

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

**For: Terra**

Date: Thursday, August 17, 2017

**TR 24-23-597 Production PJR**

API# 05-045-23476-00

Sincerely,

**Grand Junction Cement Engineering**

## 2.0 Real-Time Job Summary

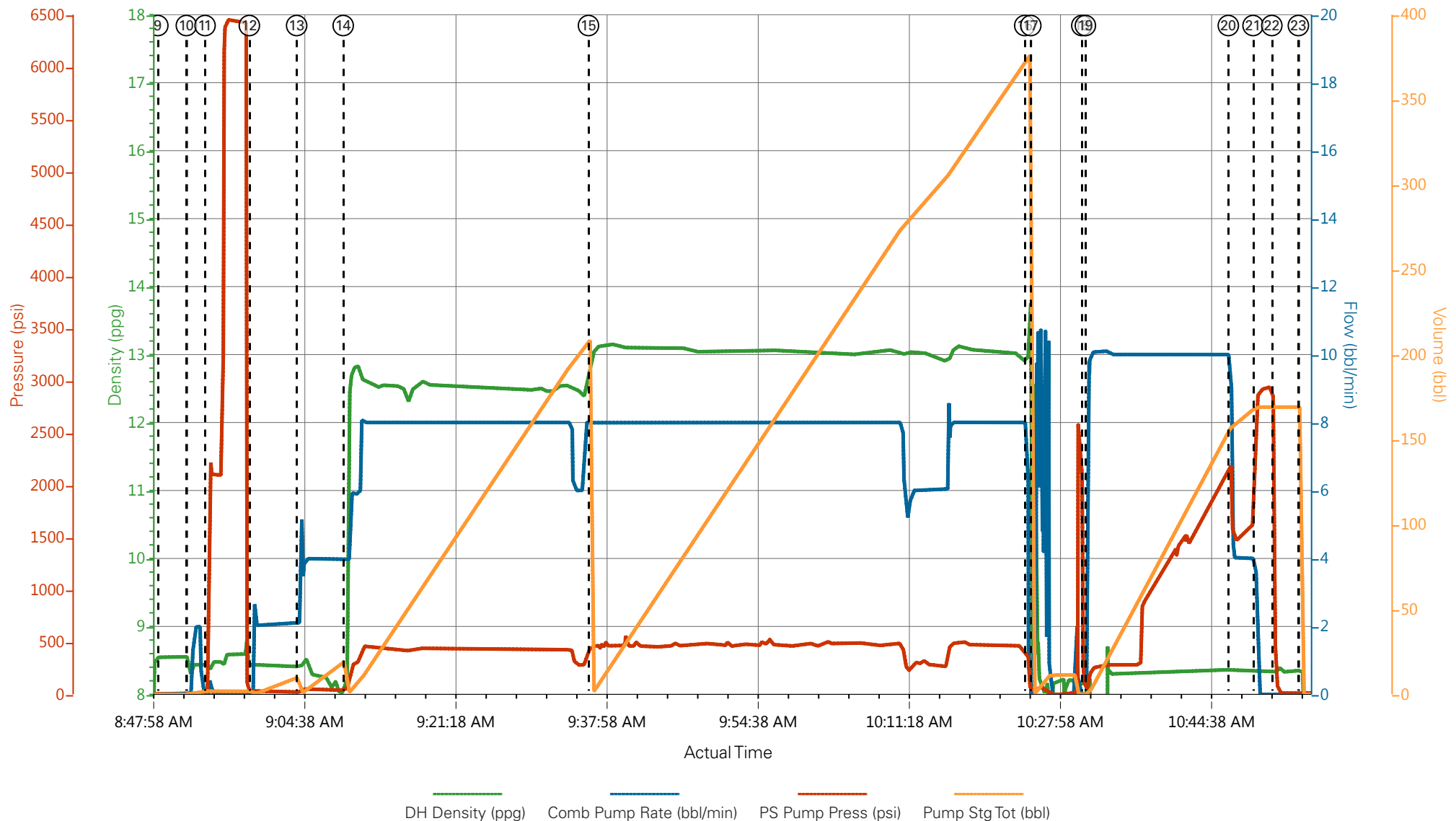
## 2.1 Job Event Log

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	8/16/2017	22:00:00	USER					ELITE #4
Event	2	Pre-Convoy Safety Meeting	8/17/2017	00:00:00	USER					ALL HES EMPLOYEES
Event	3	Arrive At Loc	8/17/2017	04:00:00	USER					ARRIVED ON LOCATION 1 HOUR EARLY RIG RUNNING CASING
Event	4	Meet With Company Rep	8/17/2017	04:10:00	USER					COMPANY REP OFFERED SDS WATER TEST TEMP: 61 PH: 7 CHLORIDES: 0
Event	5	Assessment Of Location Safety Meeting	8/17/2017	05:00:00	USER					ALL HES EMPLOYEES
Event	6	Pre-Rig Up Safety Meeting	8/17/2017	05:10:00	USER					ALL HES EMPLOYEES
Event	7	Rig-Up Equipment	8/17/2017	05:20:00	USER					1 HT-400 PUMP TRUCK 1 660 BULK TRUCK 2 SILOS
Event	8	Pre-Job Safety Meeting	8/17/2017	08:00:00	USER					ALL HES EMPLOYEES AND RIG CREW RIG CIRCULATED @ 550 GPM PRIOR TO THE JOB @ 1700 PSI WITH 300 CFM AIR BETWEEN D.P AND PARASITE
Event	9	Start Job	8/17/2017	08:48:49	COM5					TD: 10483 TP: 10478.51 SJ: 31.52 CSG: 4 1/2 11.6 P-110 OH: 8 3/4 SURFACE SHOE @ 3017 9 5/8 36# J-55 MUD WT: 8.9 PPG
Event	10	Prime Lines	8/17/2017	08:51:58	USER	8.33	2	24	2	PRIME LINES WITH 2 BBLS FRESH WATER
Event	11	Test Lines	8/17/2017	08:54:02	COM5	8.33	0.00	6455	2.0	PRESSURE TEST OK
Event	12	Pump Fresh Water	8/17/2017	08:58:55	COM5	8.33	2	22	10	PUMP 10 BBL FRESH WATER SPACER

Spacer										
Event	13	Pump Mud Flush III Spacer	8/17/2017	09:04:08	COM5	8.4	4	58	20	PUMP 20 BBL MUD FLUSH III SPACER
Event	14	Pump Lead Cement	8/17/2017	09:09:16	COM5	12.5	8	480	197	570 SKS 12.5 PPG 1.94 YIELD 9.58 GAL/SK LEAD CEMENT WEIGHT VERIFIED VIA PRESSURIZED MUD SCALES 4 BOXES TUF FIBER ADDED THROUGHOUT LEAD
Event	15	Pump Tail Cement	8/17/2017	09:36:19	COM5	13.0	8.00	500	329	890 SKS 13.0 PPG 2.07 YIELD 9.43 GAL/SK TAIL CEMENT WEIGHT VERIFIED VIA PRESSURIZED MUD SCALES
Event	16	Shutdown	8/17/2017	10:24:26	USER					SHUTDOWN TO CLEAN PUMPS AND LINES
Event	17	Clean Lines	8/17/2017	10:25:06	COM5	8.33			10	CLEAN PUMPS AND LINES TO PIT & RIG BLOW IRON OUT WITH AIR FROM RIG FLOOR
Event	18	Drop Top Plug	8/17/2017	10:30:43	COM5					PLUG AWAY NO PROBLEMS SWAPPED TO TOP VALVE FOR POSITIVE DISPLACEMENT AS PER COMPANY REP, COMPANY REP PROVIDED LATCHDOWN PLUG. REMOVED TOP PLUG FROM TICKET
Event	19	Pump Displacement	8/17/2017	10:31:07	COM5	8.4	10	2200	161.9	1 GAL MMCR 3 #S BE-6 1 BAG KCL/ 10 BBL, FRESH WATER DISPLACEMENT
Event	20	Slow Rate	8/17/2017	10:46:53	USER	8.4	4	1650	151	SLOW RATE TO BUMP PLUG
Event	21	Bump Plug	8/17/2017	10:49:36	COM5	8.4	4	2942	161.9	PSI BEFORE BUMPING @ 1650 BUMPED PLUG UP TO 2942
Event	22	Check Floats	8/17/2017	10:51:40	USER					FLOATS HELD 1 3/4 BBL BACK TO DISPLACEMENT TANKS
Event	23	End Job	8/17/2017	10:54:36	COM5					MAINTAINED RETURNS THROUGHOUT JOB, PIPE STATIC THROUGHOUT JOB. RIG HAD AIR ON PARASITE @ 1500 CFM UNTIL END OF TAIL CEMENT AND TURNED AIR BETWEEN 500 & 800 CFM AND TURNED AIR OFF COMPLETELY HALF

						WAY THROUGH DISPLACEMENT
Event	24	Pre-Rig Down Safety Meeting	8/17/2017	11:00:00	USER	ALL HES EMPLOYEES
Event	25	Rig-Down Equipment	8/17/2017	11:10:00	USER	
Event	26	Pre-Convoy Safety Meeting	8/17/2017	12:25:00	USER	ALL HES EMPLOYEES
Event	27	Crew Leave Location	8/17/2017	12:30:00	USER	THANK YOU FOR USING HALLIBURTON CEMENT, DUSTIN SMITH AND CREW

# TEP - CHEVRON TR 24-23-597 - 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: 2017-08-16 22:24:06, Version: 4.2.393

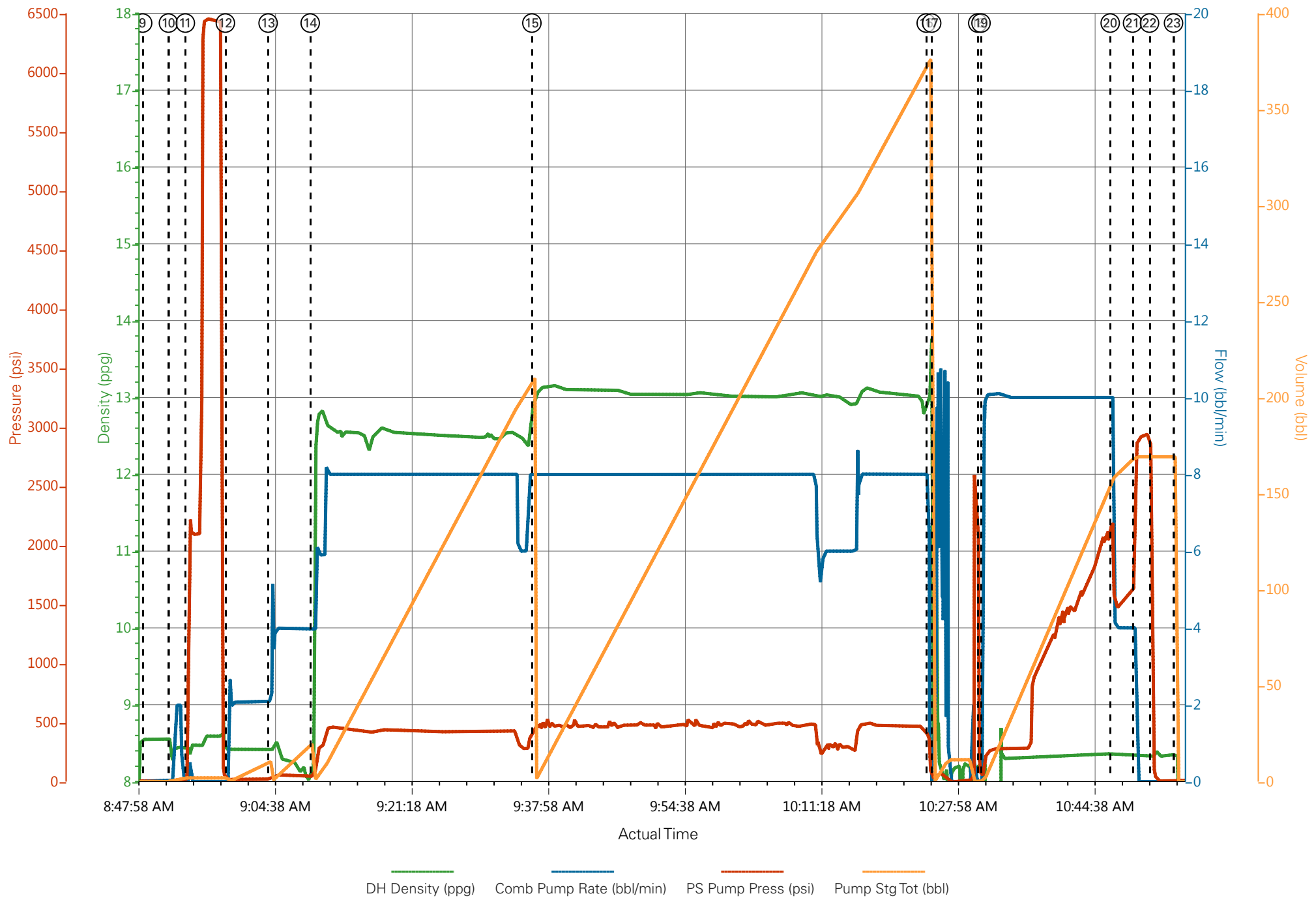
Edit

Customer: TEP ROCKY MOUNTAIN LLC  
Representative: KARL SCHNEIDER

Job Date: 8/17/2017 6:53:34 AM  
Sales Order #: 0904233696

Well: CHEVRON TR 24-23-597  
ELITE# 4: DUSTIN SMITH / TRAVIS BROWN

# TEP - CHEVRON TR 24-23-597 - 4 1/2 PRODUCTION



## Job Information

Request/Slurry	2409282/1	Rig Name	H&P 271	Date	13/AUG/2017
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	TR 24-23-597

## Well Information

Casing/Liner Size	4.5 in	Depth MD	10678 ft	BHST	123°C / 253°F
Hole Size	8.75 in	Depth TVD	10162 ft	BHCT	89°C / 192°F
Pressure	6410 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 2409282/1

## Thickening Time - ON-OFF-ON

14/AUG/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)
192	6410	51	4:34	4:56	5:18	5:27	6	61	15	11

Total sks = 570

Composite:

CS2138, Trailer MT613, 420 sks

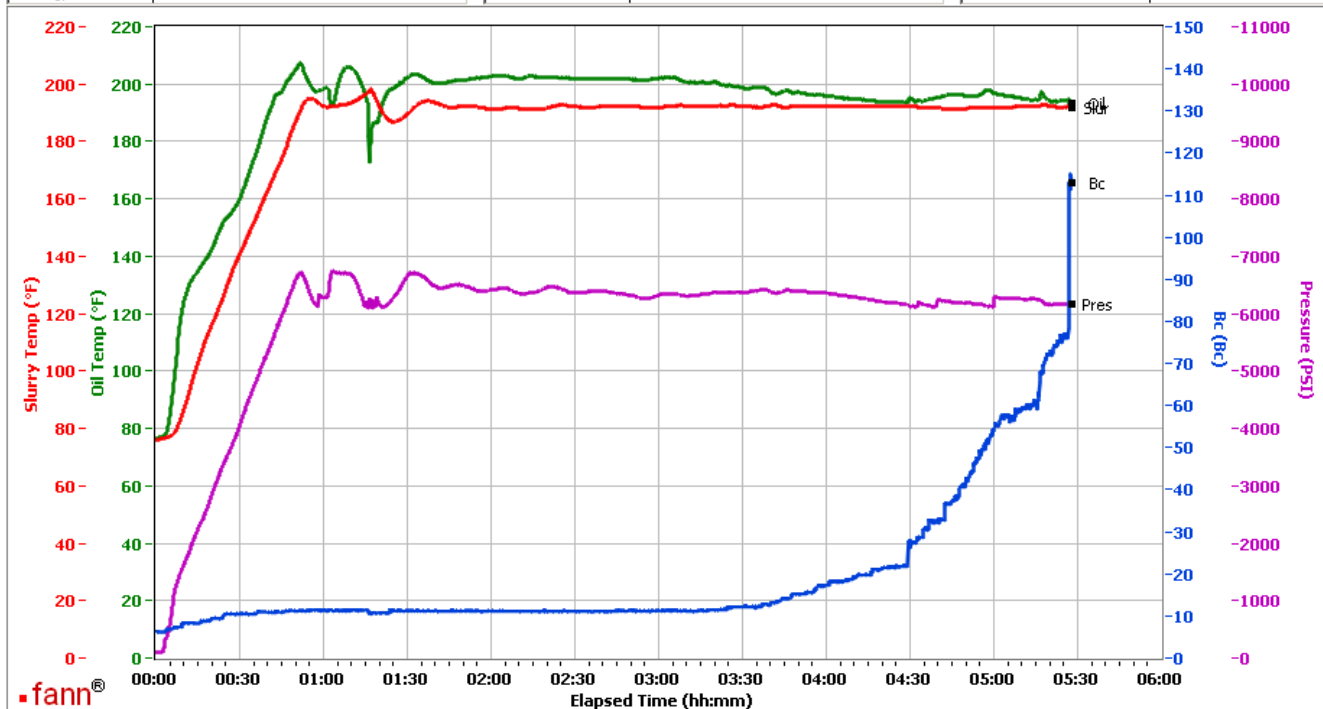
CS2140, Trailer 1972, 150 sks

## Grand Junction Colorado

Fields	Values
Project Name	2409282-1 TERRA ENERGY BULK PRODUCTI
Test ID	34781008 - TT
Request ID	2409282-1
Tested by	CT
Customer	TERRA ENERGY
Well No	TR 24-23-597
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	08/14/17
Test Time	08:41 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	04h:34m
40.00 Bc	04h:47m
50.00 Bc	04h:56m
70.00 Bc	05h:18m
100.00 Bc	05h:27m
00h:30m	10.47
01h:00m	11.43
01h:30m	11.35



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\CDER4HUV\GJ2409282-1 TERRA ENERGY BULK PRODUCTION LEAD[1].tdms

Comments CS2138, TRAILER MT613, 420 SKS - CS2140, TRAILER 1972, 150 SKS

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2409283/1	Rig Name	H&P 271	Date	13/AUG/2017
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	TR 24-23-597

### Well Information

Casing/Liner Size	4.5 in	Depth MD	10678 ft	BHST	123°C / 253°F
Hole Size	8.75 in	Depth TVD	10162 ft	BHCT	89°C / 192°F
Pressure	6410 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>	<u>Cement Properties</u>	
						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 2409283/1

## Thickening Time - ON-OFF-ON

15/AUG/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)
192	6410	51	4:04	4:53	5:24	17	61	15	32

Total sks 890 Deflected from 17Bc---- > 32Bc---- > 23Bc

Composite:

CS2148 TR# MT199 370 SKS

CS2151, Trailer MT201, 370 sks

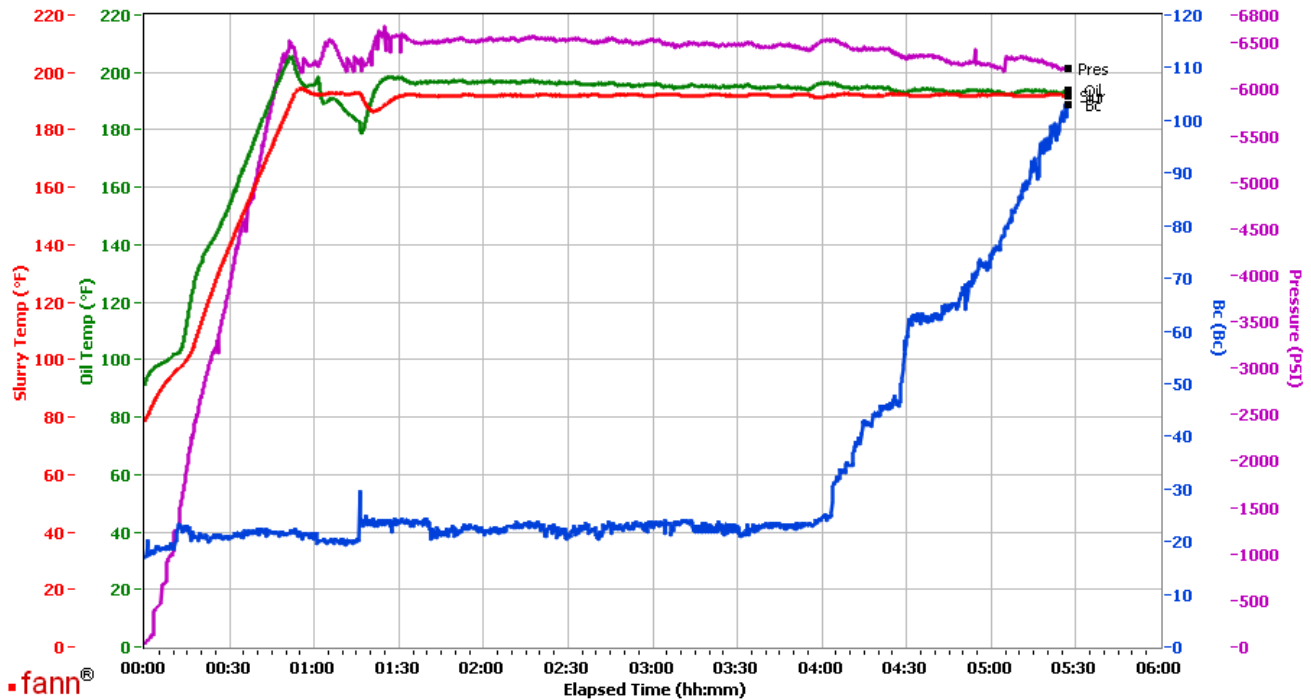
CS2152, Trailer 1972, 150 sks

## Grand Junction, Colorado

Fields	Values
Project Name	GJ2409283-1 TERRA PRODUCTION BULK TA
Test ID	34781010
Request ID	GJ2409283-1
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	TR 24-23-597
Rig	H&P 271
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	HOLCIM TYPE I/II
Cement Weight	Standard
Test Date	08/15/17
Test Time	03:52 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	04h:04m
40.00 Bc	04h:14m
50.00 Bc	04h:28m
70.00 Bc	04h:53m
100.00 Bc	05h:24m
00h:30m	20.85
01h:00m	21.79
01h:30m	23.25



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\4TIJ89YN\GJ2409283-1 TERRA PRODUCTION BULK TAIL[1].tdms

Comments COMPOSITE: CS2152 TR#1972 150 sks, CS2151 mt201 370 sks, CS2148 MT 199 370 SKS

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