

HALLIBURTON

iCem[®] Service

TEP ROCKY MOUNTAIN LLC-EBUS

For: Terra Energy Partners

Date: Saturday, October 28, 2017

WARE SR 323-12

API: 05-045-23452-00

Sincerely,

Grand Junction Cement Engineering

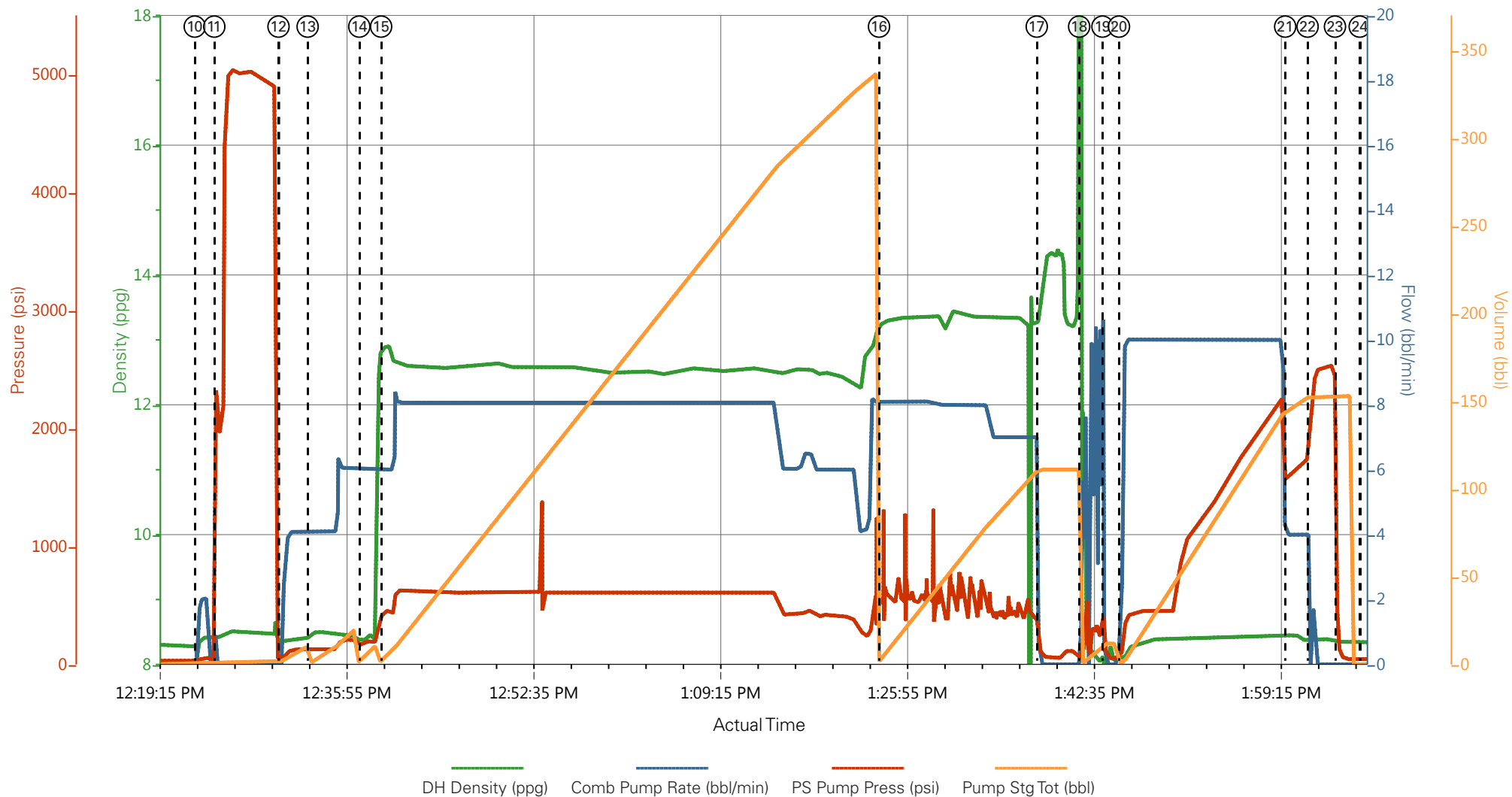
2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	10/27/2017	22:30:00	USER					
Event	2	Pre-Convoy Safety Meeting	10/28/2017	00:25:00	USER					
Event	3	Crew Leave Yard	10/28/2017	00:30:00	USER					
Event	4	Arrive At Loc	10/28/2017	02:00:00	USER					
Event	5	Assessment Of Location Safety Meeting	10/28/2017	02:05:00	USER					
Event	6	Spot Equipment	10/28/2017	02:15:00	USER					
Event	7	Pre-Rig Up Safety Meeting	10/28/2017	02:25:00	USER					
Event	8	Rig-Up Equipment	10/28/2017	02:30:00	USER					
Event	9	Pre-Job Safety Meeting	10/28/2017	11:00:00	USER					
Event	10	Start Job	10/28/2017	12:22:40	COM5					TD 9512', TP 9504', SJ 30.4', 4 1/2" CASING IN 8 3/4" HOLE, MUD 9.7 PPG, WATER TEMP 65, PH 6.4, CHLORIDES 0, SULFATES <200, POTASSIUM 450
Event	11	Test Lines	10/28/2017	12:24:24	COM5			5000.00		TEST LINES TO 5000 PSI
Event	12	Pump Spacer	10/28/2017	12:30:08	USER	8.33	4.00	150.00	10.0	10 BBL FRESH WATER
Event	13	Pump Spacer 2	10/28/2017	12:32:44	COM5	8.40	4.00	200.00	20.0	20 BBL MUDFLUSH, 200 PSI
Event	14	Pump Spacer 1	10/28/2017	12:37:20	COM5	8.33	6.00	200.00	10.0	10 BBL FRESH WATER, 200 PSI
Event	15	Pump Lead Cement	10/28/2017	12:39:17	COM5	12.50	8.00	600.00	319.6	319.6 BBL, 925 SKS @ 12.5 PPG, 1.94 YLD, 9.6 GAL/SK H2O REQ, 600 PSI
Event	16	Pump Tail Cement	10/28/2017	13:23:42	COM5	13.30	8.00	480.00	86.3	86.3 BBL, 280 SKS @ 13.3 PPG, 1.73 YLD, 7.81 GAL/SK H2O REQ, 480 PSI

Event	17	Shutdown	10/28/2017	13:37:46	USER	13.52	0.00	122.00	111.1	
Event	18	Clean Lines	10/28/2017	13:41:33	COM5					
Event	19	Drop Top Plug	10/28/2017	13:43:38	COM5					PLUG AWAY
Event	20	Pump Displacement	10/28/2017	13:45:06	COM5	8.40	10.0	1650.00	146.8	146.8 BBL FRESH WATER WITH KCL
Event	21	Slow Rate	10/28/2017	13:59:56	USER	8.40	4.00	2260.0	136.0	SLOW TO 4BBL/MIN @136 AWAY, 1550 PSI AT 4 BBL/MIN
Event	22	Bump Plug	10/28/2017	14:01:56	COM5	8.40	4.00	2500.00	146.8	PLUG BUMPED, 1740 PSI FINAL CIRCULATING PRESSURE
Event	23	Check Floats	10/28/2017	14:04:22	USER					FLOATS HELD, 1 1/2 BBL BACK
Event	24	End Job	10/28/2017	14:06:35	COM5					GOOD CIRCULATION THROUGHOUT CEMENT PARTIAL RETURNS ON SOME OF DISPLACEMENT, PIPE WAS RECIPRICATED, NO SUGAR USED, 1 ADD HOURS CHARGED
Event	25	Pre-Rig Down Safety Meeting	10/28/2017	14:10:00	USER					
Event	26	Rig-Down Equipment	10/28/2017	14:15:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND JUNCTION, CO - ANTHONY ANDREWS AND CREW
Event	27	Pre-Convoy Safety Meeting	10/28/2017	15:25:00	USER					
Event	28	Crew Leave Location	10/28/2017	15:30:00	USER					

TEP - WARE SR 323-12 - 4 1/2" PRODUCTION CASING



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

▼ **HALLIBURTON** | iCem® Service

Created: 2017-10-28 07:04:00, Version: 4.2.393

Edit

Customer: TEP ROCKY MOUNTAIN LLC-EBUS

Job Date: 10/28/2017 7:06:25 AM

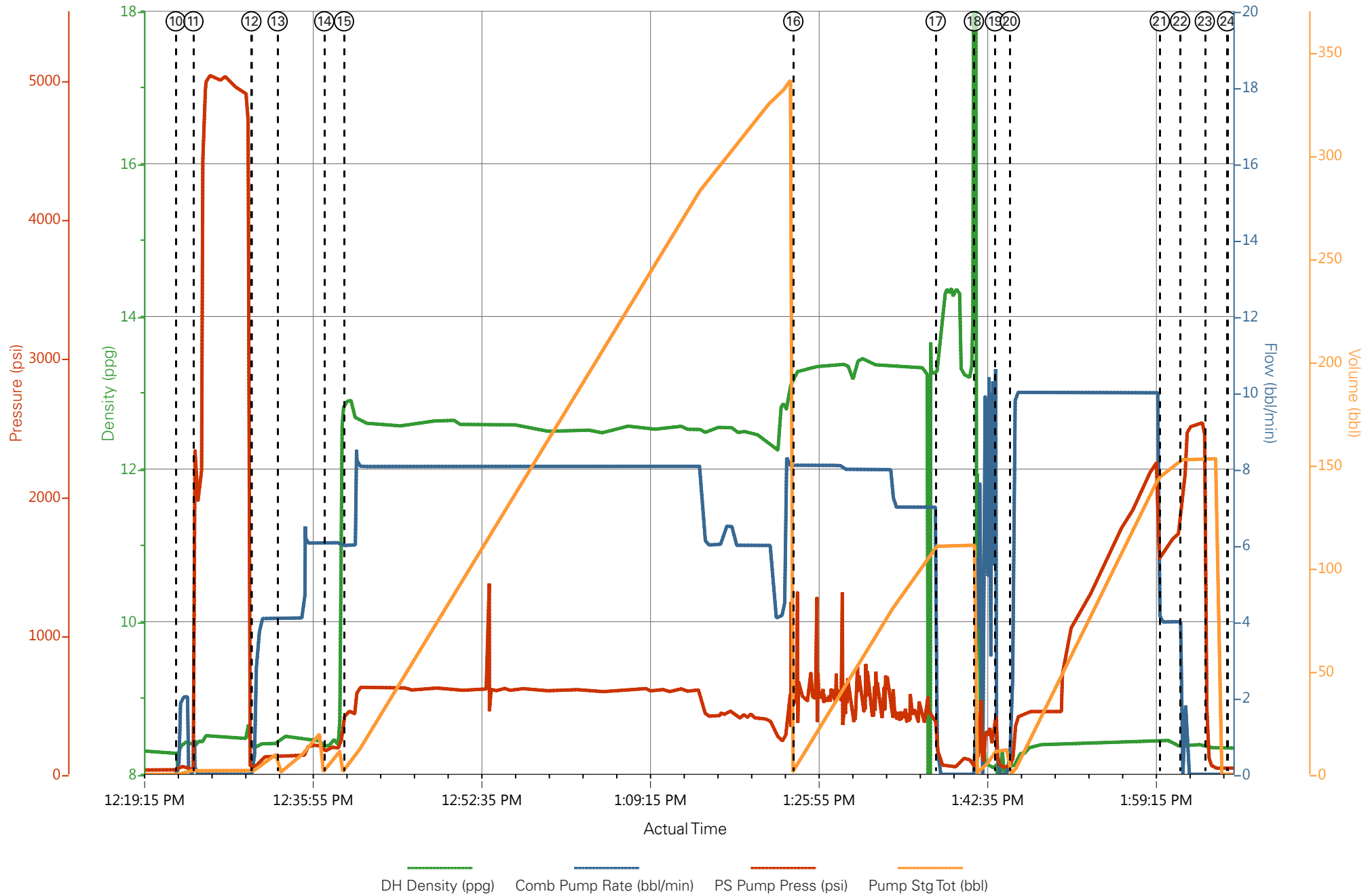
Well: WARE SR 323-12

Representative: JOSH PHILLIPS

Sales Order #: 904384164

ELITE 4: TRAVIS BROWN / ANTHONY ANDREWS

TEP - WARE SR 323-12 - 4 1/2" PRODUCTION CASING



HALLIBURTON

Rockies, Grand Junction

Lab Results- Lead

Job Information

Request/Slurry	2425532/1	Rig Name	H&P 318	Date	20/OCT/2017
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 323-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	9742 ft	BHST	118°C / 245°F
Hole Size	8.75 in	Depth TVD	9703 ft	BHCT	79°C / 175°F
Pressure	6092 psi				

Drilling Fluid Information

Mud Supplier Name	Mud Trade Name	Density
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Cement Information - Lead Design



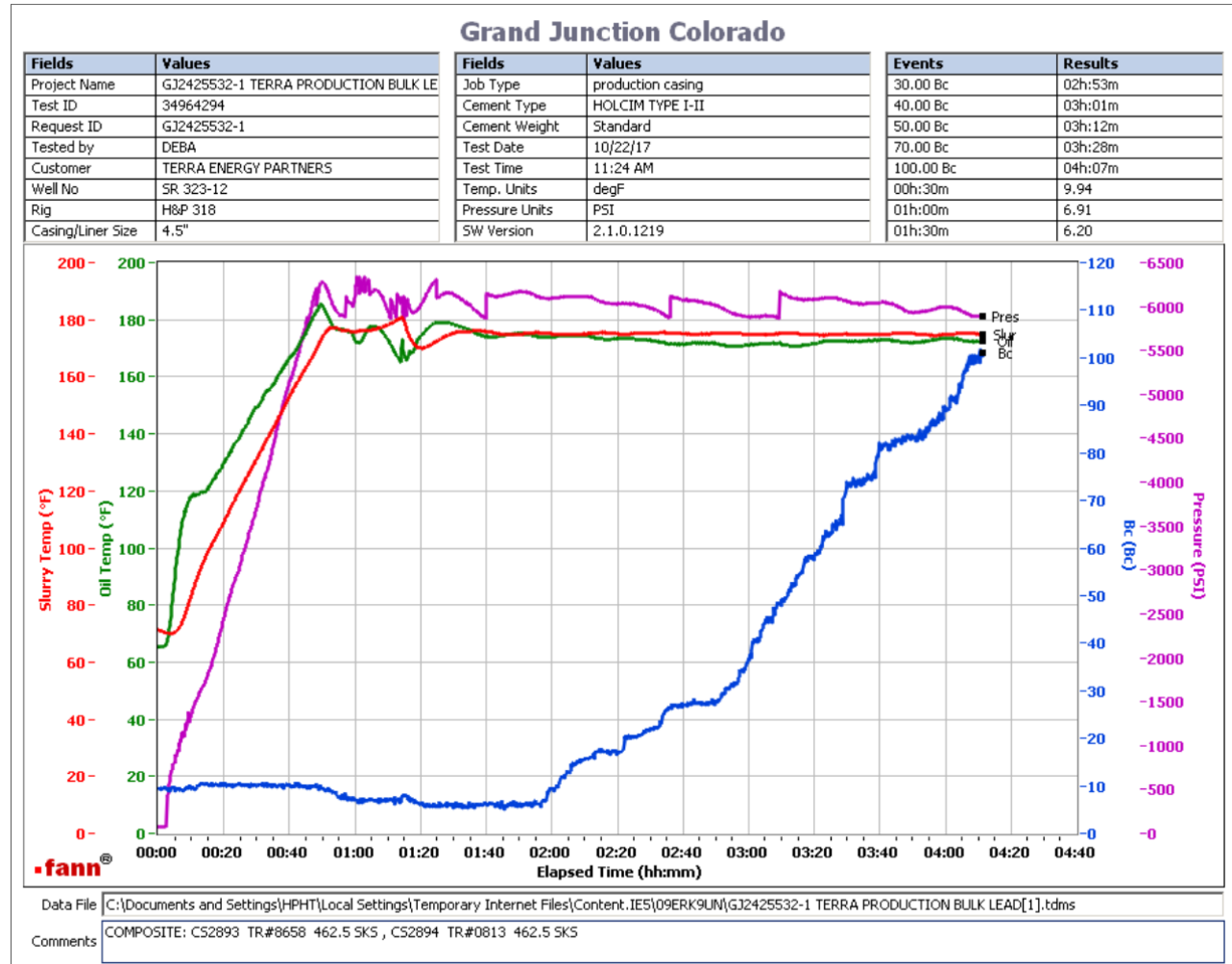
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	Cement Properties		
		NeoCem Lead				Slurry Density	12.5	lbm/gal
						Slurry Yield	1.941	ft3/sack
						Water Requirement	9.623	gal/sack
						Total Mix Fluid	9.623	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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Thickening Time - ON-OFF-ON

22/OCT/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)
175	6092	49	2:53	3:12	3:28	4:07	9	59	15	7



Total sks= 925

Composite:

CS2893 TR#8658 462.5 SKS

CS2894 TR#0813 462.5 SKS

no deflection was observed. 7Bc--- > 7Bc

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Rockies, Grand Junction

Lab Results- Tail

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Cement Information - Tail Design



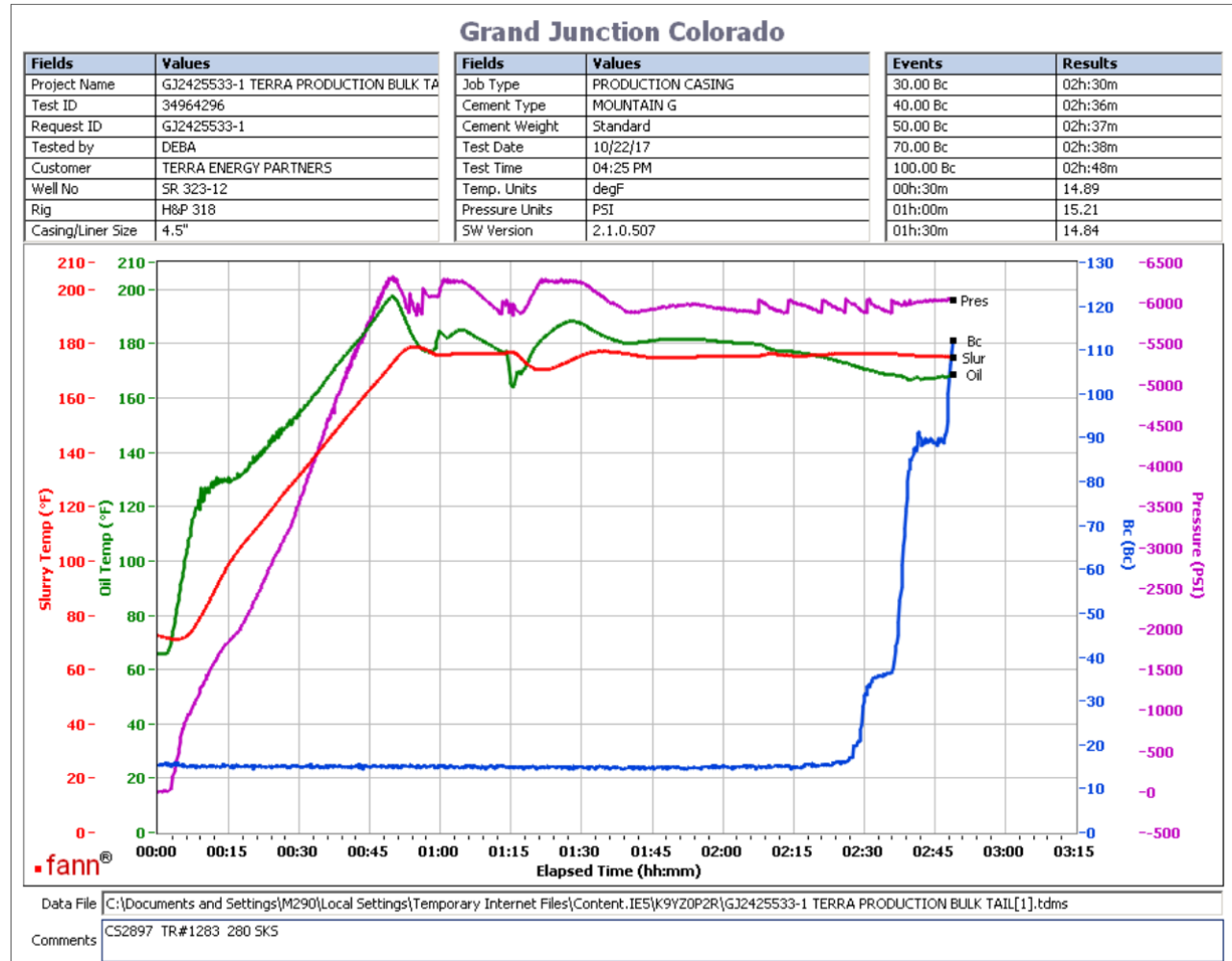
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	Cement Properties		
		ThermaCem Tail				Slurry Density	13.3	lbm/gal
						Slurry Yield	1.733	ft3/sack
						Water Requirement	7.799	gal/sack
						Total Mix Fluid	7.799	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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Thickening Time - ON-OFF-ON

22/OCT/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)
175	6092	49	2:30	2:37	2:38	2:48	15	59	15	15



280 sks tail
 CS2897 TR#1283 280 SKS
 no deflection was observed. 15Bc-- > 15Bc
 graph shows heat of hydration but slurry didn't show any balling around the paddle and Engineer was informed.

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