

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS-EBUS**

Date: Tuesday, May 01, 2018

### **RU 14-17**

Terra RU 14-17 Production  
API# 05-045-23741-00  
Job Date: Monday, April 30, 2018

Sincerely,

**Grand Junction Cement Engineering**

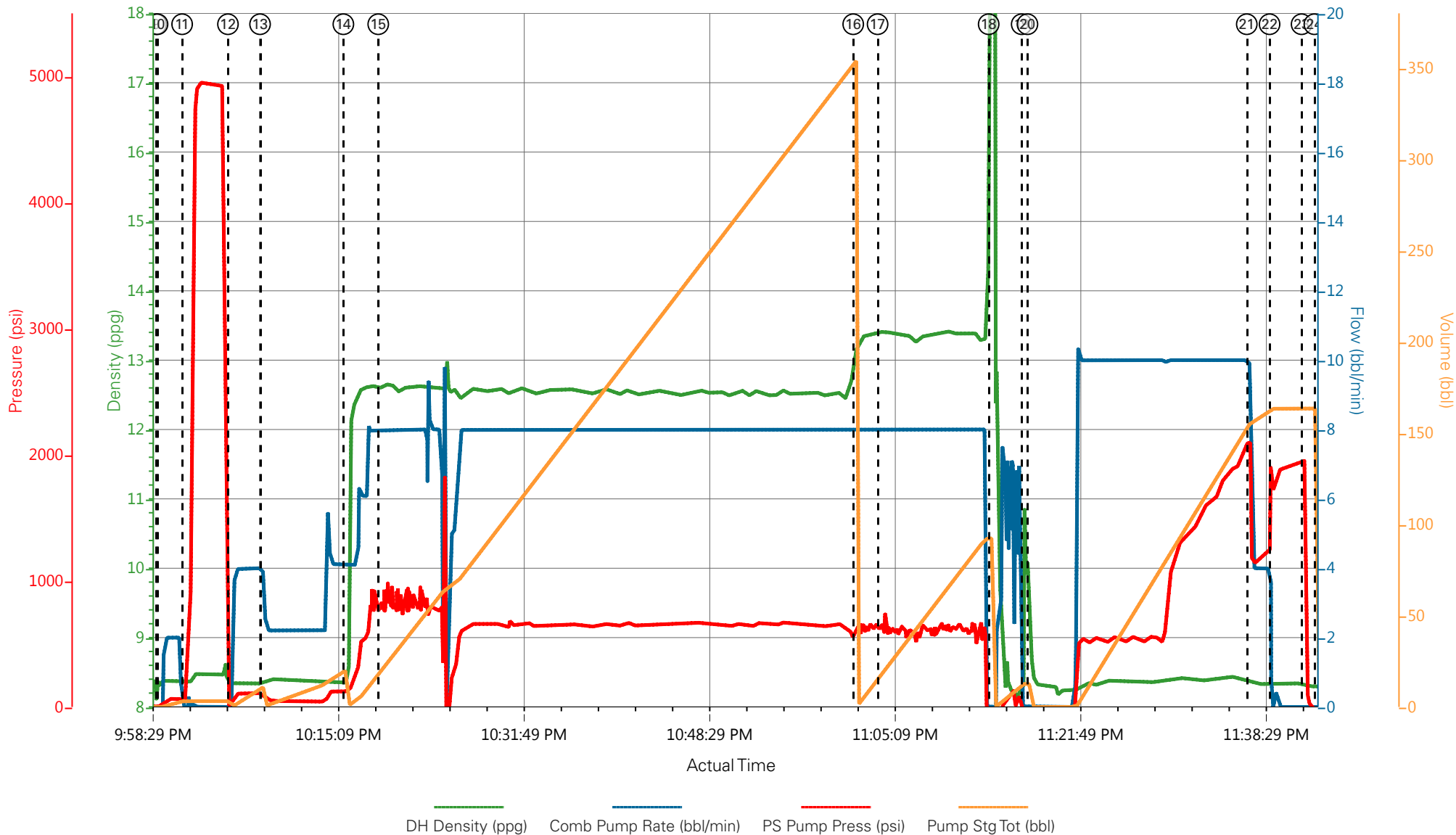
## 1.0 Real-Time Job Summary

### 1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	PS Pump Press <i>(psi)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	4/30/2018	12:30:00	USER					REQUESTED ON LOCATION @ 19:00
Event	2	Pre-Convoy Safety Meeting	4/30/2018	14:45:00	USER					ALL HES EMPLOYEES PRESENT
Event	3	Crew Leave Yard	4/30/2018	15:00:00	USER					1 HT 400 PUMP TRUCK E1, 1 660 BULK TRUCK, 1 F450 SERVICE TRUCK
Event	4	Arrive At Loc	4/30/2018	17:30:00	USER					RIG RUNNING CASING UPON HES ARRIVAL
Event	5	Assessment Of Location Safety Meeting	4/30/2018	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- 50F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Pre-Rig Up Safety Meeting	4/30/2018	17:45:00	USER					ALL HES PRESENT
Event	7	Rig-Up Equipment	4/30/2018	18:37:50	USER					HES RIGGED UP EQUIPMENT WITHOUT ENTERING RED ZONE.
Event	8	Pre-Job Safety Meeting	4/30/2018	21:45:00	USER					ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG CIRCULATED @ 12 BPM PRIOR TO JOB PRESSURE @ 1375 PSI, 2200 CFM
Event	9	Start Job	4/30/2018	21:59:04	COM6					TD 10736', TP 10729', SJ 20.75', SURFACE CSG 9 5/8" 32.3# H-40 SET @ 1111' PRODUCTION CSG 4 1/2" 11.6# P-110, OH 8 3/4", MUD 9 PPG

Event	10	Prime Lines	4/30/2018	21:59:12	USER	8.33	2	66	3	8.33 PPG FRESH WATER
Event	11	Test Lines	4/30/2018	22:01:25	COM6	8.33		4955		ALL LINES HELD PRESSURE AT 4955 PSI
Event	12	Pump H2O Spacer	4/30/2018	22:05:32	COM6	8.33	4	115	10	8.33 PPG FRESH WATER
Event	13	Mud Flush	4/30/2018	22:08:25	COM6	8.5	4	125	20	20 BBL MUDFLUSH III
Event	14	Pump Lead Cement	4/30/2018	22:15:54	COM6	12.5	8	650	325	940 SKS NEOCEM CMT 12.5 PPG, 1.94 FT3/SK, 9.6 GAL/SK
Event	15	Check weight	4/30/2018	22:19:02	COM6					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	16	Pump Tail Cement	4/30/2018	23:01:42	COM6	13.3	8	640	81.7	265 SKS THERMACEM CMT 13.3 PPG, 1.73 FT3/SK, 7.81 GAL/SK.
Event	17	Check weight	4/30/2018	23:03:53	COM6					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	18	Clean Lines	4/30/2018	23:13:52	COM6					END OF CEMENT. CLEAN PUMPS AND LINES TO PIT.
Event	19	Drop Top Plug	4/30/2018	23:16:50	COM6					VERIFIED BY FLAG INDICATOR
Event	20	Pump Displacement	4/30/2018	23:17:21	COM6	8.4	10	2100	166	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	4/30/2018	23:37:03	USER	8.4	4	1140	155	SLOW RATE TO 4 BPM TO BUMP PLUG
Event	22	Bump Plug	4/30/2018	23:39:06	COM6	8.4	4	1250	166	LANDED PLUG AT 1250 PSI, BROUGHT UP TO 1900 PSI
Event	23	Check Floats	4/30/2018	23:41:59	USER					FLOATS HELD, 1.5BBLS BACK TO TRUCK
Event	24	End Job	4/30/2018	23:43:08	COM6					HAD RETURNS BEFORE JOB AND THROUGHT CEMENT. LOST RETURNS DURING WASH UP AND NEVER REGAIN RETURNS DURING DISPLACEMENT.
Event	25	Post-Job Safety Meeting (Pre Rig-Down)	5/1/2018	00:00:00	USER					ALL HES PRESENT
Event	26	Rig-Down Equipment	5/1/2018	00:15:00	USER					ALL HES PRESENT
Event	27	Pre-Convoy Safety Meeting	5/1/2018	01:00:00	USER					ALL HES PRESENT
Event	28	Crew Leave Location	5/1/2018	01:10:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, SHAWN BLOSSOM AND CREW

# TERRA RU 14-17, 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           |   |

▼ **HALLIBURTON** | iCem<sup>®</sup> Service

Created: 2018-04-30 14:17:27, Version: 4.2.393

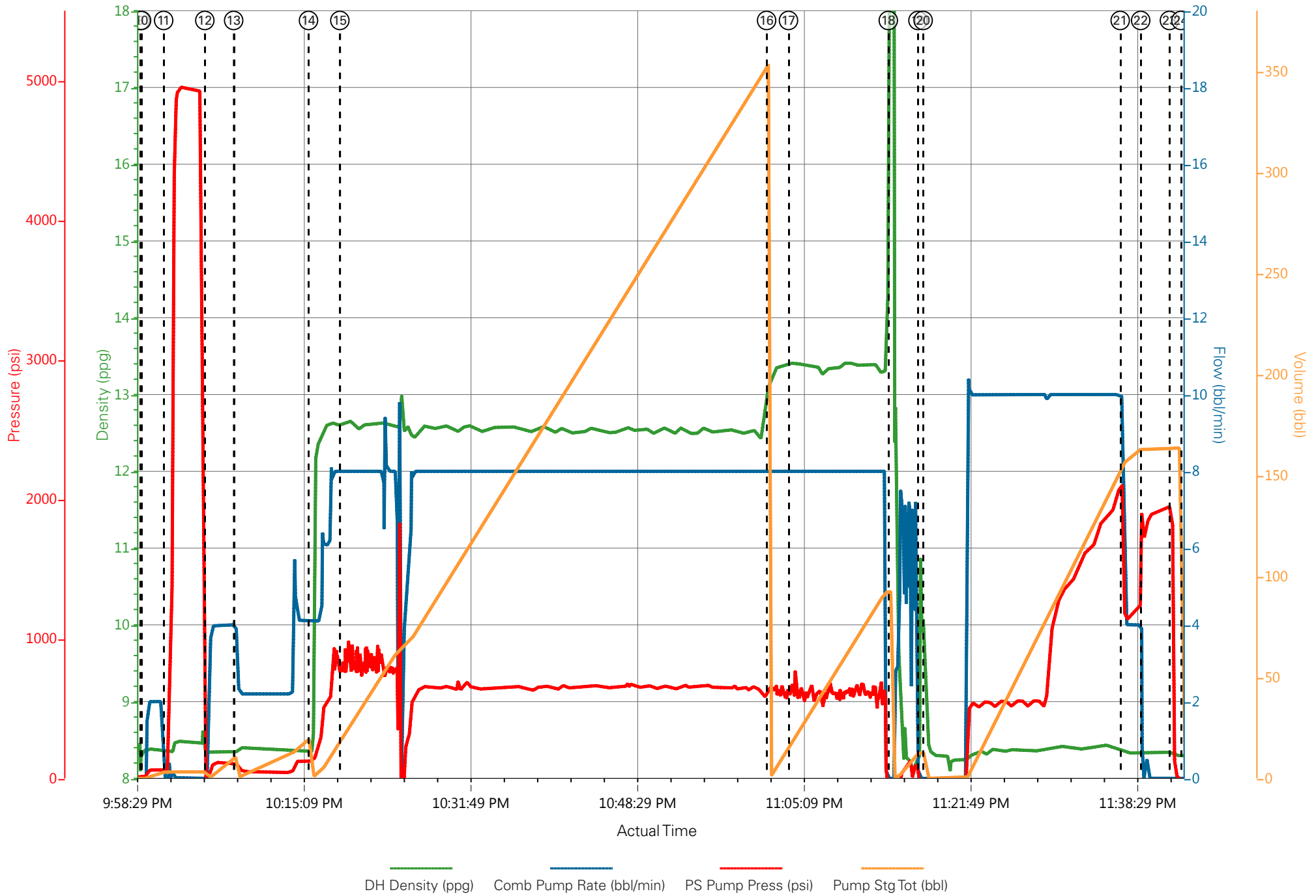
[Edit](#)

Customer : TERRA ENERGY PARTNERS-EBUS  
 Representative : NATHAN BARR

Job Date : 4/30/2018  
 Sales Order # : 904804469

Well : RU 14-17  
 ELITE 1 : PSALAZAR/S.BLOSSOM

# TERRA RU 14-17, 4.5" PRODUCTION



## Job Information

<b>Request/Slurry</b>	2469595/1	<b>Rig Name</b>	H&P 318	<b>Date</b>	21/APR/2018
<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>	RU 14-17

## Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10918 ft	<b>BHST</b>	127°C / 260°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	10572 ft	<b>BHCT</b>	92°C / 198°F
<b>Pressure</b>	6700 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				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		

## Operation Test Results Request ID 2469595/1

<b>Mixability (0 - 5) - 0 is not mixable</b>		<b>25/APR/2018</b>
<b>Mixability rating (0 - 5)</b>	<b>Avg rpm mixing under load (~12,000)</b>	<b>Blend addition time (sec) @ 4,000 RPM</b>
5	12000	0

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

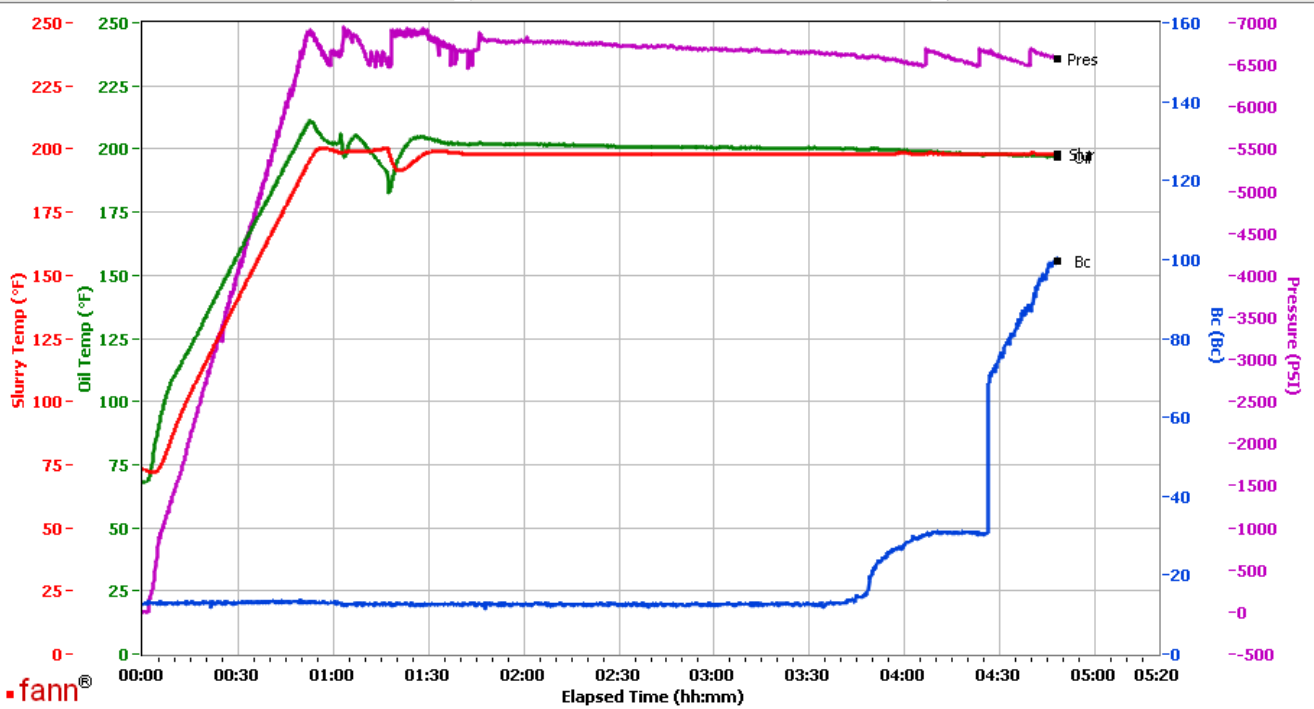
**25/APR/2018**

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	6700	52	4:02	4:26	4:26	4:48	13	62	15	12

Total sks =940  
 CS0942 TR#8658 400 SKS  
 CS0943 TR#8677 400 SKS  
 CS0944 TR#4549 140 SKS  
 Deflection: 12 - 12

**Grand Junction Colorado**

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2469595-1 TERRA PRODUCTION BULK LE	Job Type	PRODUCTION CASING	30.00 Bc	04h:02m
Test ID	35437167	Cement Type	GCC TYPE I-II	40.00 Bc	04h:26m
Request ID	GJ2469595-1	Cement Weight	Standard	50.00 Bc	04h:26m
Tested by	DEBA	Test Date	04/25/18	70.00 Bc	04h:26m
Customer	TERRA ENERGY PARTNERS	Test Time	02:42 PM	100.00 Bc	04h:48m
Well No	RU 14-17	Temp. Units	degF	00h:30m	13.18
Rig	H&P 318	Pressure Units	PSI	01h:00m	13.18
Casing/Liner Size	4.5"	SW Version	2.1.0.507	01h:30m	12.87



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\K9YZ0P2R\GJ2469595-1 TERRA PRODUCTION BULK LEAD[1].tdms  
 Comments COMPOSITE: CS0942 TR#8658 400 SKS, CS0943 TR#8677 400 SKS, CS0944 TR#4549 140 SKS

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### Job Information

<b>Request/Slurry</b>	2469596/1	<b>Rig Name</b>	H&P 318	<b>Date</b>	21/APR/2018
<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>	RU 14-17

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	10918 ft	<b>BHST</b>	127°C / 260°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	10572 ft	<b>BHCT</b>	92°C / 198°F
<b>Pressure</b>	6700 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				Slurry Density	13.3	lbm/gal
						Slurry Yield	1.733	ft <sup>3</sup> /sack
						Water Requirement	7.799	gal/sack
						Total Mix Fluid	7.799	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

### Operation Test Results Request ID 2469596/1

<b>Mixability (0 - 5) - 0 is not mixable</b>	<b>25/APR/2018</b>
Mixability rating (0 - 5)	Avg rpm mixing under load (~12,000)
4	12000

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

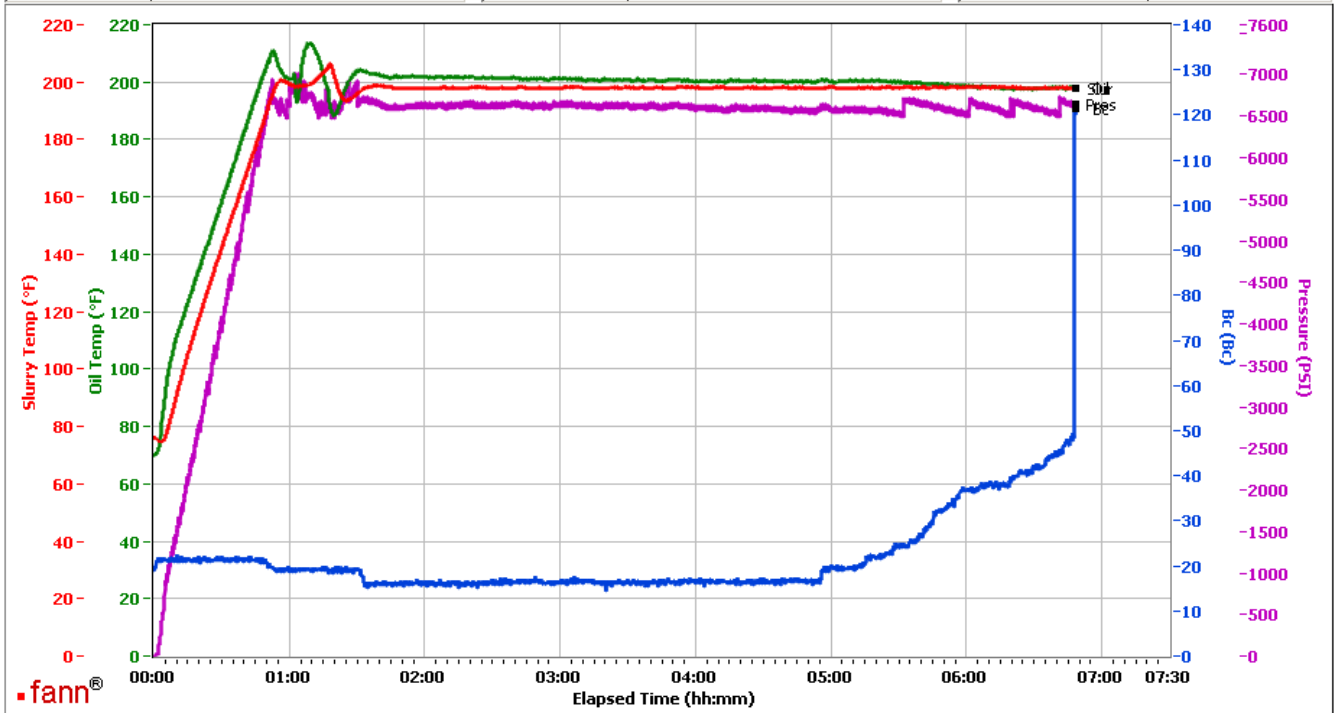
**26/APR/2018**

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	6700	52	5:45	6:47	6:47	6:47	19	62	15	19

Total sks = 265  
 CS0945, Trailer 7094, 265 sks  
 no deflection 19BC--- > 19Bc

**Grand Junction, Colorado**

Fields	Values	Fields	Values	Events	Results
Project Name	2469596-1 TERRA BULK PRODUCTION TAIL	Job Type	PRODUCTION CASING	30.00 Bc	05h:45m
Test ID	35437169 - TT	Cement Type	GCC TYPE I-II	40.00 Bc	06h:22m
Request ID	2469596-1	Cement Weight	Standard	50.00 Bc	06h:47m
Tested by	CT	Test Date	04/25/18	70.00 Bc	06h:47m
Customer	TERRA ENERGY PARTNERS	Test Time	4:04 PM	100.00 Bc	06h:47m
Well No	RU 14-17	Temp. Units	degF	00h:30m	21.90
Rig	H&P 318	Pressure Units	PSI	01h:00m	19.25
Casing/Liner Size	4.5 INCH	SW Version	2.1.0.507	01h:30m	19.41



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\K9YZ0P2R\GJ2469596-1 TERRA BULK PRODUCTION TAIL[1].tdms  
 Comments CS0945, TRAILER 7094, 265 SKS

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