

# HALLIBURTON

iCem<sup>®</sup> Service

## **TEP ROCKY MOUNTAIN LLC-EBUS**

**For: Terra**

Date: Wednesday, September 13, 2017

**SR 542-12 Production**

API#05-045-23293

Sincerely,

**Grand Junction Cement Engineering**

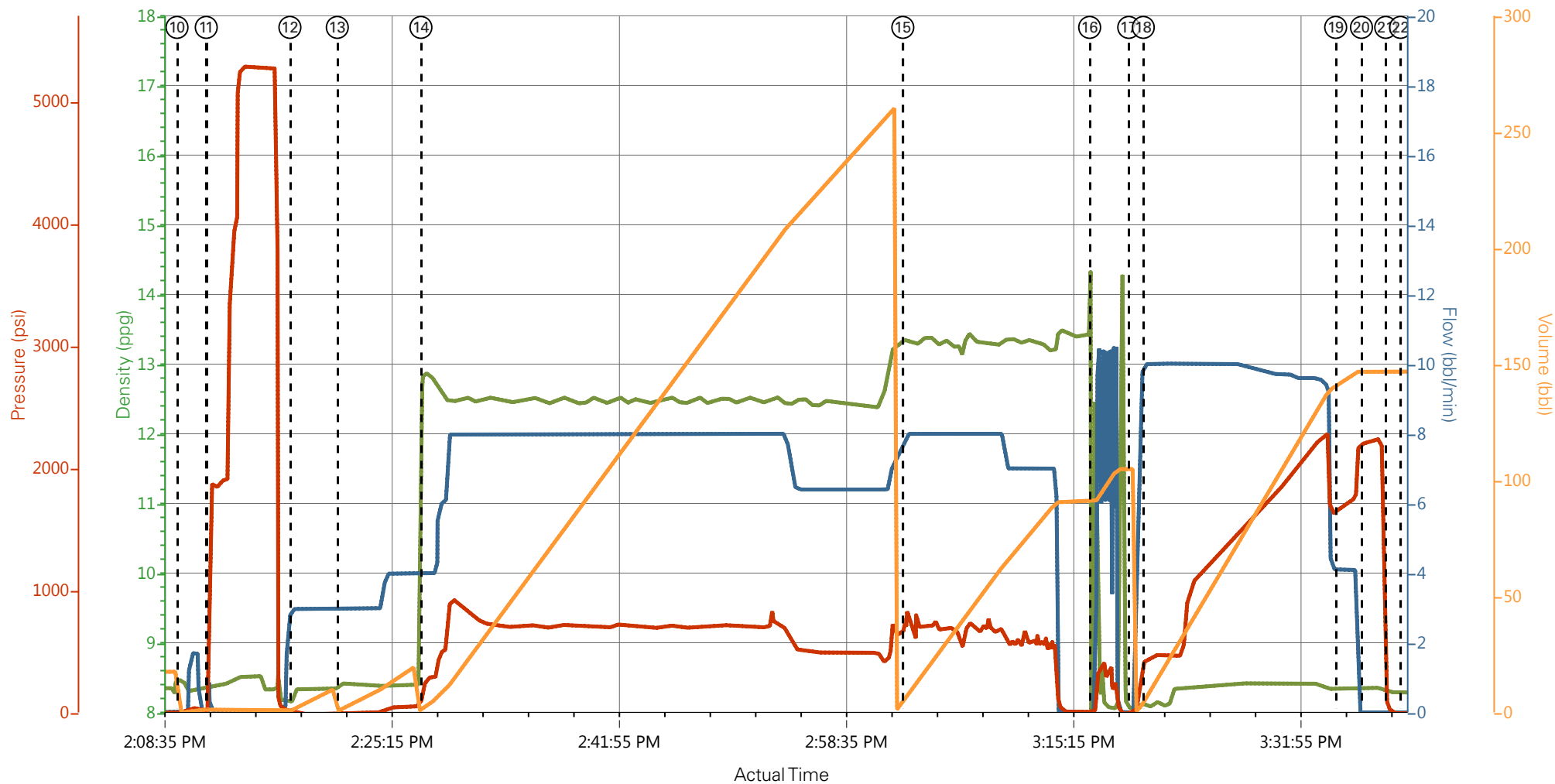
## 2.0 Real-Time Job Summary

## 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	9/13/2017	07:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	9/13/2017	10:25:00	USER					
Event	3	Crew Leave Location	9/13/2017	10:30:00	USER					
Event	4	Arrive At Loc	9/13/2017	11:30:00	USER					
Event	5	Assessment Of Location Safety Meeting	9/13/2017	11:35:00	USER					
Event	6	Spot Equipment	9/13/2017	11:40:00	USER					
Event	7	Pre-Rig Up Safety Meeting	9/13/2017	11:45:00	USER					
Event	8	Rig-Up Equipment	9/13/2017	11:50:00	USER					
Event	9	Pre-Job Safety Meeting	9/13/2017	13:30:00	USER					
Event	10	Start Job	9/13/2017	14:09:45	COM5					TD 9527, TP 9517, SJ 28.35, MW 10.00PPG, 4.5" 11.5#/FT CASING, 8.75 HOLE, WATER TEST PH 7 POTASSIUM 450 CHLORIDE 0 SULFATES <200 TEMP 64
Event	11	Test Lines	9/13/2017	14:11:53	COM5	8.33	0.00	5000	2	5000 PSI TEST
Event	12	Fresh Water Spacer	9/13/2017	14:18:02	COM5	8.33	4.00	50.00	10	
Event	13	Mud Flush Spacer	9/13/2017	14:21:30	COM5	8.4	4.00	75.00	20	
Event	14	Pump Lead Cement	9/13/2017	14:27:38	COM5	12.50	8.00	713.00	269.5	780 SKS, 12.5 PPG, 1.94 YIELD, 9.6 WATER REQ
Event	15	Pump Tail Cement	9/13/2017	15:02:59	COM5	13.30	8.00	717.00	81.6	265 SKS, 13.3 PPG, 1.73 YIELD, 7.81 WATER REQ
Event	16	Clean Lines	9/13/2017	15:16:41	COM5					
Event	17	Drop Top Plug	9/13/2017	15:19:33	COM5					PLUG AWAY

Event	18	Pump Displacement	9/13/2017	15:20:38	COM5	8.48	10.00	1060	147.1	KCL DISPLACEMENT, 1 GAL MMCR, 3# BE6
Event	19	Slow Rate	9/13/2017	15:34:44	USER	8.48	4.00	1669.00	137.0	
Event	20	Bump Plug	9/13/2017	15:36:38	COM5	8.48	4.00	2203.00	147.1	PLUG BUMPED AT CALCULATED DISPLACEMENT
Event	21	Check Floats	9/13/2017	15:38:24	COM5					1BBL BACK, FLOATS HELD
Event	22	End Job	9/13/2017	15:39:30	COM5					
Event	23	Post-Job Safety Meeting (Pre Rig-Down)	9/13/2017	15:45:00	USER					
Event	24	Rig-Down Equipment	9/13/2017	16:00:00	USER					GOOD CIRCULATION THROUGHOUT JOB, PIPE LEFT STATIC THROUGHOUT, NO ADD HOURS CHARGED
Event	25	Pre-Convoy Safety Meeting	9/13/2017	16:55:00	USER					
Event	26	Crew Leave Location	9/13/2017	17:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING GRAND JUNCTION, CO ANTHONY ANDREWS AND CREW

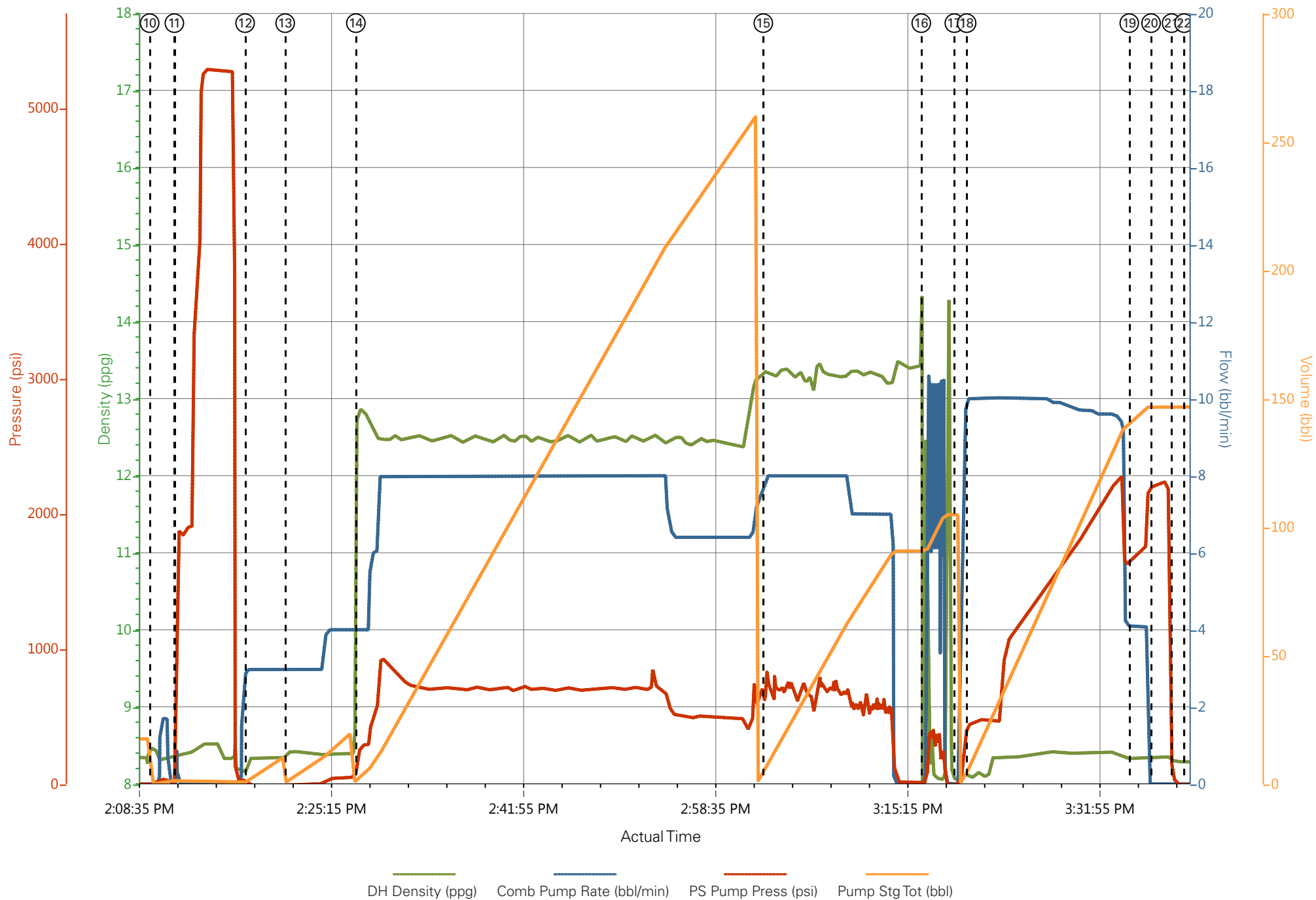
# TEP - SR 542-12 - 4.5 PRODUCTION



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

① Call Out n/a;n/a;n/a;n/a	⑧ Rig-Up Equipment n/a;n/a;n/a;n/a	⑮ Pump Tail Cement 13.35;8;717;6.7	22 End Job 8.29;0;-8;146.8
② Pre-Convoy Safety Meeting n/a;n/a;n/a;n/a	⑨ Pre-Job Safety Meeting 8.34;0;-3;17.5	⑯ Clean Lines 2.61;0;9.47;90.7	23 Post-Job Safety Meeting (Pre Rig-Down) n/a;n/a;n/a;n/a
③ Crew Leave Location n/a;n/a;n/a;n/a	⑩ Start Job 8.45;0;-1;0	⑰ Drop Top Plug 8.06;0;-3;104.8	24 Rig-Down Equipment n/a;n/a;n/a;n/a
④ Arrive At Loc n/a;n/a;n/a;n/a	⑪ Test Lines 8.31;0;1885;1.2	⑱ Pump Displacement 8.09;10;448;7	25 Pre-Convoy Safety Meeting n/a;n/a;n/a;n/a
⑤ Assessment Of Location Safety Meeting n/a;n/a;n/a;n/a	⑫ Fresh Water Spacer 8.32;3;9;1.4	⑲ Slow Rate 8.33;4.1;1669;141.8	26 Crew Leave Location n/a;n/a;n/a;n/a
⑥ Spot Equipment n/a;n/a;n/a;n/a	⑬ Mud Flush Spacer 8.41;3;-8;1.3	20 Bump Plug 8.35;0;2203;146.8	
⑦ Pre-Rig Up Safety Meeting n/a;n/a;n/a;n/a	⑭ Pump Lead Cement 12.9;4;240;2.4	21 Check Floats 8.29;0;26;146.8	

# TEP - SR 542-12 - 4.5 PRODUCTION



# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Lead

### Job Information

<b>Request/Slurry</b>	2414912/1	<b>Rig Name</b>	H&P 318	<b>Date</b>	05/SEP/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>	SR 542-12

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	9530 ft	<b>BHST</b>	115°C / 239°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9324 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



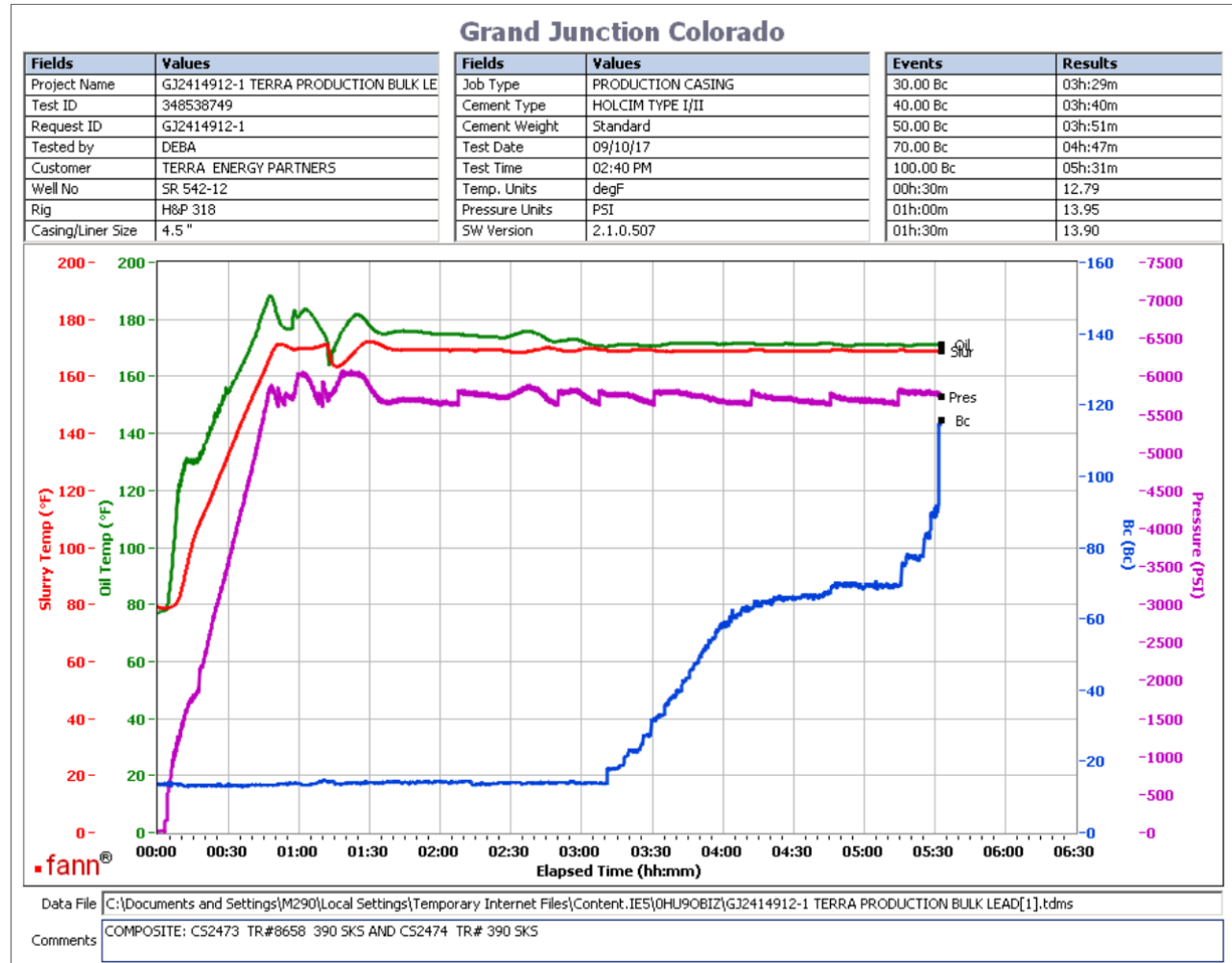
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		NeoCem Lead				Slurry Density	12.5	lbm/gal
						Slurry Yield	1.941	ft3/sack
						Water Requirement	9.623	gal/sack
						Total Mix Fluid	9.623	gal/sack
						Water Source	Fresh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

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Thickening Time - ON-OFF-ON

11/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	3:29	3:51	4:47	5:31	13	57	15	14



Total sks= 780  
 Composite:  
 CS2473 TR#8658 390 SKS  
 CS2474 TR# 1513 390 SkS  
 No deflection

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

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<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>	SR 542-12

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	9530 ft	<b>BHST</b>	115°C / 239°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9324 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>		
		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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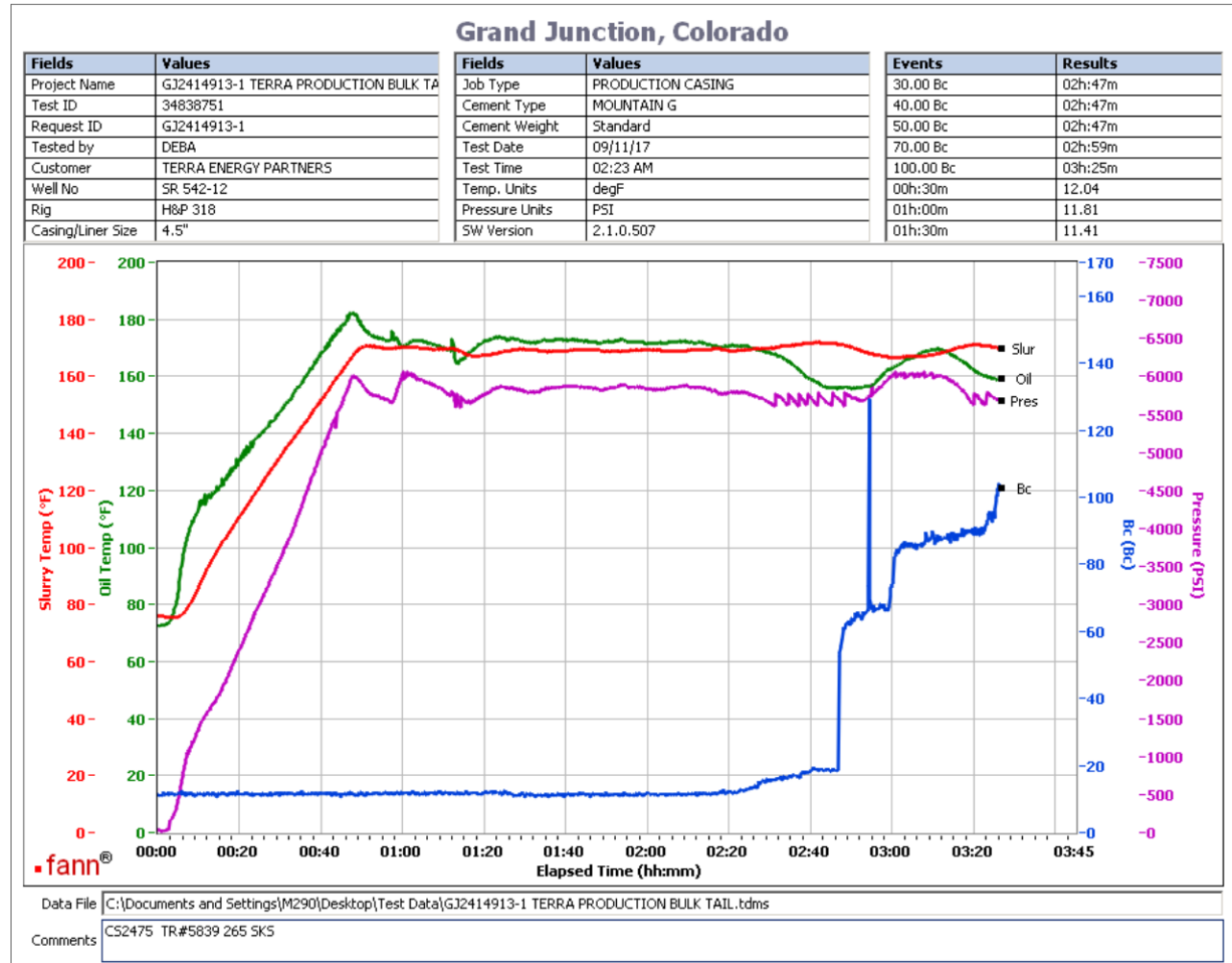


# Operation Test Results Request ID 2414913/1

## Thickening Time - ON-OFF-ON

11/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	2:47	2:47	2:59	3:25	12	57	15	12



265 sks tail  
CS2475 tr#5839 265 sks  
No deflection

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