

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

For: Terra

Date: Friday, September 22, 2017

SR 422-12 Production

API#05-045-23430

Sincerely,

Grand Junction Cement Engineering

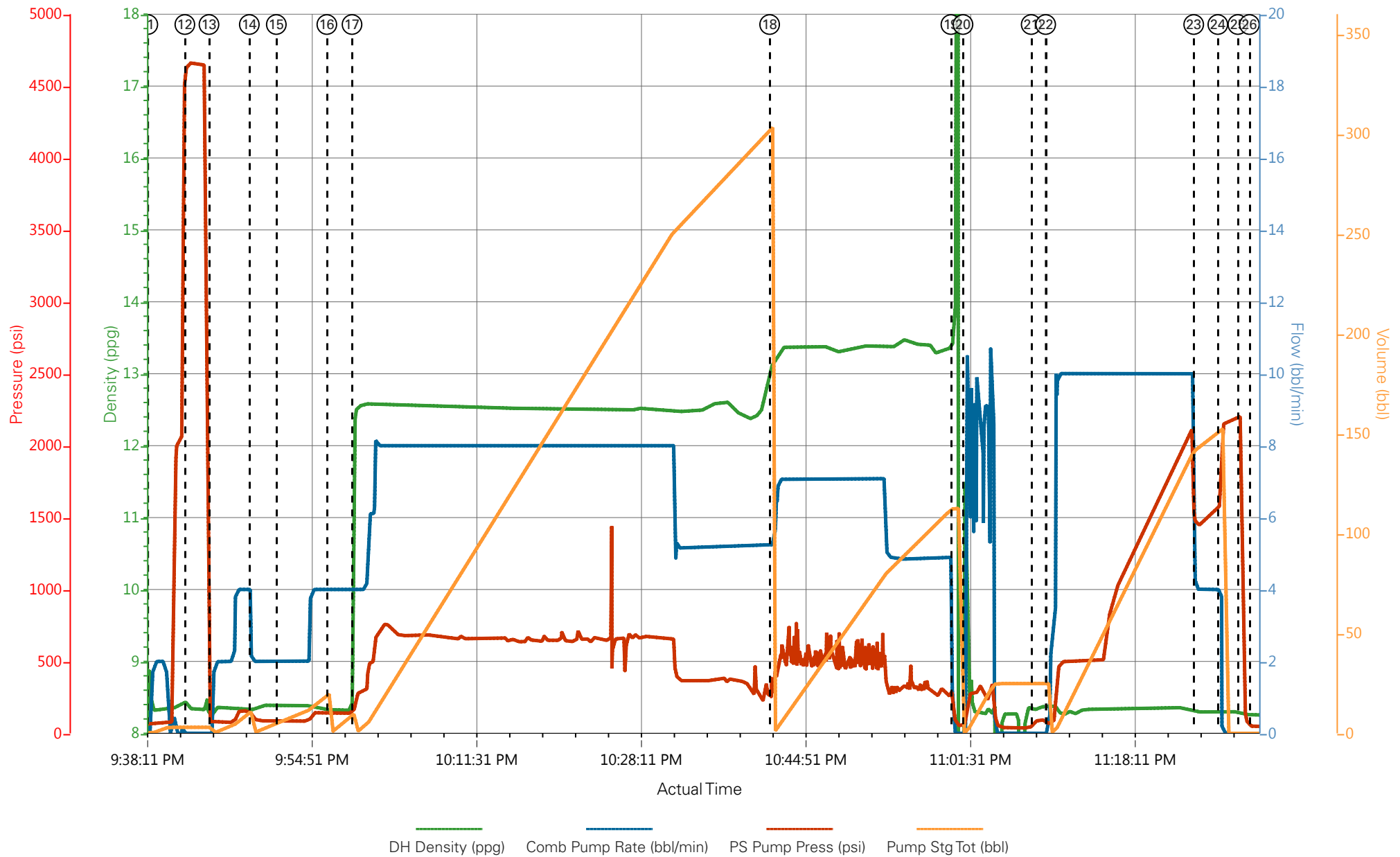
2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	9/22/2017	13:00:00	USER					REQUESTED ON LOCATION @ 19:00
Event	2	Pre-Convoy Safety Meeting	9/22/2017	15:45:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	9/22/2017	16:00:00	USER					1 HT 400 PUMP TRUCK E8, 1 660 BULK TRUCK, 1 550 SERVICE PICKUP
Event	4	Arrive at Location from Service Center	9/22/2017	18:00:00	USER					RIG RUNNING CASING UPON HES ARRIVAL TO LOCATION
Event	5	Assessment Of Location Safety Meeting	9/22/2017	18:10:00	USER					MET WITH COMPANY REP, SDS OFFERED, DISCUSSED JOB PROCEDURE
Event	6	Pre-Rig Up Safety Meeting	9/22/2017	18:20:00	USER					ALL HES PRESENT
Event	7	Rig-Up Completed	9/22/2017	19:30:00	USER					1 HT 400 PUMP TRUCK E8, 1 660 BULK TRUCK, 1 SILO, 1- 4 1/2" QUICK LATCH PLUG CONTAINER, 1 550 SERVICE PICKUP
Event	8	Pre-Job Safety Meeting	9/22/2017	19:50:00	USER					ALL HES AND RIG CREW PRESENT
Event	9	Other	9/22/2017	19:55:00	USER					RIG CIRCULATED 532 GPM WITH 1400 PSI. PIPE RECIPICATED THROUGHOUT JOB. WATER: TEMP-62, CL-0, PH-7
Event	10	Start Job	9/22/2017	21:36:31	COM5	8.36	0.00	2.00	0.0	TD-9470', TP-9460', SJ-29.3', OH-8.75", CSG-4.5" 11.6# P110, SCSG-9.625" 32.3# J55 1115'. MUD-9.8PPG
Event	11	Prime Pumps	9/22/2017	21:38:33	USER	8.32	2.00	70.00	3.0	FRESH WATER
Event	12	Test Lines	9/22/2017	21:42:18	COM5	8.35	0.00	4657.00	3.0	ALL PRESSURE HELD
Event	13	Pump Water	9/22/2017	21:44:45	COM5	8.35	2.00	70.00	10.0	FRESH WATER
Event	14	Pump Mud Flush III	9/22/2017	21:48:50	COM5	8.33	4.00	150.00	20.0	MUD FLUSH III

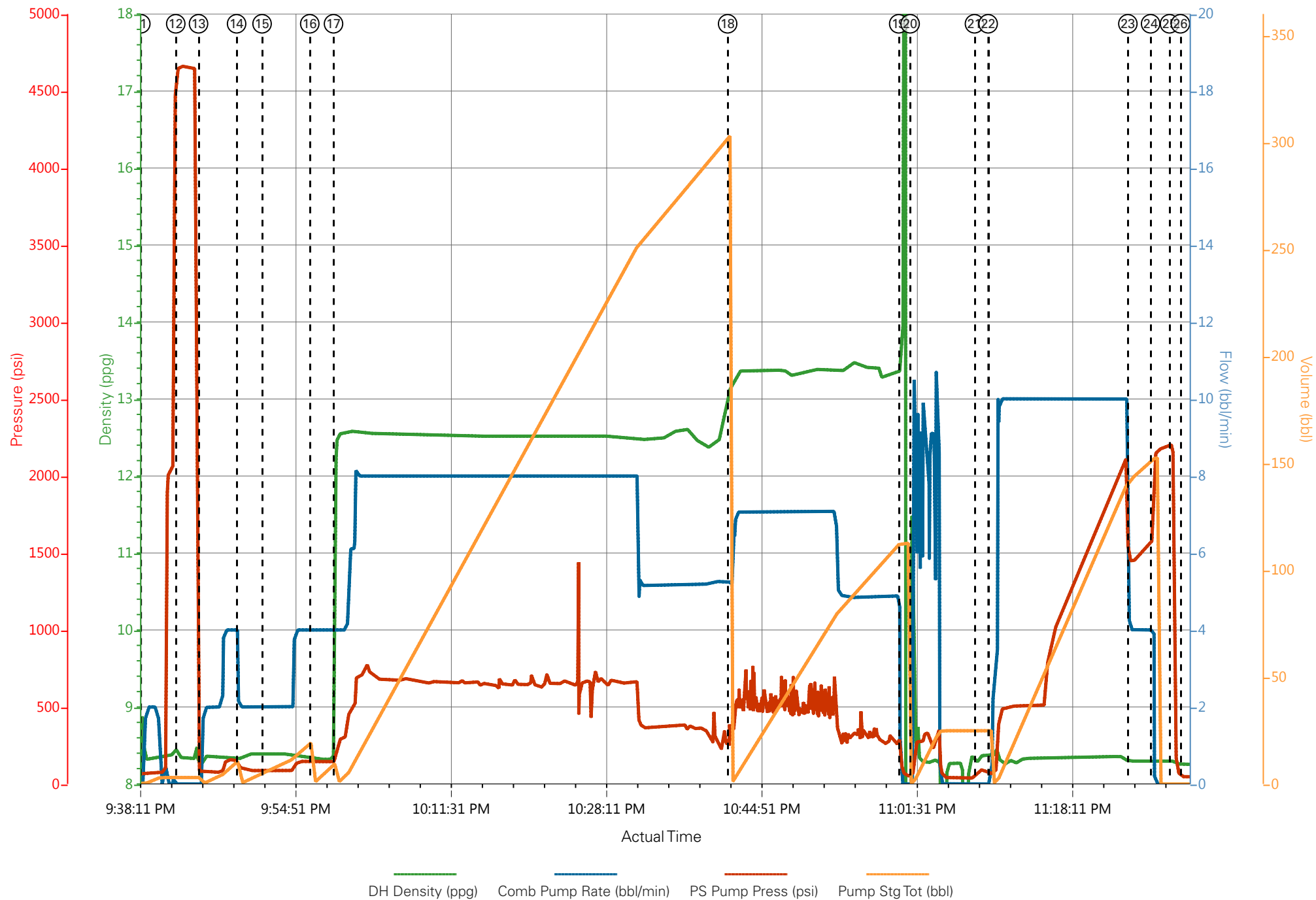
Event	15	Check weight	9/22/2017	21:51:34	COM5					WEIGHT VERIFIED BY PRESSURIZED MUD SCALES
Event	16	Pump Water	9/22/2017	21:56:41	COM5	8.32	4.00	142.00	10.0	FRESH WATER
Event	17	Pump Lead Cement	9/22/2017	21:59:14	COM5	12.50	8.00	710.00	259.1	NEOCERAM LEAD, 750SKS, 12.5PPG, 1.94CF/SK, 9.6GAL/SK. 3 BOXES TUFF FIBER ADDED
Event	18	Pump Tail Cement	9/22/2017	22:41:31	COM5	13.30	7.00	534.00	81.6	THERMACER TAIL, 265SKS, 13.3PPG, 1.73CF/SK, 7.81GAL/SK
Event	19	Shutdown	9/22/2017	22:59:52	COM5					END OF CEMENT
Event	20	Clean Lines	9/22/2017	23:01:05	USER					CLEANED PUMPS AND LINES TO PIT, RIG BLEW AIR BACK TO CLEAR LINE
Event	21	Drop Top Plug	9/22/2017	23:08:00	USER					PLUG AWAY
Event	22	Pump Displacement	9/22/2017	23:09:28	COM5	8.37	10.00	2135.00	146.2	KCL WATER, 3-1#BE6, 1GAL MMCR ADDED
Event	23	Slow Rate	9/22/2017	23:24:27	USER	8.29	4.00	1477.00	136.2	SLOW RATE LAST 10 BBLs
Event	24	Bump Plug	9/22/2017	23:26:53	COM5	8.29	4.00	1580.00	146.2	PLUG BUMPED 1580 PSI
Event	25	Check Floats	9/22/2017	23:28:55	USER	8.30	0.00	2209.00	0.0	FLOATS HELD 1 BBL BACK
Event	26	End Job	9/22/2017	23:30:05	COM5					GOOD RETURNS THROUGH OUT JOB.
Event	27	Post-Job Safety Meeting (Pre Rig-Down)	9/22/2017	23:35:00	USER					ALL HES PRESENT
Event	28	Rig-Down Completed	9/23/2017	00:15:00	USER					
Event	29	Pre-Convoy Safety Meeting	9/23/2017	00:30:00	USER					ALL HES PRESENT
Event	30	Crew Leave Location	9/23/2017	00:45:00	USER					THANK YOU FOR CHOOSING HALLIBURTON, ANDREW BRENNECKE AND CREW

TERRA - YOUBERG SR 422-12 - 4 1/2" PRODUCTION



- ① Call Out
- ② Pre-Convoy Safety Meeting
- ③ Crew Leave Yard
- ④ Arrive at Location from Service Center
- ⑤ Assessment Of Location Safety Meeting
- ⑥ Pre-Rig Up Safety Meeting
- ⑦ Rig-Up Completed
- ⑧ Pre-Job Safety Meeting
- ⑨ Other
- ⑩ Start Job
- ⑪ Prime Pumps
- ⑫ Test Lines
- ⑬ Pump Water
- ⑭ Pump Mud Flush I

TERRA - YOUBERG SR 422-12 - 4 1/2" PRODUCTION



HALLIBURTON

Rockies, Grand Junction

Lab Results- Lead

Job Information

Request/Slurry	2417653/1	Rig Name	H&P 318	Date	18/SEP/2017
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 422-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	9477 ft	BHST	115°C / 239°F
Hole Size	8.75 in	Depth TVD	9321 ft	BHCT	76°C / 169°F
Pressure	5830 psi				

Drilling Fluid Information

Mud Supplier Name	Mud Trade Name	Density
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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>	Cement Properties		
		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		

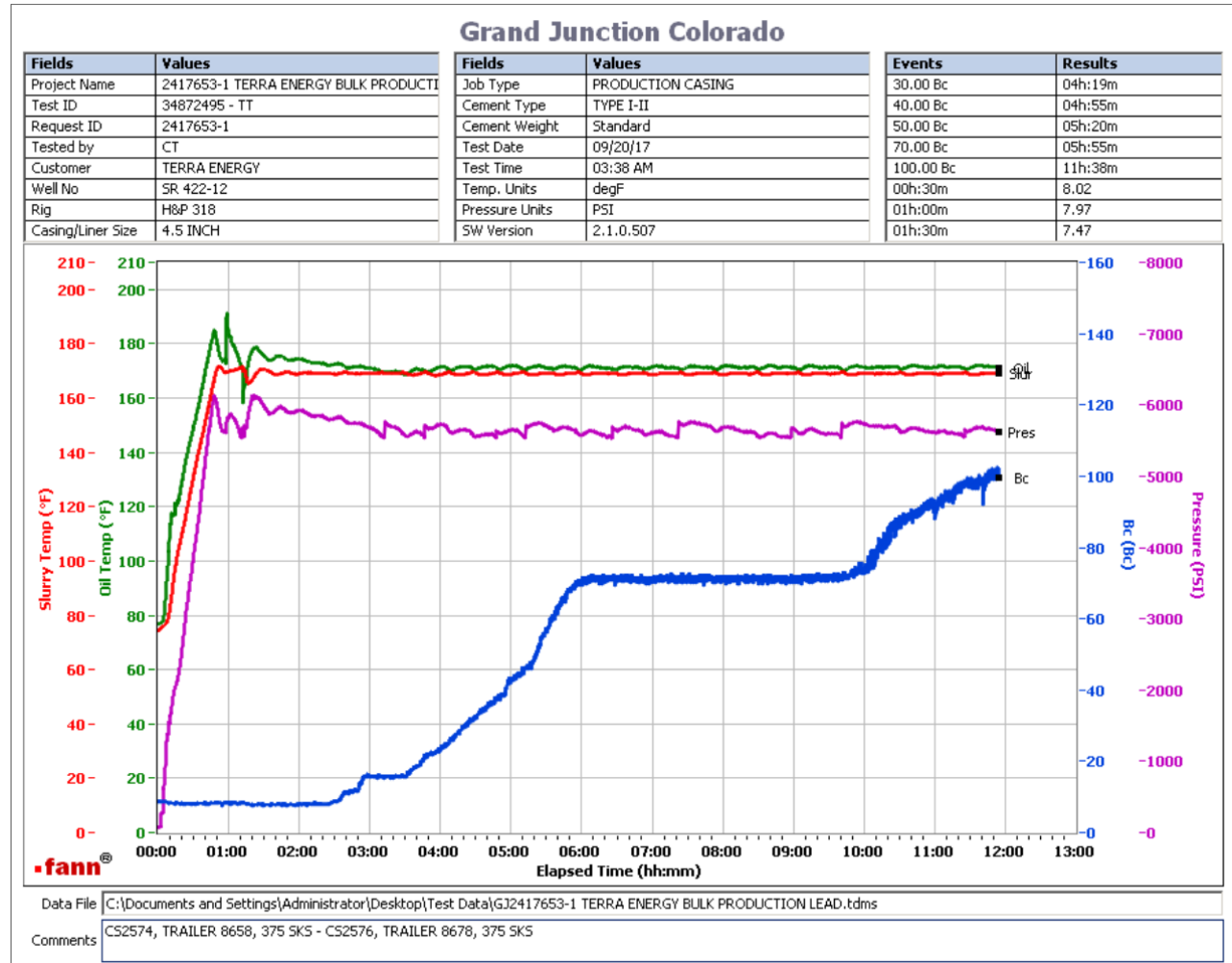
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Operation Test Results Request ID 2417653/1

Thickening Time - ON-OFF-ON

20/SEP/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)
169	5830	47	4:19	5:20	5:55	11:38	9	57	15	8



Total sks= 750

CS2574, Trailer 8658, 375 sks

CS2576, Trailer 8678, 375 sks

No deflection

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Mud Supplier Name	Mud Trade Name	Density
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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>	Cement Properties		
		ThermaCem Tail				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		

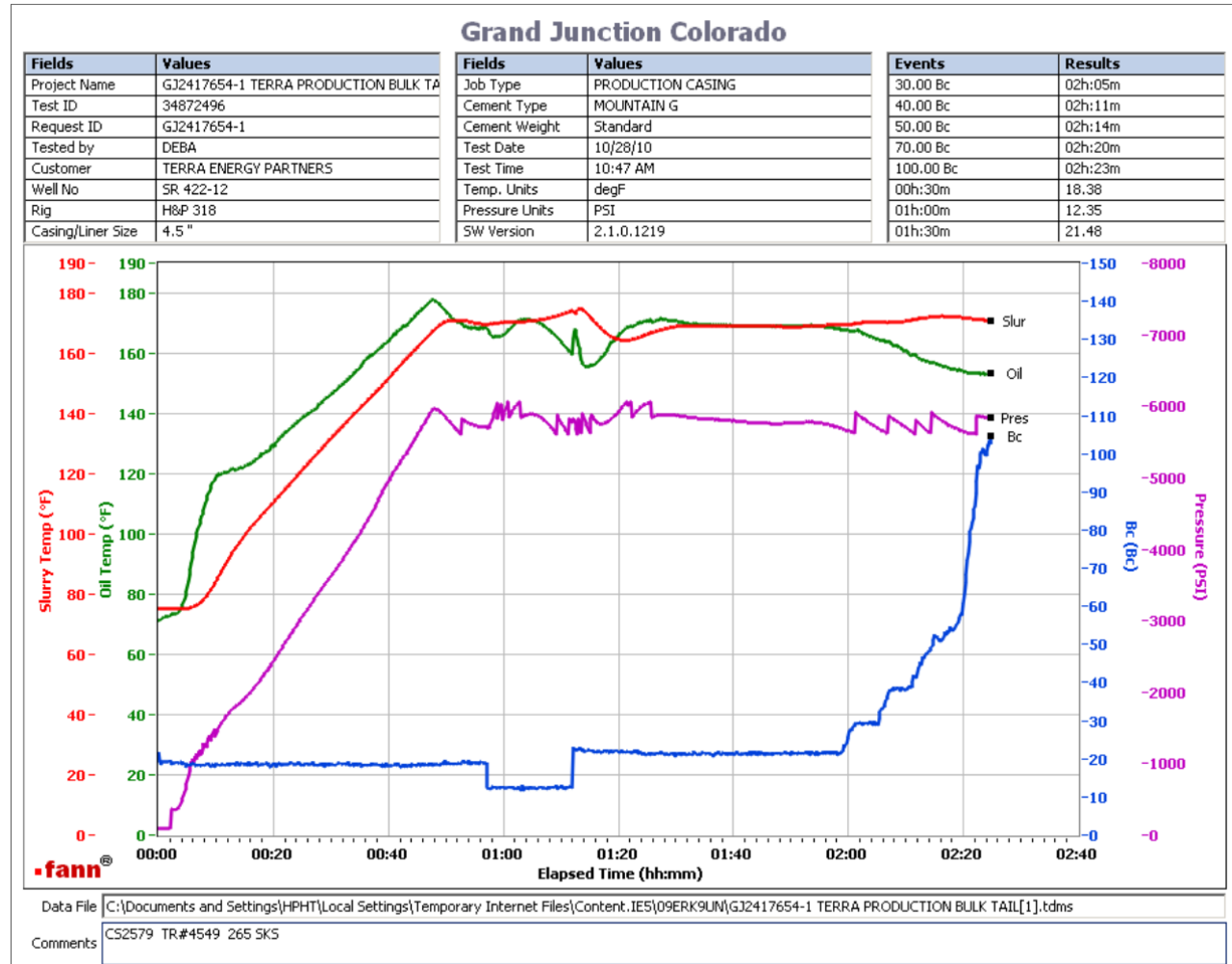
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169	5830	47	2:05	2:14	2:20	2:23	19	57	15	22



265 sks tail
CS2579 TR#4549 265 sks
Deflection: 18 - 22

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