

# HALLIBURTON

iCem<sup>®</sup> Service

## **Terra Energy Partners**

**For: Terra**

Date: Tuesday, April 04, 2017

**TR 334-21-597 Production PJR**

API# 05-045-23349-00

Sincerely,

**Grand Junction Cement Engineering**

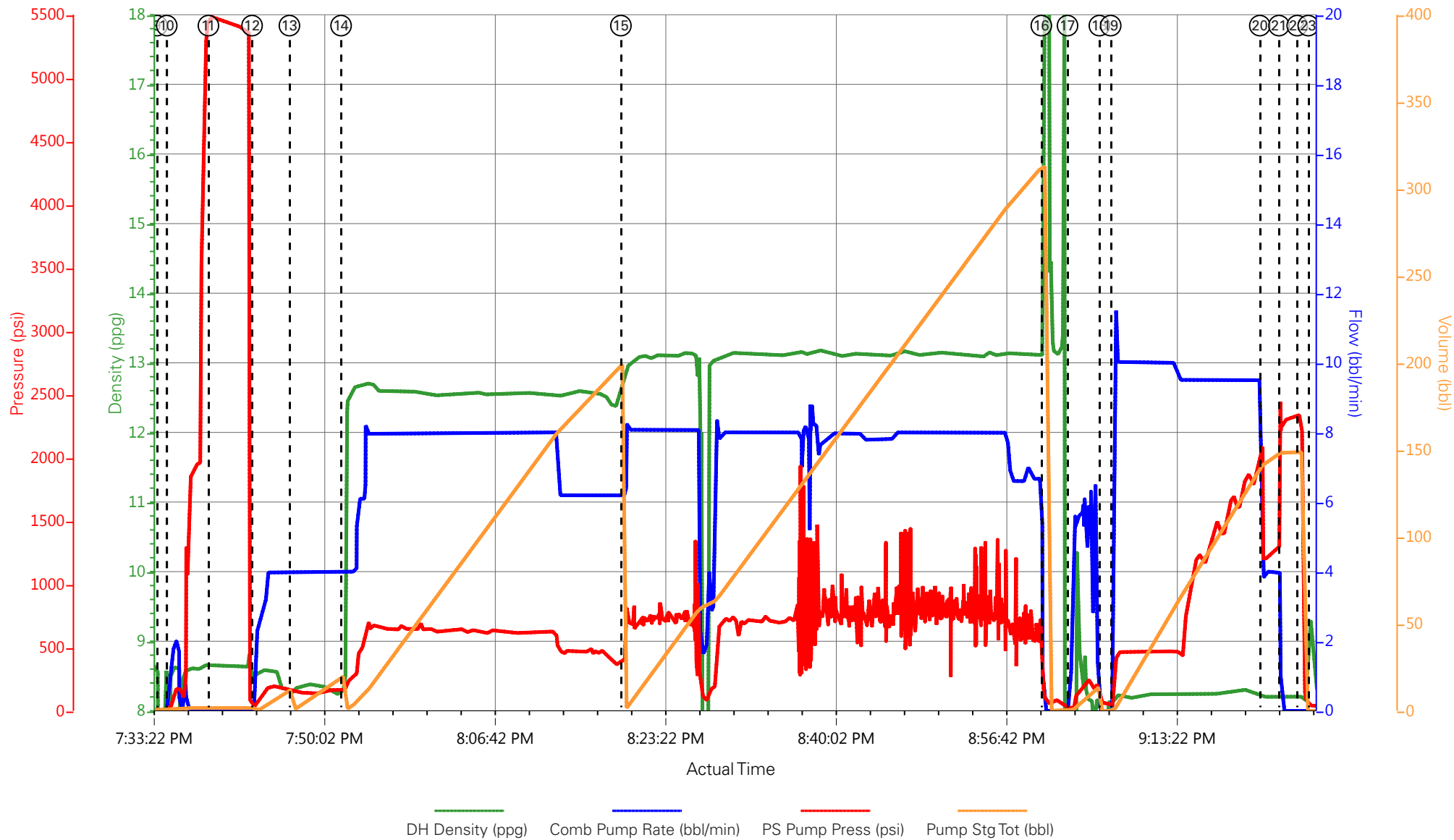
## 2.0 Real-Time Job Summary

## 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	4/4/2017	10:00:00	USER					ELITE #1
Event	2	Pre-Convoy Safety Meeting	4/4/2017	12:00:00	USER					ALL HES EMPLOYEES
Event	3	Arrive At Loc	4/4/2017	14:00:00	USER					ARRIVED ON LOCATION AT REQUESTED TIME STARTED CHARGING HOURS UPON ARRIVAL
Event	4	Assessment Of Location Safety Meeting	4/4/2017	14:15:00	USER					ALL HES EMPLOYEES
Event	5	Pre-Rig Up Safety Meeting	4/4/2017	14:30:00	USER					ALL HES EMPLOYEES
Event	6	Rig-Up Equipment	4/4/2017	14:45:00	USER					1 HT-400 PUMP TRUCK ( ELITE #1) 1 660 BULK TRUCK 2 SILOS 1 F-550 PICKUP
Event	7	Comment	4/4/2017	14:55:00	USER					CUSTOMER WAS OFFERED SDS WATER TEMP @ 58 F PH:7 CHLORIDES: 0 PPM
Event	8	Pre-Job Safety Meeting	4/4/2017	19:00:00	USER					ALL HES EMPLOYEES AND RIG CREW RIG CIRCULATED FOR 1 HR PRIOR TO JOB @ 10 BBL/MIN @ 1300 CFM
Event	9	Start Job	4/4/2017	19:34:00	COM5					TD:9803 TP: 9793 CSG: 4 1/2 11.6# P-110 SJ: 25.2 OH: 8 3/4 MW: 8.9 PPG SURFACE CSG: 9 5/8 36# SET @ 2814
Event	10	Prime Lines	4/4/2017	19:34:57	USER	8.33	2.0	136	2.0	PRIME LINES FRESH WATER
Event	11	Test Lines	4/4/2017	19:39:01	COM5			5488		PRESSURE TEST OK
Event	12	Fresh Water Spacer	4/4/2017	19:43:17	COM5	8.33	4.0	160	10.0	10 BBL FRESH WATER SPACER

Event	13	Mud Flush III	4/4/2017	19:46:56	COM5	8.4	4.0	170	20.0	20 BBL ( 80 LBS ) MUD FLUSH III
Event	14	Pump Lead Cement	4/4/2017	19:51:59	COM5	12.5	8.0	670	188.3	545 SKS ( 188.3 BBLS ) 12.5 PPG 1.94 YIELD 9.58 GAL/SK LEAD CEMENT WEIGHT VERIFIED VIA PRESSURIZED MUD SCALES 60 LBS TUFF FIBER ADDED THROUGHOUT LEAD
Event	15	Pump Tail Cement	4/4/2017	20:19:20	COM5	13.0	8.0	800	278.3	755 SKS ( 278.3 BBLS ) 13.0 PPG 2.07 YIELD 9.43 GAL/SK TAIL CEMENT WEIGHT VERIFIED VIA PRESSURIZED MUD SCALES
Event	16	Shutdown	4/4/2017	21:00:26	COM5					
Event	17	Clean Lines	4/4/2017	21:02:59	COM5					CLEAN LINES FRESH WATER
Event	18	Drop Top Plug	4/4/2017	21:06:06	COM5					PLUG AWAY NO ISSUES LATCH DOWN PLUG SUPPLIED BY CUSTOMER
Event	19	Pump Displacement	4/4/2017	21:07:12	COM5	8.4	10.0	2060	151.4	151.4 BBL KCL DISPLACEMENT 1 GAL MMCR 3 LBS BE-6 ADDED INTO DISPLACEMENT
Event	20	Slow Rate	4/4/2017	21:21:47	USER	8.4	4.0	1350	141.4	SLOW RATE PRIOR TO BUMPING PLUG
Event	21	Bump Plug	4/4/2017	21:23:39	COM5	8.4	4.0	1400	151.4	PRESSURE PRIOR TO BUMPING PLUG @ 1400 PSI BUMPED PLUG UP TO 2370 PSI
Event	22	Check Floats	4/4/2017	21:25:26	COM5	8.4		2370		FLOATS HELD 1 1/2 BBLS BACK TO TRUCKS TANK
Event	23	End Job	4/4/2017	21:26:31	COM5					GOOD RETURNS THROUGHOUT CEMENT LOST RETURNS ON DISPLACEMENT PIPE WAS WORKED THROUGHOUT JOB
Event	24	Pre-Rig Down Safety Meeting	4/4/2017	22:00:00	USER					ALL HES EMPLOYEES
Event	25	Rig-Down Equipment	4/4/2017	22:15:00	USER					
Event	26	Pre-Convoy Safety Meeting	4/4/2017	23:45:00	USER					ALL HES EMPLOYEES
Event	27	Crew Leave Location	4/5/2017	00:00:00	USER					THANK YOU FOR USING HALLIBURTON CEMENT DAVID CAMPBELL AND CREW

# TERRA - TR 334-21-597 - 4 1/2 PRODUCTION



- |   |                          |                    |                                |                              |
|---|--------------------------|--------------------|--------------------------------|------------------------------|
| ① Call Out                              | ⑦ Comment                | ⑬ Mud Flush III    | 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 Assessment Of Location Safety Meeting | ⑩ Prime Lines            | ⑯ Shutdown         | 22 Check Floats                |                              |
| ⑤ Pre-Rig Up Safety Meeting             | ⑪ Test Lines             | ⑰ Clean Lines      | 23 End Job                     |                              |
| ⑥ Rig-Up Equipment                      | ⑫ Fresh Water Spacer     | ⑱ Drop Top Plug    | 24 Pre-Rig Down Safety Meeting |                              |

▼ **HALLIBURTON** | iCem® Service

Created: 2017-04-04 13:53:27, Version: 4.2.393

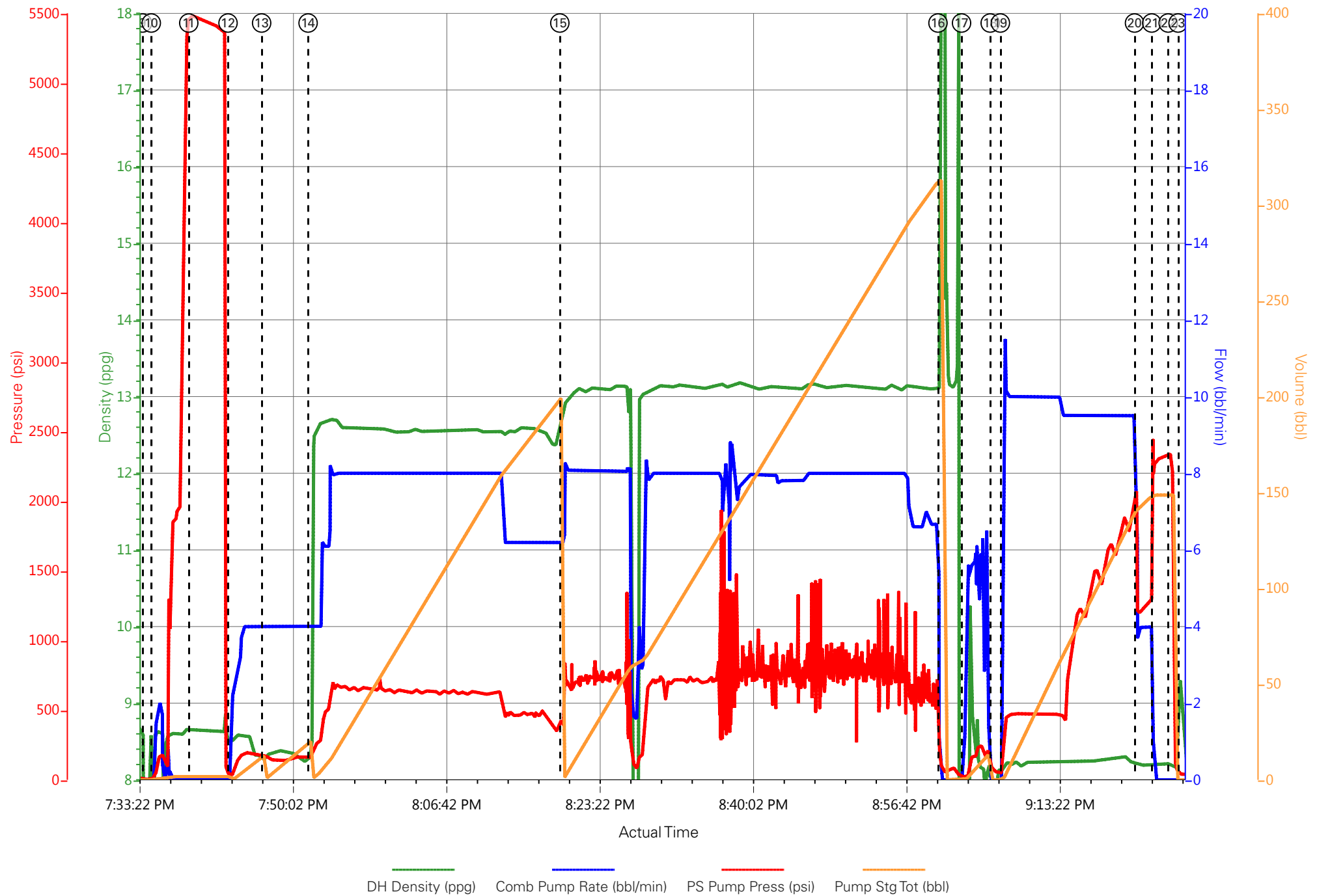
Edit

Customer: TEP ROCKY MOUNTAIN LLC  
Representative: TED RAGSDALE

Job Date: 4/4/2017  
Sales Order #: 0903949774

Well: TR 334-21-597  
ELITE#1: DAVID CAMPBELL / RYAN MARTIN

# TERRA - TR 334-21-597 - 4 1/2 PRODUCTION



### Job Information

<b>Request/Slurry</b>	2377737/1	<b>Rig Name</b>	H&P 271	<b>Date</b>	01/APR/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 334-21-597

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	9822 ft	<b>BHST</b>	116°C / 240°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9434 ft	<b>BHCT</b>	77°C / 170°F
<b>Pressure</b>	5904 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

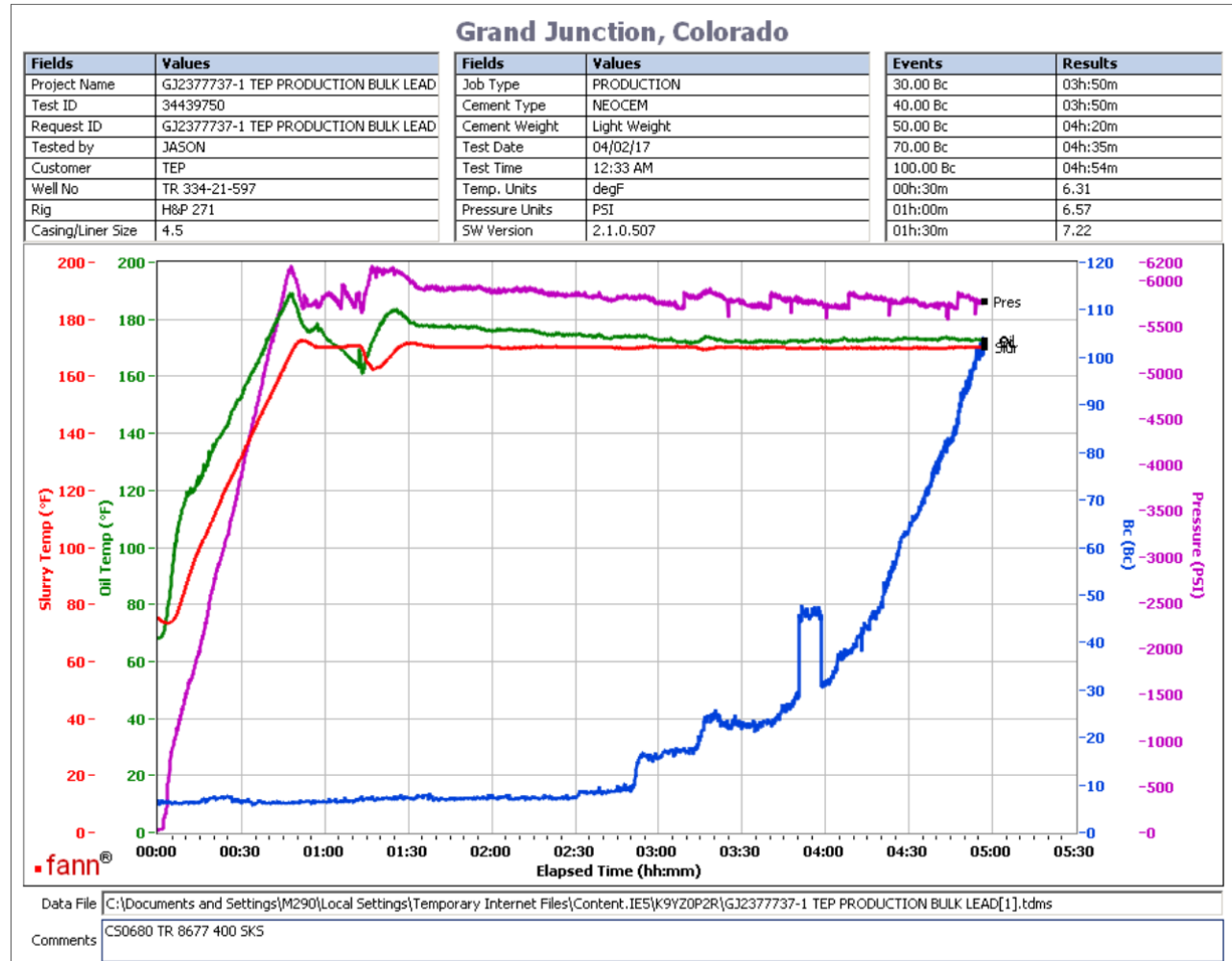
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		NeoCem Lead				Slurry Density	12.5	lbm/gal
						Slurry Yield	1.941	ft3/sack
						Water Requirement	9.623	gal/sack
						Total Mix Fluid	9.623	gal/sack
						Water Source	Fresh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

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Thickening Time - ON-OFF-ON

02/APR/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)
170	5904	47	3:50	4:20	4:35	4:54	7	57	7



Total Sacks= 545  
CS0680 TR 8677 400 SKS

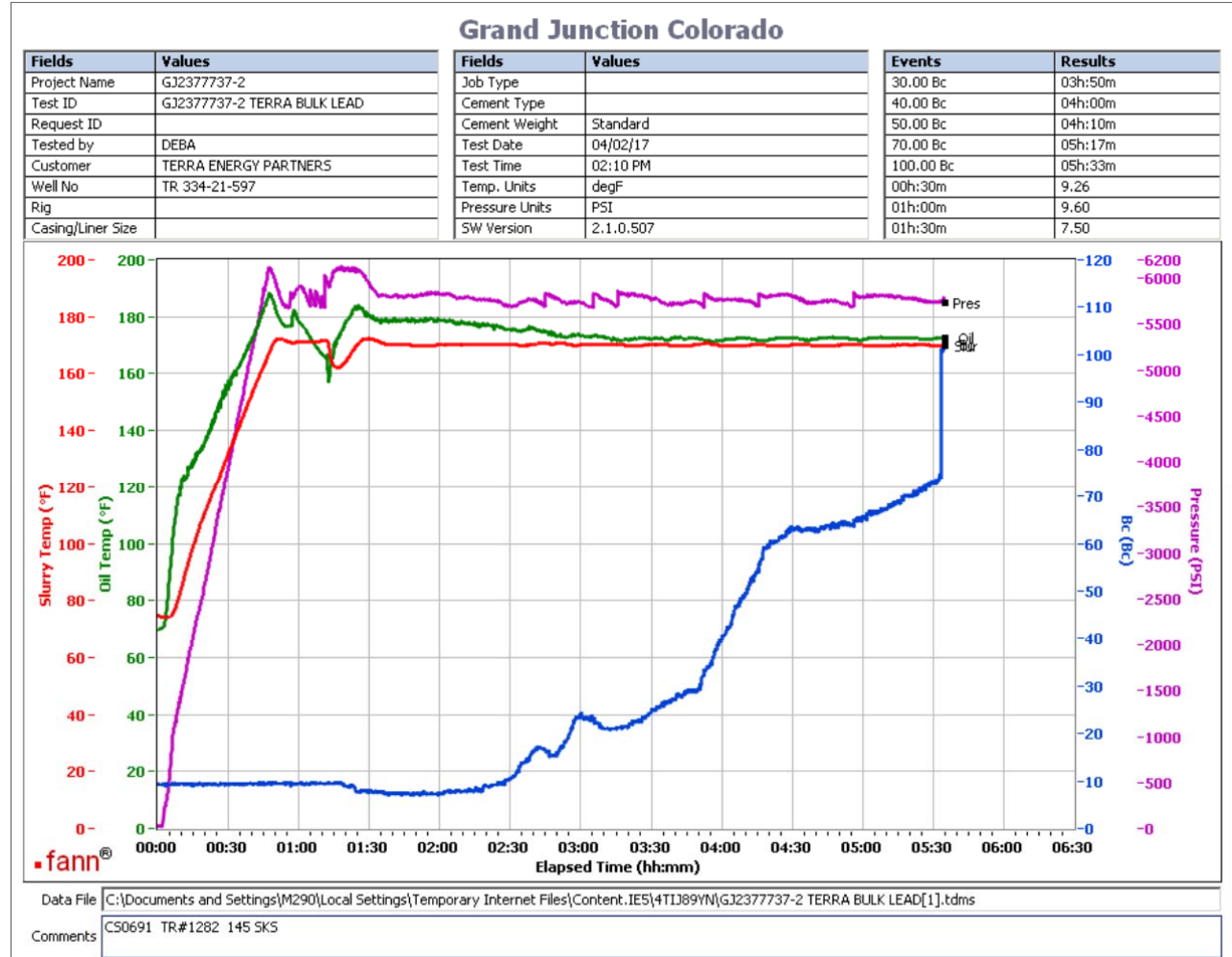
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## Operation Test Results Request ID 2377737/2

### Thickening Time - ON-OFF-ON

02/APR/2017

Test Temp (°F)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
170	5904	47	3:50	5:17	5:33	9	57	15	8



Total Sacks= 545  
CS0690 TR 1283 145 SKS

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

<b>Request/Slurry</b>	2377738/1	<b>Rig Name</b>	H&P 271	<b>Date</b>	01/APR/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 334-21-597

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	9822 ft	<b>BHST</b>	116°C / 240°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9434 ft	<b>BHCT</b>	77°C / 170°F
<b>Pressure</b>	5904 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>		
		NeoCem Tail				Slurry Density	13	lbm/gal
						Slurry Yield	2.065	ft3/sack
						Water Requirement	9.429	gal/sack
						Total Mix Fluid	9.429	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

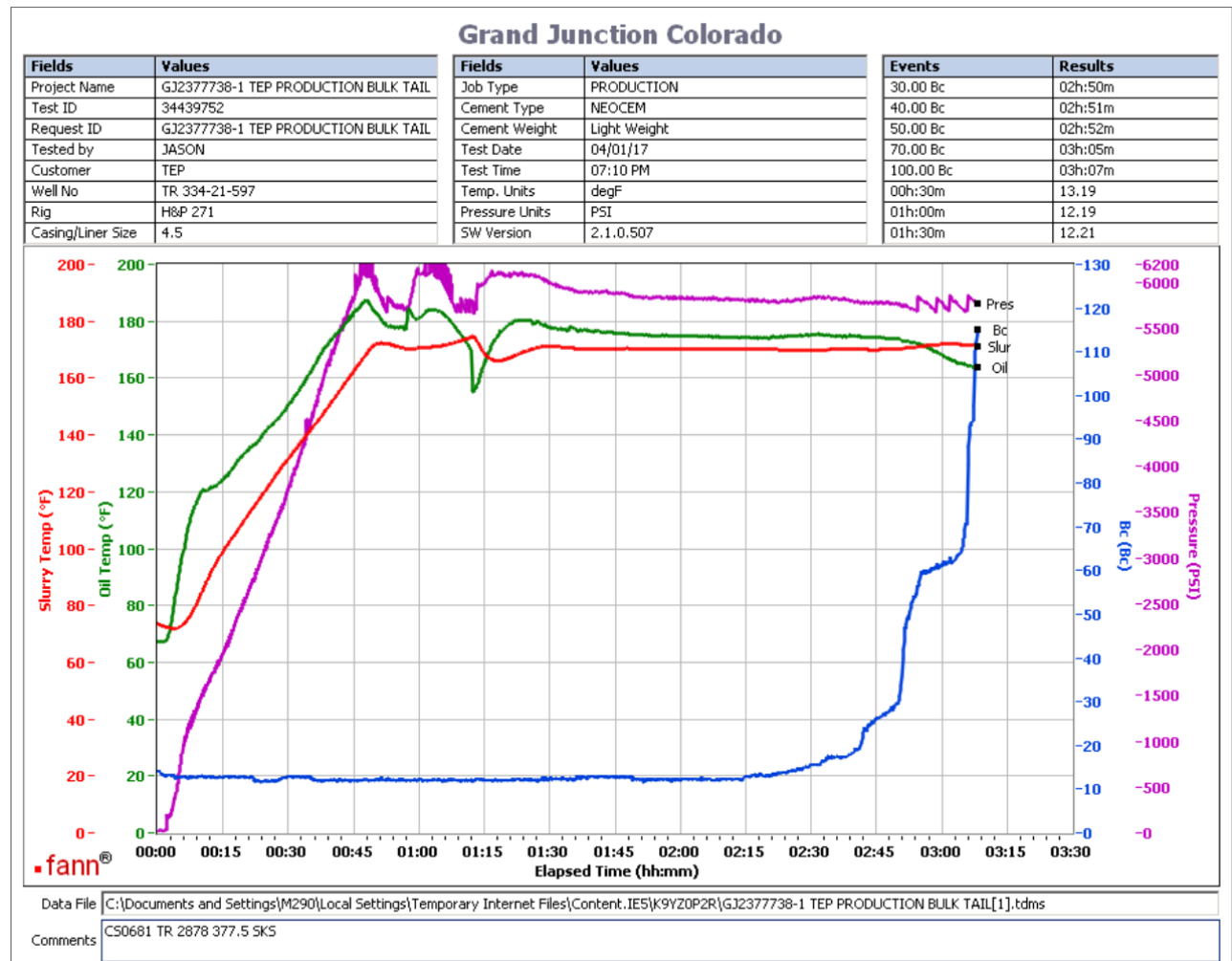
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# **Operation Test Results Request ID 2377738/1**

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

**02/APR/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)
170	5904	47	2:50	2:50	3:05	3:07	14	57	15



Total sks = 755

CS0681 TR 2878 377.5 SKS

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# **Operation Test Results Request ID 2377738/2**

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

**02/APR/2017**

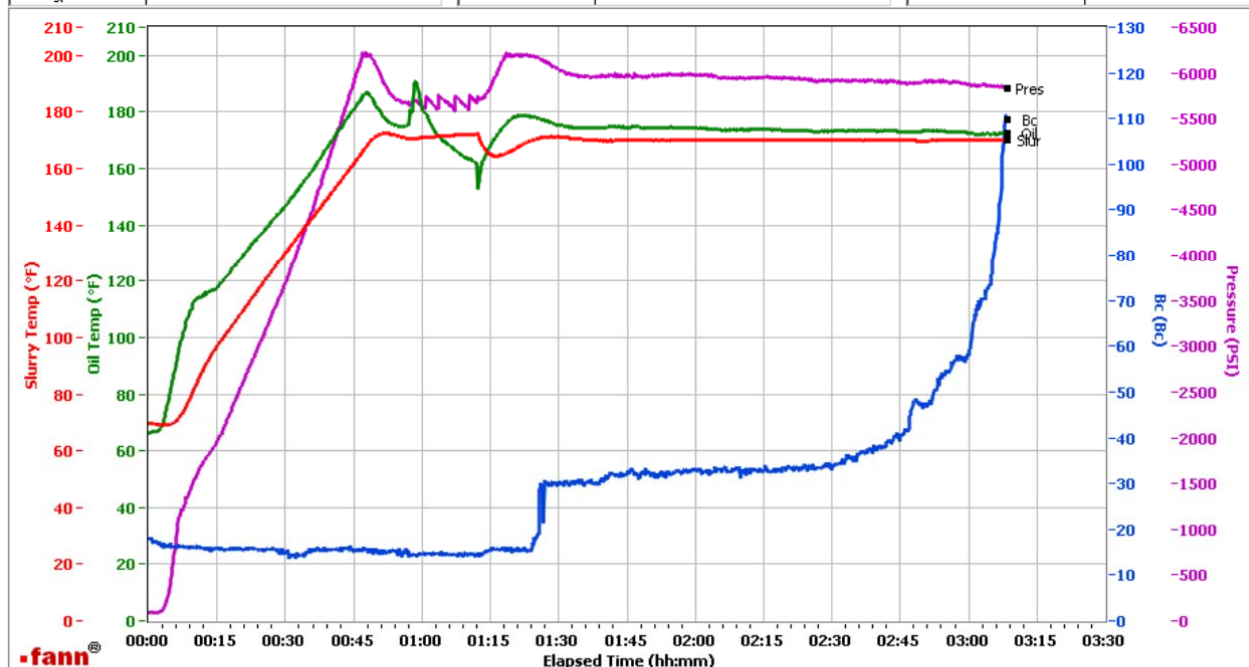
Test Temp (°F)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
170	5904	47	1:26	2:52	3:02	3:07	17	57	15	17

## **Grand Junction Colorado**

Fields	Values
Project Name	GJ2377738-2 TERRA BULK TAIL
Test ID	GJ2377738-2 TERRA BULK TAIL
Request ID	
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	TR 334-21-597
Rig	
Casing/Liner Size	

Fields	Values
Job Type	
Cement Type	
Cement Weight	Standard
Test Date	04/02/17
Test Time	08:31 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	01h:26m
40.00 Bc	02h:43m
50.00 Bc	02h:52m
70.00 Bc	03h:02m
100.00 Bc	03h:07m
00h:30m	14.76
01h:00m	14.46
01h:30m	29.86



Data File C:\Documents and Settings\Administrator\Local Settings\Temporary Internet Files\Content.IE5\OTUB09Y7\GJ2377738-2 TERRA BULK TAIL[1].tdms

Comments CS0685 TR#1513 377.5 SKS

Total sks = 755

CS0685 TR 1513 8 377.5 SKS

no deflection was observed

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