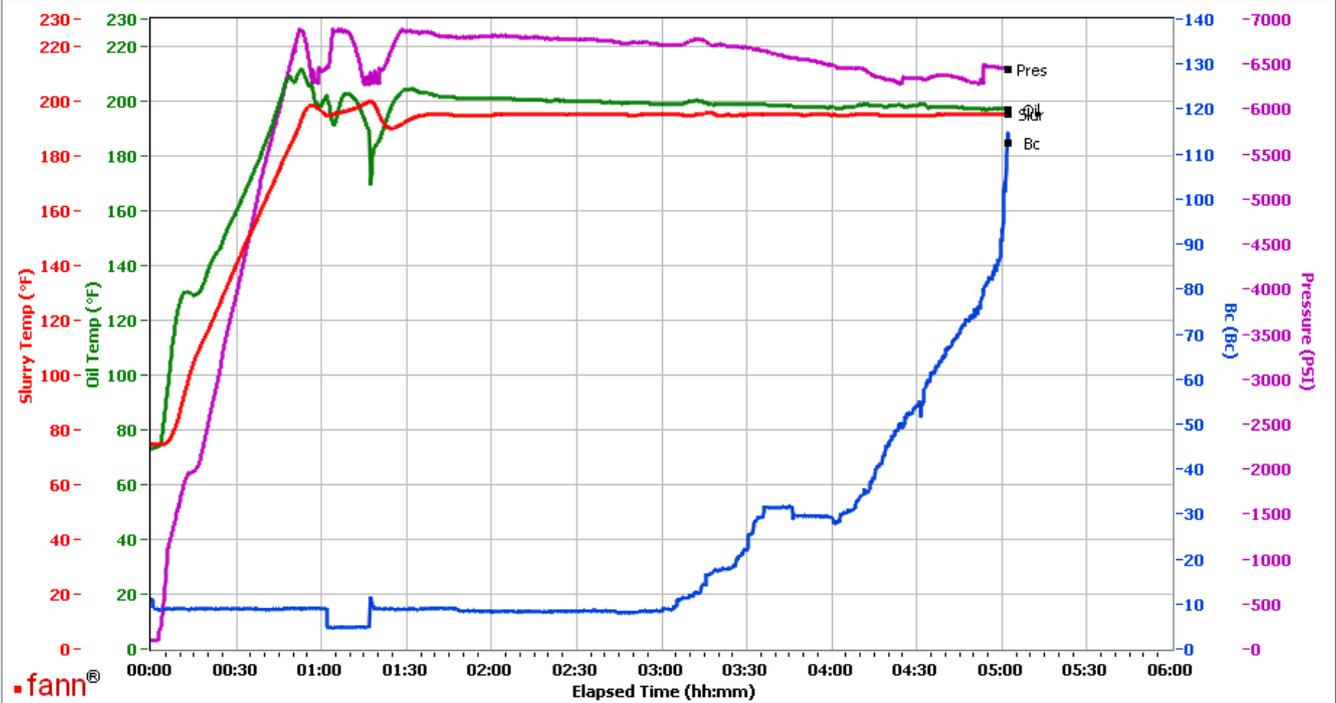
Total sks = 580  
 CS1709, Trailer 0812, 425 sks  
 Deflected 5-- > 14

### Grand Junction Colorado

Fields	Values
Project Name	2399608-1 TERRA ENERGY BULK PRODUCTI
Test ID	34683914
Request ID	2399608-1
Tested by	CT
Customer	TERRA ENERGY
Well No	TR 12-24-597
Rig	H&P 271
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	TYPE I-II
Cement Weight	Standard
Test Date	07/07/17
Test Time	07:11 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:36m
40.00 Bc	04h:15m
50.00 Bc	04h:24m
70.00 Bc	04h:44m
100.00 Bc	05h:00m
00h:30m	8.83
01h:00m	9.01
01h:30m	8.79



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2399608-1 TERRA ENERGY BULK PRODUCTION LEAD TT.tdms  
 Comments OPERATION TT - CS1709, TRAILER 0812, 425 SKS

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### Job Information

<b>Request/Slurry</b>	2399609/2	<b>Rig Name</b>	H&P 271	<b>Date</b>	06/JUL/2017
<b>Submitted By</b>	Aaron Katz	<b>Job Type</b>	Production Casing	<b>Bulk Plant</b>	Grand Junction
<b>Customer</b>	Terra Energy Partners	<b>Location</b>	Garfield	<b>Well</b>	Trail Ridge 12-24-597

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10704 ft	<b>BHST</b>	125°C / 257°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	10392 ft	<b>BHCT</b>	91°C / 195°F
<b>Pressure</b>	6575 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	Baroid	<b>Mud Trade Name</b>	BARADRIL-N	<b>Density</b>	10.4 lbm/gal
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### Cement Information - Tail Design

<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>	
						Slurry Density	13 lbm/gal
						Slurry Yield	2.065 ft <sup>3</sup> /sack
						Water Requirement	9.424 gal/sack
						Total Mix Fluid	9.424 gal/sack
						Water Source	Fresh Water
						Water Chloride	

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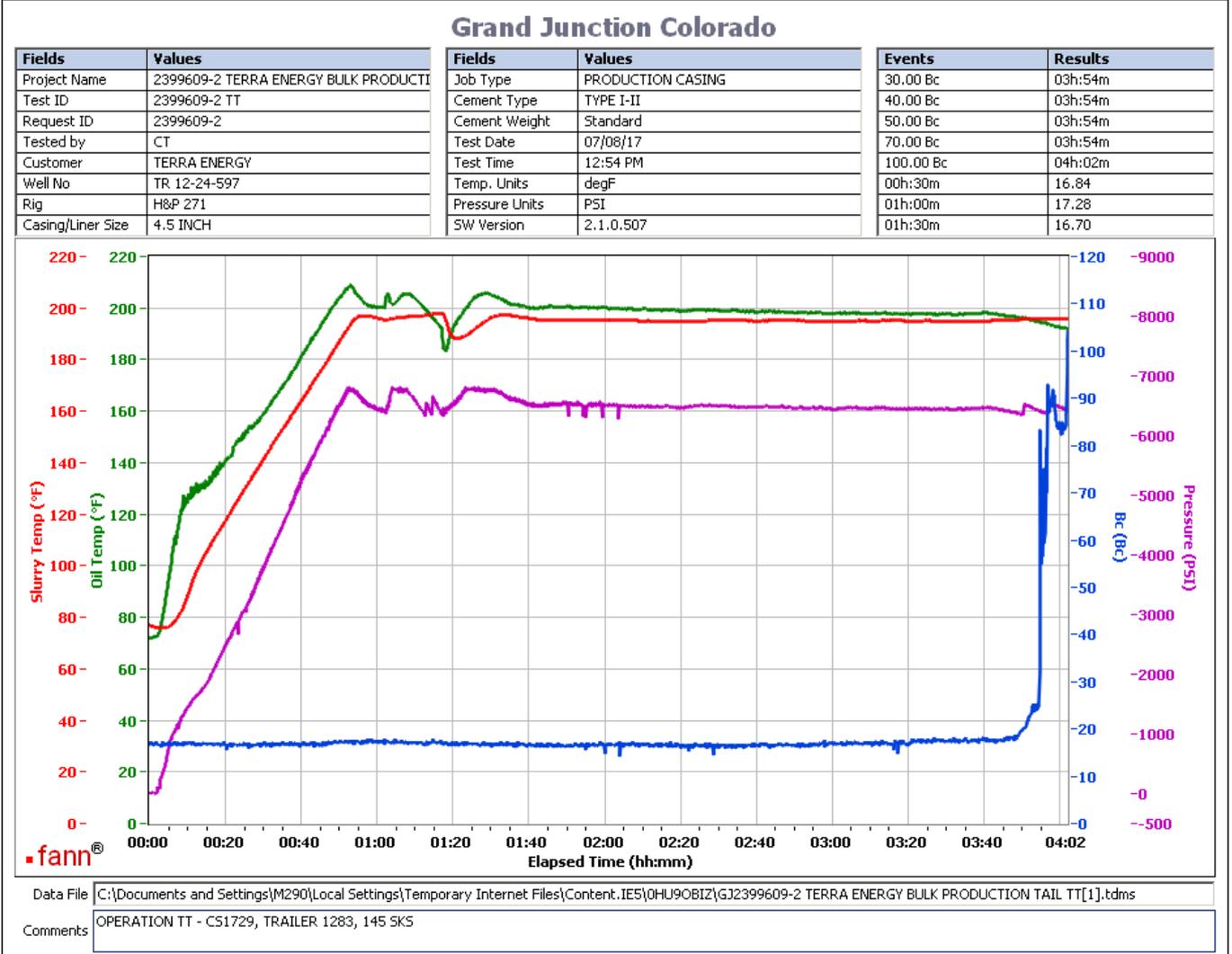
**Operation Test Results Request ID 2399609/2**

**Thickening Time - ON-OFF-ON**

**08/JUL/2017**

Test Temp (°F)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
195	6575	52	3:54	3:54	3:54	4:02	17	62	15	17

Total sks 885  
 CS1729, Trailer 1283, 145 sks  
 Deflection: 17 - 17



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**Operation Test Results Request ID 2399609/1**

**Thickening Time - ON-OFF-ON**

**07/JUL/2017**

Test Temp (°F)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
195	6575	52	3:53	3:53	3:53	3:53	11	62	15	13

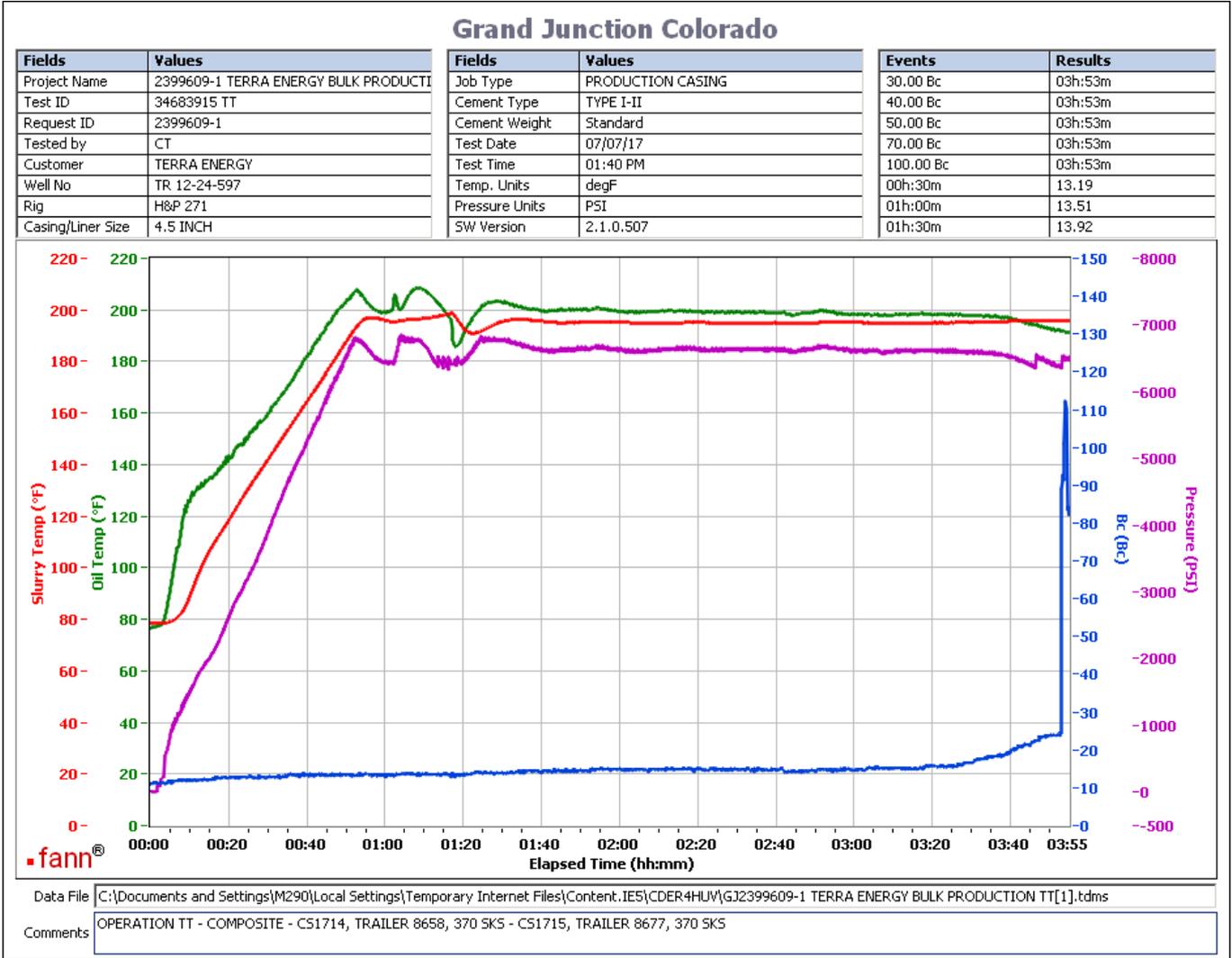
Total sks 885

Composite:

CS1714, Trailer 8658, 370 sks

CS1715, Trailer 8677, 370 sks

No deflection



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