

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

**For: Abe Alexander & Lynn Cass**

**RU513-7 Production**

**API# 05-045-23249-00**

Sincerely,

**Grand Junction Cement Engineering**

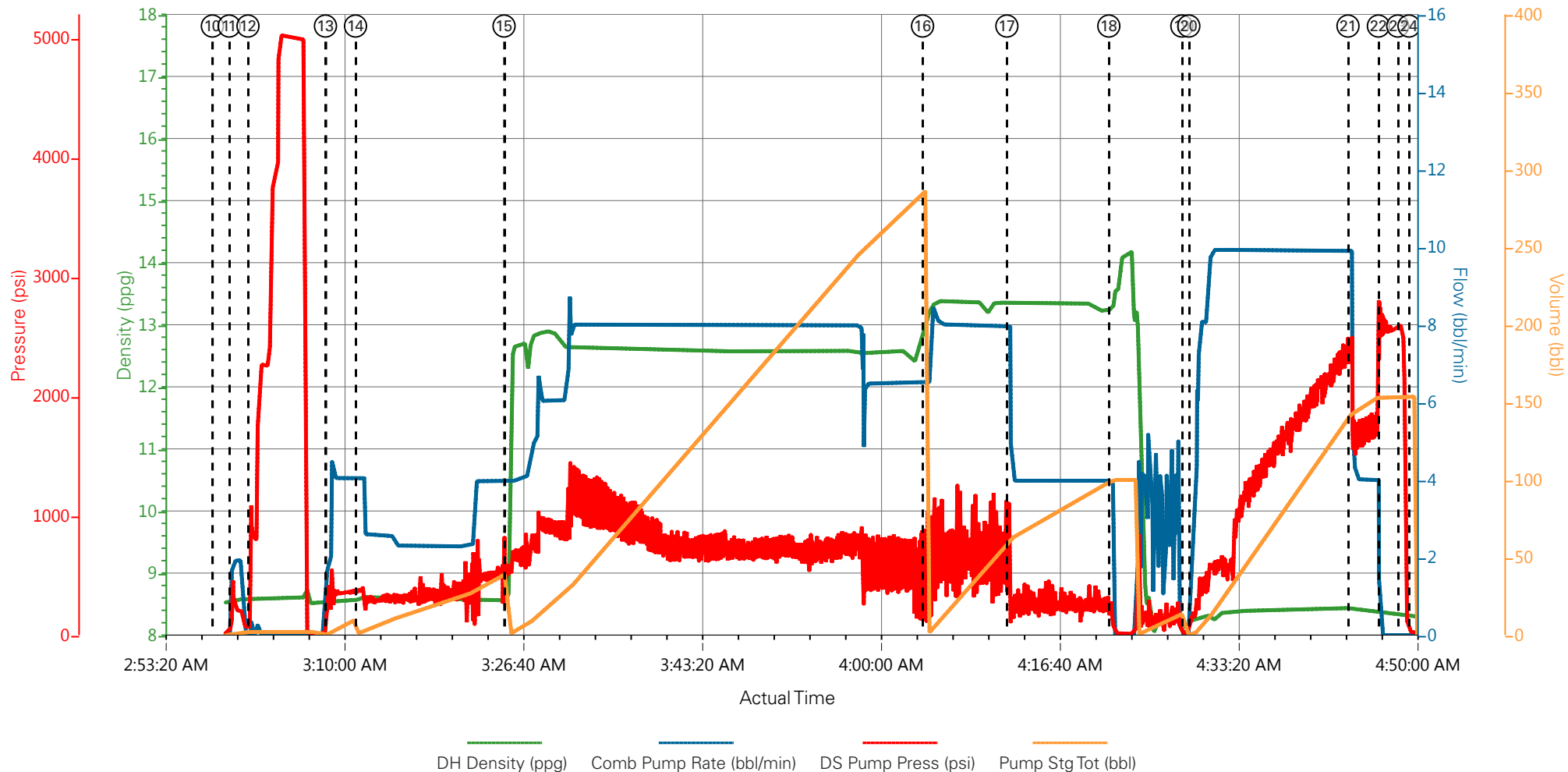
## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	Downhole Density (ppg)	Combined Pump Rate (bbl/min)	Driv-Side Pump Pressure (psi)	Pump Stage Total (bbl)	Comments
Event	1	Call Out	12/11/2016	14:30:00	USER					ALL HES CREW CALLED
Event	2	Pre-Convoy Safety Meeting	12/11/2016	16:15:00	USER					JOURNEY CREATED, ALL HES INVOLVED IN SAFETY MEETING
Event	3	Crew Leave Yard	12/11/2016	16:30:00	USER					1-F-550 PICKUP, 1-ELITE PUMP TRUCK, 1-660 BULK TRUCK
Event	4	Arrive At Loc	12/11/2016	19:00:00	USER					HES ARRIVED 1 HOUR EARLY
Event	5	Assessment Of Location Safety Meeting	12/11/2016	19:15:00	USER					RIG WAS RUNNING CASING, HES REP WENT AND SPOKE WITH COMPANY REP PRIOR TO SPOTTING EQUIPMENT AND RIGGING UP
Event	6	Pre-Rig Up Safety Meeting	12/11/2016	20:00:00	USER					JSA FILLED OUT AND REVIEWED BY ALL HES PERSONNEL
Event	7	Rig-Up Equipment	12/11/2016	20:15:00	USER					RIG UP IRON TO THE STAND PIPE AND WASH UP LINE TO THE PIT, WATER HOSES TO BOTH UPRIGHTS, BULK EQUIPMENT TO PUMP TRUCK
Event	8	Rig-Up Completed	12/11/2016	21:30:00	USER					RIG UP COMPLETED SAFELY
Event	9	Pre-Job Safety Meeting	12/12/2016	02:30:00	USER					ALL HES, RIG CREW AND COMPANY REP INVOLVED IN SAFETY MEETING TO DISCUSS JOB
Event	10	Start Job	12/12/2016	02:58:00	USER					TD: 9452FT TP: 9442.61FT SJ: 25FT OH: 8.75 CSG: 4.5 11.6# P-110 SRF CSG: 9.625 32.3# SET AT 1155FT MUD WT: 10PPG WTR TEST: TEMP- 55 CHLOR- 0 PH- 7
Event	11	Fill Lines	12/12/2016	02:59:33	USER	8.34	2	280	2	FILL LINES TO PRESSURE TEST
Event	14	Test Lines	12/12/2016	03:01:19	RTD Import			5055		PRESSURE TEST LINES TO 5000 PSI, PRESSURE TEST OK
Event	19	Fresh Water Spacer	12/12/2016	03:08:32	RTD Import	8.34	4	380	10	10 BBL FRESH WATER SPACER

Event	20	Mud Flush Spacer	12/12/2016	03:11:20	RTD Import	9.0	4	550	40	40 BBL MUD FLUSH SPACER
Event	32	Pump Lead Cement*	12/12/2016	03:25:11	RTD Import	12.5	8	934	264.3	765 SKS OF NEOCEM CEMENT (264.3BBLS) 12.5PPG 1.94YIELD 9.58GAL/SK WEIGHT OF CEMENT VERIFIED VIA MUD SCALES THROUGHOUT LEAD CEMENT
Event	46	Pump Tail Cement*	12/12/2016	04:04:11	RTD Import	13.3	8	750	60	265 SKS OF THERMACEM CEMENT (81.6BBLS) 13.3PPG 1.73YIELD 7.81GAL/SK WEIGHT OF CEMENT VERIFIED VIA MUD SCALES THROUGHOUT TAIL CEMENT
Event	51	Slow Rate	12/12/2016	04:12:02	USER	13.3	4	250	21.6	SLOW RATE TO END ON CEMENT
Event	68	Shutdown	12/12/2016	04:21:32	USER	13.3	4	250	81.6	SHUTDOWN END OF CEMENT/ WASH LINES TO PIT, READY TANKS FOR DISPLACEMENT
Event	75	Drop Top Plug	12/12/2016	04:28:21	USER					TOP PLUG AWAY NO PROBLEMS
Event	76	Pump Displacement*	12/12/2016	04:28:59	RTD Import	8.34	10	2100	135.9	FRESH WATER DISPLACEMENT WITH KCL, 1-GAL MMCR AND 3 POUNDS OF BE-6
Event	78	Slow Rate	12/12/2016	04:43:50	USER	8.45	4	1700	10	SLOW RATE TO 4 BBLS/MIN TO BUMP PLUG
Event	79	Bump Plug	12/12/2016	04:46:40	RTD Import	8.34	4	1783	145.9	BUMPED PLUG AT 1783 PSI, TOOK TO 2591 PSI
Event	80	Check Floats	12/12/2016	04:48:28	USER			2591		FLOATS HELD 1.5 BBLS BACK TO TANKS, THERE WERE GOOD RETURNS THROUGHOUT JOB
Event	81	End Job	12/12/2016	04:49:31	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT CARL KUKUS AND CREW
Event	83	Pre-Rig Down Safety Meeting	12/12/2016	05:00:00	USER					JSA REVIEWED BY ALL HES, ALL HES INVOLVED
Event	84	Rig-Down Equipment	12/12/2016	05:15:00	USER					WASH UP AND BLOW DOWN PUMP TRUCK AND ALL IRON, RIG DOWN ALL LINES AND EQUIPMENT
Event	85	Rig-Down Completed	12/12/2016	06:30:00	USER					RIG-DOWN COMPLETED
Event	86	Pre-Convoy Safety Meeting	12/12/2016	06:45:00	USER					JOURNEY CREATED, ALL HES INVOLVED IN SAFETY MEETING
Event	87	Crew Leave Location	12/12/2016	07:00:00	USER					1-F-550 PICKUP, 1-660 BULK TRUCK, ELITE PUMP TRUCK WAS LEFT ON LOCATION FOR UPCOMING SURFACE JOB

# TEP - YOUNBERG RU 513-7 - PRODUCTION - 903716842



- |   |                       |                                |
|---|-----------------------|--------------------------------|
| ① Call Out                              | ⑪ Fill Lines          | 21 Slow Rate                   |
| ② Pre-Convoy Safety Meeting             | ⑫ Test Lines          | 22 Bump Plug                   |
| ③ Crew Leave Yard                       | ⑬ Fresh Water Spacer  | 23 Check Floats                |
| ④ Arrive At Loc                         | ⑭ Mud Flush Spacer    | 24 End Job                     |
| ⑤ Assessment Of Location Safety Meeting | ⑮ Pump Lead Cement*   | 25 Pre-Rig Down Safety Meeting |
| ⑥ Pre-Rig Up Safety Meeting             | ⑯ Pump Tail Cement*   | 26 Rig-Down Equipment          |
| ⑦ Rig-Up Equipment                      | ⑰ Slow Rate           | 27 Rig-Down Completed          |
| ⑧ Rig-Up Completed                      | ⑱ Shutdown            | 28 Pre-Convoy Safety Meeting   |
| ⑨ Pre-Job Safety Meeting                | ⑲ Drop Top Plug       | 29 Crew Leave Location         |
| ⑩ Start Job                             | 20 Pump Displacement* |                                |

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Created: 2016-12-12 05:00:52, Version: 4.2.393

Edit

Customer : TERRA ENERGY PARTNERS

Job Date : 12/12/2016 2:58:31 AM

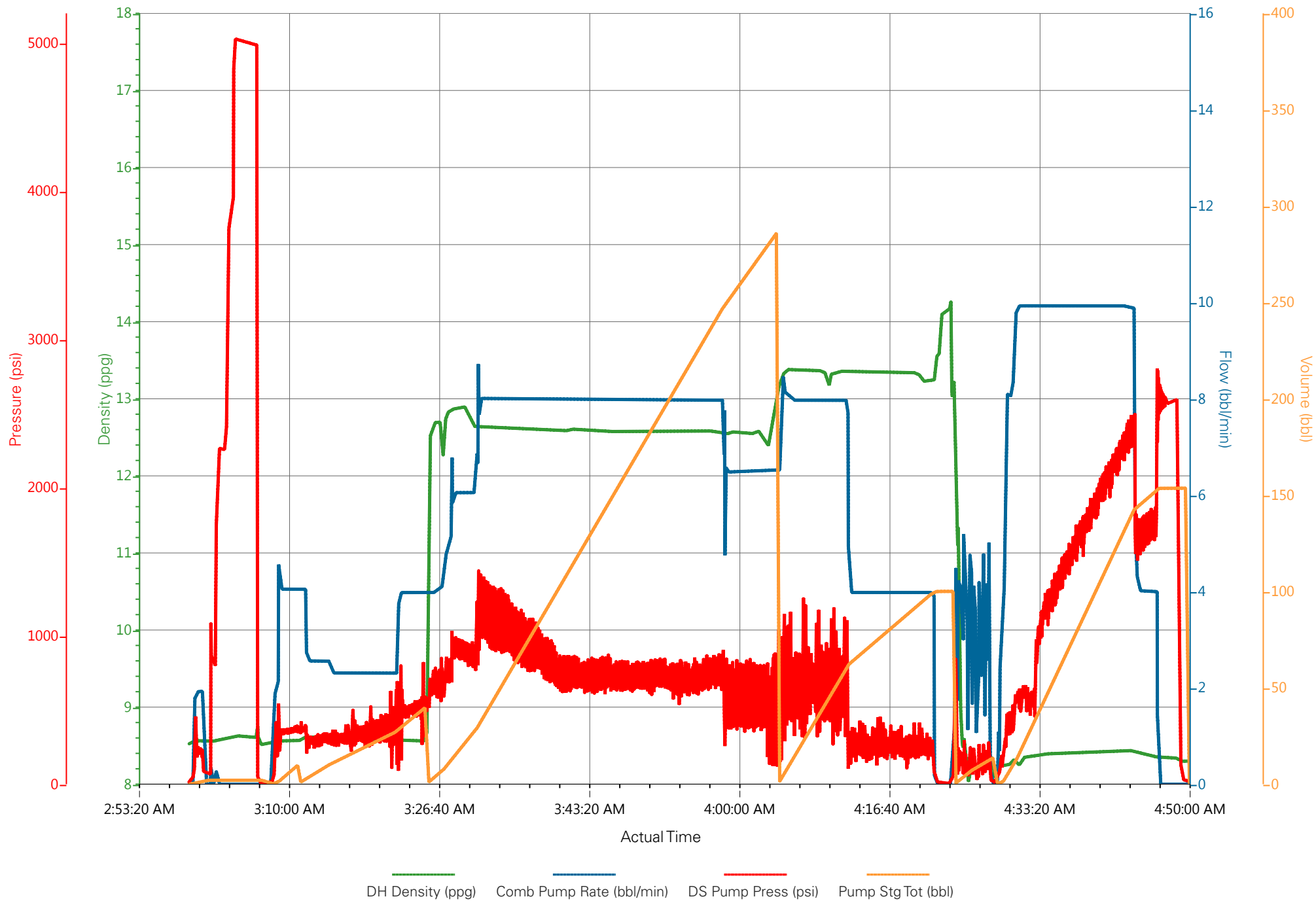
Well : YOUNBERG RU513-7

Representative : JARVIS ABBEY

Sales Order # : 903716842

ELITE 4 : DANE PORTER/CARL KUKUS

# TEP - YOUNBERG RU 513-7 - PRODUCTION - 903716842



## Job Information

Request/Slurry	2354280/2	Rig Name	H&P 318	Date	08/DEC/2016
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 513-7

## Well Information

Casing/Liner Size	4.5 in	Depth MD	9424 ft	BHST	116°C / 240°F
Hole Size	8.75 in	Depth TVD	9390 ft	BHCT	77°C / 170°F
Pressure	5870 psi				

## Drilling Fluid Information

Mud Supplier Name	Baroid	Mud Trade Name	BARADRIL-N	Density	9.9 lbm/gal
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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 2354280/2

## Thickening Time - ON-OFF-ON

10/DEC/2016

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)
170	5870	47	4:01	4:25	4:43	4:55	21	57	15	21

Total Sacks= 765

CS1188 TR 1513 382.5 SKS

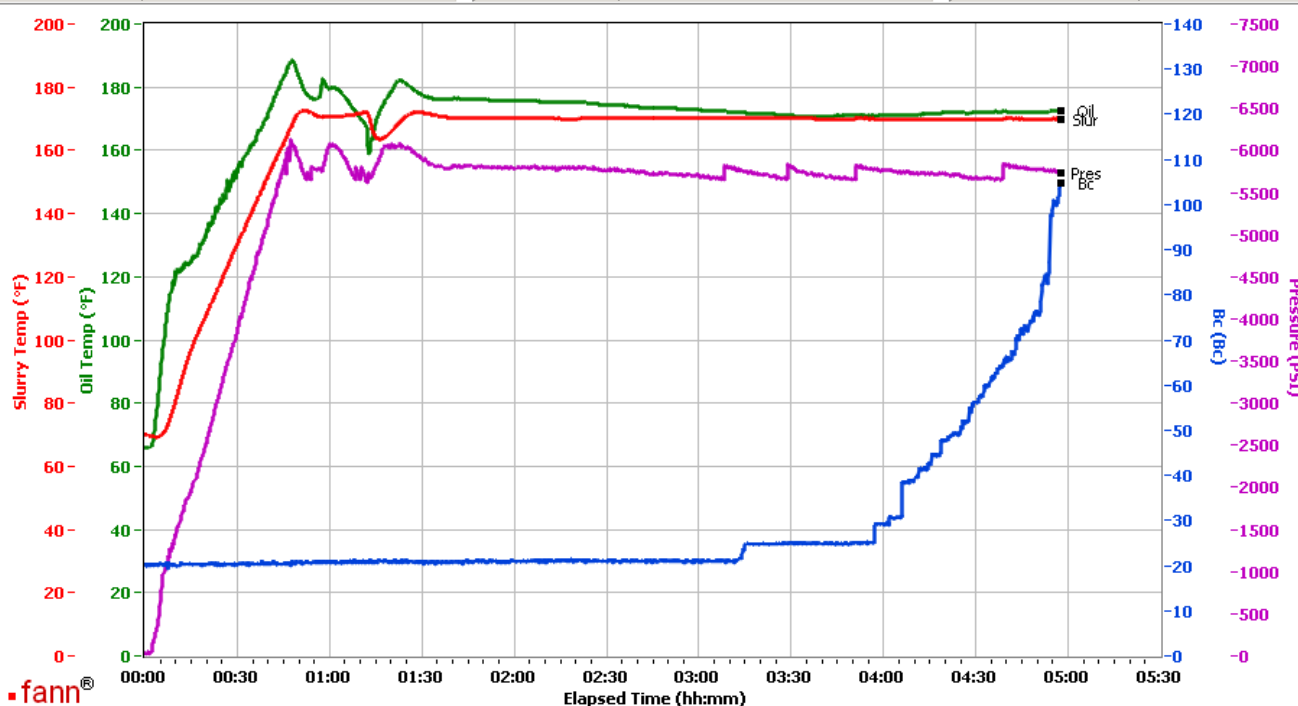
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## Grand Junction Colorado

Fields	Values
Project Name	GJ2354280-2 TERRA PRODUCTION BULK LE
Test ID	34176425
Request ID	GJ2354280-2 TERRA PRODUCTION BULK LE
Tested by	JASON
Customer	TERRA ENERGY
Well No	RU 513-7
Rig	H8P 318
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	NEOCEM
Cement Weight	Light Weight
Test Date	12/09/16
Test Time	05:58 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	04h:01m
40.00 Bc	04h:11m
50.00 Bc	04h:25m
70.00 Bc	04h:43m
100.00 Bc	04h:55m
00h:30m	20.22
01h:00m	20.87
01h:30m	20.83



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\CDER4HUV\GJ2354280-2 TERRA PRODUCTION BULK LEAD[1].tdms

Comments CS1188 TR 1513 382.5 SKS

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## Operation Test Results Request ID 2354280/1

### Thickening Time - ON-OFF-ON

10/DEC/2016

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)
170	5870	47	3:49	4:47	5:33	10:06	14	57	15	14

Total Sacks= 765

CS1186 TR 8678 382.5 SKS

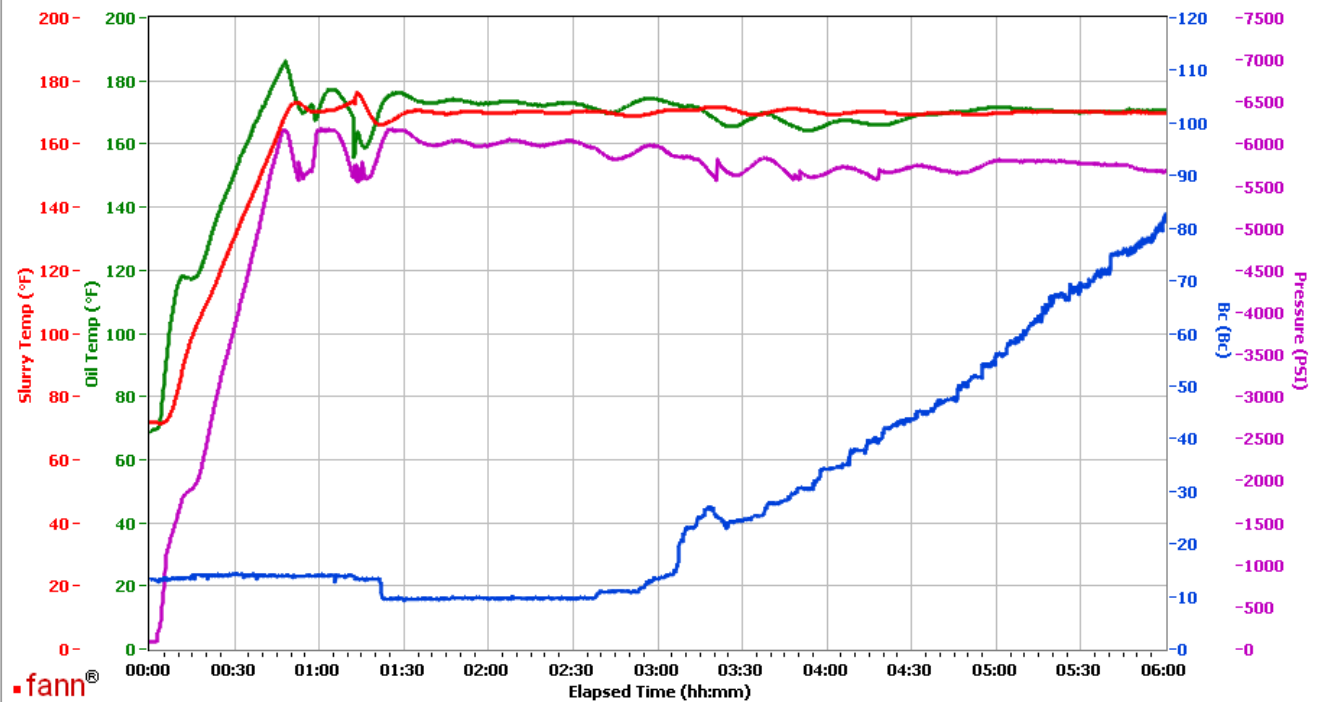
No deflection

### Grand Junction Colorado

Fields	Values
Project Name	GJ2354280-1 TERRA PRODUCTION BULK LE
Test ID	34174140
Request ID	GJ2354280-1 TERRA PRODUCTION BULK LE
Tested by	JASON
Customer	TERRA ENERGY
Well No	RU 513-7
Rig	H&P 318
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	NEOCEM
Cement Weight	Light Weight
Test Date	12/09/16
Test Time	11:50 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:49m
40.00 Bc	04h:16m
50.00 Bc	04h:47m
70.00 Bc	05h:33m
100.00 Bc	10h:06m
00h:30m	14.16
01h:00m	14.06
01h:30m	9.48



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2354280-1 TERRA PRODUCTION BULK LEAD.tdms

Comments CS1186 TR 8678 382.5 SKS

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2354279/1	Rig Name	H&P 318	Date	08/DEC/2016
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 513-7

### Well Information

Casing/Liner Size	4.5 in	Depth MD	9424 ft	BHST	116°C / 240°F
Hole Size	8.75 in	Depth TVD	9390 ft	BHCT	77°C / 170°F
Pressure	5870 psi				

### Drilling Fluid Information

Mud Supplier Name	Baroid	Mud Trade Name	BARADRIL-N	Density	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>	<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 2354279/1

## Thickening Time - ON-OFF-ON

10/DEC/2016

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)
170	5870	47	3:10	3:18	3:20	3:47	17	57	15	10

Total Sacks= 265

CS1189 TR 7094 265 SKS

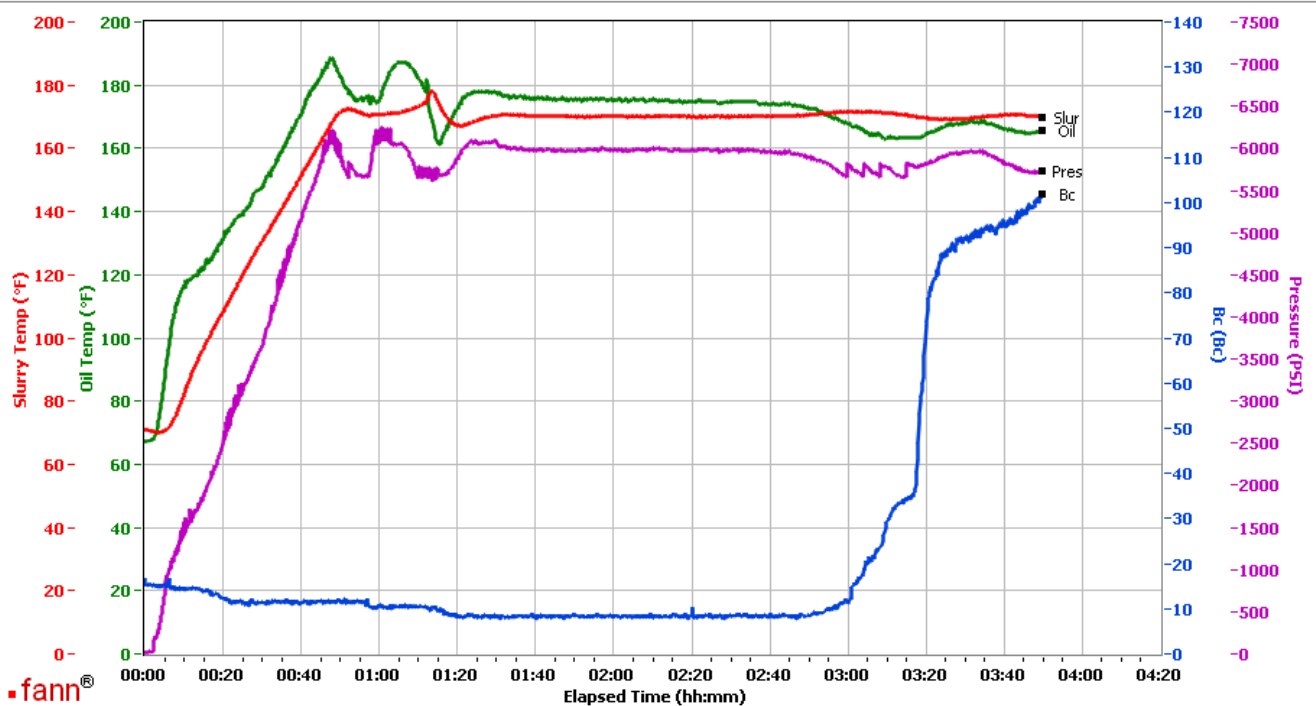
No deflection

## Grand Junction, Colorado

Fields	Values
Project Name	GJ2354279-1 TERRA PRODUCTION BULK TA
Test ID	34174141
Request ID	GJ2354279-1 TERRA PRODUCTION BULK TA
Tested by	JASON
Customer	TERRA ENERGY
Well No	RU 513-7
Rig	H8P 318
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	THERMACEM
Cement Weight	Light Weight
Test Date	12/10/16
Test Time	02:05 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:10m
40.00 Bc	03h:17m
50.00 Bc	03h:18m
70.00 Bc	03h:20m
100.00 Bc	03h:47m
00h:30m	11.47
01h:00m	10.55
01h:30m	8.10



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\CDER4HUV\GJ2354279-1 TERRA PRODUCTION BULK TAIL [1].tdms

Comments CS1189 TR 7094 265 SKS

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