

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

**For: Lynn Cass and Mark Mewshaw**

Date: Sunday, October 16, 2016

**RU 311-7 Production**

**API# 05-045-23235-00**

Sincerely,

**Grand Junction Cement Engineering**

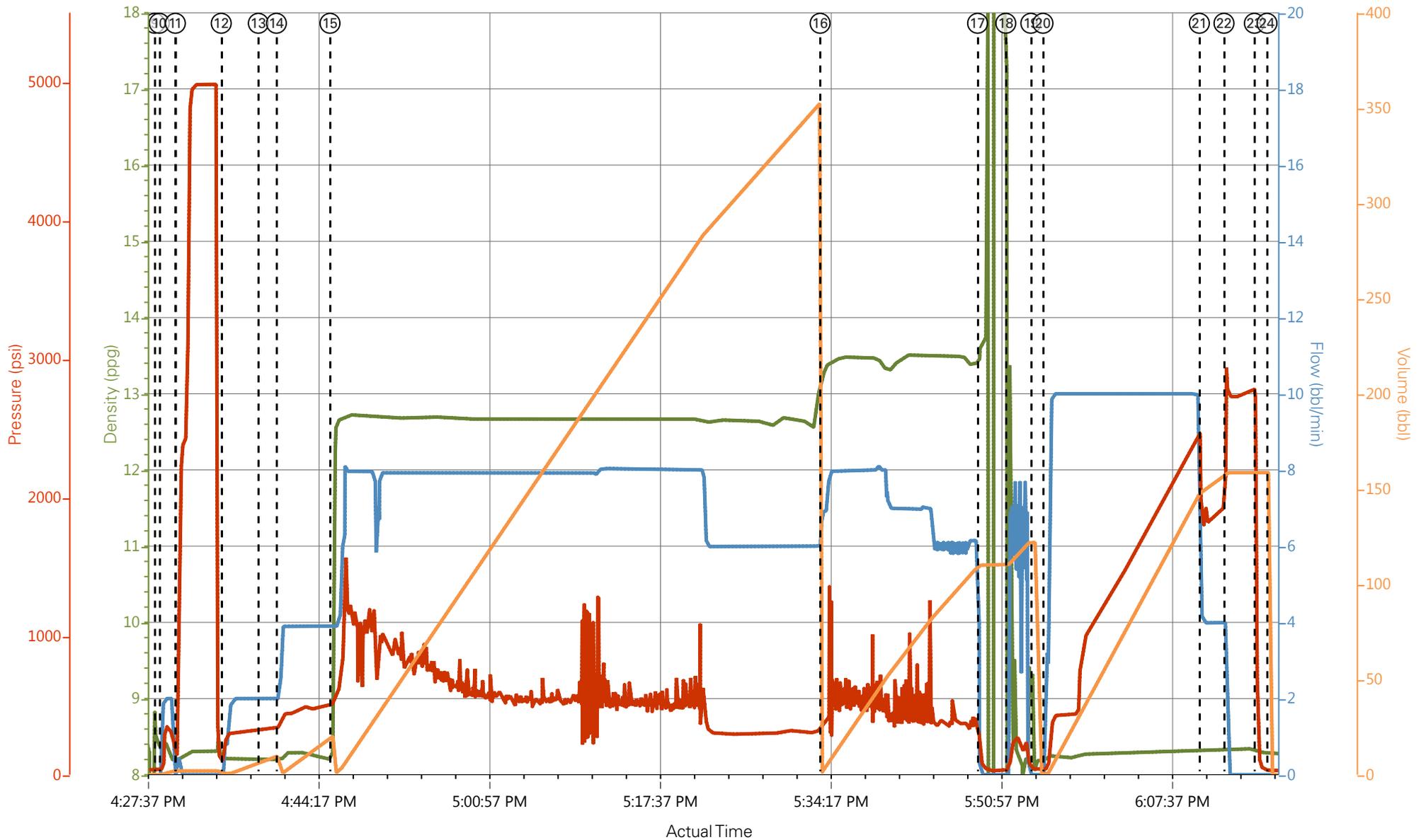
## 1.0 Real-Time Job Summary

### 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	10/16/2016	08:00:00	USER					REQUESTED ON LOCATION AT 14:00 10/16/16
Event	2	Pre-Convoy Safety Meeting	10/16/2016	10:00:00	USER					ALL HES PRESENT
Event	3	Crew Leave Location	10/16/2016	10:15:00	USER					1 - 550 PU, 1 - ELITE PUMP, AND 1 - 660 BULK TRUCK
Event	4	Arrive at Location from Other Job or Site	10/16/2016	11:00:00	USER					ALL TRUCKS ARRIVED TOGETHER
Event	5	Assessment Of Location Safety Meeting	10/16/2016	11:05:00	USER					MET WITH CO REP TO GO OVER NUMBERS AND JOB PROCEDURE. DID A WALKAROUND OF LOCATION AND COLLECTED WATER SAMPLE. (PH-7, CHL-0, 58F) CASING CREW STILL RUNNING CASING. CUSTOMER OFFERED/RECEIVED SDS.
Event	6	Pre-Rig Up Safety Meeting	10/16/2016	12:00:00	USER					FILLED OUT JSA AND SPOTTED IN TRUCKS.
Event	7	Rig-Up Equipment	10/16/2016	12:10:00	USER					RIGGED UP WHAT WE COULD STAYING OUT OF THE RED ZONE. FINISHED RIG UP WHEN CASING CREW WAS FINISHED AT 14:45
Event	8	Pre-Job Safety Meeting	10/16/2016	15:20:00	USER					MET WITH RIG CREW TO GO OVER JOB. ALL HES PRESENT
Event	9	Start Job	10/16/2016	16:28:35	COM5					TD 9798', TP 9788', SJ 9759' (29'), CSG 4.5" 11.6# P-110, SURFACE 1143', OH 8.75", MW 10.2 PPG, TOT 8289', TOL 2896', TOS'S 2348', MUD TO SURFACE
Event	10	Prime Pumps	10/16/2016	16:29:01	COM5	8.33	2	350	2	2 BBLS FRESH WATER
Event	11	Test Lines	10/16/2016	16:30:36	COM5			4984		TESTED TO 4984 PSI. TESTED GOOD KO'S FUNCTIONING
Event	12	Pump H2O Spacer	10/16/2016	16:35:04	COM5	8.33	2	190	10	10 BBLS FRESH WATER

Event	13	Check weight	10/16/2016	16:38:41	COM5	12.5				12.5 PPG
Event	14	Pump Mud Flush Spacer	10/16/2016	16:40:27	COM5	8.4	4	485	20	20 BBLS MUD FLUSH III
Event	15	Pump Lead Cement	10/16/2016	16:45:41	COM5	12.5	8	700	295	855 SKS NeoCem (295 BBLS) 12.5 PPG, 1.94 FT3/SK, 9.59 GAL/SK
Event	16	Pump Tail Cement	10/16/2016	17:33:33	COM5	13.3	8	650	82	265 SKS ThermaCem (82 BBLS) 13.3 PPG, 1.73 FT3/SK, 7.81 GAL/SK
Event	17	Shutdown	10/16/2016	17:48:55	COM5					END OF CEMENT
Event	18	Clean Lines	10/16/2016	17:51:40	COM5	8.33	4	50	10	10 BBLS TO PIT
Event	19	Drop Top Plug	10/16/2016	17:54:07	COM5					PLUG WENT. WITNESSED BY JARVIS
Event	20	Pump Displacement	10/16/2016	17:55:18	COM5	8.33	10	2460	151.3	151.3 BBLS FRESH WATER WITH KCL. FIRST 30 BBLS WITH BE-6 AND FIRST 10 BBLS WITH MMCR
Event	21	Slow Rate	10/16/2016	18:10:34	COM5	8.33	4	1875	141	SLOW RATE TO LAND THE PLUG.
Event	22	Bump Plug	10/16/2016	18:12:58	COM5	8.33	4	1984	151.3	PLUG LANDED AT 1980 PSI. PRESSURED UP TO 2275 PSI.
Event	23	Check Floats	10/16/2016	18:15:57	COM5			2775		FLOATS HELD. 1.5 BBLS FLOWBACK TO TRUCK
Event	24	End Job	10/16/2016	18:17:11	COM5					GOOD RETURNS THROUGHOUT JOB. NO CALCULATED CEMENT TO SURFACE.
Event	25	Pre-Rig Down Safety Meeting	10/16/2016	18:20:00	USER					ALL HES PRESENT
Event	26	Rig Down Lines	10/16/2016	18:30:00	USER					
Event	27	Pre-Convoy Safety Meeting	10/16/2016	19:45:00	USER					ALL HES PRESENT
Event	28	Crew Leave Location	10/16/2016	20:00:00	USER					THANK YOU FOR USING HALLIBURTON CEMENT. CLIFF SPARKS AND CREW

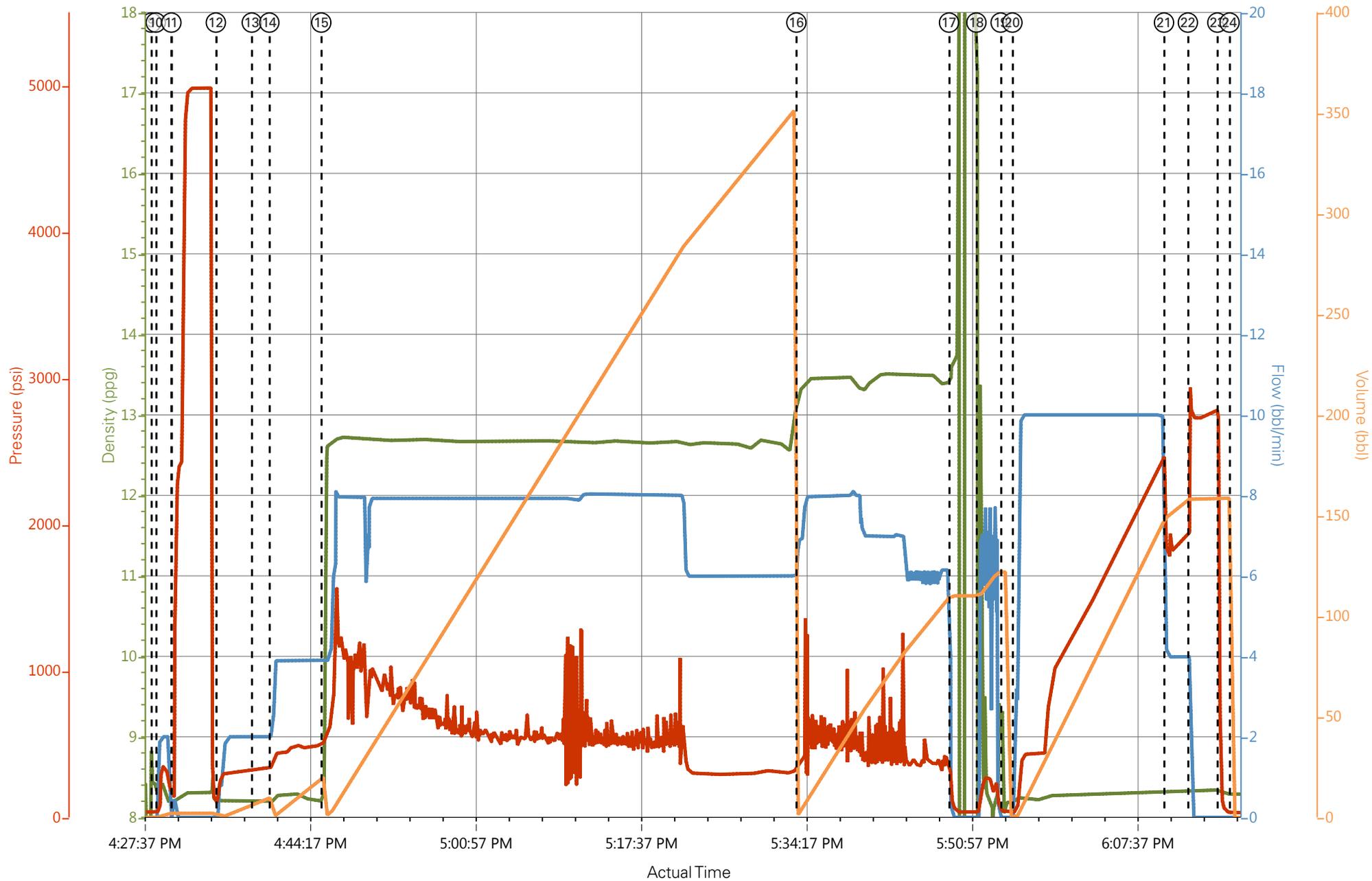
# TERRA YOUNBERG RU 311-7 4.5" PRODUCTION



DH Density (ppg) 8.3    Comb Pump Rate (bbl/min) 0    PS Pump Press (psi) 29    Pump Stg Tot (bbl) 0

9 Start Job   10 Prime Pumps   11 Test Lines   12 Pump H2O Spacer   13 Check weight   14 Pump Mud Flush Spacer   15 Pump Lead Cement   16 Pump Tail Cement   17 Shutdown   18 Clean Lines   19 D

# TERRA YOUNBERG RU 311-7 4.5" PRODUCTION



DH Density (ppg) 8.3    Comb Pump Rate (bbl/min) 0    PS Pump Press (psi) 29    Pump Stg Tot (bbl) 0

### Job Information

<b>Request/Slurry</b>	2344792/2	<b>Rig Name</b>	H&P 318	<b>Date</b>	13/OCT/2016
<b>Submitted By</b>	Aaron Katz	<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 311-7

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	9758 ft	<b>BHST</b>	116°C / 241°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9444 ft	<b>BHCT</b>	77°C / 171°F
<b>Pressure</b>	5910 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	Baroid	<b>Mud Trade Name</b>	BARADRIL-N	<b>Density</b>	9.9 lbm/gal
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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>	<u>Cement Properties</u>		
		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		

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# Operation Test Results Request ID 2344792/2

## Thickening Time

**14/OCT/2016**

Temp (°F)	Pressure (psi)	Reached in (min)	Start BC	30 Bc (hh:mm)	40 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)
171	5910	47	9	6:10	6:11	6:24	6:44	6:47

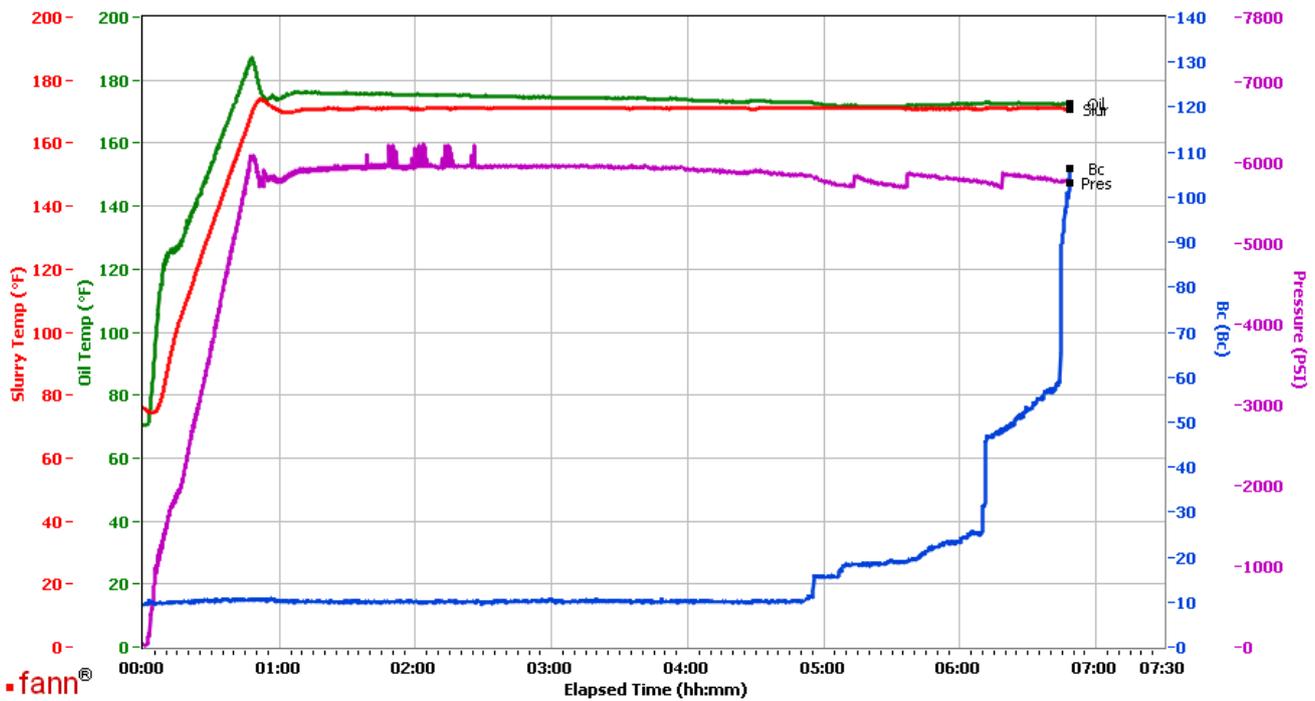
Total Sacks= 855  
CS0978 TR 8678 427.5 SKS

### Grand Junction Colorado

Fields	Values
Project Name	GJ2344792-2 TERRA PRODUCTION BULK LE
Test ID	34050395
Request ID	GJ2344792-2 TERRA PRODUCTION BULK LE
Tested by	JASON
Customer	TERRA
Well No	RU 311-7
Rig	H&P 318
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	NEOCEM
Cement Weight	Light Weight
Test Date	10/13/16
Test Time	05:19 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	06h:10m
40.00 Bc	06h:11m
50.00 Bc	06h:24m
70.00 Bc	06h:44m
100.00 Bc	06h:47m
00h:30m	10.15
01h:00m	10.05
01h:30m	10.04



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 Comments CS0978 TR 8678 427.5 SKS

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**Operation Test Results Request ID 2344792/1**

**Thickening Time**

**14/OCT/2016**

Temp (°F)	Pressure (psi)	Reached in (min)	Start BC	30 Bc (hh:mm)	40 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)
171	5910	47	11	6:45	6:54	7:07	7:23	7:44

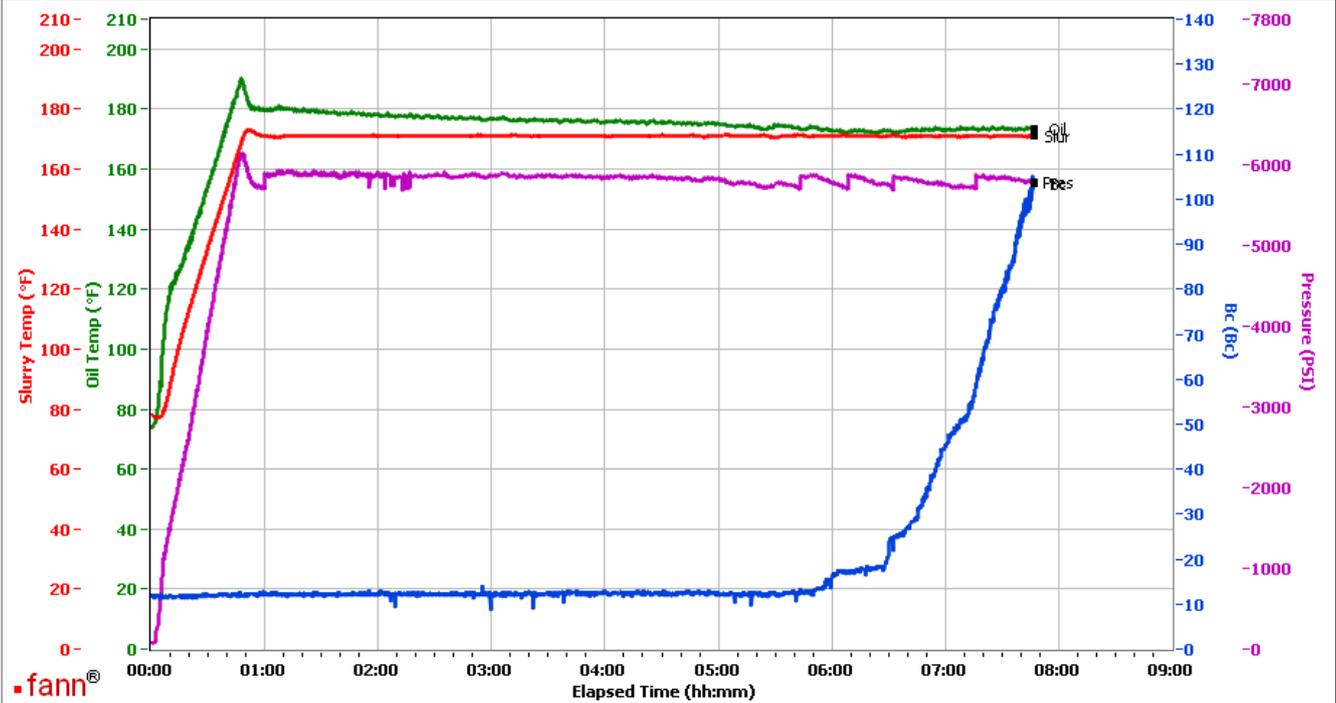
Total Sacks= 855  
CS0977 TR 8677 427.5 SKS

**Grand Junction, Colorado**

Fields	Values
Project Name	GJ2344792-1 TERRA PRODUCTION BULK LE
Test ID	34049831
Request ID	GJ2344792-1 TERRA PRODUCTION BULK LE
Tested by	JASON
Customer	TERRA
Well No	RU 311-7
Rig	H8P 318
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	NEOCEM
Cement Weight	Light Weight
Test Date	10/13/16
Test Time	11:33 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	06h:45m
40.00 Bc	06h:54m
50.00 Bc	07h:07m
70.00 Bc	07h:23m
100.00 Bc	07h:44m
00h:30m	12.06
01h:00m	12.06
01h:30m	12.50



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 Comments CS0977 TR 8677 427.5 SKS

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### Job Information

<b>Request/Slurry</b>	2344793/1	<b>Rig Name</b>	H&P 318	<b>Date</b>	13/OCT/2016
<b>Submitted By</b>	Aaron Katz	<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 311-7

### Well Information

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<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	9444 ft	<b>BHCT</b>	77°C / 171°F
<b>Pressure</b>	5910 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	Baroid	<b>Mud Trade Name</b>	BARADRIL-N	<b>Density</b>	9.9 lbm/gal
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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	

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# Operation Test Results Request ID 2344793/1

## Thickening Time

14/OCT/2016

Temp (°F)	Pressure (psi)	Reached in (min)	Start BC	30 Bc (hh:mm)	40 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)
171	5910	47	9	2:52	2:53	2:57	3:00	3:03

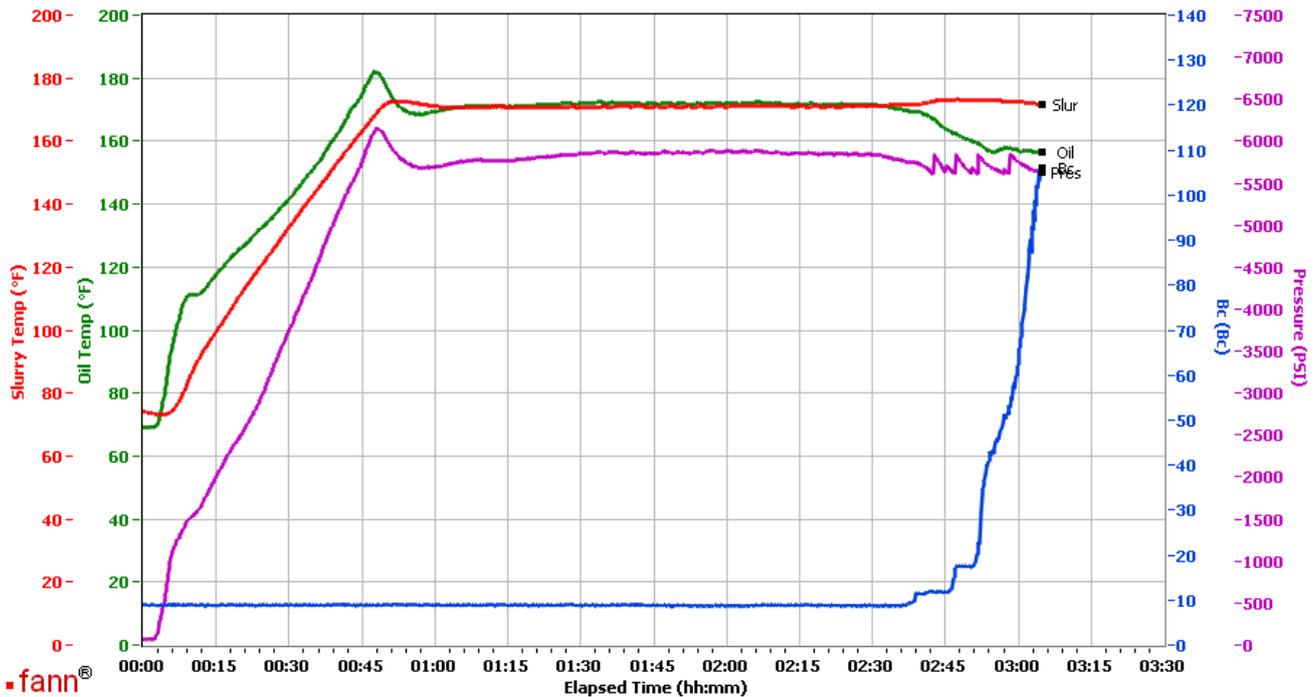
Total Sacks= 265  
CS0980 TR 7094 265 SKS

### Grand Junction Colorado

Fields	Values
Project Name	GJ2344793-1 TERRA PRODUCTION BULK TA
Test ID	34049833
Request ID	GJ2344793-1 TERRA PRODUCTION BULK TA
Tested by	JASON
Customer	TERRA
Well No	RU 311-7
Rig	H&P 318
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	THERMACEM
Cement Weight	Light Weight
Test Date	10/14/16
Test Time	06:40 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	02h:52m
40.00 Bc	02h:53m
50.00 Bc	02h:57m
70.00 Bc	03h:00m
100.00 Bc	03h:03m
00h:30m	8.78
01h:00m	8.68
01h:30m	8.82



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 Comments CS0980 TR 7094 265 SKS

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