

# HALLIBURTON

iCem<sup>®</sup> Service

## **Terra Energy Partners**

**For: Terra**

Job Date: Thursday, August 31, 2017

**GM 313-4**

API #05-045-23504-00

Sincerely,

**Grand Junction Cement Engineering**

## 1.0 Real-Time Job Summary

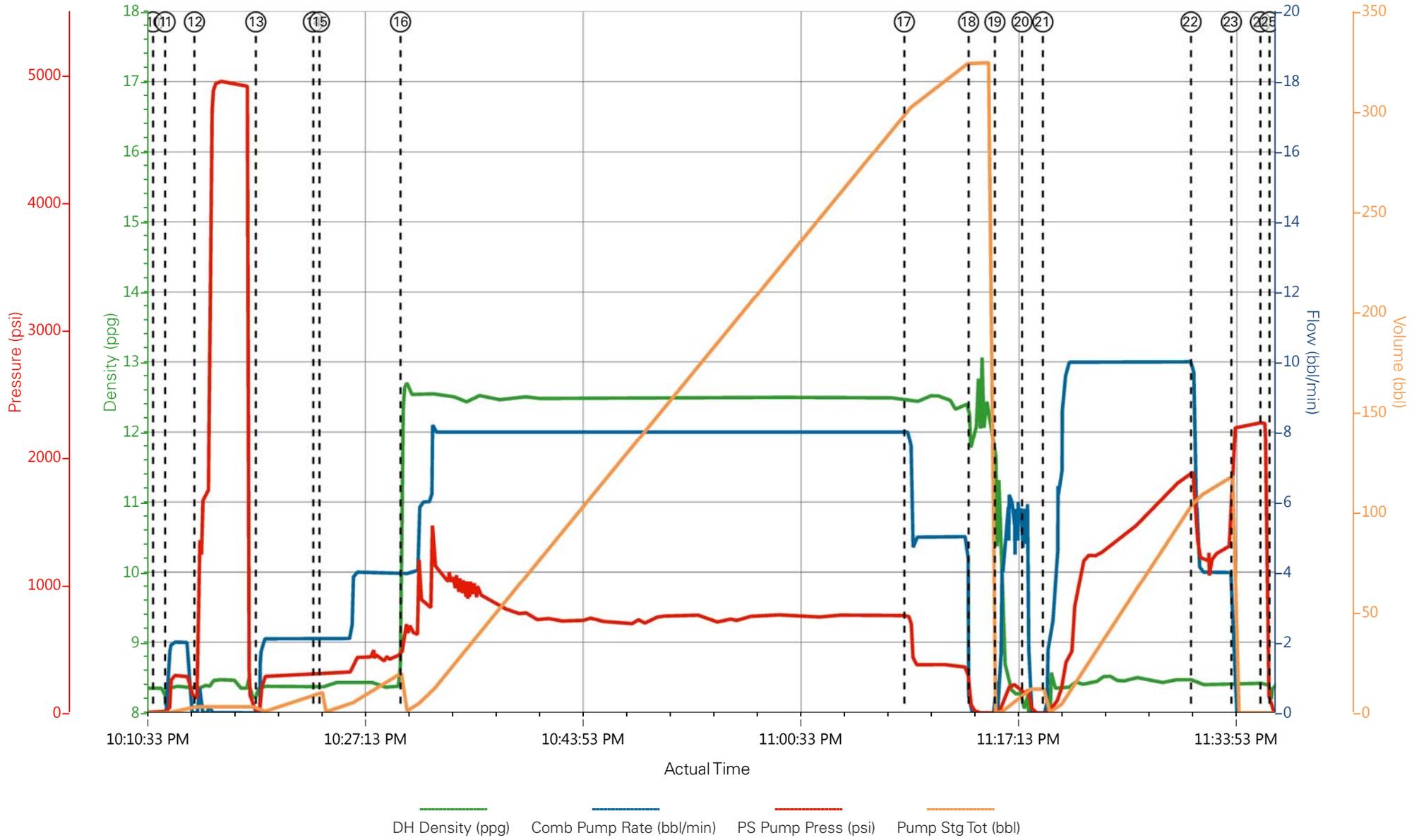
### 1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density <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	8/31/2017	10:00:00	USER					REQUESTED ON LOCATION @ 19:00
Event	2	Pre-Convoy Safety Meeting	8/31/2017	15:45:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	8/31/2017	16:00:00	USER					1 HT 400 PUMP TRUCK E8, 1 660 BULK TRUCKS, 1 550 SERVICE PICKUP
Event	4	Arrive At Loc	8/31/2017	17:00:00	USER					ARRIVED 2 HOUR EARLY. RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	8/31/2017	17:15:00	USER					MET WITH COMP REP, AND WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE (PH- 7.0, CHLORIDES- 0, TEMP- 70F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Pre-Rig Up Safety Meeting	8/31/2017	19:00:00	USER					ALL HES PRESENT
Event	7	Spot Equipment	8/31/2017	19:10:00	USER					1 HT 400 PUMP TRUCK E8, 1 660 BULK TRUCKS, 1 550 SERVICE PICKUP
Event	8	Rig-up Lines	8/31/2017	19:20:00	USER					HES RIGGED UP EQUIPMENT WITHOUT ENTERING RED ZONE.

Event	9	Pre-Job Safety Meeting	8/31/2017	21:30:00	USER						ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG CIRCULATED FOR 1 HR @ 11 BPM PRIOR TO JOB, PRESSURE @1430 PSI
Event	10	Start Job	8/31/2017	22:11:15	USER						TD 7288', TP 7276' OF 4 1/2" 11.6# PRODUCTION CSG, SJ 31', OH 8 3/4", MUD 9.6 PPG, SC SET @ 1014' 32.3# H-40.
Event	11	Prime Lines	8/31/2017	22:12:10	USER	8.33	2.0	300	3		FRESH WATER
Event	12	Test Lines	8/31/2017	22:14:25	COM5				4955		ALL LINES HELD PRESSURE AT 4955 PSI
Event	13	H2O Spacer	8/31/2017	22:19:06	COM5	8.33	2.0	300	10		FRESH WATER
Event	14	Check weight	8/31/2017	22:23:30	COM5						WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	15	Mud Flush	8/31/2017	22:23:58	COM5	8.4	4.0	420	20		20 BBL OF MUD FLUSH
Event	16	Pump Tail Cement	8/31/2017	22:30:10	COM5	12.5	8.0	750	304		870 SKS NEOCEM CMT 12.5 PPG, 1.96 FT3/SK, 9.43 GAL/SK WITH TUFF FIBER THROUGH.
Event	17	Slow Rate	8/31/2017	23:08:43	USER						SLOWED TO END CEMENT
Event	18	Shutdown	8/31/2017	23:13:38	COM5						END OF CEMENT
Event	19	Clean Lines	8/31/2017	23:15:38	USER						CLEANED PUMP AND LINES TO CATCH CANS
Event	20	Drop Top Plug	8/31/2017	23:17:43	USER						LAUNCHED 3RD PARTY LATCH DOWN PLUG, VERIFIED BY FLAG INDICATOR AND COMPANY REP

Event	21	Pump Displacement	8/31/2017	23:19:19	COM5	8.4	10.0	1780	102.3	1 GAL MMCR IN FIRST 10 BBLs, 3 BE-6 IN FIRST 30 BBLs, 1 50LB BAG OF KCL THROUGHOUT.
Event	22	Slow Rate	8/31/2017	23:30:38	USER	8.4	4.0	1200	10	SLOWED TO BUMP THE PLUG
Event	23	Bump Plug	8/31/2017	23:33:44	COM5	8.42	0.00	1290	118.1	PLUG BUMPED
Event	24	Check Floats	8/31/2017	23:35:57	USER	8.42	0.00	2279.00	0.0	FLOATS HELD 1 BBL FLOW BACK TO TANK
Event	25	End Job	8/31/2017	23:36:38	USER	8.37	0.00	20.00	0.0	RETURNS THROUGHOUT JOB
Event	26	Post-Job Safety Meeting (Pre Rig-Down)	8/31/2017	23:45:00	USER					ALL HES PRESENT
Event	27	Pre-Convoy Safety Meeting	9/1/2017	01:45:00	USER					ALL HES PRESENT
Event	28	Crew Leave Location	9/1/2017	02:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, DUSTIN HYDE AND CREW

# TERRA - GM 313-4 - 4 1/2" PRODUCTION



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

▼ **HALLIBURTON** | iCem<sup>®</sup> Service

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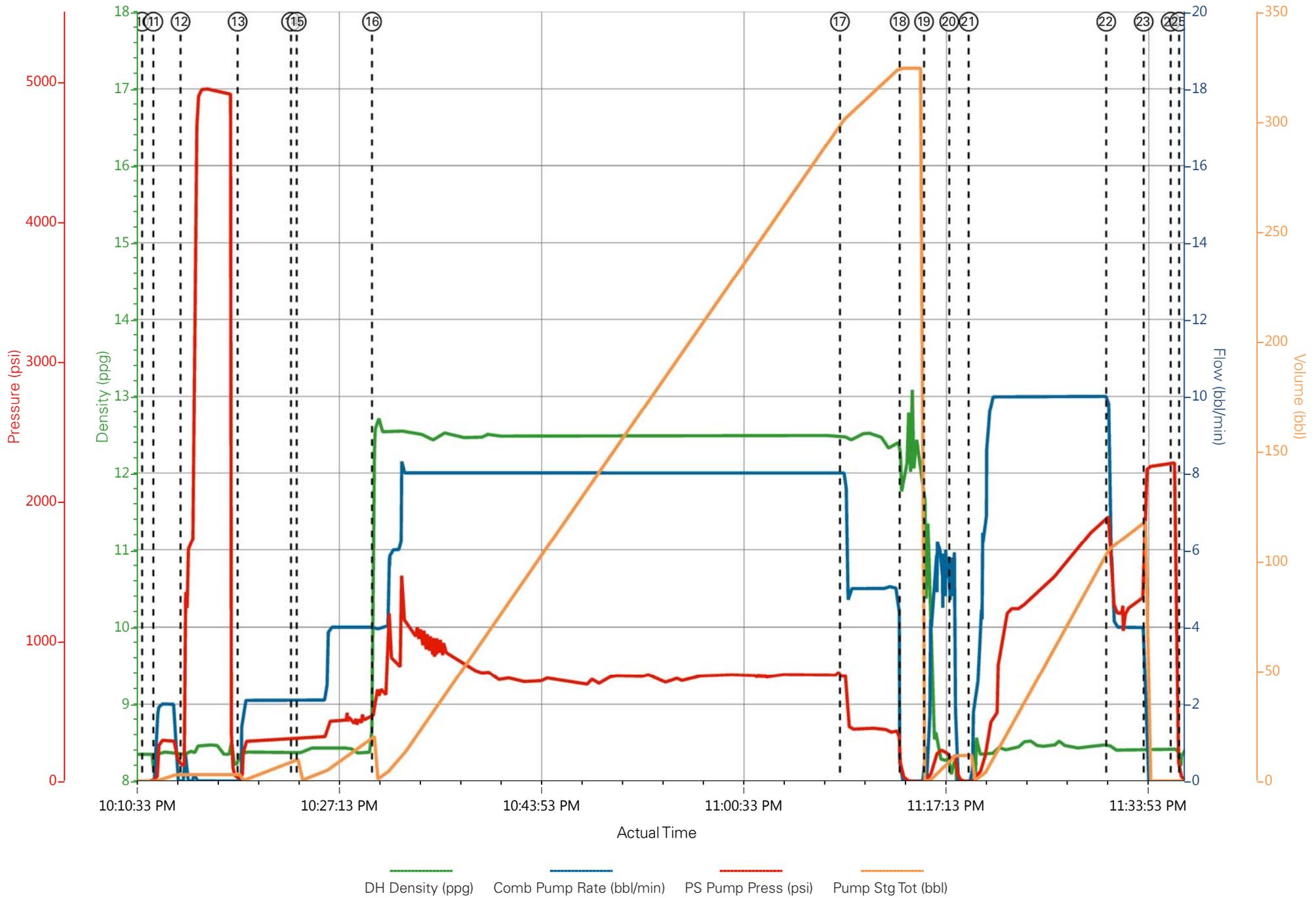
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Customer : TEP ROCKY MOUNTAIN LLC  
 Representative : MATT HUTSON

Job Date : 8/31/2017  
 Sales Order # : 904263032

Well : GM 313-4  
 ELITE 8 : HYDE / ANGELO

# TERRA - GM 313-4 - 4 1/2" PRODUCTION



### Job Information

<b>Request/Slurry</b>	2412890/1	<b>Rig Name</b>	H&P 271	<b>Date</b>	25/AUG/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>	GM 313-4

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	7318 ft	<b>BHST</b>	90°C / 194°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	6701 ft	<b>BHCT</b>	54°C / 129°F
<b>Pressure</b>	3990 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	Baroid	<b>Mud Trade Name</b>	BARADRIL-N	<b>Density</b>	9.2 lbm/gal
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### Cement Information - Primary Design

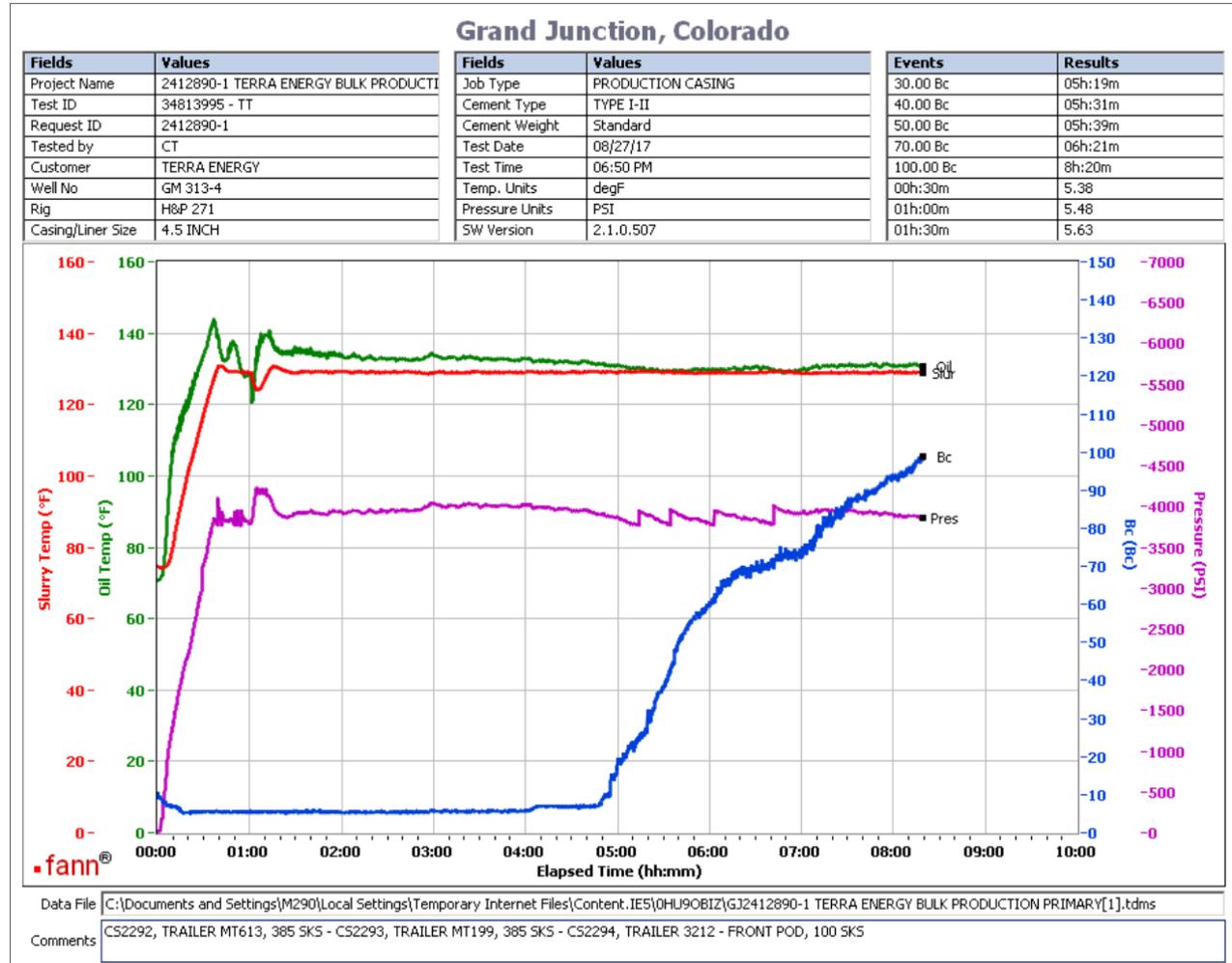
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		NeoCem Primary				Slurry Density	12.5	lbm/gal
						Slurry Yield	1.962	ft3/sack
						Water Requirement	9.434	gal/sack
						Total Mix Fluid	9.434	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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Thickening Time - ON-OFF-ON

27/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)
129	3990	36	5:19	5:39	6:21	8:20	10	46	15	5



Total sks = 870  
 Composite:  
 CS2292, Trailer MT613, 385 sks  
 CS2293, Trailer MT199, 385 sks  
 CS2294, Trailer 3212 - Front Pod, 100 sks  
 Deflection: 6 - 5

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