

# HALLIBURTON

iCem<sup>®</sup> Service

## **TEP ROCKY MOUNTAIN LLC**

**For: Terra**

Date: Friday, April 14, 2017

**TR 43-27-597 Production**

API # 05-045-23330-00

Sincerely,

**Grand Junction Cement Engineering**

## 1.0 Real-Time Job Summary

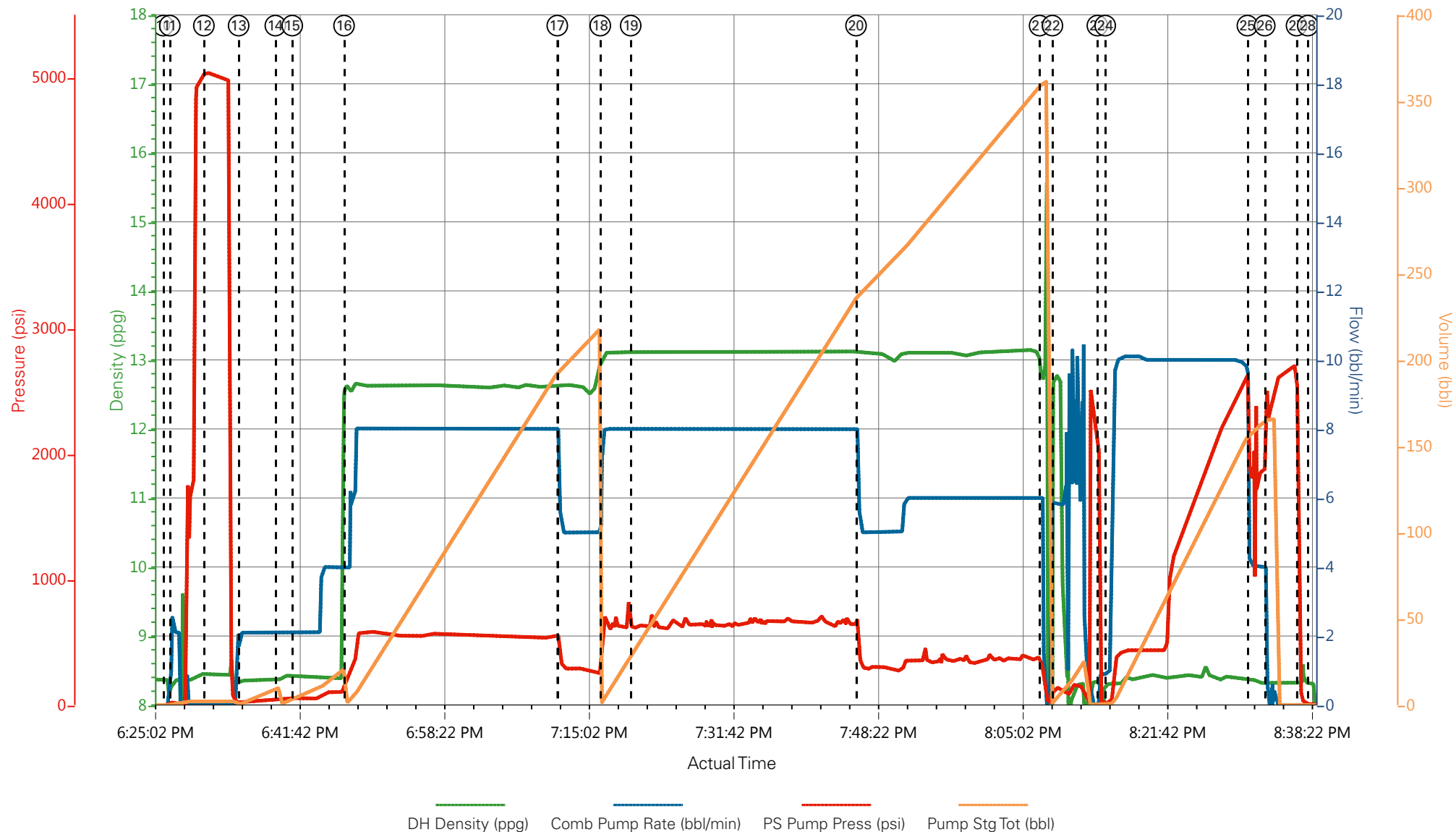
## 1.1 Job Event Log

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	4/14/2017	06:00:00	USER					REQUESTED ON LOCATION @ 12:00
Event	2	Pre-Convoy Safety Meeting	4/14/2017	08:45:00	USER					ALL HES EMPLOYEES PRESENT
Event	3	Crew Leave Yard	4/14/2017	09:00:00	USER					1 HT 400 PUMP TRUCK E4, 1 660 BULK TRUCK, 1 450 SERVICE PICKUP
Event	4	Arrive At Loc	4/14/2017	12:00:00	USER					RIG RUNNING CSG UPON HES ARRIVAL
Event	5	Assessment Of Location Safety Meeting	4/14/2017	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- 74 F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Spot Equipment	4/14/2017	12:45:00	USER					1 HT 400 PUMP TRUCK E4, 1 660 BULK TRUCK, 1 450 SERVICE PICKUP
Event	7	Pre-Rig Up Safety Meeting	4/14/2017	13:15:00	USER					ALL HES EMPLOYEES PRESENT
Event	8	Rig-up Lines	4/14/2017	13:30:00	USER					HES RIGGED UP EQUIPMENT WITHOUT ENTERING RED ZONE.
Event	9	Pre-Job Safety Meeting	4/14/2017	18:20:00	USER					ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG CIRCULATED FOR 2.5 HR @ 450 GPM PRIOR TO JOB PRESSURE @ 474 PSI. 1100CFM ON CASING AND 1900CFM ON PARASIGHT. MUD 8.7# VISC 55.
Event	10	Start Job	4/14/2017	18:26:20	USER					TD 10248', TP 10238', SJ 26.75', SURFACE CSG 9 5/8" 36# J-55 SET @ 3062' PRODUCTION CSG 4 1/2" 11.6# P-110, OH 8 3/4", MUD 9.1 PPG

Event	11	Prime Lines	4/14/2017	18:27:05	USER	8.33	2.0	25	2	8.33 PPG FRESH WATER
Event	12	Test Lines	4/14/2017	18:31:01	COM5	8.33		5045		ALL LINES HELD PRESSURE AT PSI 5045
Event	13	H2O Spacer	4/14/2017	18:35:01	COM5	8.33	2	45	10	FRESH WATER
Event	14	Mud Flush Spacer	4/14/2017	18:39:15	COM5	8.4	4	100	20	20 BBL MUDFLUSH III
Event	15	Check weight	4/14/2017	18:41:12	COM5	12.5				WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	16	Pump Lead Cement	4/14/2017	18:47:10	COM5	12.5	8	590	203.9	590 SKS NEOCEM CMT 12.5 PPG, 1.94 FT3/SK, 9.58 GAL/SK. WITH 4 BOX'S OF TUF-FIBER
Event	17	Slow Rate	4/14/2017	19:11:45	USER					SLOWED TO END LEAD SILO
Event	18	Pump Tail Cement	4/14/2017	19:16:43	COM5	13.0	8.00	685	306	830 SKS NEOCEM CMT 13.0 PPG, 2.07 FT3/SK, 9.43 GAL/SK
Event	19	Check weight	4/14/2017	19:20:13	COM5	13.0				WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	20	Slow Rate	4/14/2017	19:46:11	USER					SLOWED TO END TAIL SILO
Event	21	Shutdown	4/14/2017	20:07:21	USER					END OF CEMENT
Event	22	Clean Lines	4/14/2017	20:08:49	COM5					CLEAN PUMPS AND LINES TO EARTH PIT
Event	23	Drop Latch Down Plug	4/14/2017	20:14:00	USER					PLUG LAUNCH VERIFIED BY CO REP
Event	24	Pump Displacement	4/14/2017	20:14:54	COM5	8.33	10	2640	148.3	1 GAL MMCR IN FIRST 10 BBLS, 3 LBS BE-6 IN FIRST 30 BBLS, ONE 50 LB. BAG KCL THROUGHOUT DISPLACEMENT
Event	25	Slow Rate	4/14/2017	20:31:18	USER	8.33	4	1800	10	SLOWED TO BUMP PLUG
Event	26	Bump Plug	4/14/2017	20:33:17	COM5	8.33	4	1900	158.3	LANDED PLUG AT 1900 PSI, BROUGHT UP TO 2500 PSI
Event	27	Check Floats	4/14/2017	20:36:57	USER			2710		FLOATS HELD, 1.5 BBL BACK TO TRUCK
Event	28	End Job	4/14/2017	20:38:15	USER					LOST RETURNS AFTER PARASIGHT AIR WAS SHUT OFF AT 280BBLS OF TAIL GONE. GAINED RETURNS AT 130BBLS AWAY ON DISPLACEMENT.
Event	29	Post-Job Safety Meeting (Pre Rig-Down)	4/14/2017	20:45:00	USER					ALL HES EMPLOYEES PRESENT
Event	30	Rig Down Lines	4/14/2017	20:55:00	USER					ALL HES EMPLOYEES PRESENT

Event	31	Pre-Convoy Safety Meeting	4/14/2017	22:45:00	USER	ALL HES EMPLOYEES PRESENT
Event	32	Crew Leave Location	4/14/2017	23:00:00	USER	THANK YOU FOR CHOOSING HALLIBURTON CEMENT, SHAWN BLOSSOM AND CREW

# TERRA, CHEVRON TR 43-27-597, 4 1/2" PRODUCTION



- |   |                             |                    |                    |                         |   |        |
|---|-----------------------------|--------------------|--------------------|-------------------------|---|--------|
| ① Call Out                              | ⑥ Spot Equipment            | ⑪ Prime Lines      | ⑯ Pump Lead Cement | 21 Shutdown             | 26 Bump Plug                              | 31 Pre |
| ② Pre-Convoy Safety Meeting             | ⑦ Pre-Rig Up Safety Meeting | ⑫ Test Lines       | ⑰ Slow Rate        | 22 Clean Lines          | 27 Check Floats                           | 32 Cre |
| ③ Crew Leave Yard                       | ⑧ Rig-up Lines              | ⑬ H2O Spacer       | ⑱ Pump Tail Cement | 23 Drop Latch Down Plug | 28 End Job                                |        |
| ④ Arrive At Loc                         | ⑨ Pre-Job Safety Meeting    | ⑭ Mud Flush Spacer | ⑲ Check weight     | 24 Pump Displacement    | 29 Post-Job Safety Meeting (Pre Rig-Down) |        |
| ⑤ Assessment Of Location Safety Meeting | ⑩ Start Job                 | ⑮ Check weight     | 20 Slow Rate       | 25 Slow Rate            | 30 Rig Down Lines                         |        |

▼ HALLIBURTON | iCem® Service

Created: 2017-04-14 13:54:22, Version: 4.2.393

Edit

Customer: TEP ROCKY MOUNTAIN LLC

Job Date: 4/14/2017

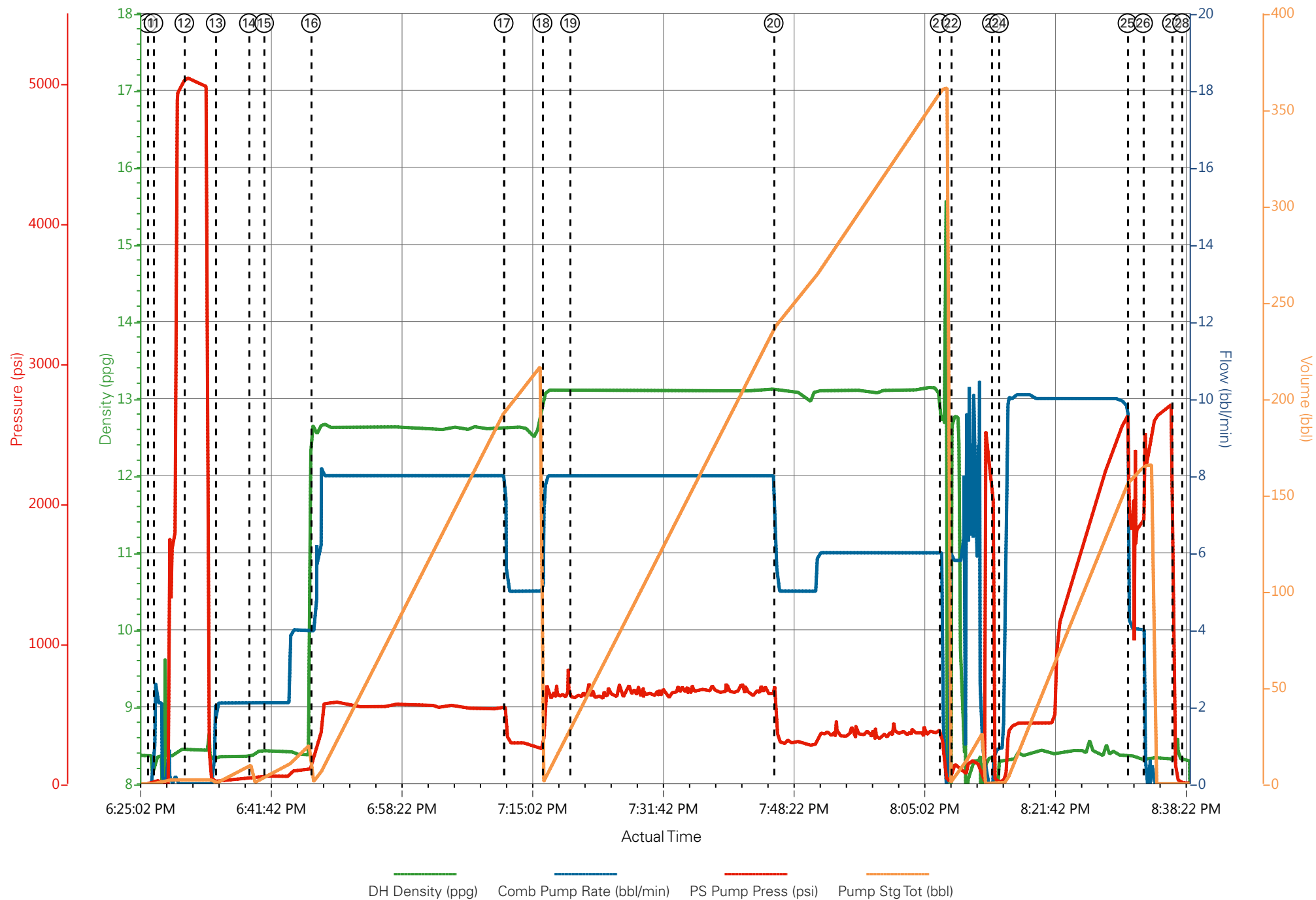
Well: TR 43-27-597

Representative: LEO GONZALES

Sales Order #: 903966188

ELITE 4: A.ANGELO/S.BLOSSOM

# TERRA, CHEVRON TR 43-27-597, 4 1/2" PRODUCTION



### Job Information

<b>Request/Slurry</b>	2379374/1	<b>Rig Name</b>	H&P 318	<b>Date</b>	10/APR/2017
<b>Submitted By</b>	Patrick Ealey	<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>	TR 43-27-597

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10300 ft	<b>BHST</b>	119°C / 246°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9743 ft	<b>BHCT</b>	80°C / 176°F
<b>Pressure</b>	6120 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		

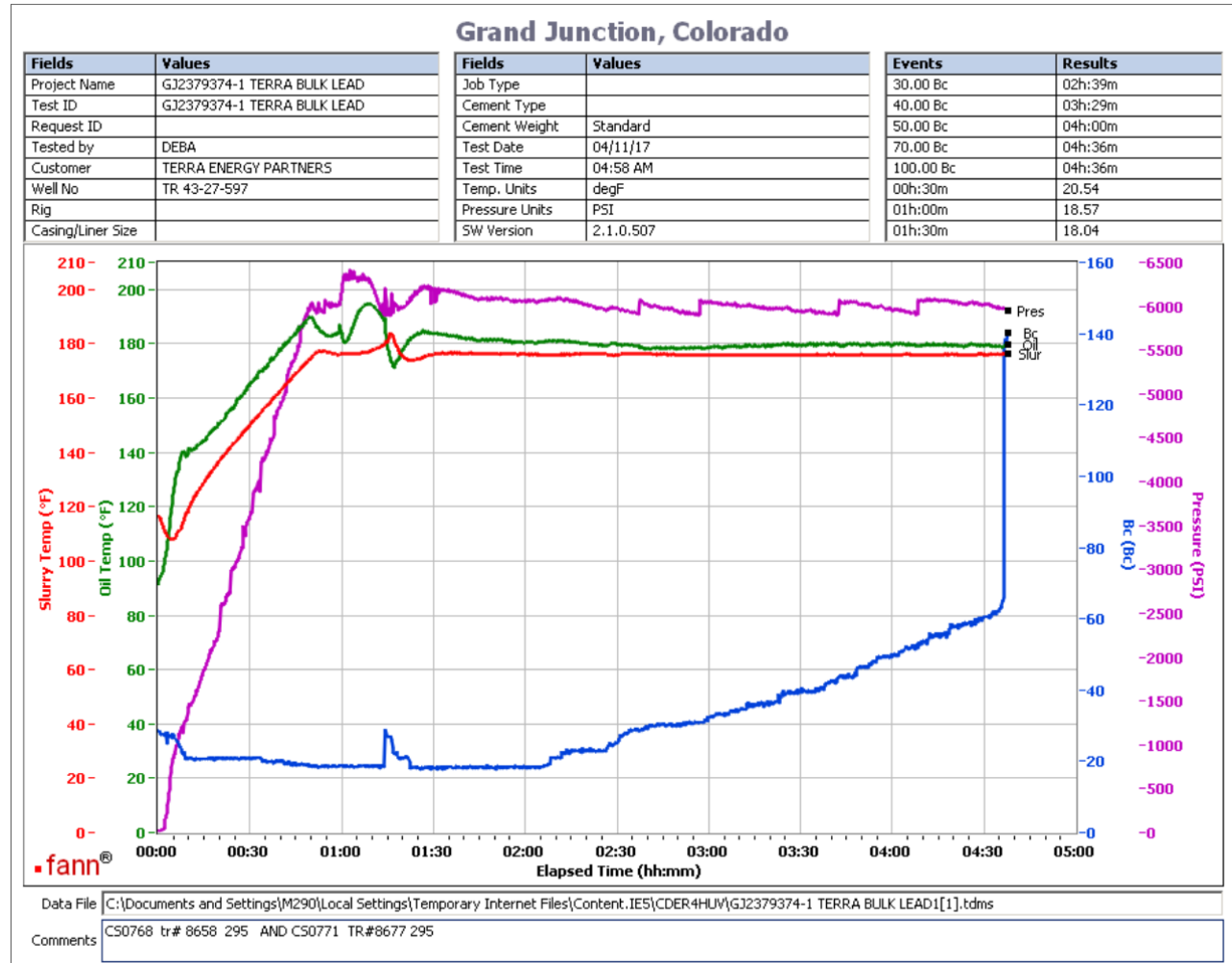
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# **Operation Test Results Request ID 2379374/1**

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

**11/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)	Peak reading (BC)
176	6120	49	2:39	4:00	4:00	4:36	6	59	15	31



Total sks = 590

Composite of:

CS0768 TR#8658 295 SKS

CS0771 TR# 8677 295 SKS

deflected from 20Bc to 31Bc when the stirring was resumed.

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

<b>Request/Slurry</b>	2379376/1	<b>Rig Name</b>	H&P 318	<b>Date</b>	10/APR/2017
<b>Submitted By</b>	Patrick Ealey	<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>	TR 43-27-597

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10300 ft	<b>BHST</b>	119°C / 246°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9743 ft	<b>BHCT</b>	80°C / 176°F
<b>Pressure</b>	6120 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



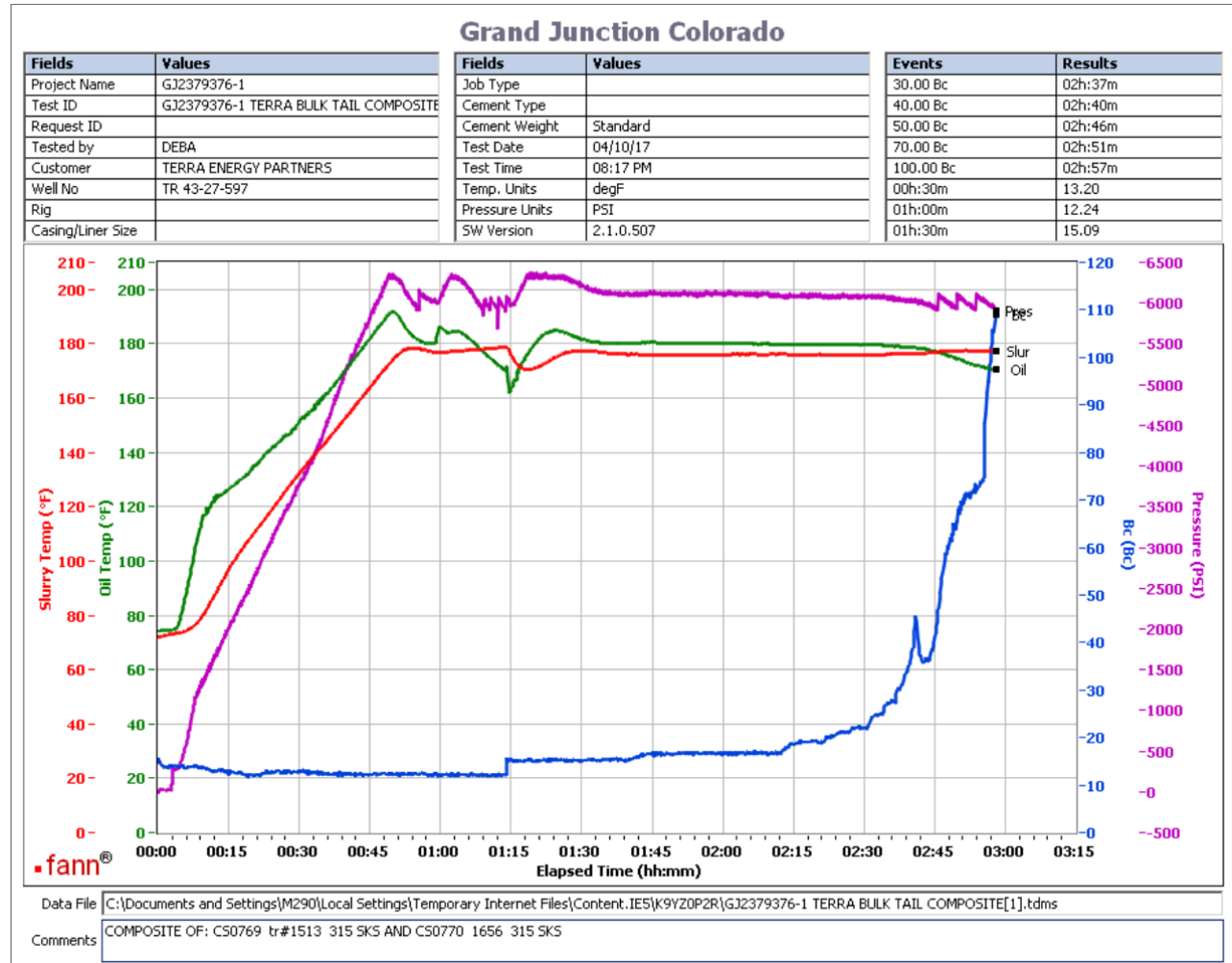
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		NeoCem Tail				Slurry Density	13	lbm/gal
						Slurry Yield	2.065	ft3/sack
						Water Requirement	9.429	gal/sack
						Total Mix Fluid	9.429	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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Thickening Time - ON-OFF-ON

11/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)	Peak reading (BC)
176	6120	49	2:37	2:46	2:51	2:57	14	59	15	15



Total sks = 830  
 CS0769 TR#1513 315 SKS  
 CS0770 TR#1656 315 SKS  
 Composite  
 deflected from 10Bc to 15 Bc

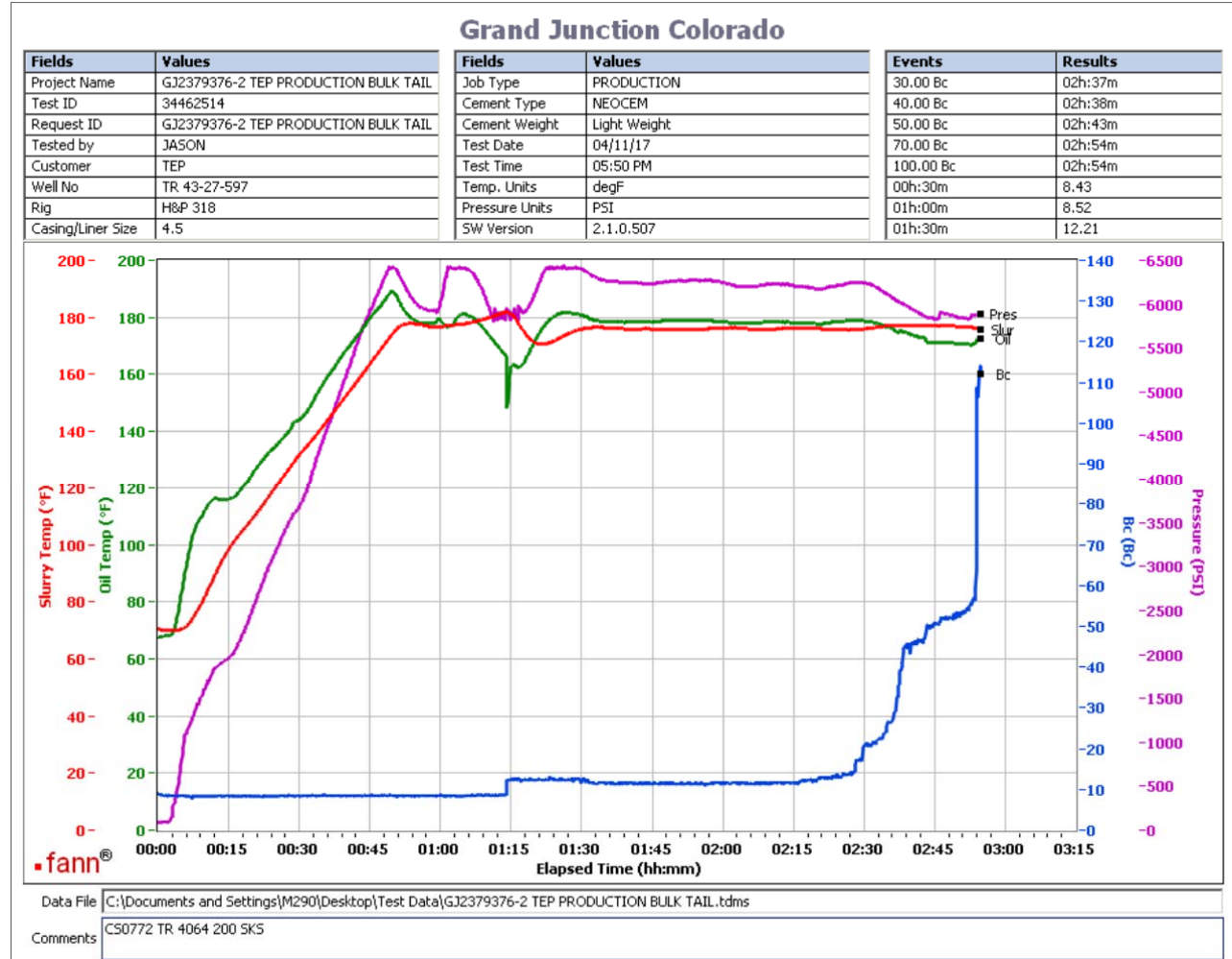
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## Operation Test Results Request ID 2379376/2

### Thickening Time - ON-OFF-ON

11/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)	Peak reading (BC)
176	6120	49	2:37	2:43	2:54	2:54	9	59	15	13



Total sks = 830  
CS0772 TR 4064 200 SKS

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