

HALLIBURTON

iCem[®] Service

TEP ROCKY MOUNTAIN LLC-EBUS

For: Terra

Date: Saturday, December 23, 2017

PA 511-25 Production

API#05-045-23643

Sincerely,

Grand Junction Cement Engineering

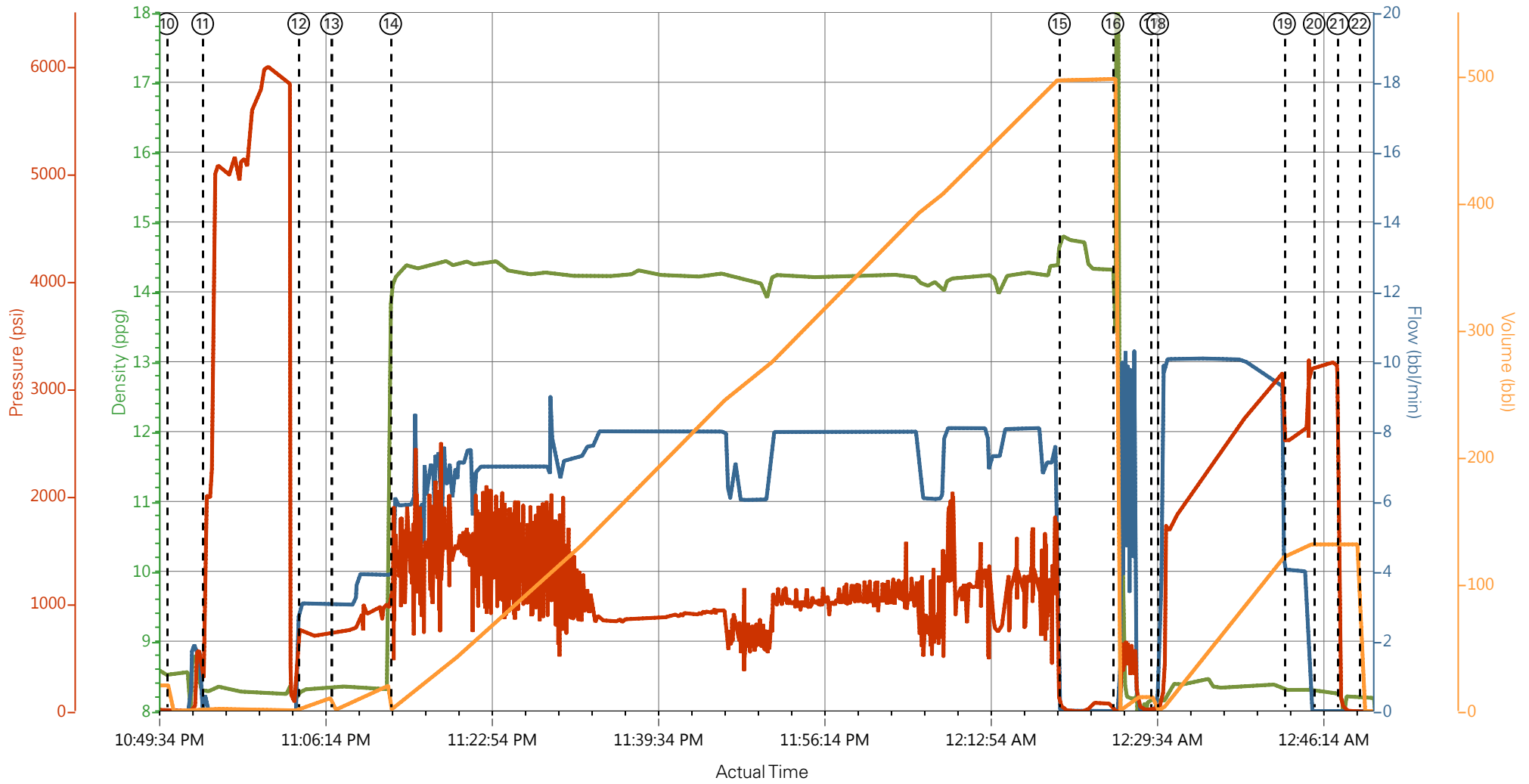
1.0 Real-Time Job Summary

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	12/22/2017	14:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	12/22/2017	16:25:00	USER					
Event	3	Crew Leave Yard	12/22/2017	16:30:00	USER					
Event	4	Arrive At Loc	12/22/2017	17:30:00	USER					
Event	5	Assessment Of Location Safety Meeting	12/22/2017	17:35:00	USER					
Event	6	Spot Equipment	12/22/2017	17:40:00	USER					
Event	7	Pre-Rig Up Safety Meeting	12/22/2017	17:45:00	USER					
Event	8	Rig-Up Equipment	12/22/2017	17:50:00	USER					
Event	9	Pre-Job Safety Meeting	12/22/2017	19:37:22	USER					
Event	10	Start Job	12/22/2017	22:50:40	COM5					TD: 8085 TP: 8080 SJ: 30.8 MW: 13.0PPG 4 1/2" 11.6#/FT CSG IN 8 3/4" OH WATER TEST: PH: 7 POTASSIUM: 450 CHLORIDES: 0 SULFATES: <200 TEMP: 60 DEGREES
Event	11	Test Lines	12/22/2017	22:54:16	COM5	8.33	0.00	6000.00	2.0	6000 PSI TEST
Event	12	Fresh H2O Spacer	12/22/2017	23:03:53	COM5	8.31	4.00	700.00	10.0	FRESH H2O SPACER, 10 BBL
Event	13	MudFlush Spacer	12/22/2017	23:07:10	COM5	8.40	4.00	970.00	20.0	MUDFLUSH SPACER 20 BBL
Event	14	Pump Cement	12/22/2017	23:13:06	COM5	14.20	8.00	950.00	427.0	1725 SKS @ 14.2 PPG 1.39 YLD 6.36 GAL/SK H2O
Event	15	Shutdown	12/23/2017	00:20:07	USER					
Event	16	Clean Lines	12/23/2017	00:25:28	COM5					

Event	17	Drop Top Plug	12/23/2017	00:29:16	COM5					PLUG AWAY
Event	18	Pump Displacement	12/23/2017	00:29:57	COM5	8.48	10.00	3150.00	124.8	FRESH H2O DISPLACEMENT W/ KCL, BE-6, MMCR
Event	19	Slow Rate	12/23/2017	00:42:40	USER	8.48	4.00	2550.00	114.0	PRESSURE JUST PRIOR TO SLOWING RATE WAS 3150, PRESSURE AT 4 BPM WAS 2550.
Event	20	Bump Plug	12/23/2017	00:45:38	COM5	8.48	0.00	3220.00	124.8	PLUG BUMED AT CALCULATED DISPLACEMENT. FINAL CIRCULATING PRESSURE WAS 2650PSI
Event	21	Check Floats	12/23/2017	00:48:00	USER					FLOATS HELD, GAINED 1 1/2BBL BACK TO PUMP
Event	22	End Job	12/23/2017	00:50:10	COM5					
Event	23	Post-Job Safety Meeting (Pre Rig-Down)	12/23/2017	01:00:00	USER					HAD ABOUT 50% RETURNS DURING JOB. PIPE WAS RECIPROCATED. CIRCULATED APPROX 10 BBL MUDFLUSH TO SURFACE. NO ADD HOURS CHARGED.
Event	24	Rig-Down Equipment	12/23/2017	01:15:00	USER					
Event	25	Pre-Convoy Safety Meeting	12/23/2017	02:15:00	USER					
Event	26	Crew Leave Location	12/23/2017	02:30:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND JCT, CO ANDREWS AND CREW ANTHONY

TEP - PA 511-25 - 4 1/2" PRODUCTION



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

- | | | | |
|-----------------------------------------|--------------------------|---------------------|------------------------------------------|
| ① Call Out | ⑧ Rig-Up Equipment | ⑮ Shutdown | ⑳ End Job |
| ② Pre-Convoy Safety Meeting | ⑨ Pre-Job Safety Meeting | ⑯ Clean Lines | ㉑ Post-Job Safety Meeting (Pre Rig-Down) |
| ③ Crew Leave Yard | ⑩ Start Job | ⑰ Drop Top Plug | ㉒ Rig-Down Equipment |
| ④ Arrive At Loc | ⑪ Test Lines | ⑱ Pump Displacement | ㉓ Pre-Convoy Safety Meeting |
| ⑤ Assessment Of Location Safety Meeting | ⑫ Fresh H2O Spacer | ⑲ Slow Rate | ㉔ Crew Leave Location |
| ⑥ Spot Equipment | ⑬ MudFlush Spacer | ㉔ Bump Plug | |
| ⑦ Pre-Rig Up Safety Meeting | ⑭ Pump Cement | ㉕ Check Floats | |

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Created: 2017-12-22 19:32:06, Version: 4.2.393

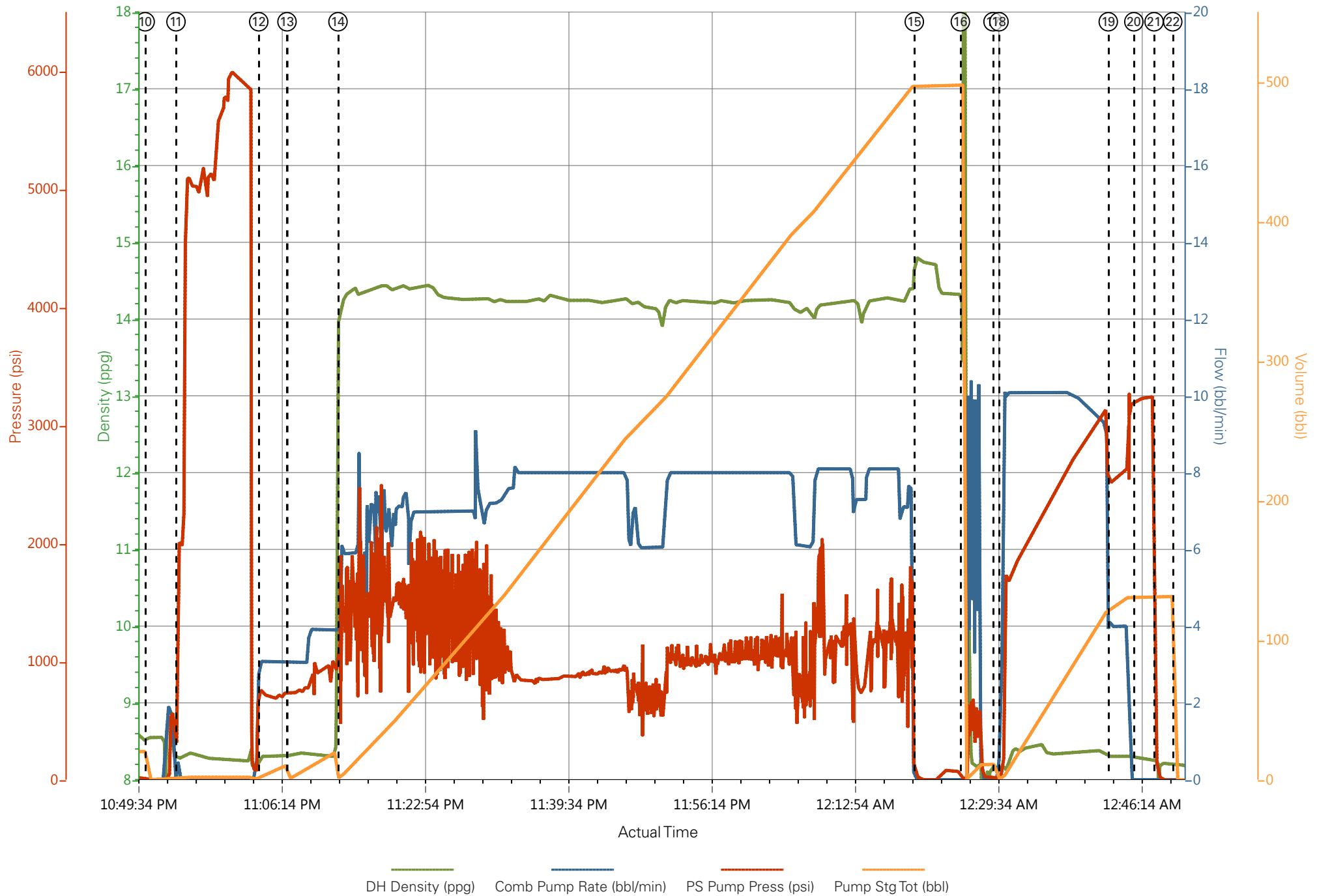
[Edit](#)

Customer : TEP ROCKY MOUNTAIN LLC-EBUS
 Representative : MATT HUTSON

Job Date : 12/22/2017 7:33:44 PM
 Sales Order # : 904515942

Well : PA 511-25
 ELITE 8 : TRAVIS BROWN/ ANTHONY ANDREWS

TEP - PA 511-25 - 4 1/2" PRODUCTION



Job Information

Request/Slurry	2439221/2	Rig Name	H&P 271	Date	18/DEC/2017
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	PA 511-25

Well Information

Casing/Liner Size	4.5 in	Depth MD	8085 ft	BHST	102°C / 216°F
Hole Size	8.75 in	Depth TVD	7978 ft	BHCT	63°C / 145°F
Pressure	4885 psi				

Drilling Fluid Information

Mud Supplier Name	AMC	Mud Trade Name		Density	
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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>	<u>Cement Properties</u>		
		VariCem				Slurry Density	14.2	lbm/gal
						Slurry Yield	1.387	ft3/sack
						Water Requirement	6.36	gal/sack
						Total Mix Fluid	6.36	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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Operation Test Results Request ID 2439221/2

Thickening Time - ON-OFF-ON

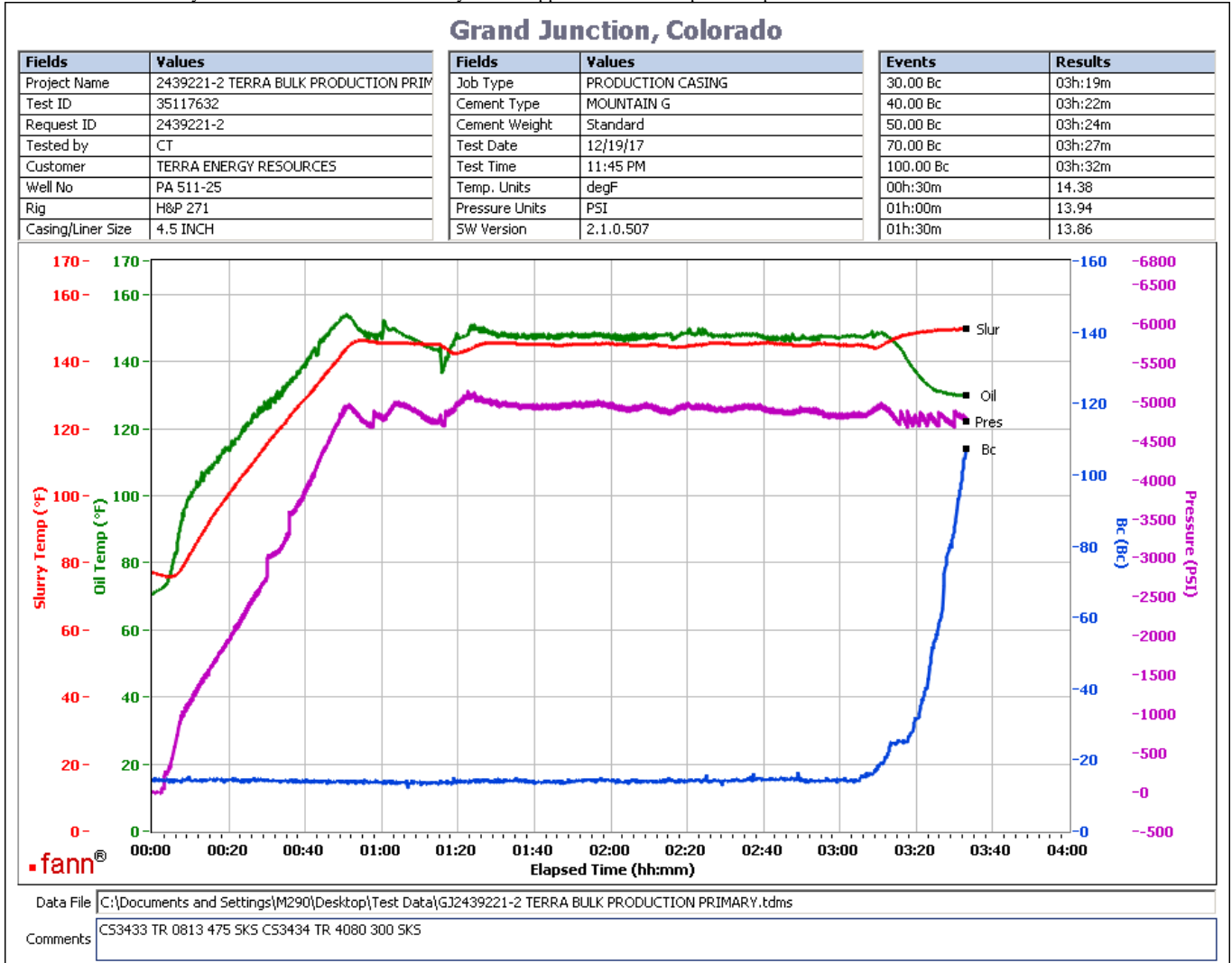
19/DEC/2017

Test Temp (degF)	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)
145	4885	50	3:19	3:24	3:27	3:32	15	60	15	14

CS3433 TR 0813 475 SKS

CS3434 TR 4080 300 SKS

No deflection. Heat of hydration started around 3:13. Slurry did not appear to be balled up around paddle when test was taken off.



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Operation Test Results Request ID 2439221/1

Thickening Time - ON-OFF-ON

19/DEC/2017

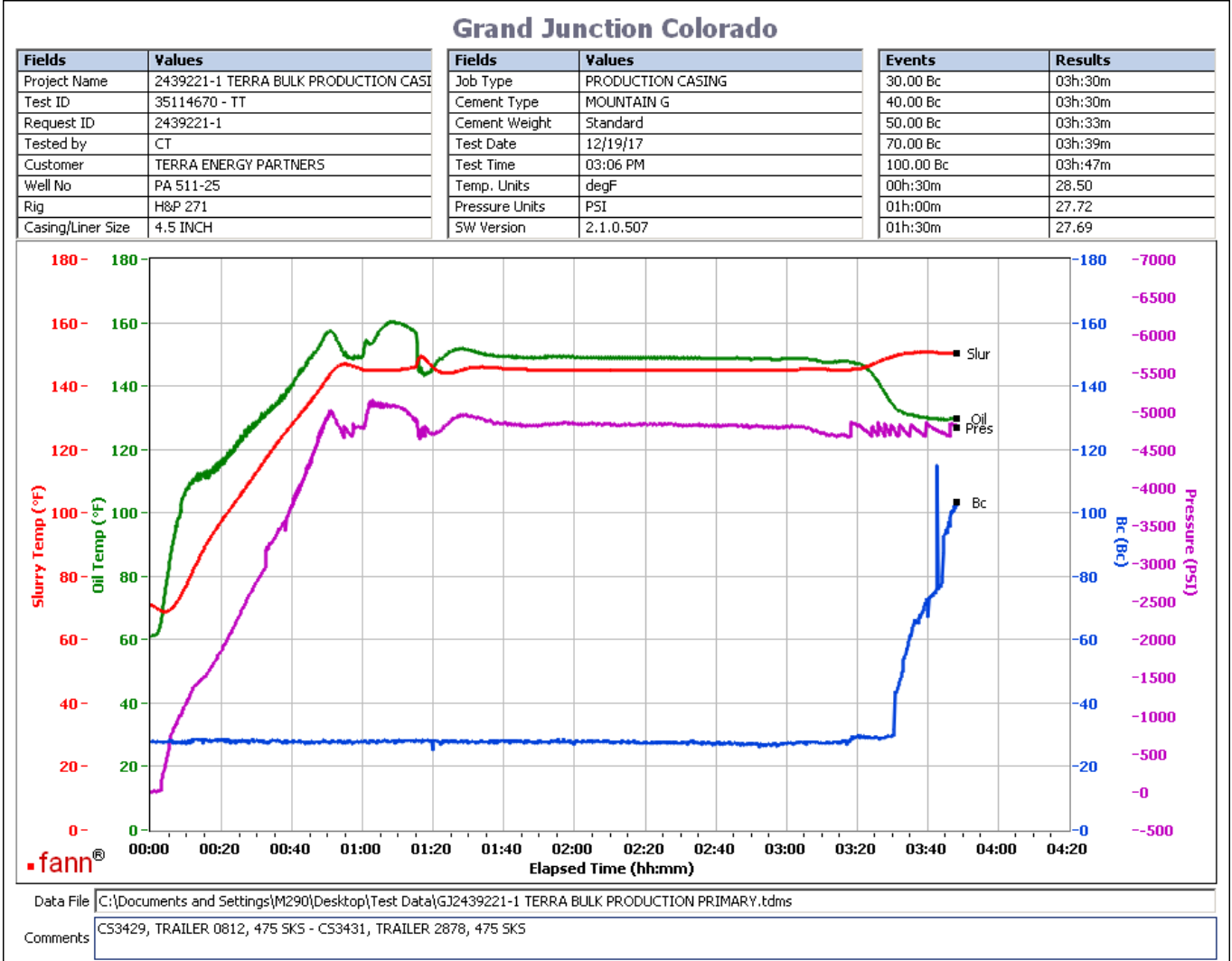
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
145	4885	50	3:30	3:33	3:39	3:47	28	60	15	28

1725 sks Total

CS3429, Trailer 0812, 475 sks

CS3431, Trailer 2878, 475 sks

No deflection. Heat of hydration started around 3:22 and slurry was balled up around the paddle.



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