

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS-EBUS**

**For: Terra**

Date: Thursday, March 01, 2018

**RU 312-17 Surface PJR**

API #: 05-045-23736

Sincerely,

**Grand Junction Cement Engineering**

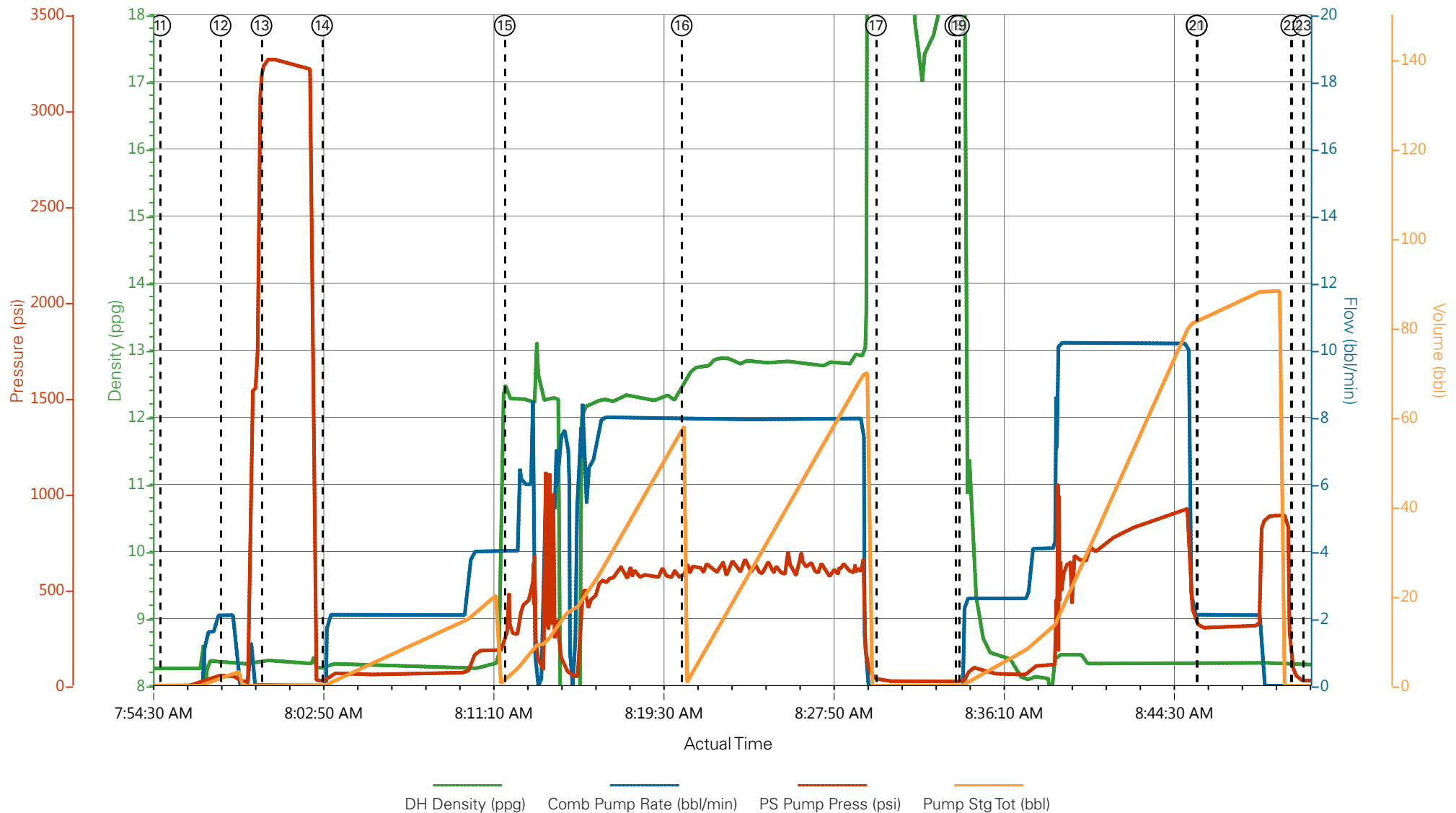
## 2.0 Real-Time Job Summary

## 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	3/1/2018	00:01:00	USER					
Event	2	Pre-Convoy Safety Meeting	3/1/2018	00:45:00	USER					JSA COMPLETE
Event	3	Crew Leave Yard	3/1/2018	01:30:00	USER					
Event	4	Arrive At Loc	3/1/2018	04:00:00	USER					
Event	5	Assessment Of Location Safety Meeting	3/1/2018	05:00:00	USER					WOC SIGNED
Event	6	Pre-Rig Up Safety Meeting	3/1/2018	05:30:00	USER					JSA COMPLETE, 1 ELITE, 1 660
Event	7	Rig-Up Equipment	3/1/2018	05:45:00	USER					
Event	8	Other	3/1/2018	05:49:03	USER					WATER TEST: PH-7, CL-0, TEMP- 64
Event	9	Other	3/1/2018	05:50:10	USER					9 5/8 32.3 # TP-1141, TD-1151, S.J.-46.37, HOLE-13.5, MMUD#- 9.3
Event	10	Pre-Job Safety Meeting	3/1/2018	07:20:00	USER					JSA COMPLETE
Event	11	Start Job	3/1/2018	07:55:00	COM5					
Event	12	Prime Pumps	3/1/2018	07:57:57	COM5					FRESH WATER
Event	13	Test Lines	3/1/2018	07:59:57	COM5	8.33	0.00	3271.00	0.1	3271 PSI TEST GOOD
Event	14	Pump Spacer 1	3/1/2018	08:02:55	COM5	8.33	3.00	68	20.00	FRESH WATER
Event	15	Pump Lead Cement	3/1/2018	08:11:52	COM5	12.30	8.00	620.0	52.9	125 SKS, 12.3 PPG, 2.38 FT3/SK, 13.77 GAL/SK
Event	16	Pump Tail Cement	3/1/2018	08:20:32	COM5	12.80	8.00	640.0	65.8	175 SKS, 12.8 PPG, 2.11

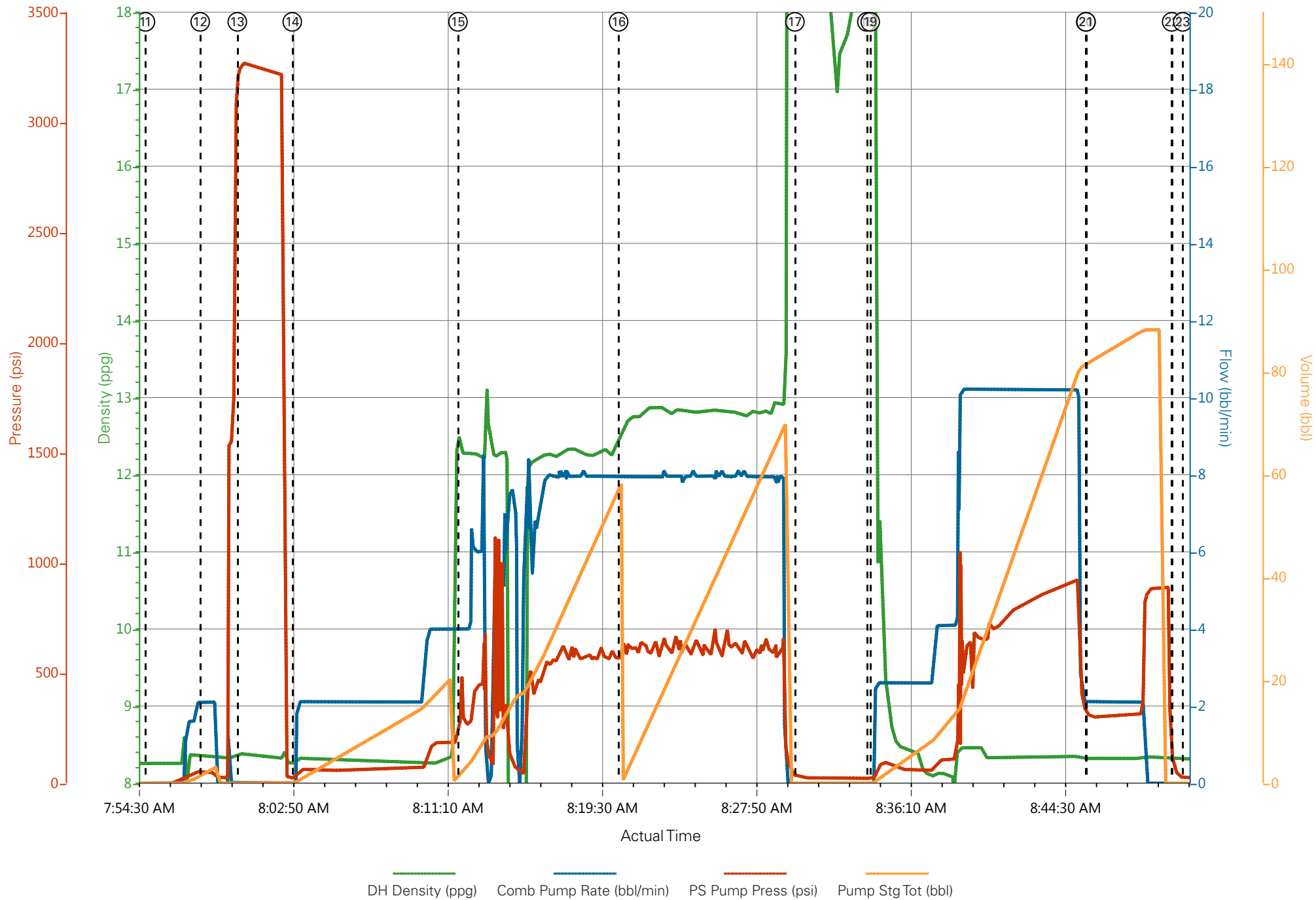
FT3/SK, 11.78 GAL/SK										
Event	17	Shutdown	3/1/2018	08:30:03	COM5					TO DROP TOP PLUG
Event	18	Drop Top Plug	3/1/2018	08:33:56	COM5					AWAY
Event	19	Pump Displacement	3/1/2018	08:34:07	COM5	8.33	10	900	86.1	FRESH WATER
Event	20	Slow Rate	3/1/2018	08:45:45	USER	8.33	2.00	300.0	76	TO BUMP PLUG
Event	21	Bump Plug	3/1/2018	08:45:46	USER	8.33	2.00	310.0	86.1	PLUG BUMPED
Event	22	Check Floats	3/1/2018	08:50:24	USER			890		FLOATS HELD 0.5 BBLS BACK TO TRUCK
Event	23	End Job	3/1/2018	08:51:00	COM5					GOOD RETURNS THROUGHOUT JOB, NO PIPE MOVEMENT 36 BBLS OF CEMENT TO SURFACE
Event	24	Post-Job Safety Meeting (Pre Rig-Down)	3/1/2018	09:05:00	USER					JSA COMPLETE
Event	25	Rig Down Lines	3/1/2018	09:45:00	USER					BLEW DOWN STAND PIPE AND ALL IRON ON LOCATION
Event	26	Crew Leave Location	3/1/2018	10:30:00	USER					THANK YOU FOR USING HALLIBURTON CEMENT, JAMES LEIST AND CREW

# TEP - RU 312-17 - 9 5/8 SURFACE CASING



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

# TEP - RU 312-17 - 9 5/8 SURFACE CASING



## Job Information

Request/Slurry	2457625/1	Rig Name	H&P 318	Date	01/MAR/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 312-17

## Well Information

Casing/Liner Size	4.5 in	Depth MD	11067 ft	BHST	127°C / 260°F
Hole Size	8.75 in	Depth TVD	10580 ft	BHCT	92°C / 198°F
Pressure	6706 psi				

## Drilling Fluid Information

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



Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties	
						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 2457625/1

## Thickening Time - ON-OFF-ON

02/MAR/2018

Test Temp (degF)	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)
198	6706	52	3:38	4:06	4:16	4:50	11	62	15	12

Total sks = 950

CS0530, Trailer 1513, 400 sks

CS0531, Trailer 8476, 400 sks

CS0532, Trailer 1972, 150 sks

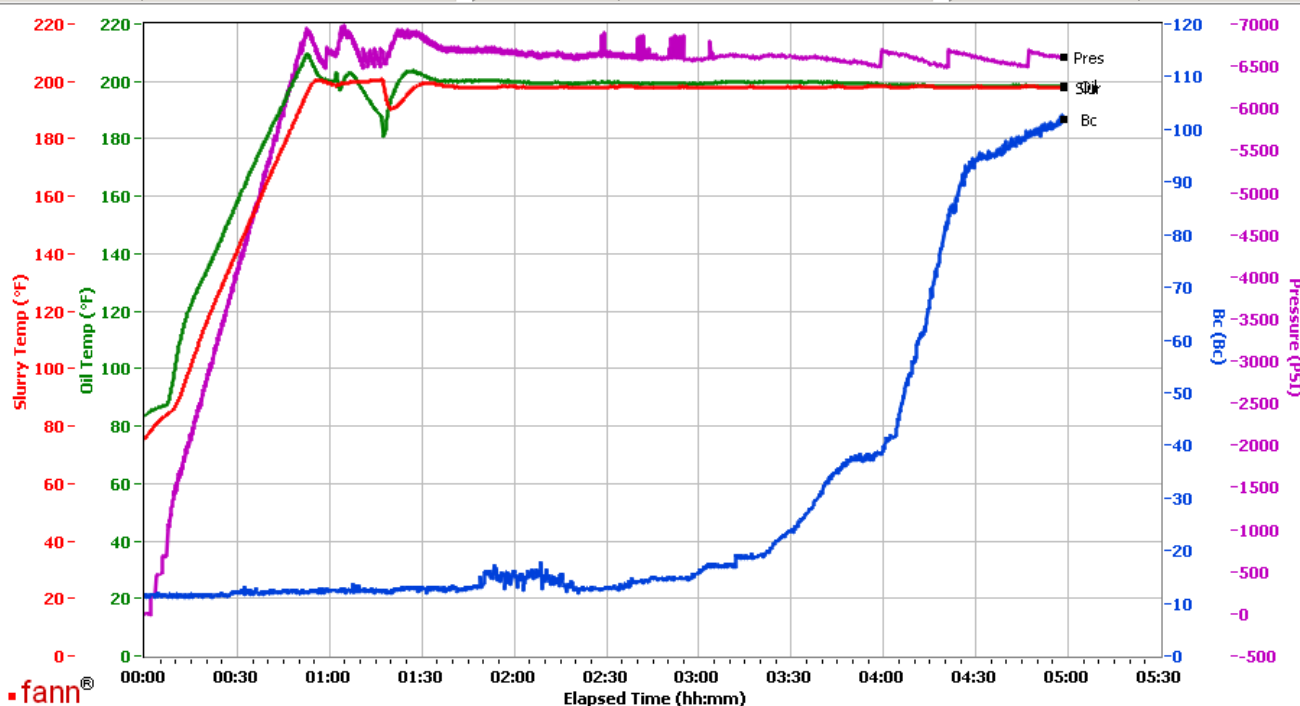
No deflection

## Grand Junction Colorado

Fields	Values
Project Name	2457625-1 TERRA BULK PRODUCTION LEAD
Test ID	35297776 - TT
Request ID	2457625-1
Tested by	CT
Customer	TERRA ENERGY PARTNERS
Well No	RU 312-17
Rig	H&P 318
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	HOLCIM TTYPE I-II
Cement Weight	Standard
Test Date	03/01/18
Test Time	09:59 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:38m
40.00 Bc	04h:00m
50.00 Bc	04h:06m
70.00 Bc	04h:16m
100.00 Bc	04h:50m
00h:30m	12.09
01h:00m	12.66
01h:30m	12.80



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\0HU9OBIZ\GJ2457625-1 TERRA BULK PRODUCTION LEAD[1].tdms

Comments CS0530, TRAILER 1513, 400 SKS - CS0531, TRAILER 8476, 400 SKS - CS0532, TRAILER 1972, 150 SKS

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2457626/1	Rig Name	H&P 318	Date	01/MAR/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 312-17

### Well Information

Casing/Liner Size	4.5 in	Depth MD	11067 ft	BHST	127°C / 260°F
Hole Size	8.75 in	Depth TVD	10580 ft	BHCT	92°C / 198°F
Pressure	6706 psi				

### Drilling Fluid Information

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>	<u>Cement Properties</u>	
						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 2457626/1**

## **Thickening Time - ON-OFF-ON**

**02/MAR/2018**

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)
198	6706	52	5:28	5:36	5:42	6:16	18	62	15	15

Total sks = 265

CS0534 TR 3212 265 SKS

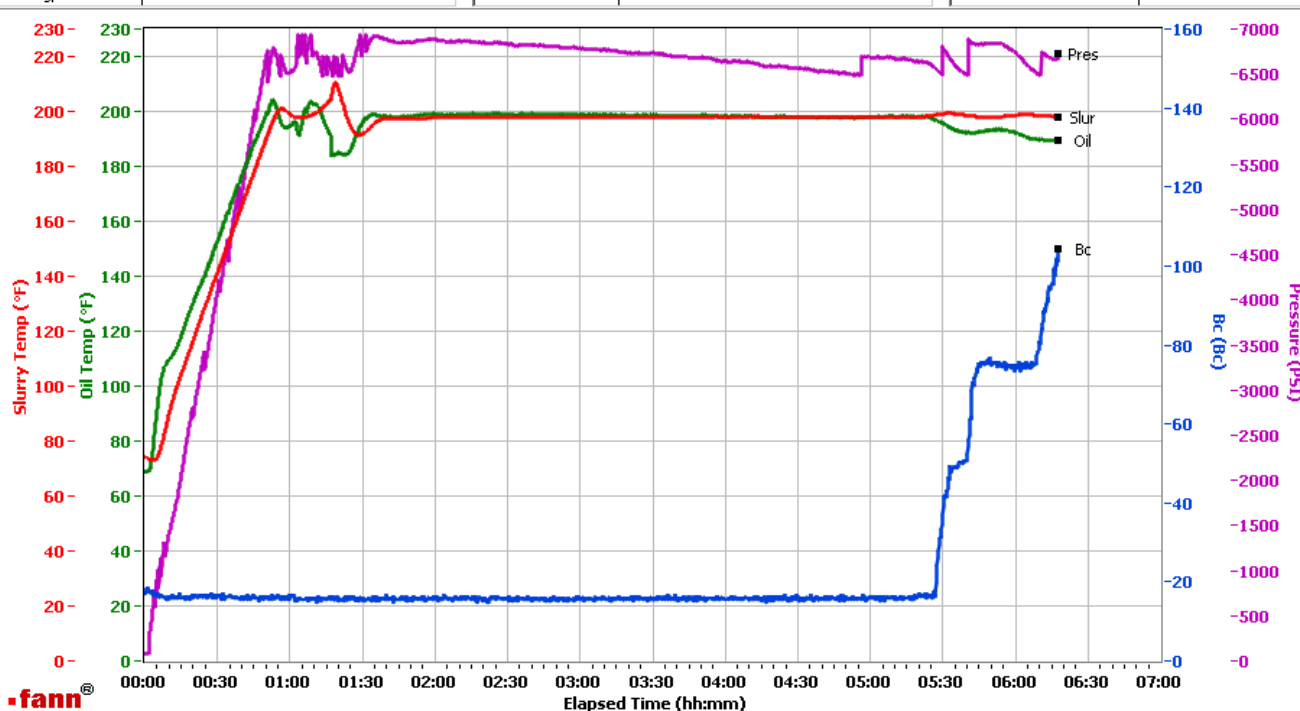
Deflection: 15 – 15

## **Grand Junction Colorado**

Fields	Values
Project Name	GJ2457626-1 TERRA PRODUCTION BULK TA
Test ID	35297778
Request ID	2457626-1
Tested by	JASON
Customer	TERRA ENERGY PARTNERS
Well No	RU 312-17
Rig	H8P 318
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION
Cement Type	MOUNTAIN G
Cement Weight	Light Weight
Test Date	04/09/11
Test Time	10:53 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.1219

Events	Results
30.00 Bc	05h:28m
40.00 Bc	05h:30m
50.00 Bc	05h:36m
70.00 Bc	05h:42m
100.00 Bc	06h:16m
00h:30m	16.27
01h:00m	16.44
01h:30m	15.30



Data File	C:\Documents and Settings\HPHT\Local Settings\Temporary Internet Files\Content.IE5\09ERK9UN\GJ2457626-1 TERRA BULK PRODUCTION TAIL[1].tdms
Comments	CS0534 TR 3212 265 SKS

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