

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS-EBUS**

**For: Terra**

Date: Saturday, September 02, 2017

**SR 441-12 Production**

API#05-045-23300-00

Sincerely,

**Grand Junction Cement Engineering**

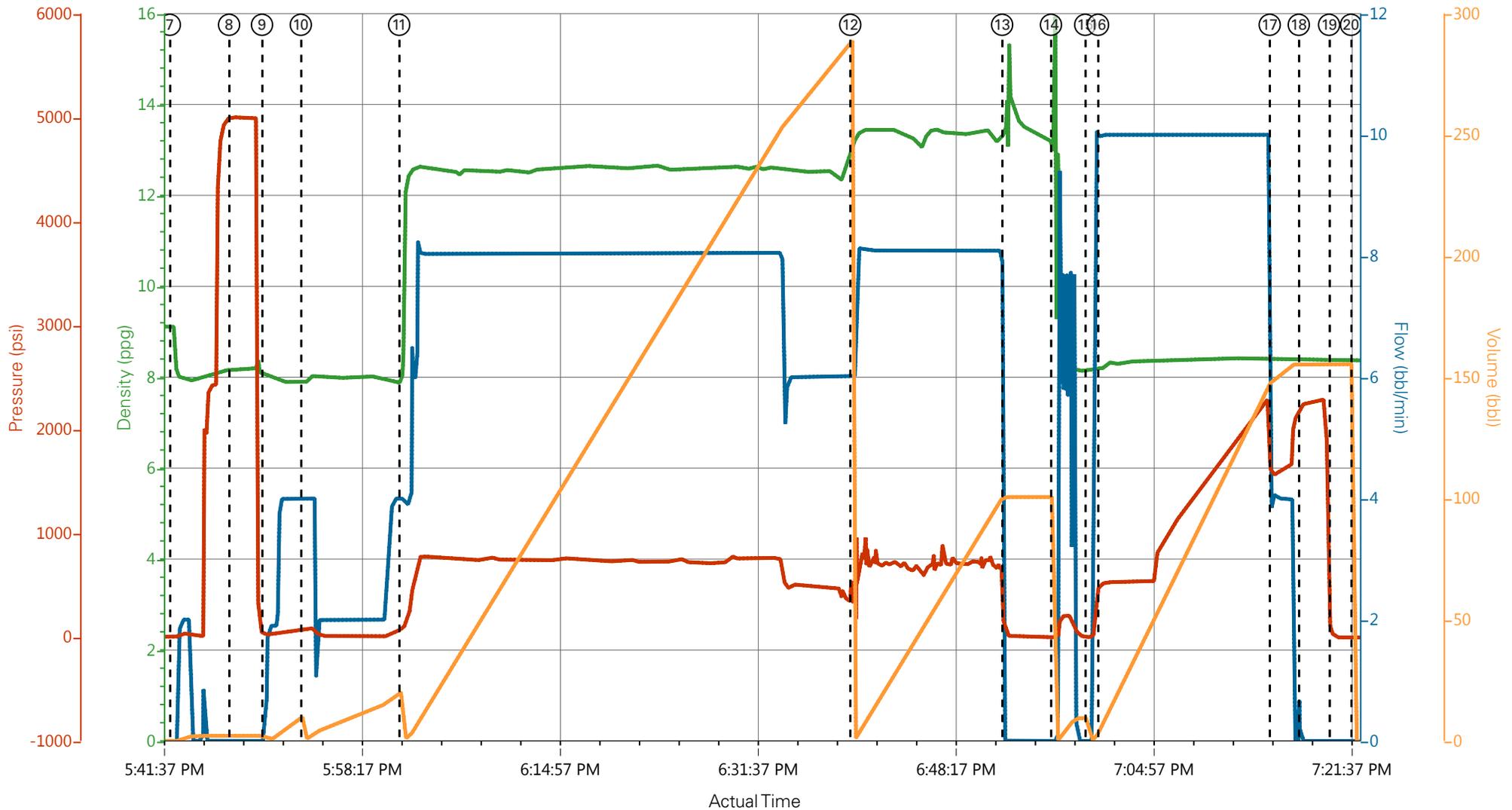
## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	PS Pump Press <i>(psi)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	9/2/2017	06:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	9/2/2017	08:00:00	USER					WITH ALL HES PERSONNEL
Event	3	ARRIVE AT LOCATION	9/2/2017	10:00:00	USER					RIG RUNNING CASING, THEN CIRCULATED FOR 1.5 HOURS
Event	4	Assessment Of Location Safety Meeting	9/2/2017	10:30:00	USER					WITH ALL HES PERSONNEL
Event	5	Pre-Rig Up Safety Meeting	9/2/2017	11:00:00	USER					WITH ALL HES PERSONNEL
Event	6	Pre-Job Safety Meeting	9/2/2017	16:00:00	USER					WITH ALL ON LOCATION PERSONNEL
Event	7	Start Job	9/2/2017	17:42:22	COM5					TP-9640, TD-9650, S.J.-32, HOLE- 8 3/4, MUD#- 10.0, 9 5/8 SURFACE CASING SET AT 1086 32.3#
Event	8	Test Lines	9/2/2017	17:47:22	COM5			5002.00		5002 PSI
Event	9	Pump Spacer 1	9/2/2017	17:50:08	COM5	8.33	4	57	10	FRESH WATER
Event	10	Pump Spacer 2	9/2/2017	17:53:24	COM5	8.4	4	70	20	MUD FLUSH, GOT RETURNS AT 23 BBLS GONE IN MUD FLUSH, THEN MAINTAINED THROUGHOUT JOB
Event	11	Pump Lead Cement	9/2/2017	18:01:41	COM5	12.5	8	750	274.7	795 SKS, 1.94 FT3/SK, 9.6 GAL/SK, USED 75 LBS TUF FIBER
Event	12	Pump Tail Cement	9/2/2017	18:39:40	COM5	13.3	8	710	81.6	265 SKS, 1.73 FT3/SK, 7.81 GAL/SK
Event	13	Shutdown	9/2/2017	18:52:27	USER					TO CLEAN LINES
Event	14	Clean Lines	9/2/2017	18:56:34	COM5					TO PIT
Event	15	Drop Top Plug	9/2/2017	18:59:27	COM5					AWAY
Event	16	Pump Displacement	9/2/2017	19:00:32	COM5	8.4	10.00	2320	149.8	KCL WATER, 1 GAL MMCR, 3 BAGS BE-6

Event	17	Slow Rate	9/2/2017	19:15:00	USER	8.33	4.0	1555.00	139	TO BUMP PLUG
Event	18	Bump Plug	9/2/2017	19:17:26	COM5			1670	149.8	PLUG BUMPED
Event	19	Check Floats	9/2/2017	19:19:59	USER	8.37	0.00	2230	149.8	FLOATS HELD 1.5 BBLs BACK
Event	20	End Job	9/2/2017	19:21:50	COM5					
Event	21	Pre-Rig Down Safety Meeting	9/2/2017	19:25:00	USER					WITH ALL HES PERSONNEL
Event	22	Rig-Down Equipment	9/2/2017	19:30:00	USER					
Event	23	Pre-Convoy Safety Meeting	9/2/2017	20:45:00	USER					WITH ALL HES PERSONNEL
Event	24	Crew Leave Location	9/2/2017	21:00:00	USER					THANK YOU FOR USING HALLIBURTON CEMENT, JAMES LEIST AND CREW

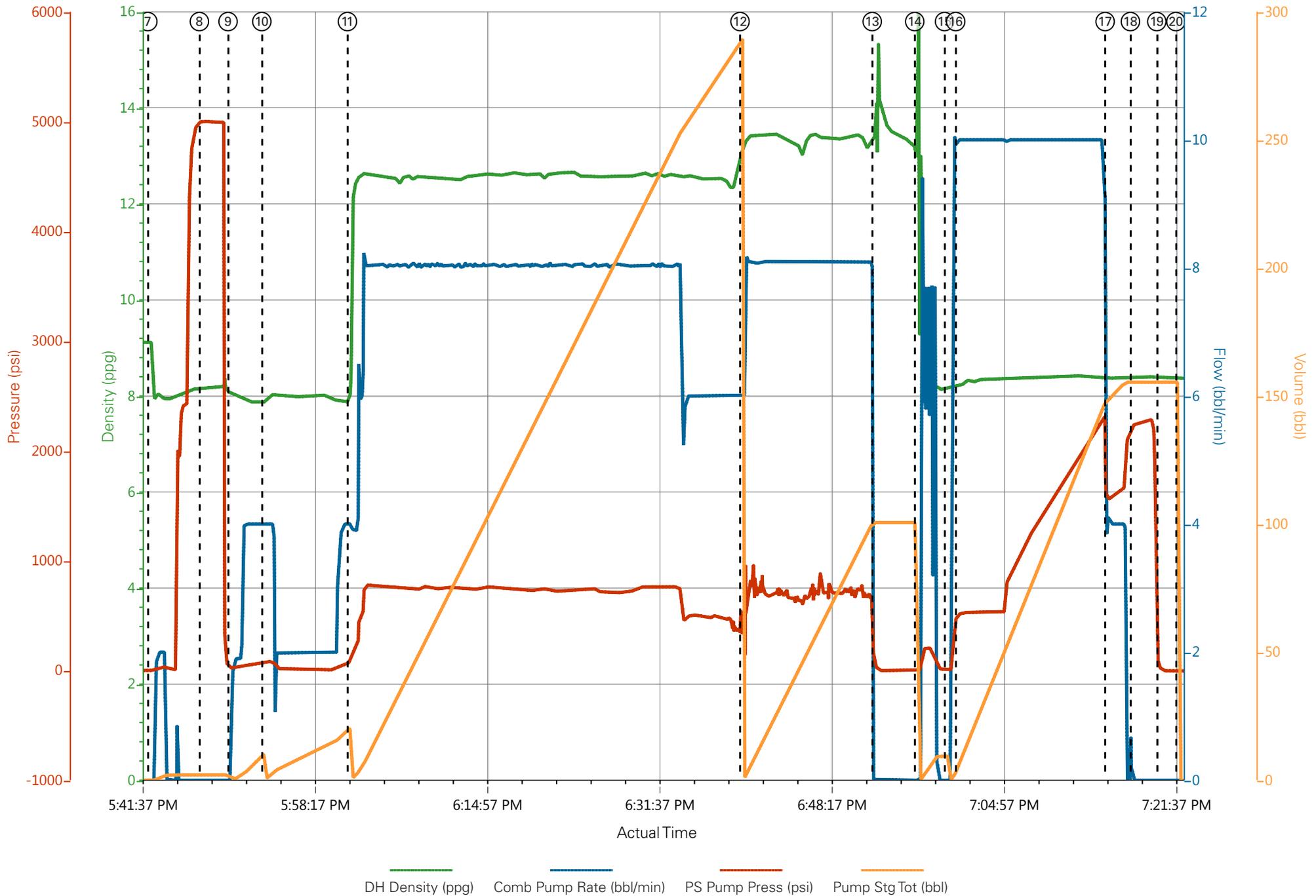
# TEP-YOUBERG SR 441-12- 4.5 PRODUCTION CASING



— DH Density (ppg)   
 — Comb Pump Rate (bbl/min)   
 — PS Pump Press (psi)   
 — Pump Stg Tot (bbl)

- |   |                          |                    |                     |                                |
|---|--------------------------|--------------------|---------------------|--------------------------------|
| ① Call Out                              | ⑥ Pre-Job Safety Meeting | ⑪ Pump Lead Cement | ⑯ Pump Displacement | 21 Pre-Rig Down Safety Meeting |
| ② Pre-Convoy Safety Meeting             | ⑦ Start Job              | ⑫ Pump Tail Cement | ⑰ Slow Rate         | 22 Rig-Down Equipment          |
| ③ ARRIVE AT LOCATION                    | ⑧ Test Lines             | ⑬ Shutdown         | ⑱ Bump Plug         | 23 Pre-Convoy Safety Meeting   |
| ④ Assessment Of Location Safety Meeting | ⑨ Pump Spacer 1          | ⑭ Clean Lines      | ⑲ Check Floats      | 24 Crew Leave Location         |
| ⑤ Pre-Rig Up Safety Meeting             | ⑩ Pump Spacer 2          | ⑮ Drop Top Plug    | ⑳ End Job           |                                |

# TEP-YOUBERG SR 441-12- 4.5 PRODUCTION CASING



— DH Density (ppg)   
 — Comb Pump Rate (bbl/min)   
 — PS Pump Press (psi)   
 — Pump Stg Tot (bbl)

### Job Information

<b>Request/Slurry</b>	2413348/1	<b>Rig Name</b>	H&P 318	<b>Date</b>	28/AUG/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>	SR 441-12

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	9684 ft	<b>BHST</b>	115°C / 239°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9356 ft	<b>BHCT</b>	76°C / 169°F
<b>Pressure</b>	5830 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	<b>Mud Trade Name</b>	<b>Density</b>
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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>	<u>Cement Properties</u>		
						Slurry Density	12.5	lbm/gal
						Slurry Yield	1.941	ft <sup>3</sup> /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 2413348/1

## Thickening Time - ON-OFF-ON

30/AUG/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)
169	5830	47	3:24	4:20	4:58	5:06	13	57	15	17

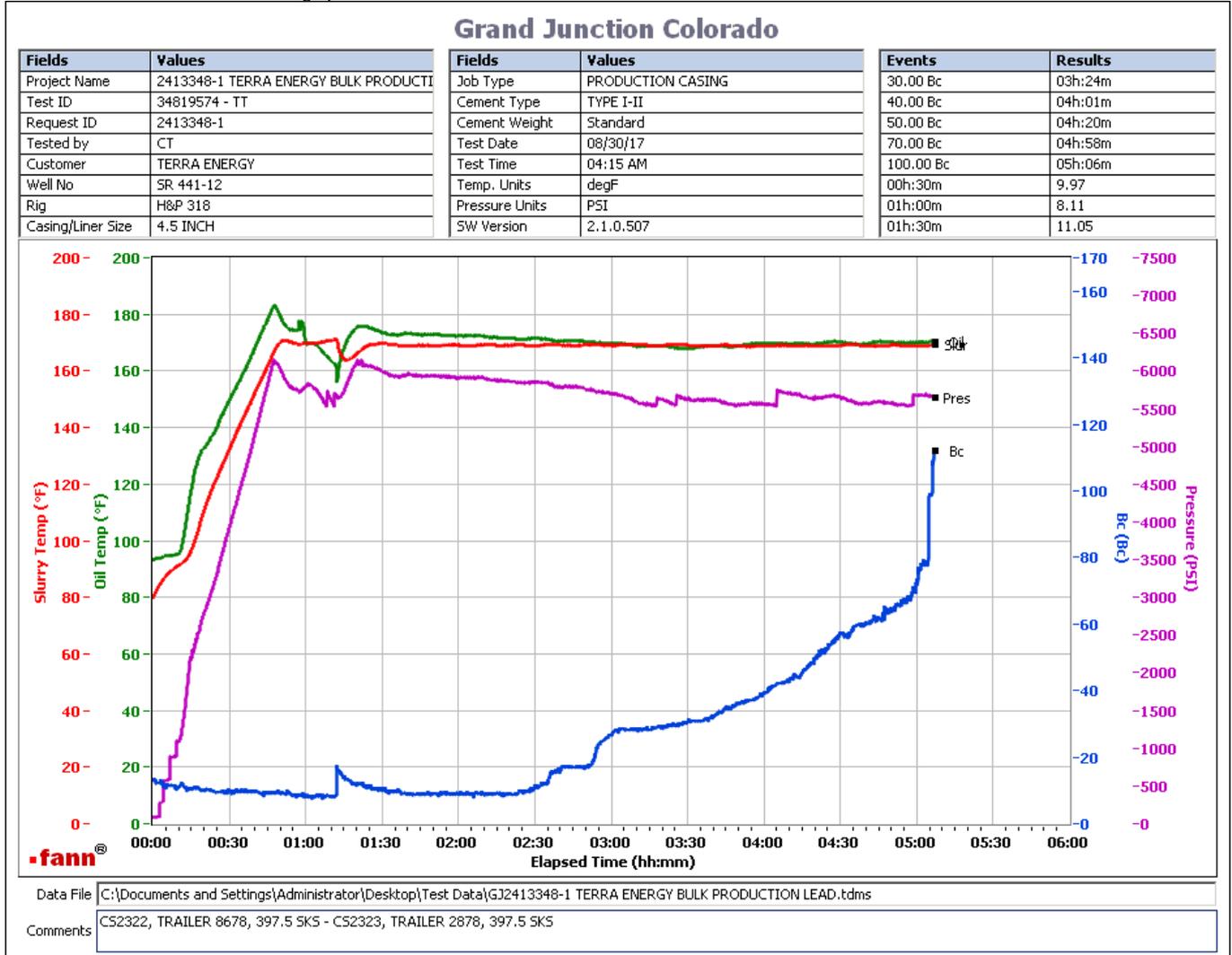
Total sks= 795

Composite:

CS2322, Trailer 2322, 397.5 sks

CS2323, Trailer 2878, 397.5 sks

Deflection of 8-- > 17 was taken from graph.



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### Job Information

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<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>	SR 441-12

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<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9356 ft	<b>BHCT</b>	76°C / 169°F
<b>Pressure</b>	5830 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>		<b>Mud Trade Name</b>		<b>Density</b>	
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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	13.3 lbm/gal
						Slurry Yield	1.733 ft3/sack
						Water Requirement	7.799 gal/sack
						Total Mix Fluid	7.799 gal/sack
						Water Source	Fresh Water
						Water Chloride	

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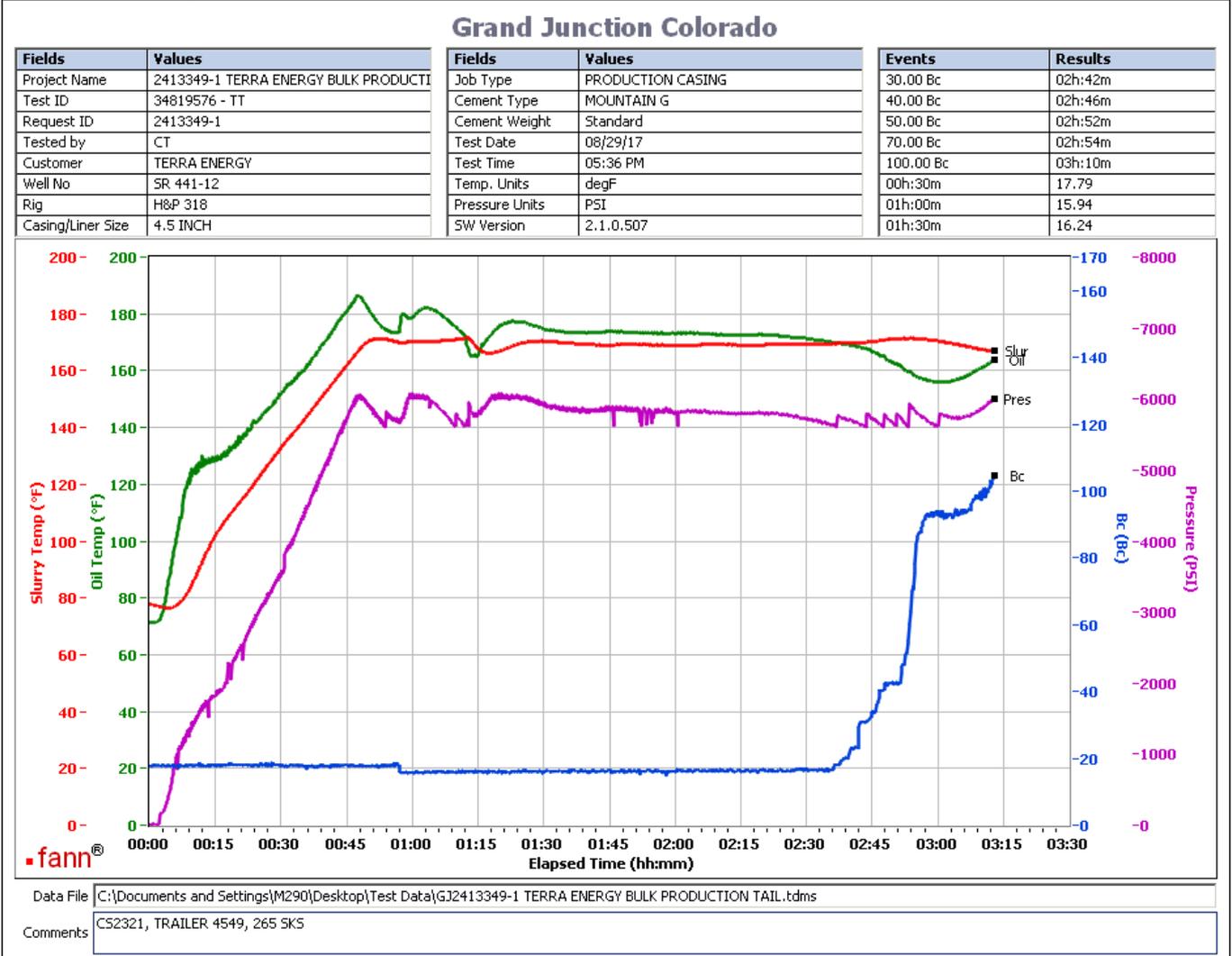
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169	5830	47	2:42	2:52	2:34	3:10	18	57	15	16

265 sks tail  
 CS2321, Trailer 4549, 265 sks  
 No deflection. Heat of hydration started around 2:45



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