

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS-EBUS**

Date: Monday, May 21, 2018

### **RU 514-17**

Terra RU 514-17 Production

API# 05-045-23733-00

Job Date: Wednesday, May 16, 2018

Sincerely,

**Grand Junction Cement Engineering**

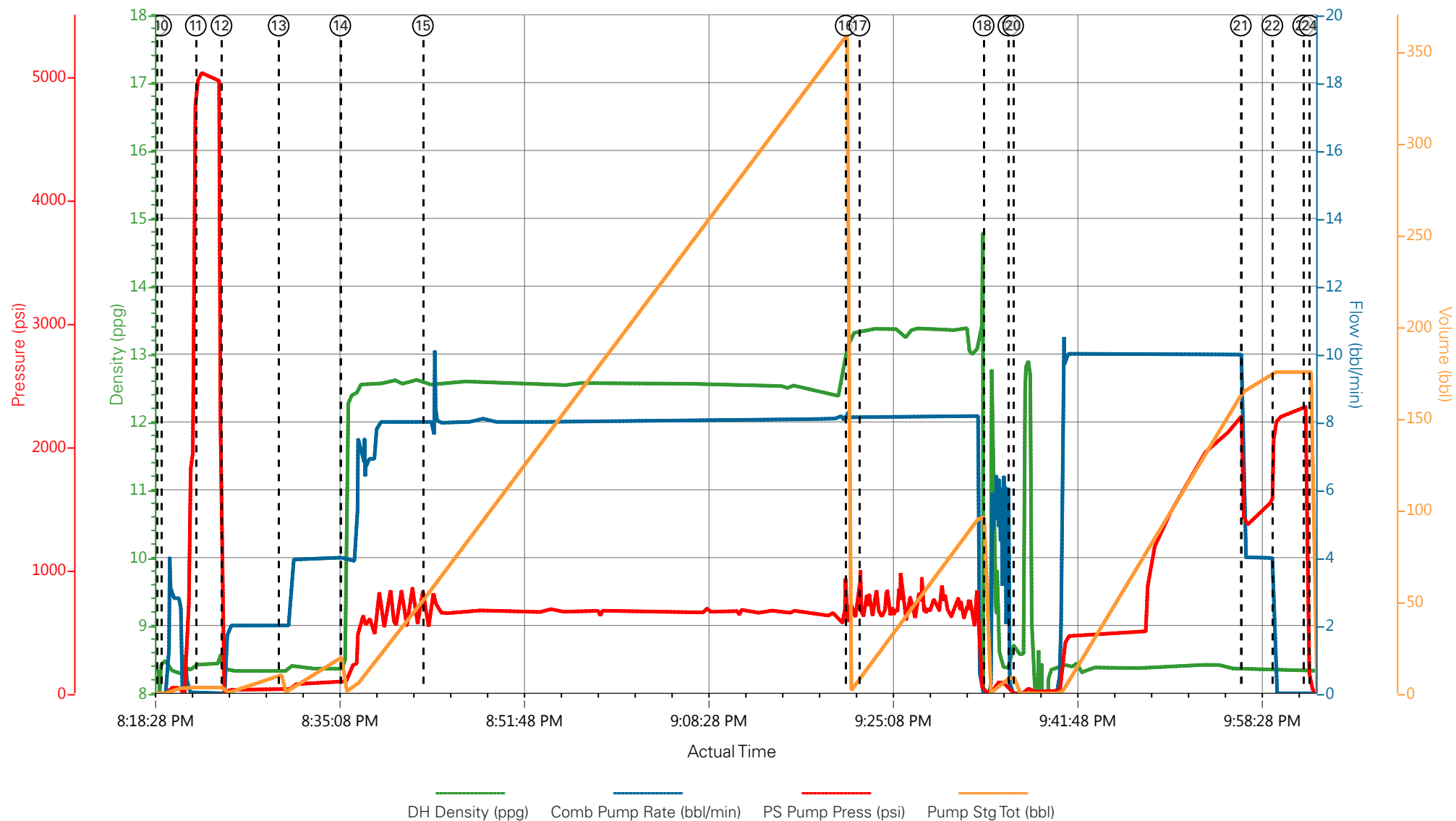
## 1.0 Real-Time Job Summary

## 1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	5/16/2018	12:00:00	USER					REQUESTED ON LOCATION @ 18:00
Event	2	Pre-Convoy Safety Meeting	5/16/2018	14:45:00	USER					ALL HES EMPLOYEES PRESENT
Event	3	Crew Leave Yard	5/16/2018	15:00:00	USER					1 HT 400 PUMP TRUCK E1, 1 660 BULK TRUCK, 1 F450 SERVICE TRUCK
Event	4	Arrive At Loc	5/16/2018	17:30:00	USER					RIG RUNNING CASING UPON HES ARRIVAL
Event	5	Assessment Of Location Safety Meeting	5/16/2018	17:40:00	USER					MET WITH COMP REP, AND WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE (PH- 7.0, CHLORIDES- 500, TEMP- 65F). COMP REP WAS OFFERED SDS FOR ALL CHEMICALS USED BY HES.
Event	6	Pre-Rig Up Safety Meeting	5/16/2018	17:45:00	USER					ALL HES PRESENT
Event	7	Rig-Up Equipment	5/16/2018	18:23:55	USER					HES RIGGED UP EQUIPMENT WITHOUT ENTERING RED ZONE.
Event	8	Pre-Job Safety Meeting	5/16/2018	19:45:00	USER					ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG CIRCULATED @ 10 BPM PRIOR TO JOB PRESSURE @ 2000PSI, 2000 CFM
Event	9	Start Job	5/16/2018	20:18:53	COM6					TD 10872', TP 10863', SJ 27.50', SURFACE CSG 9 5/8" 32.3# H-40 SET @ 1136' PRODUCTION CSG 4 1/2" 11.6# P-110, OH 8 3/4", MUD 9 PPG

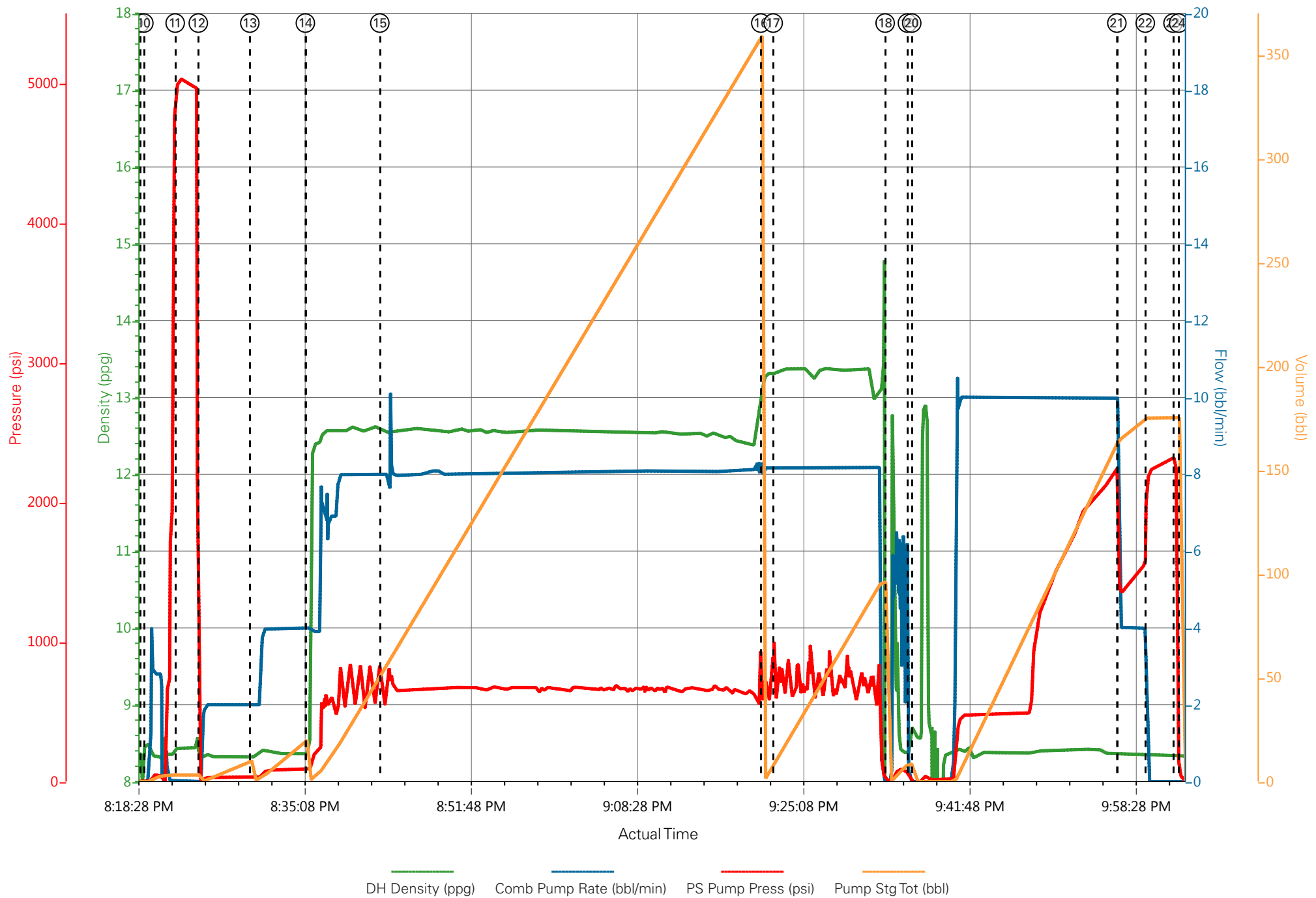
Event	10	Prime Lines	5/16/2018	20:19:17	USER	8..33	2	55	3	8.33 PPG FRESH WATER
Event	11	Test Lines	5/16/2018	20:22:25	COM6			5036		ALL LINES HELD PRESSURE AT 5036 PSI
Event	12	Pump H2O Spacer	5/16/2018	20:24:44	COM6	8.33	2	60	10	8.33 PPG FRESH WATER
Event	13	Mud Flush	5/16/2018	20:29:54	COM6	8.4	4	85	20	20 BBL MUDFLUSH III
Event	14	Pump Lead Cement	5/16/2018	20:35:28	COM6	12.5	8	680	325	940 SKS NEOCEM CMT 12.5 PPG, 1.94 FT3/SK, 9.62 GAL/SK
Event	15	Check weight	5/16/2018	20:42:56	COM6					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	16	Pump Tail Cement	5/16/2018	21:21:08	COM6	13.3	8	680	81.7	265 SKS THERMACEM CMT 13.3 PPG, 1.73 FT3/SK, 7.81 GAL/SK.
Event	17	Check weight	5/16/2018	21:22:23	COM6					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	18	Clean Lines	5/16/2018	21:33:37	COM6					END OF CEMENT. CLEAN PUMPS AND LINES TO PIT.
Event	19	Drop Top Plug	5/16/2018	21:35:51	COM6					VERIFIED BY FLAG INDICATOR
Event	20	Pump Displacement	5/16/2018	21:36:17	COM6	8.4	10	2200	168	1 GAL MMCR IN FIRST 10 BBLS, 3 LBS BE-6 IN FIRST 30 BBLS, 1 50 LB. BAG KCL THROUGHOUT DISPLACEMENT
Event	21	Slow Rate	5/16/2018	21:56:51	USER	8.4	4	1360	158	SLOW RATE TO 4 BPM TO BUMP PLUG
Event	22	Bump Plug	5/16/2018	21:59:42	COM6	8.4	4	1560	168	LANDED PLUG AT 1560 PSI, BROUGHT UP TO 2250 PSI
Event	23	Check Floats	5/16/2018	22:02:29	USER					FLOATS HELD, 1.5BBLS BACK TO TRUCK
Event	24	End Job	5/16/2018	22:03:02	COM6					HAD RETURNS BEFORE JOB AND THROUGHT CEMENT. LOST RETURNS DURING WASH UP AND REGAINED RETURNS AT 120BBLS GONE ON DISPLACEMENT.
Event	25	Post-Job Safety Meeting (Pre Rig-Down)	5/16/2018	22:05:00	USER					ALL HES PRESENT
Event	26	Rig-Down Equipment	5/16/2018	22:15:00	USER					ALL HES PRESENT
Event	27	Pre-Convoy Safety Meeting	5/16/2018	23:15:00	USER					ALL HES PRESENT
Event	28	Crew Leave Location	5/16/2018	23:30:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, SHAWN BLOSSOM AND CREW

# TERRA RU 514-17, 4.5" PRODUCTION



- |   |                          |                    |                      |   |
|---|--------------------------|--------------------|----------------------|---|
| ① Call Out                              | ⑦ Rig-Up Equipment       | ⑬ Mud Flush        | ⑰ Drop Top Plug      | 25 Post-Job Safety Meeting (Pre Rig-Down) |
| ② Pre-Convoy Safety Meeting             | ⑧ Pre-Job Safety Meeting | ⑭ Pump Lead Cement | 20 Pump Displacement | 26 Rig-Down Equipment                     |
| ③ Crew Leave Yard                       | ⑨ Start Job              | ⑮ Check weight     | 21 Slow Rate         | 27 Pre-Convoy Safety Meeting              |
| ④ Arrive At Loc                         | ⑩ Prime Lines            | ⑯ Pump Tail Cement | 22 Bump Plug         | 28 Crew Leave Location                    |
| ⑤ Assessment Of Location Safety Meeting | ⑪ Test Lines             | ⑰ Check weight     | 23 Check Floats      |   |
| ⑥ Pre-Rig Up Safety Meeting             | ⑫ Pump H2O Spacer        | ⑱ Clean Lines      | 24 End Job           |   |

# TERRA RU 514-17, 4.5" PRODUCTION



## Job Information

Request/Slurry	2472803/1	Rig Name	H&P 318	Date	06/MAY/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 514-17

## Well Information

Casing/Liner Size	4.5 in	Depth MD	11061 ft	BHST	127°C / 260°F
Hole Size	8.75 in	Depth TVD	10569 ft	BHCT	92°C / 197°F
Pressure	6698 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 2472803/1

## Thickening Time - ON-OFF-ON

10/MAY/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)
197	6698	52	4:14	4:20	4:24	4:46	5	62	15	4

Total sks = 940

CS1031 TR#8658 400 SKS

CS1032 TR#8678 400 SKS

CS1033 TR#7304 140 SKS

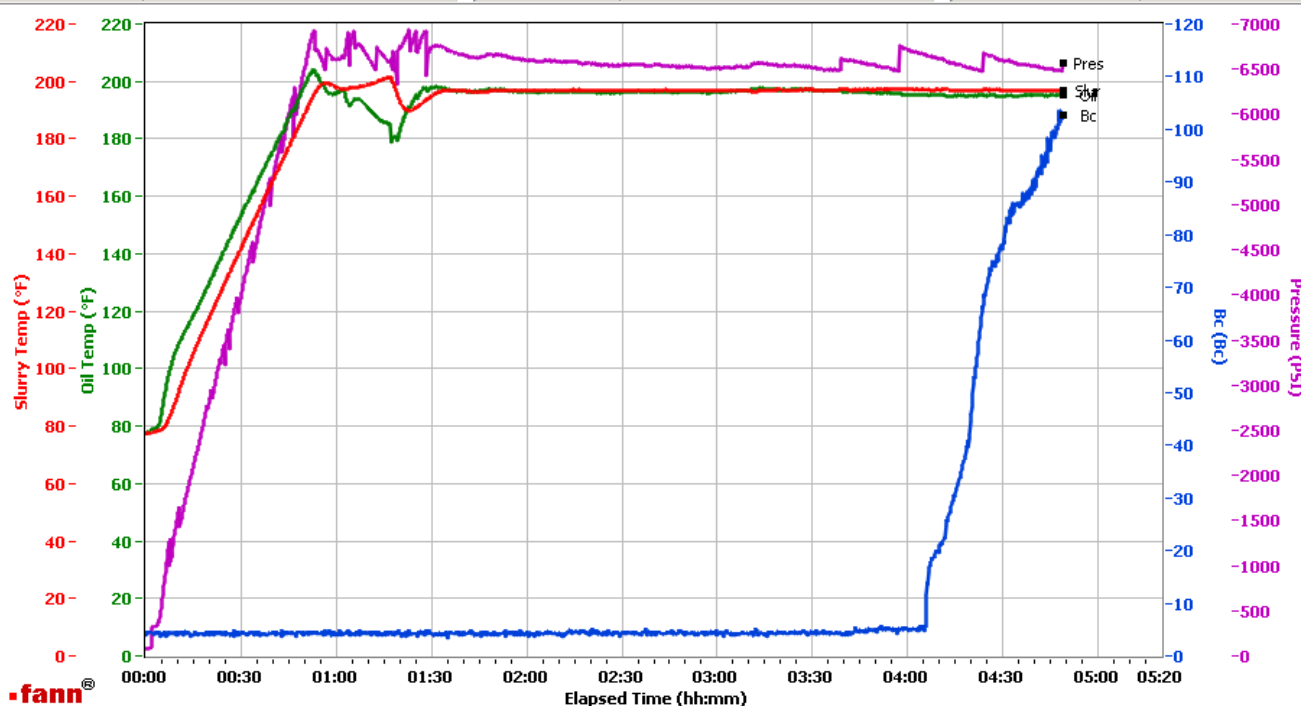
No deflection

## Grand Junction Colorado

Fields	Values
Project Name	GJ2472803-1 TERRA PRODUCTION BULK LE
Test ID	35475123
Request ID	GJ2472803-1
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	RU 514-17
Rig	H&P 318
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	GCC TYPE I-II
Cement Weight	Standard
Test Date	06/17/11
Test Time	10:53 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.1219

Events	Results
30.00 Bc	04h:14m
40.00 Bc	04h:18m
50.00 Bc	04h:20m
70.00 Bc	04h:24m
100.00 Bc	04h:46m
00h:30m	4.38
01h:00m	4.10
01h:30m	4.19



Data File C:\Documents and Settings\HPHT\Desktop\Test Data\GJ2472803-1 TERRA PRODUCTION BULK LEAD.tdms

Comments CS1031 TR#8658 400 SKS, CS1032 TR#8678 400 SKS, AND CS1033 TR#7304 140 SKS

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2472804/1	Rig Name	H&P 318	Date	06/MAY/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 514-17

### Well Information

Casing/Liner Size	4.5 in	Depth MD	11061 ft	BHST	127°C / 260°F
Hole Size	8.75 in	Depth TVD	10569 ft	BHCT	92°C / 197°F
Pressure	6698 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	1.734 ft3/sack
						Water Requirement	7.809 gal/sack
						Total Mix Fluid	7.809 gal/sack
						Water Source	Fresh Water
						Water Chloride	

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# Operation Test Results Request ID 2472804/1

## Thickening Time - ON-OFF-ON

11/MAY/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)
197	6698	52	5:26	5:35	5:35	5:35	16	62	15	17

Total sks = 265

CS1034 TR 7094 265 SKS

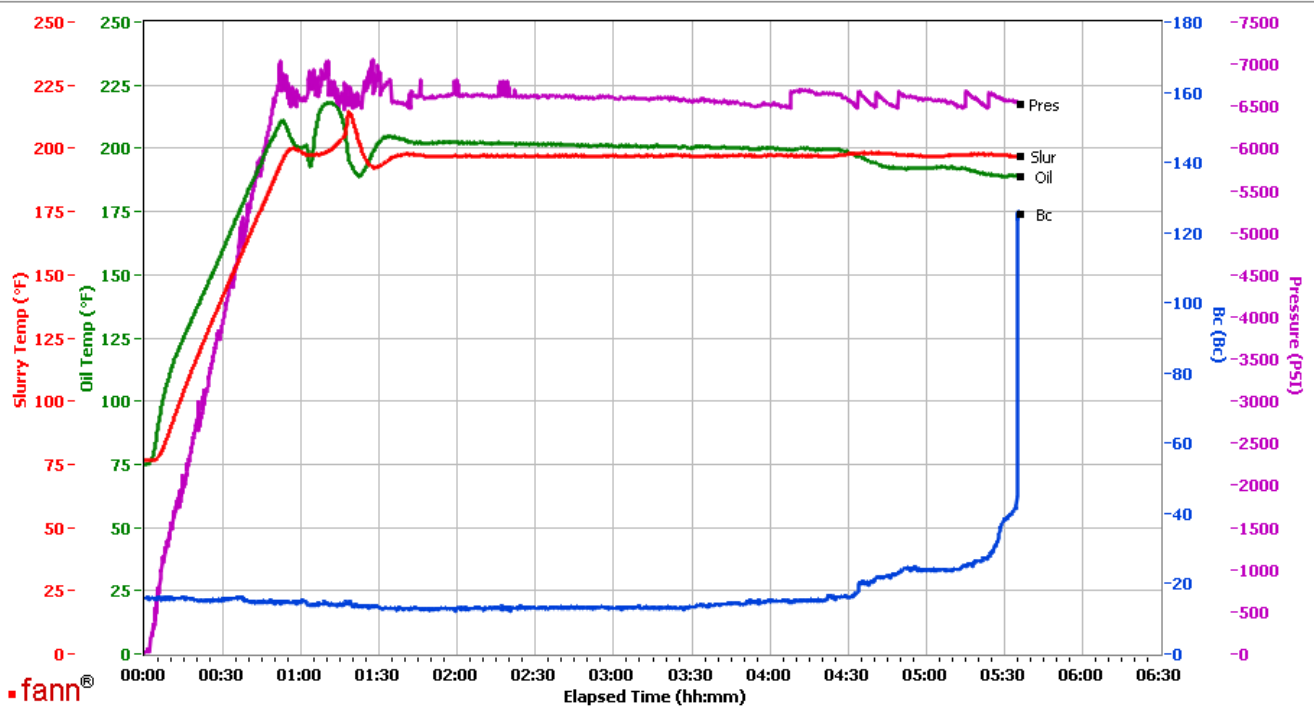
Deflection: 17 - 17

## Grand Junction, Colorado

Fields	Values
Project Name	GJ2472804-1 TERRA PRODUCTION BULK TA
Test ID	35475125
Request ID	2472804-1
Tested by	JASON
Customer	TERRA ENERGY PARTNERS
Well No	RU 514-17
Rig	H&P 318
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION
Cement Type	MOUNTAIN G
Cement Weight	Light Weight
Test Date	05/11/18
Test Time	12:14 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	05h:26m
40.00 Bc	05h:32m
50.00 Bc	05h:35m
70.00 Bc	05h:35m
100.00 Bc	05h:35m
00h:30m	15.39
01h:00m	15.22
01h:30m	13.14



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\0HU9OBIZ\GJ2472804-1 TERRA PRODUCTION BULK TAIL [1].tdms

Comments CS1034 TR 7094 265 SKS

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