

# HALLIBURTON

iCem<sup>®</sup> Service

## **TEP ROCKY MOUNTAIN LLC**

**For: Terra Energy Partners**

Date: Friday, March 03, 2017

**Trail Ridge 23-21-597 Production**

API #05-045-233-46-00

Sincerely,

**Grand Junction Cement Engineering**

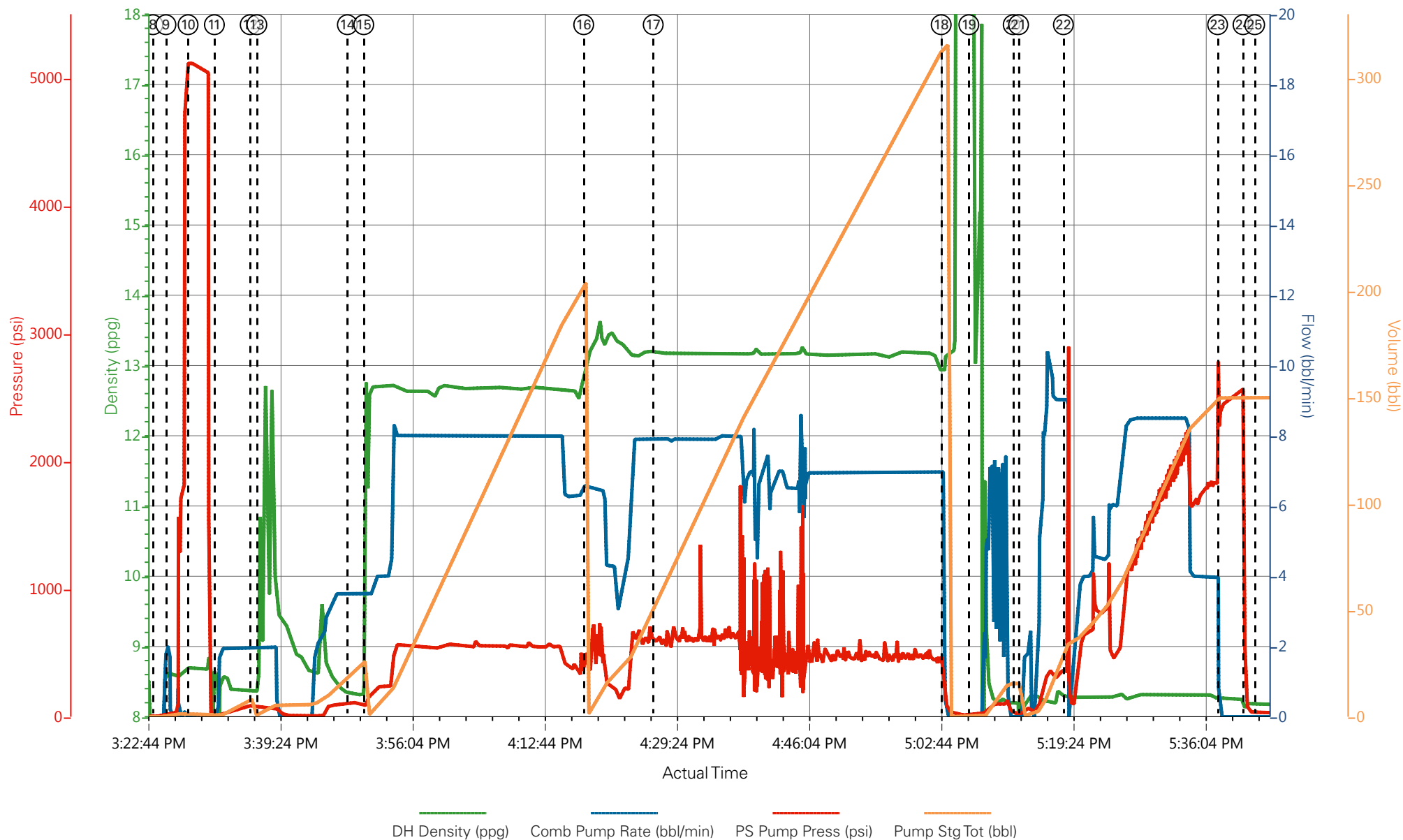
## 1.0 Real-Time Job Summary

## 1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	3/3/2017	04:00:00	USER					REQUESTED ON LOCATION @ 11:00
Event	2	Pre-Convoy Safety Meeting	3/3/2017	07:45:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	3/3/2017	08:00:00	USER					1 HT 400 PUMP TRUCK E1, 1 660 BULK TRUCK, 1 450 SERVICE PICKUP
Event	4	Arrive At Loc	3/3/2017	12:00:00	USER					ARRIVED TO MTW @ 10:00. RIG RUNNING CSG WHEN HES ARRIVED ON LOCATION
Event	5	Assessment Of Location Safety Meeting	3/3/2017	12:15:00	USER					MET WITH COMP REP, AND WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE (PH- 7.5, CHLORIDES- 0, TEMP- 70 F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Spot Equipment	3/3/2017	12:30:00	USER					1 HT 400 PUMP TRUCK E1, 1 660 BULK TRUCK, 1 450 SERVICE PICKUP
Event	7	Pre-Rig Up Safety Meeting	3/3/2017	13:00:00	USER					ALL HES PRESENT
										RIG CIRCULATED @ 540 GPM PSI @ 1300 PRIOR TO JOB.
Event	8	Pre-Job Safety Meeting	3/3/2017	14:30:00	USER					
Event	9	Start Job	3/3/2017	15:23:41	USER					TD 9722', TP 9682', SJ 28.85', SURFACE CSG 9 5/8" 36# J-55 SET @ 2692' PRODUCTION CSG 4 1/2" 11.6# P-110, OH 8 3/4", MUD 9.0 PPG, 45 VISC, 15 YP
Event	10	Prime Lines	3/3/2017	15:25:20	COM5	8.33	2.0	34	2	FRESH WATER
Event	11	Test Lines	3/3/2017	15:28:07	COM5			5130		PRESSURE HELD

Event	12	Pump H2O Spacer	3/3/2017	15:31:26	COM5	8.33	2.0	82	10	FRESH WATER
Event	13	Pump Mud Flush III	3/3/2017	15:35:57	COM5	8.4	3.5	112	20	80 LBS MUDFLUSH III
Event	14	Other	3/3/2017	15:36:47	USER					BOOST HT VALVE ON PASSENGER SIDE STUCK OPEN WHILE TRYING TO BUILD FIRST TUB. SHUTDOWN AND MANUALLY SHUT VALVE
Event	15	Check weight	3/3/2017	15:48:12	COM5					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	16	Pump Lead Cement	3/3/2017	15:50:16	COM5	12.5	8.0	550	200.4	580 SKS NEOCEM CMT 12.5 PPG, 1.94 FT3/SK, 9.58 GAL/SK. USED 45 LBS. OF TUF-FIBER THROUGHOUT LEAD CMT
Event	17	Pump Tail Cement	3/3/2017	16:18:00	COM5	13.0	8.0	650	276.5	750 SKS NEOCEM CMT 13.0 PPG, 2.07 FT3/SK, 9.43 GAL/SK
Event	18	Check weight	3/3/2017	16:26:46	COM5					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	19	Shutdown	3/3/2017	17:03:05	USER					END OF CMT
Event	20	Clean Pump And Lines	3/3/2017	17:06:34	USER					WASHED UP INTO 3 SIDED TANK
Event	21	Drop Top Plug	3/3/2017	17:12:10	USER					VERIFIED BY FLAG INDICATOR
Event	22	Pump Displacement	3/3/2017	17:12:50	COM5	8.4	8.5	1950	139.6	1 GAL MMCR IN FIRST 10 BBLS, 3 LBS BE-6 IN FIRST 30 BBLS, ONE 50 LB. BAG KCL THROUGHOUT DISPLACEMENT
Event	23	Other	3/3/2017	17:18:30	USER					WHILE ON DISPLACEMENT LOTORQ 2" VALVE ON FLOOR SHUT AND WE HIT KICKOUTS
Event	24	Bump Plug	3/3/2017	17:37:57	COM5	8.4	4.0	1800	149.6	PLUG BUMPED. SLOWED 10 BBL BEFORE TO 4 BPM PSI @ 2140
Event	25	Check Floats	3/3/2017	17:41:09	USER			2450		1.5 BBL FLOWBACK
Event	26	End Job	3/3/2017	17:42:37	USER					PIPE WAS RECIPICATED, RETURNS STARTED @ 150 BBLS AWAY ON LEAD, AND CONTINUED THROUGHOUT JOB. 700 CFM MAINTAINED THROUGH PARASITE FOR JOB
Event	27	Post-Job Safety Meeting (Pre Rig-Down)	3/3/2017	18:00:00	USER					ALL HES PRESENT
Event	28	Pre-Convoy Safety Meeting	3/3/2017	19:45:00	USER					ALL HES PRESENT
Event	29	Crew Leave Location	3/3/2017	20:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, DUSTIN HYDE AND CREW

# TERRA, CHEVRON TR 23-21-597, 4 1/2" PRODUCTION



- |                             |   |                  |                      |                    |                    |                        |          |
|-----------------------------|---|------------------|----------------------|--------------------|--------------------|------------------------|----------|
| ① Pre-Rig Up Safety Meeting | ④ Crew Leave Yard                       | ⑦ Spot Equipment | ⑩ Test Lines         | ⑬ Other            | ⑯ Pump Tail Cement | ⑲ Clean Pump And Lines | 22 Other |
| ② Call Out                  | ⑤ Arrive At Loc                         | ⑧ Start Job      | ⑪ Pump H2O Spacer    | ⑭ Check weight     | ⑰ Check weight     | 20 Drop Top Plug       | 23 Bu    |
| ③ Pre-Convoy Safety Meeting | ⑥ Assessment Of Location Safety Meeting | ⑨ Prime Lines    | ⑫ Pump Mud Flush III | ⑮ Pump Lead Cement | ⑱ Shutdown         | 21 Pump Displacement   | 24 CH    |

▼ HALLIBURTON | iCem® Service

Created: 2017-03-03 13:31:19, Version: 4.2.393

Edit

Customer : TEP ROCKY MOUNTAIN LLC

Job Date : 3/3/2017

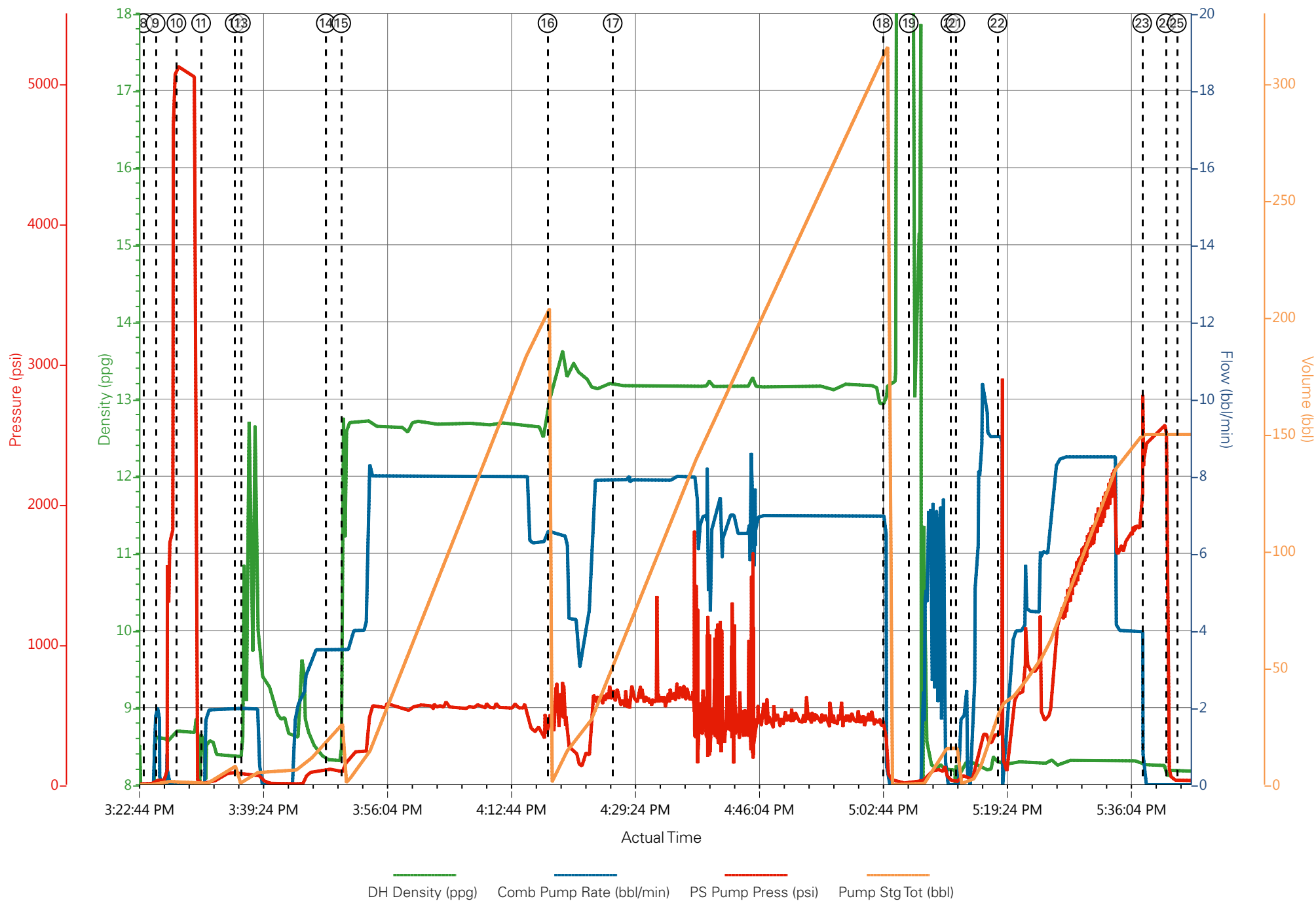
Well : CHEVRON TR 23-21-597

Representative : BEAUDE OAKS

Sales Order # : 903875955

ELITE 1 : HYDE / BRENNECKE

# TERRA, CHEVRON TR 23-21-597, 4 1/2" PRODUCTION



## Job Information

Request/Slurry	2370665/1	Rig Name	H&P 271	Date	27/FEB/2017
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	TR 23-21-597

## Well Information

Casing/Liner Size	4.5 in	Depth MD	9728 ft	BHST	116°C / 240°F
Hole Size	8.75 in	Depth TVD	9406 ft	BHCT	77°C / 170°F
Pressure	5880 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		
		NeoCem™ Cement				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 2370665/1****Thickening Time - ON-OFF-ON, Request Test ID:34358041****28/FEB/2017**

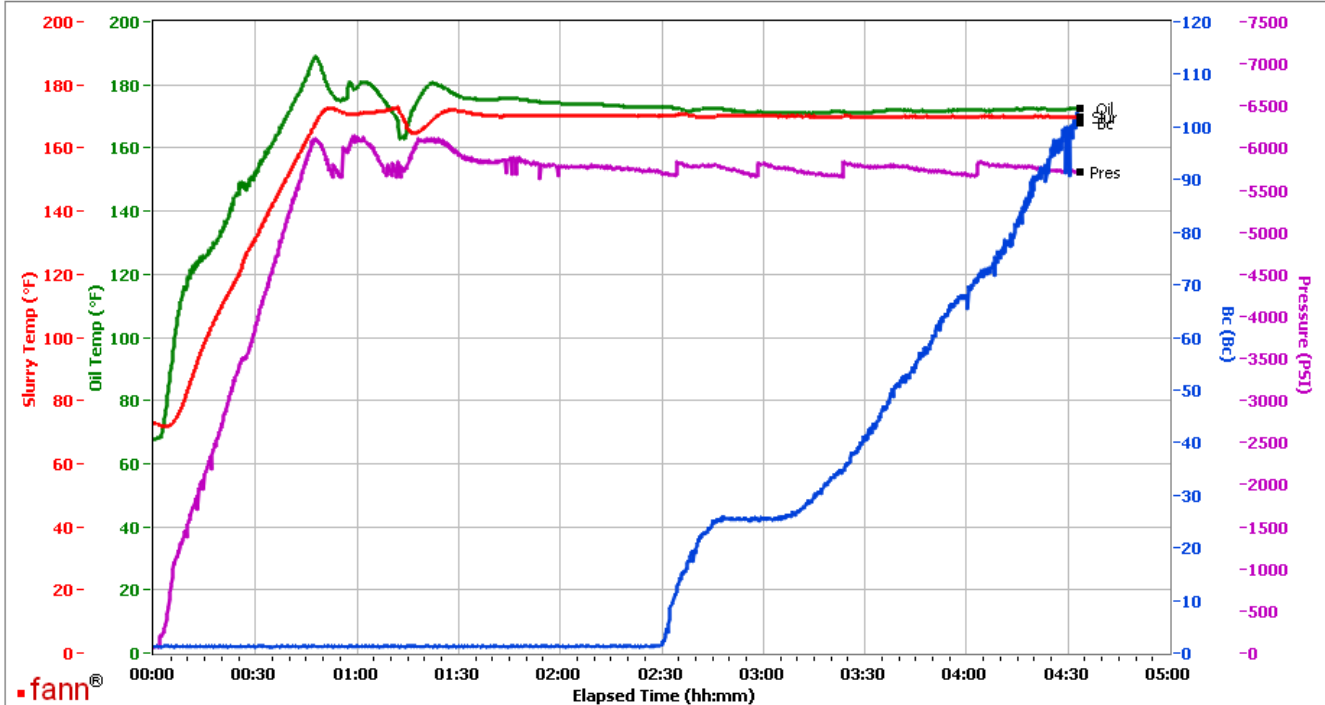
Test Temp (°F)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
170	5880	47	3:15	3:38	4:01	4:30	2	57	15	2

**Grand Junction Colorado**

Fields	Values
Project Name	GJ2370665-1 TERRA BULK LEAD
Test ID	GJ2370665-1 TERRA BULK LEAD
Request ID	
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	TR 23-21-597
Rig	
Casing/Liner Size	

Fields	Values
Job Type	
Cement Type	
Cement Weight	Standard
Test Date	02/27/17
Test Time	04:47 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:15m
40.00 Bc	03h:28m
50.00 Bc	03h:38m
70.00 Bc	04h:01m
100.00 Bc	04h:30m
00h:30m	1.21
01h:00m	1.24
01h:30m	1.22



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\K9YZ0P2R\GJ2370665-1 TERRA BULK LEAD[1].tdms

Comments CS0383 TR# 812 400 SKS

Total Sacks= 580

CS0383 TR#0812 400 SKS

no deflection was observed when the stirring was resumed.

**These are draft results and have not been approved for final use.**

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## Operation Test Results Request ID 2370665/2

Thickening Time - ON-OFF-ON, Request Test ID:34360916

01/MAR/2017

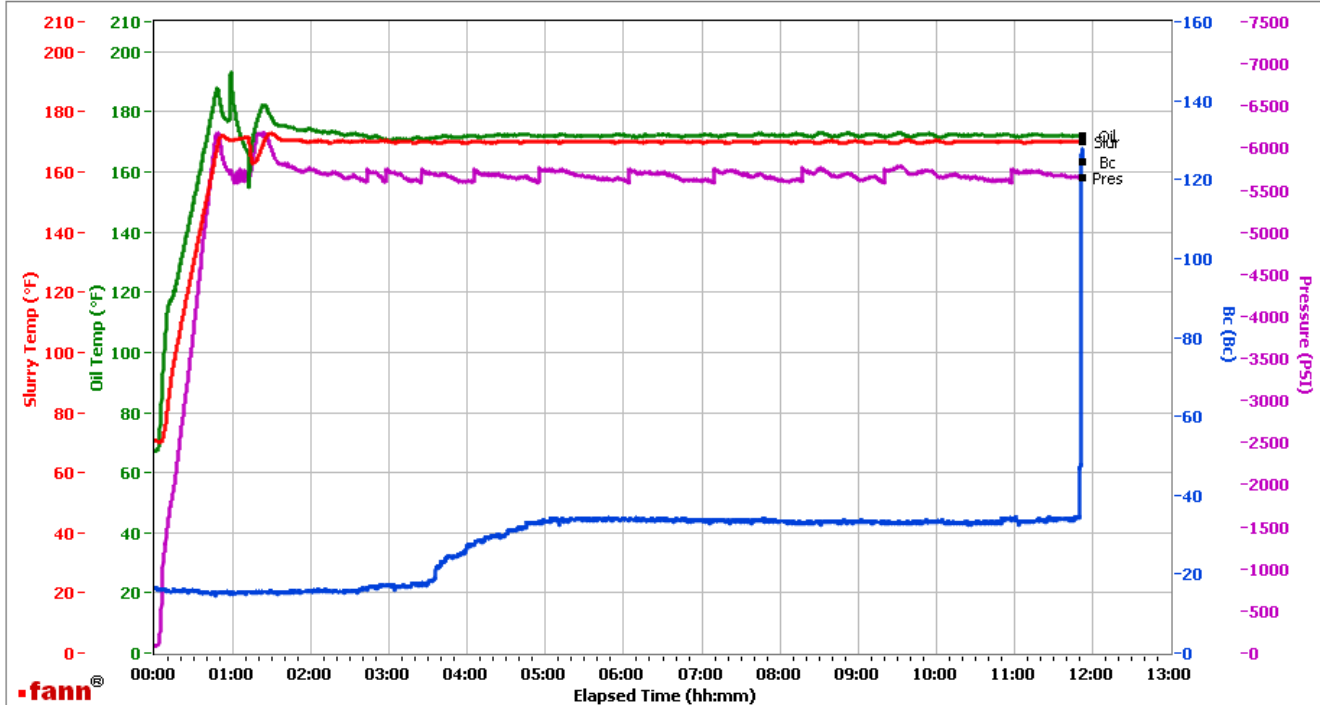
Test Temp (°F)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
170	5880	47	4:19	11:51	11:51	11:51	16	57	15	15

### Grand Junction Colorado

Fields	Values
Project Name	GJ2370665-2
Test ID	GJ2370665-2 TERRA BULK LEAD
Request ID	
Tested by	DEBA
Customer	TRERRA ENERGY PARTNERS
Well No	TR 23-21-597
Rig	
Casing/Liner Size	

Fields	Values
Job Type	
Cement Type	
Cement Weight	Standard
Test Date	02/28/17
Test Time	07:26 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	04h:19m
40.00 Bc	11h:50m
50.00 Bc	11h:51m
70.00 Bc	11h:51m
100.00 Bc	11h:51m
00h:30m	15.90
01h:00m	15.14
01h:30m	15.55



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Comments CS0395 TR# 4064 REAR 180 SKS

Total Sacks= 580  
CS0395 TR# 4964 Rear 180 SKS

### Additional Comments

total sks=580

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2370666/1	Rig Name	H&P 271	Date	27/FEB/2017
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	TR 23-21-597

### Well Information

Casing/Liner Size	4.5 in	Depth MD	9728 ft	BHST	116°C / 240°F
Hole Size	8.75 in	Depth TVD	9406 ft	BHCT	77°C / 170°F
Pressure	5880 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

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		NeoCem™ Cement				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		

### Operation Test Results Request ID 2370666/1

#### Thickening Time - ON-OFF-ON, Request Test ID:34358043 28/FEB/2017

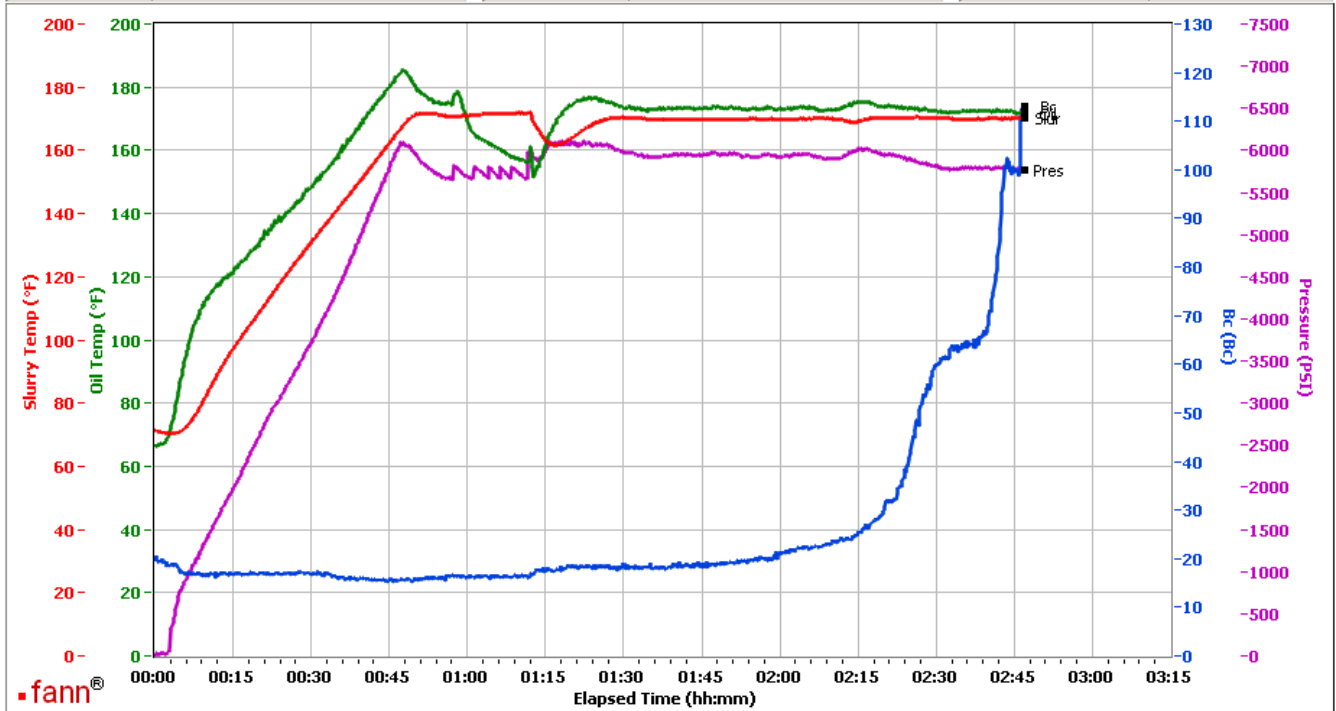
Test Temp (°F)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
170	5880	47	2:20	2:26	2:40	2:43	19	57	15	16

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## Grand Junction, Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2370666-1	Job Type		30.00 Bc	02h:20m
Test ID	GJ2370666-1 TERRA BULK TAIL	Cement Type		40.00 Bc	02h:24m
Request ID		Cement Weight	Standard	50.00 Bc	02h:26m
Tested by	DEBA	Test Date	02/28/17	70.00 Bc	02h:40m
Customer	TERRA ENERGY PARTNERS	Test Time	12:51 AM	100.00 Bc	02h:43m
Well No	TR 23-21-597	Temp. Units	degF	00h:30m	16.97
Rig		Pressure Units	PSI	01h:00m	16.33
Casing/Liner Size		SW Version	2.1.0.507	01h:30m	18.89



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\CDER4HUV\GJ2370666-1 TERRA BULK TAIL[1].tdms

Comments CS0387 TR#2878 325 sks

Total sks = 750

CS0387 TR# 2878 325 SKS

no deflection was observed when the stirring was resumed.

**These are draft results and have not been approved for final use.**

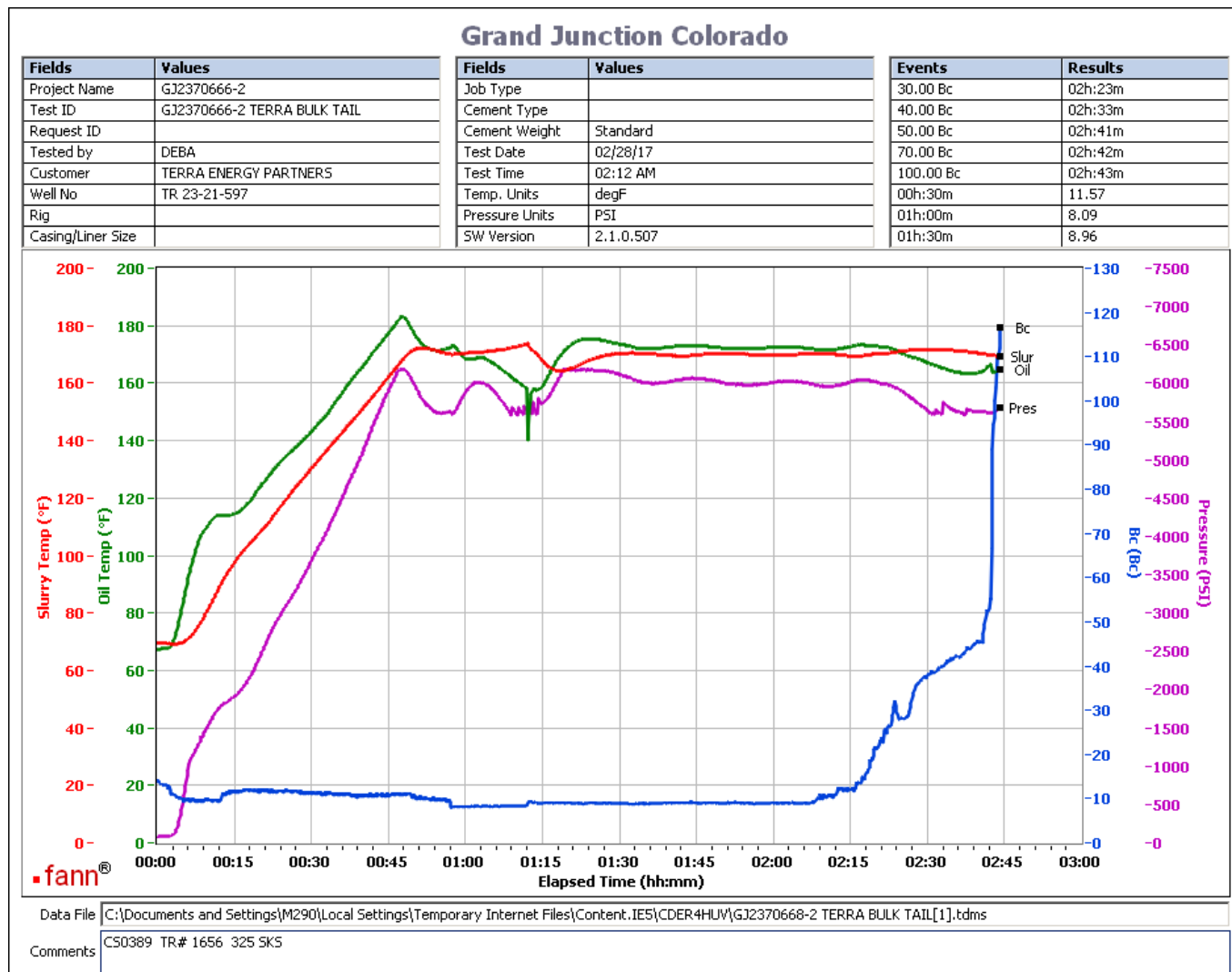
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# Operation Test Results Request ID 2370666/2

Thickening Time - ON-OFF-ON, Request Test ID:34358724

28/FEB/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)
170	5880	47	2:23	2:41	2:42	2:43	14	57	15	14



Total sks = 750

CS0389 TR#1656 325 SKS

no deflection was observed when the stirring was resumed according to the graph.

These are draft results and have not been approved for final use.

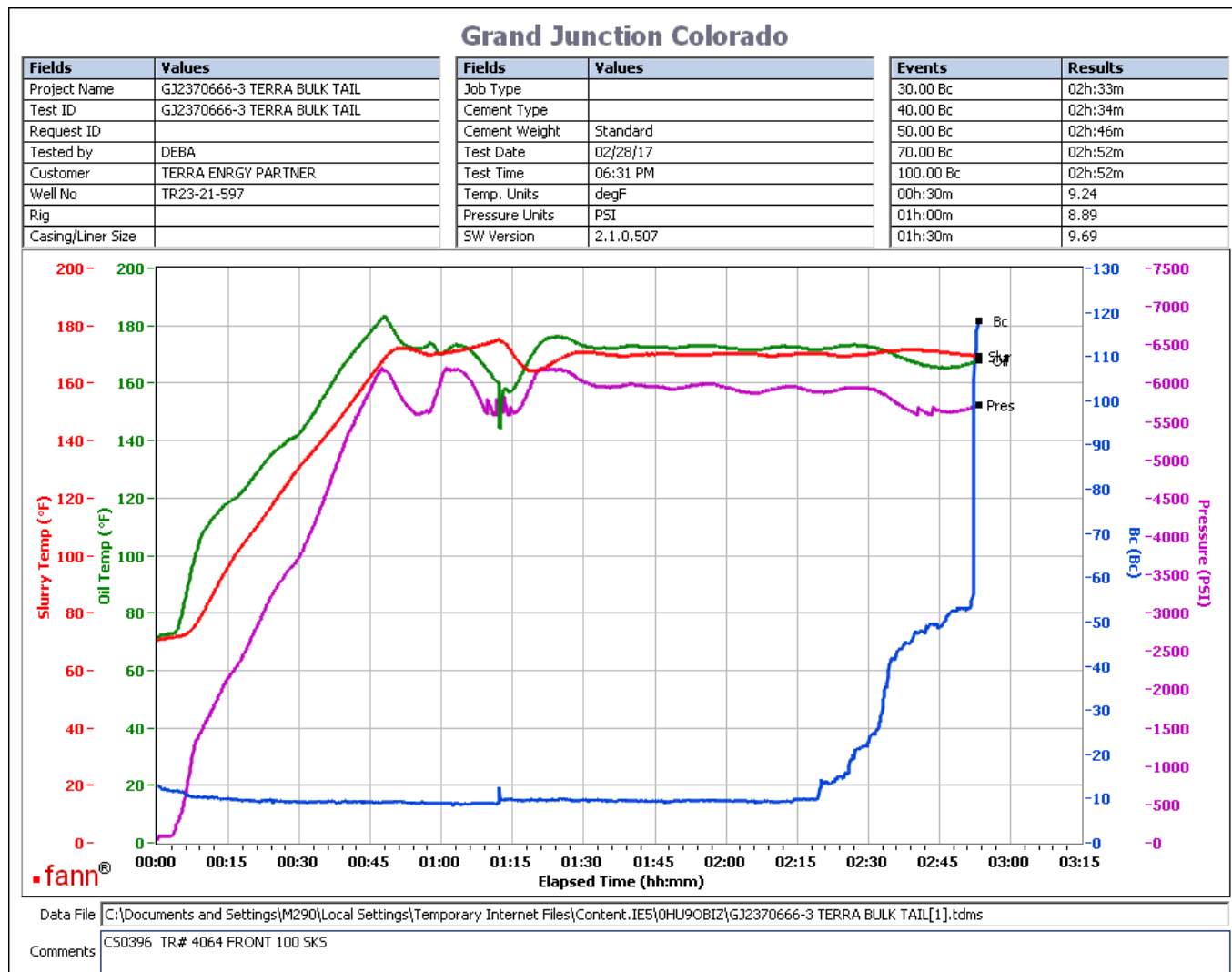
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## Operation Test Results Request ID 2370666/3

Thickening Time - ON-OFF-ON, Request Test ID:34360899

28/FEB/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)
170	5880	47	2:33	2:46	2:52	2:52	13	57	15	11



Total sks = 750  
 CS0396 TR# 4064 Front 100 SKS  
 deflected from 9Bc to 11 Bc when the stirring was resumed.

## Additional Comments

Total sks = 750

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