

# 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

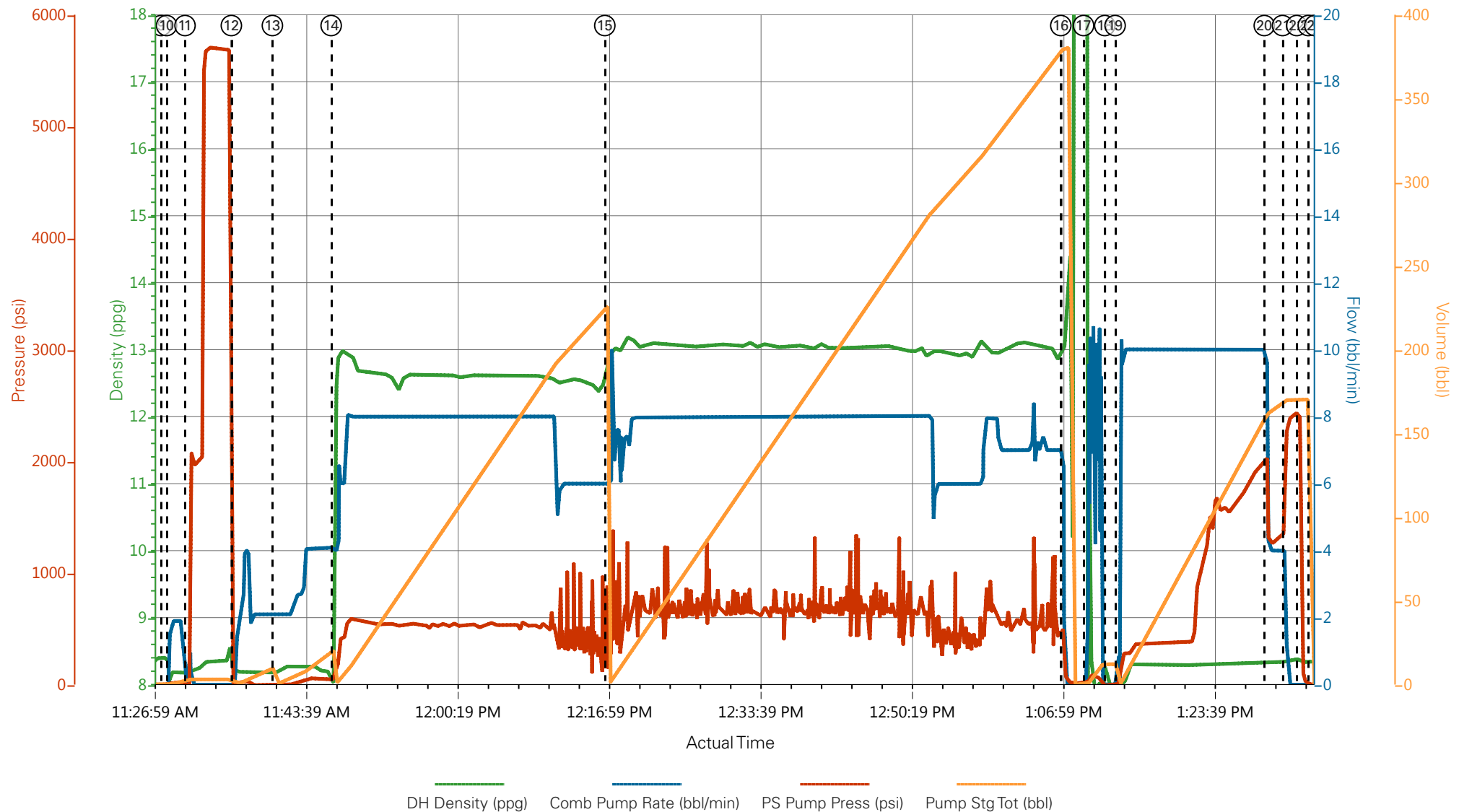
## 2.1 Job Event Log

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 CHLORIEDES: 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 | ⑲ 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 |                              |

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Created: 2017-07-10 05:19:56, Version: 4.2.393

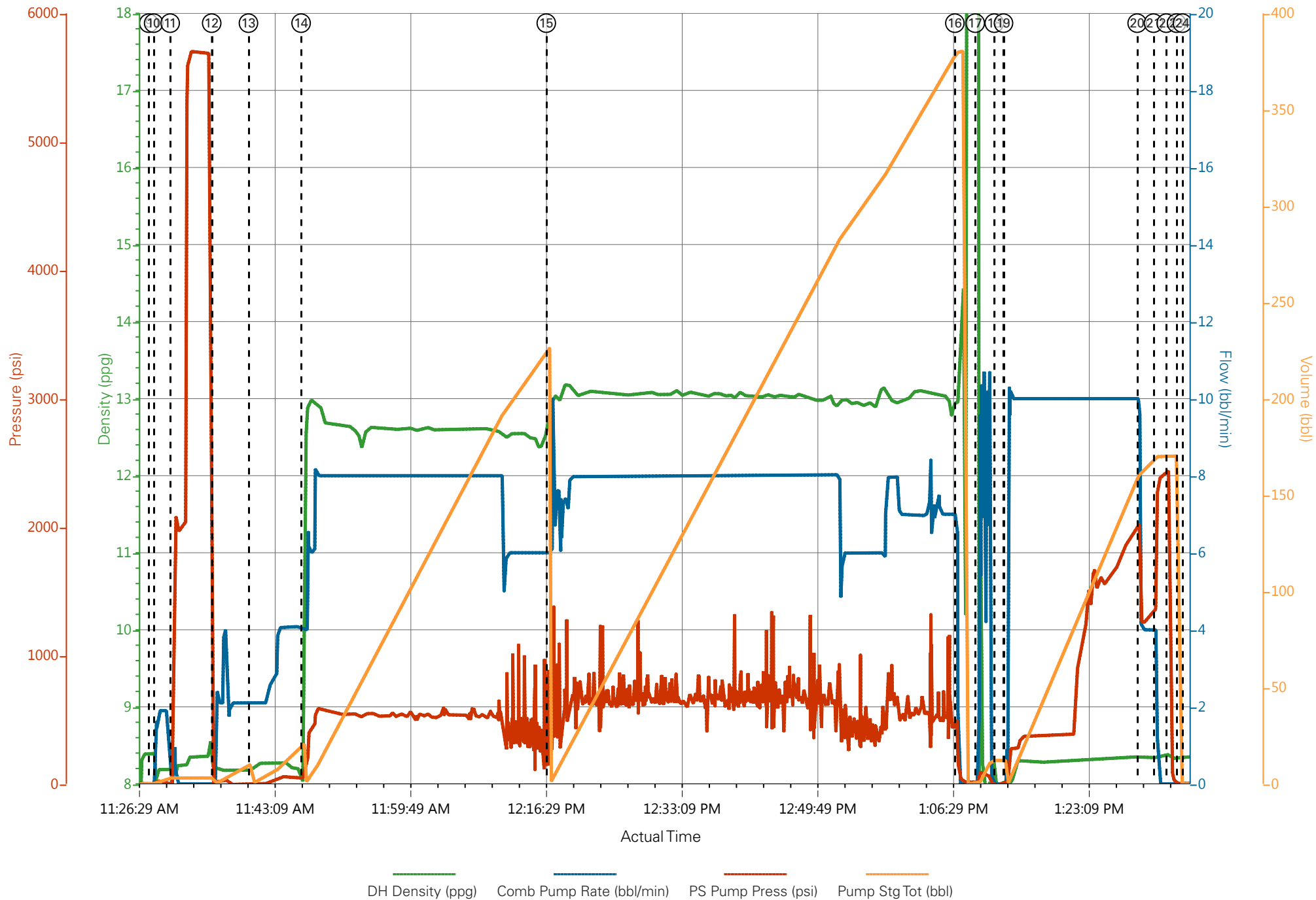
Edit

Customer: TEP ROCKY MOUNTAIN LLC  
Representative: JARVIS ABBEY

Job Date: 7/10/2017 10:21:16 AM  
Sales Order #: 0904152147

Well: CHEVRON TR 12-24-597  
ELITE #4: DUSTIN SMITH / TRAVIS BROWN

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



## Job Information

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

## Well Information

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

## Drilling Fluid Information

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



Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
						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 2399608/2

## Thickening Time - ON-OFF-ON

08/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	4:15	4:32	4:41	4:55	5	62	15	5

Total sks = 580

CS1728, Trailer 1283, 155 sks

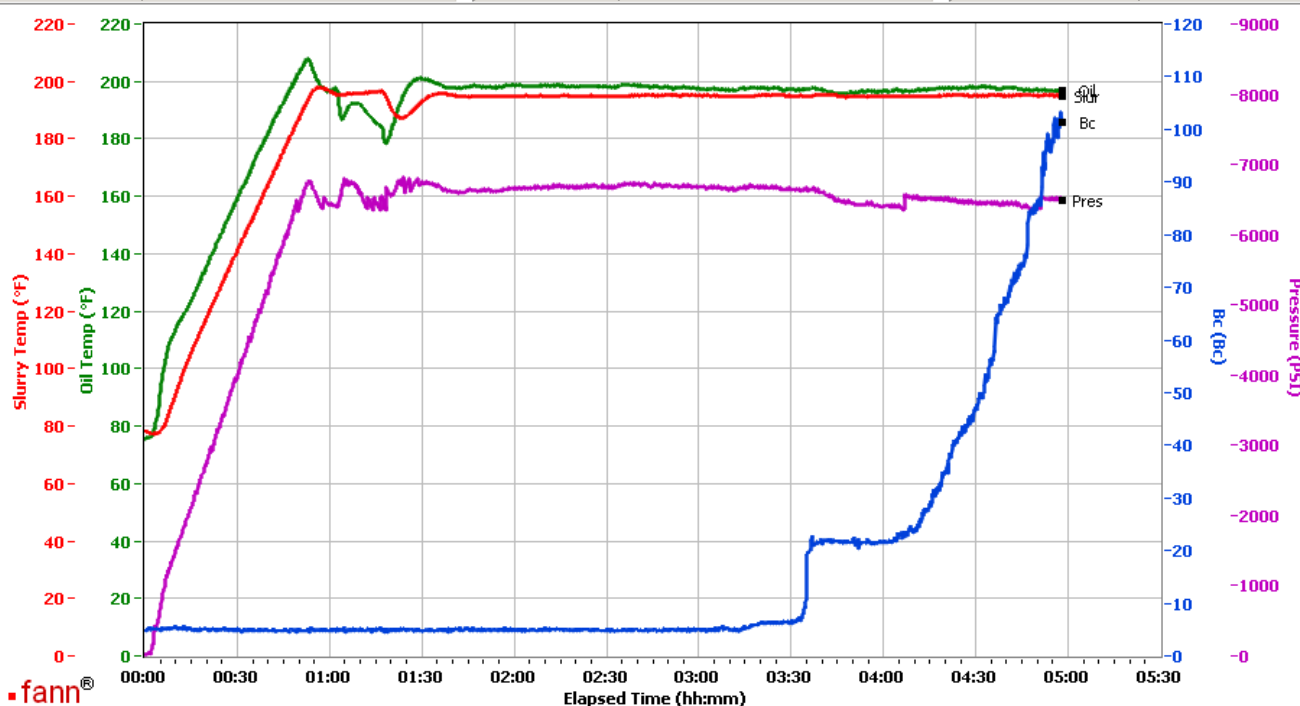
Deflection: 5 – 5

## 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	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	07/08/17
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

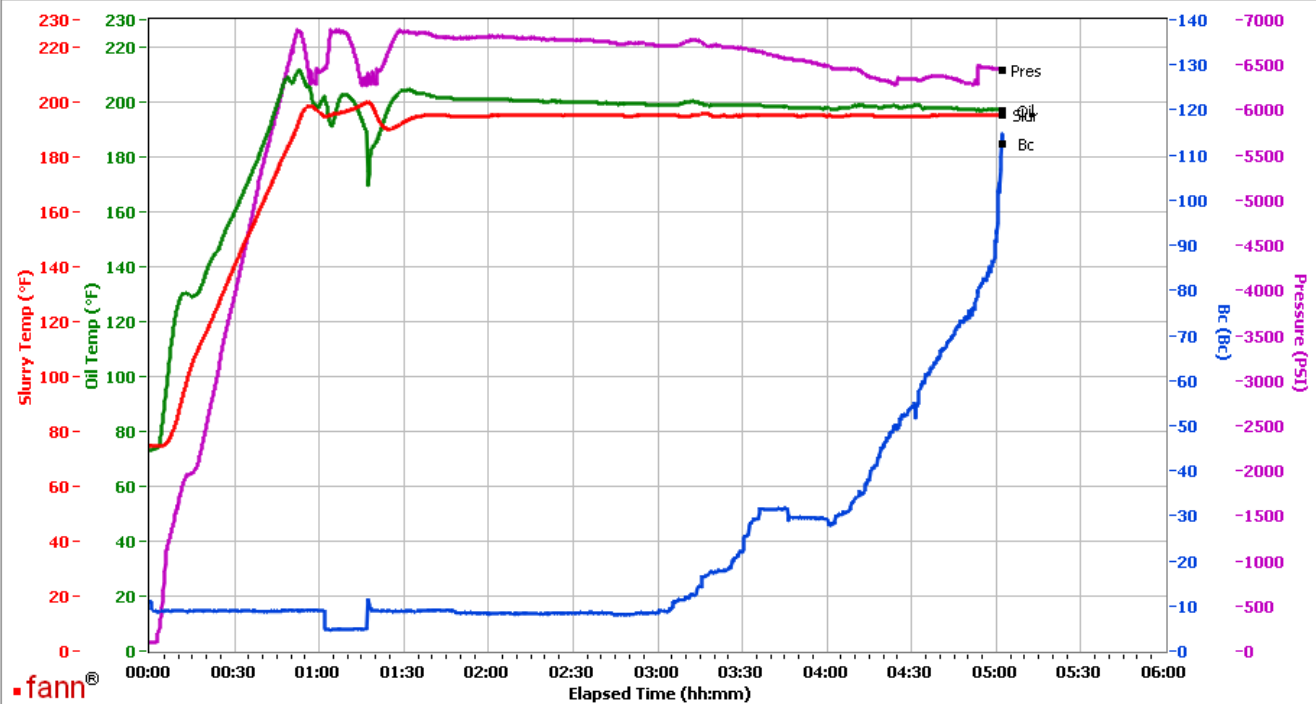
Total sks = 580

CS1709, Trailer 0812, 425 sks

Deflected 5-- > 14

### Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	2399608-1 TERRA ENERGY BULK PRODUCTI	Job Type	PRODUCTION CASING	30.00 Bc	03h:36m
Test ID	34683914	Cement Type	TYPE I-II	40.00 Bc	04h:15m
Request ID	2399608-1	Cement Weight	Standard	50.00 Bc	04h:24m
Tested by	CT	Test Date	07/07/17	70.00 Bc	04h:44m
Customer	TERRA ENERGY	Test Time	07:11 PM	100.00 Bc	05h:00m
Well No	TR 12-24-597	Temp. Units	degF	00h:30m	8.83
Rig	H&P 271	Pressure Units	PSI	01h:00m	9.01
Casing/Liner Size	4.5 INCH	SW Version	2.1.0.507	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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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

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

### Well Information

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

### Drilling Fluid Information

Mud Supplier Name	Baroid	Mud Trade Name	BARADRIL-N	Density	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	ft3/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

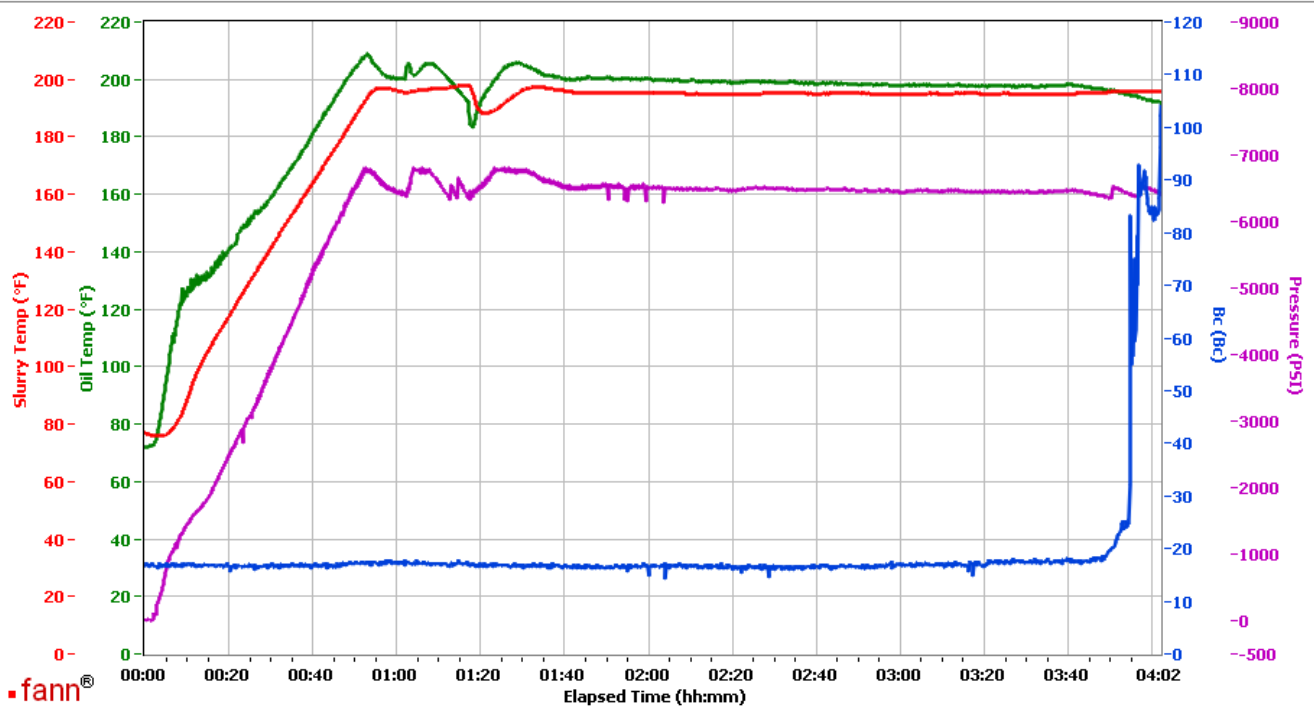
Deflection: 17 - 17

## Grand Junction Colorado

Fields	Values
Project Name	2399609-2 TERRA ENERGY BULK PRODUCTI
Test ID	2399609-2 TT
Request ID	2399609-2
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	07/08/17
Test Time	12:54 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:54m
40.00 Bc	03h:54m
50.00 Bc	03h:54m
70.00 Bc	03h:54m
100.00 Bc	04h:02m
00h:30m	16.84
01h:00m	17.28
01h:30m	16.70



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Comments OPERATION TT - CS1729, TRAILER 1283, 145 SKS

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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: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	3:53	3:53	3:53	3:53	11	62	15	13

Total sks 885

Composite:

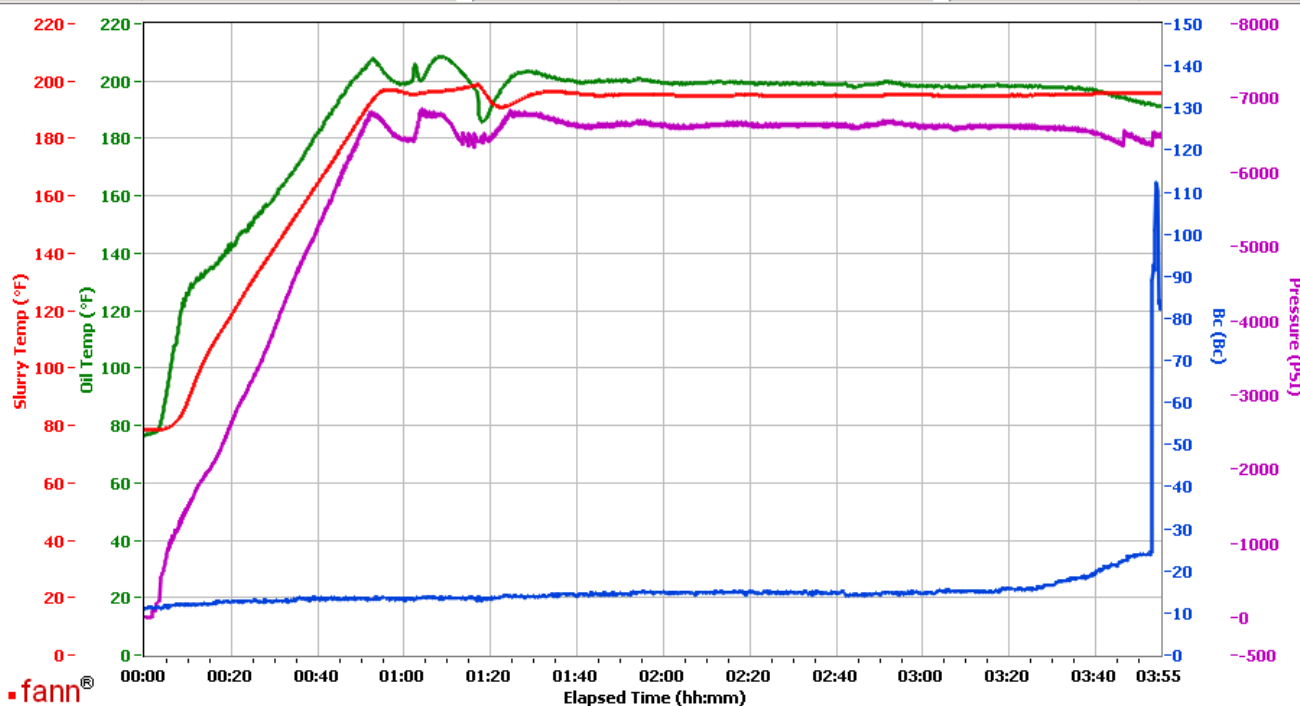
CS1714, Trailer 8658, 370 sks

CS1715, Trailer 8677, 370 sks

No deflection

### Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	2399609-1 TERRA ENERGY BULK PRODUCTI	Job Type	PRODUCTION CASING	30.00 Bc	03h:53m
Test ID	34683915 TT	Cement Type	TYPE I-II	40.00 Bc	03h:53m
Request ID	2399609-1	Cement Weight	Standard	50.00 Bc	03h:53m
Tested by	CT	Test Date	07/07/17	70.00 Bc	03h:53m
Customer	TERRA ENERGY	Test Time	01:40 PM	100.00 Bc	03h:53m
Well No	TR 12-24-597	Temp. Units	degF	00h:30m	13.19
Rig	H8P 271	Pressure Units	PSI	01h:00m	13.51
Casing/Liner Size	4.5 INCH	SW Version	2.1.0.507	01h:30m	13.92



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\CDER4HUV\GJ2399609-1 TERRA ENERGY BULK PRODUCTION TT[1].tdms

Comments OPERATION TT - COMPOSITE - CS1714, TRAILER 8658, 370 SKS - CS1715, TRAILER 8677, 370 SKS

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