

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS-EBUS

For: Terra

Date: Saturday, September 02, 2017

SR 441-12 Production

API#05-045-23300-00

Sincerely,

Grand Junction Cement Engineering

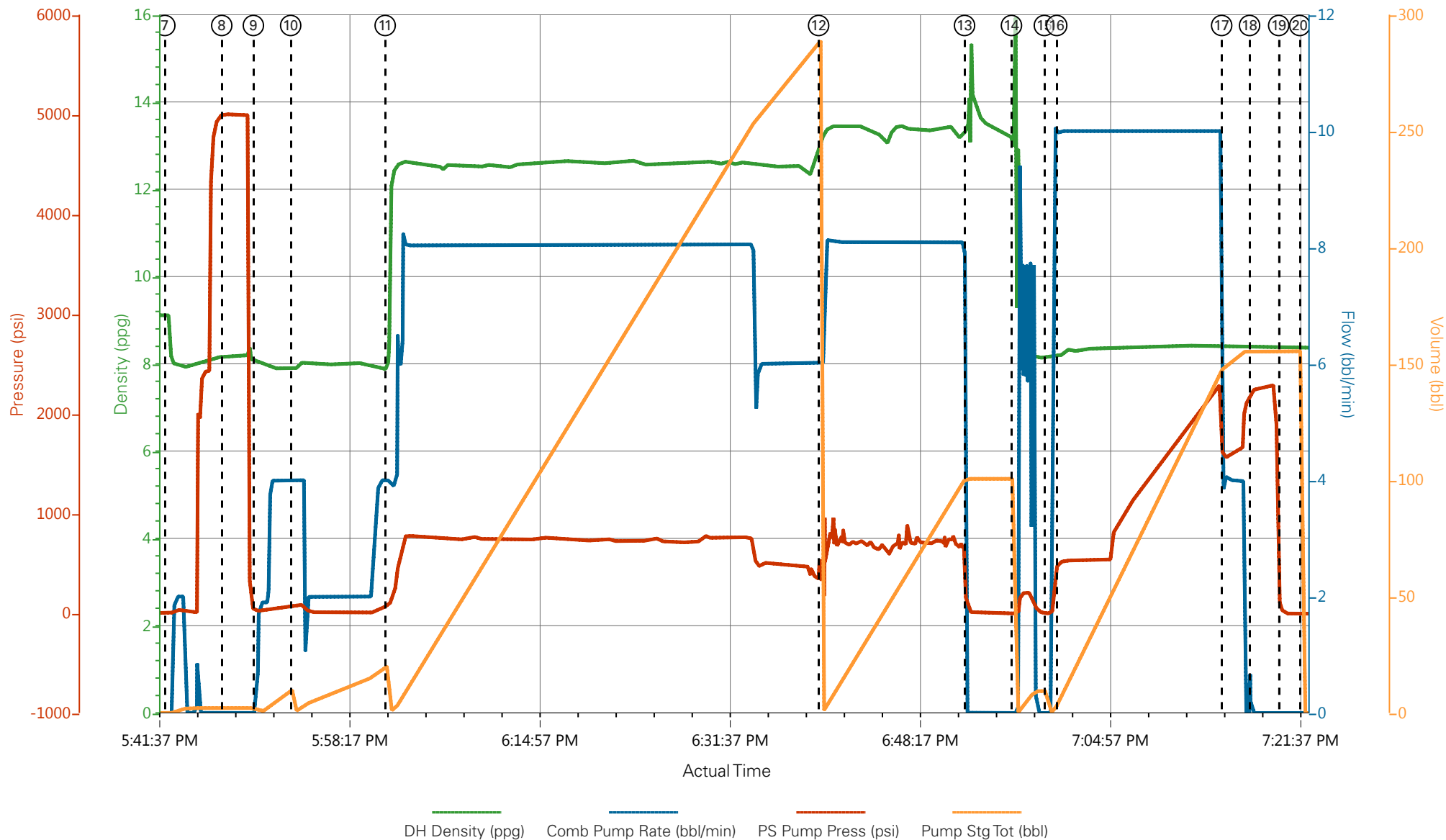
2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	9/2/2017	06:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	9/2/2017	08:00:00	USER					WITH ALL HES PERSONNEL
Event	3	ARRIVE AT LOCATION	9/2/2017	10:00:00	USER					RIG RUNNING CASING, THEN CIRCULATED FOR 1.5 HOURS
Event	4	Assessment Of Location Safety Meeting	9/2/2017	10:30:00	USER					WITH ALL HES PERSONNEL
Event	5	Pre-Rig Up Safety Meeting	9/2/2017	11:00:00	USER					WITH ALL HES PERSONNEL
Event	6	Pre-Job Safety Meeting	9/2/2017	16:00:00	USER					WITH ALL ON LOCATION PERSONNEL
Event	7	Start Job	9/2/2017	17:42:22	COM5					TP-9640, TD-9650, S.J.-32, HOLE- 8 3/4, MUD#- 10.0, 9 5/8 SURFACE CASING SET AT 1086 32.3#
Event	8	Test Lines	9/2/2017	17:47:22	COM5			5002.00		5002 PSI
Event	9	Pump Spacer 1	9/2/2017	17:50:08	COM5	8.33	4	57	10	FRESH WATER
Event	10	Pump Spacer 2	9/2/2017	17:53:24	COM5	8.4	4	70	20	MUD FLUSH, GOT RETURNS AT 23 BBLS GONE IN MUD FLUSH, THEN MAINTAINED THROUGHOUT JOB
Event	11	Pump Lead Cement	9/2/2017	18:01:41	COM5	12.5	8	750	274.7	795 SKS, 1.94 FT3/SK, 9.6 GAL/SK, USED 75 LBS TUF FIBER
Event	12	Pump Tail Cement	9/2/2017	18:39:40	COM5	13.3	8	710	81.6	265 SKS, 1.73 FT3/SK, 7.81 GAL/SK
Event	13	Shutdown	9/2/2017	18:52:27	USER					TO CLEAN LINES
Event	14	Clean Lines	9/2/2017	18:56:34	COM5					TO PIT
Event	15	Drop Top Plug	9/2/2017	18:59:27	COM5					AWAY
Event	16	Pump Displacement	9/2/2017	19:00:32	COM5	8.4	10.00	2320	149.8	KCL WATER, 1 GAL MMCR, 3 BAGS BE-6

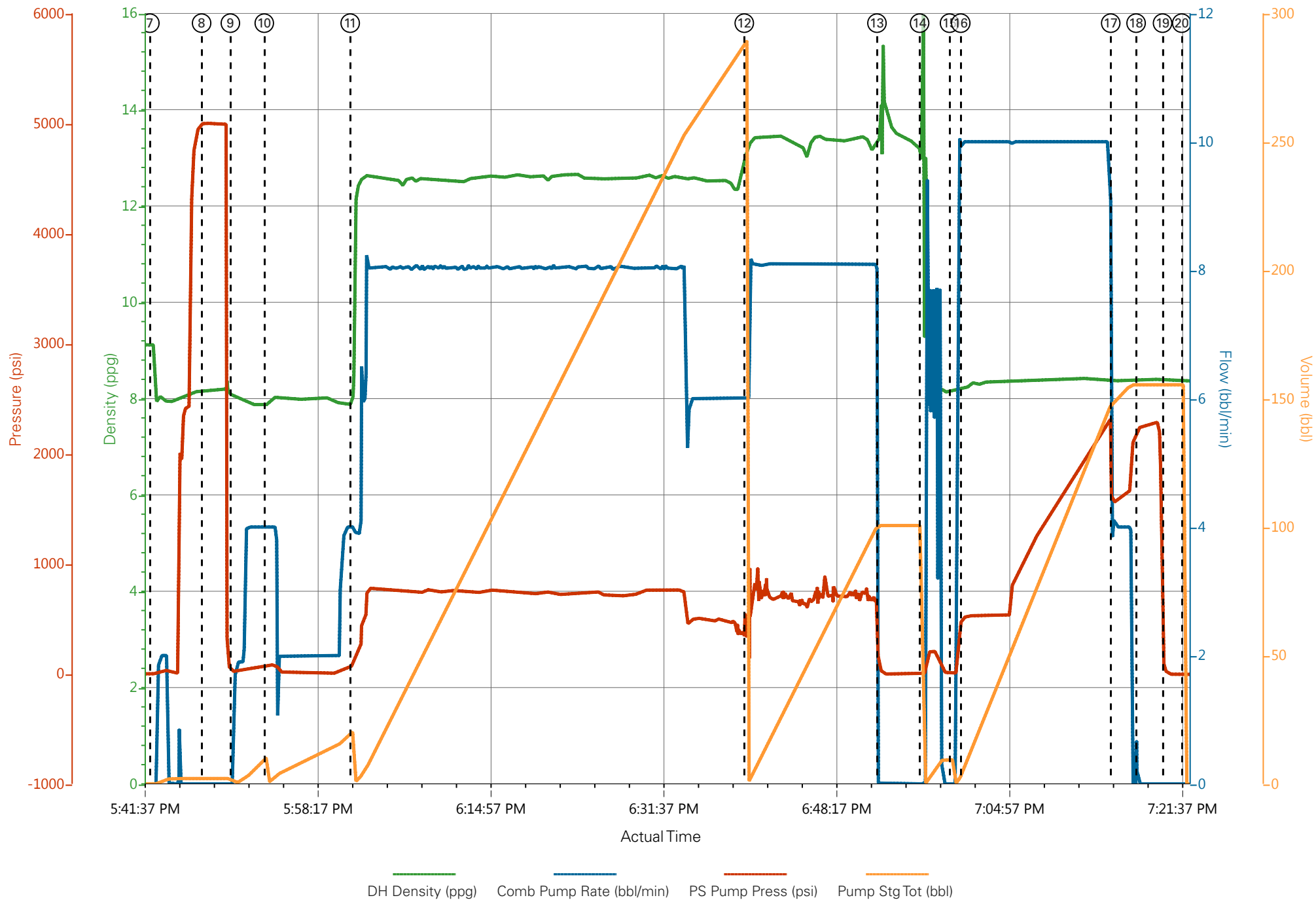
Event	17	Slow Rate	9/2/2017	19:15:00	USER	8.33	4.0	1555.00	139	TO BUMP PLUG
Event	18	Bump Plug	9/2/2017	19:17:26	COM5			1670	149.8	PLUG BUMPED
Event	19	Check Floats	9/2/2017	19:19:59	USER	8.37	0.00	2230	149.8	FLOATS HELD 1.5 BBLS BACK
Event	20	End Job	9/2/2017	19:21:50	COM5					
Event	21	Pre-Rig Down Safety Meeting	9/2/2017	19:25:00	USER					WITH ALL HES PERSONNEL
Event	22	Rig-Down Equipment	9/2/2017	19:30:00	USER					
Event	23	Pre-Convoy Safety Meeting	9/2/2017	20:45:00	USER					WITH ALL HES PERSONNEL
Event	24	Crew Leave Location	9/2/2017	21:00:00	USER					THANK YOU FOR USING HALLIBURTON CEMENT, JAMES LEIST AND CREW

TEP-YOUBERG SR 441-12- 4.5 PRODUCTION CASING



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|---|--------------------------|--------------------|---------------------|--------------------|-----------------------------|-------------------------------|
| ① Call Out | ⑥ Pre-Job Safety Meeting | ⑪ Pump Lead Cement | ⑫ Pump Displacement | ⑫ Pump Tail Cement | ⑬ Slow Rate | ⑮ Pre-Rig Down Safety Meeting |
| ② Pre-Convoy Safety Meeting | ⑦ Start Job | ⑫ Pump Tail Cement | ⑮ Slow Rate | ⑮ Bump Plug | ⑮ Rig-Down Equipment | ⑮ Pre-Convoy Safety Meeting |
| ③ ARRIVE AT LOCATION | ⑧ Test Lines | ⑬ Shutdown | ⑮ Check Floats | ⑮ Check Floats | ⑮ Pre-Convoy Safety Meeting | ⑮ Pre-Convoy Safety Meeting |
| ④ Assessment Of Location Safety Meeting | ⑨ Pump Spacer 1 | ⑭ Clean Lines | ⑮ Check Floats | ⑮ Check Floats | ⑮ Pre-Convoy Safety Meeting | ⑮ Pre-Convoy Safety Meeting |
| ⑤ Pre-Rig Up Safety Meeting | ⑩ Pump Spacer 2 | ⑮ Drop Top Plug | ⑮ Check Floats | ⑮ Check Floats | ⑮ Pre-Convoy Safety Meeting | ⑮ Pre-Convoy Safety Meeting |
| | | | ⑮ End Job | | | |

TEP-YOUBERG SR 441-12- 4.5 PRODUCTION CASING



Job Information

Request/Slurry	2413348/1	Rig Name	H&P 318	Date	28/AUG/2017
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 441-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	9684 ft	BHST	115°C / 239°F
Hole Size	8.75 in	Depth TVD	9356 ft	BHCT	76°C / 169°F
Pressure	5830 psi				

Drilling Fluid Information

Mud Supplier Name	Mud Trade Name	Density
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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>	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 2413348/1

Thickening Time - ON-OFF-ON

30/AUG/2017

Test Temp (°F)	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)
169	5830	47	3:24	4:20	4:58	5:06	13	57	15	17

Total sks= 795

Composite:

CS2322, Trailer 2322, 397.5 sks

CS2323, Trailer 2878, 397.5 sks

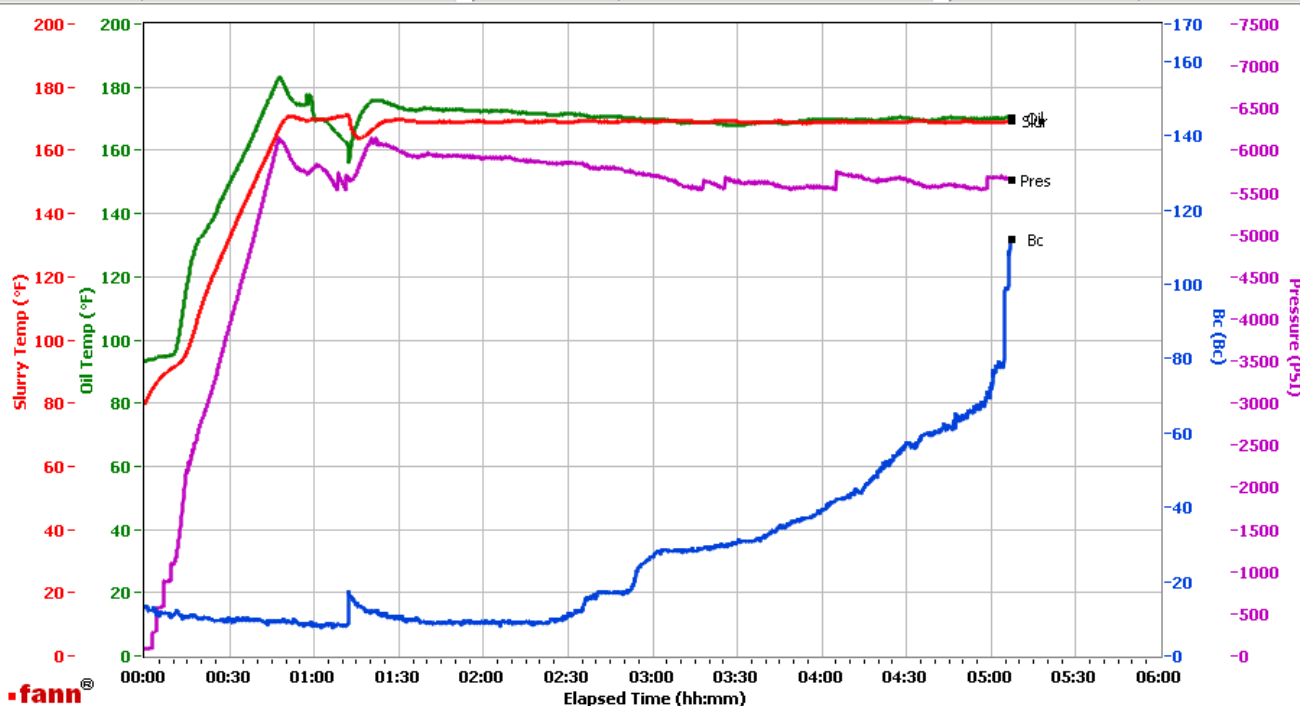
Deflection of 8-- > 17 was taken from graph.

Grand Junction Colorado

Fields	Values
Project Name	2413348-1 TERRA ENERGY BULK PRODUCTI
Test ID	34819574 - TT
Request ID	2413348-1
Tested by	CT
Customer	TERRA ENERGY
Well No	SR 441-12
Rig	H&P 318
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	TYPE I-II
Cement Weight	Standard
Test Date	08/30/17
Test Time	04:15 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:24m
40.00 Bc	04h:01m
50.00 Bc	04h:20m
70.00 Bc	04h:58m
100.00 Bc	05h:06m
00h:30m	9.97
01h:00m	8.11
01h:30m	11.05



Data File C:\Documents and Settings\Administrator\Desktop\Test Data\GJ2413348-1 TERRA ENERGY BULK PRODUCTION LEAD.tdms

Comments CS2322, TRAILER 8678, 397.5 SKS - CS2323, TRAILER 2878, 397.5 SKS

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Rockies, Grand Junction

Lab Results- Tail

Job Information

Request/Slurry	2413349/1	Rig Name	H&P 318	Date	28/AUG/2017
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 441-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	9684 ft	BHST	115°C / 239°F
Hole Size	8.75 in	Depth TVD	9356 ft	BHCT	76°C / 169°F
Pressure	5830 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 2413349/1

Thickening Time - ON-OFF-ON

30/AUG/2017

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)
169	5830	47	2:42	2:52	2:34	3:10	18	57	15	16

265 sks tail

CS2321, Trailer 4549, 265 sks

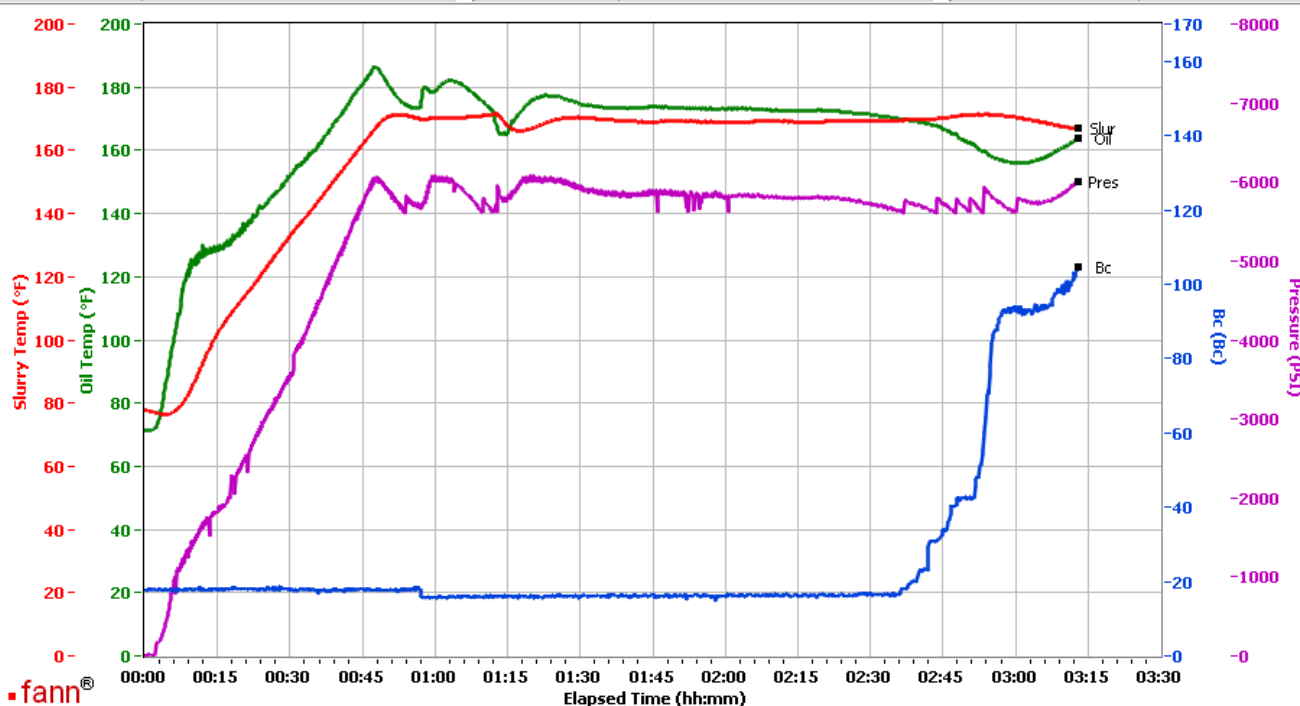
No deflection. Heat of hydration started around 2:45

Grand Junction Colorado

Fields	Values
Project Name	2413349-1 TERRA ENERGY BULK PRODUCTI
Test ID	34819576 - TT
Request ID	2413349-1
Tested by	CT
Customer	TERRA ENERGY
Well No	SR 441-12
Rig	H8P 318
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	08/29/17
Test Time	05:36 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	02h:42m
40.00 Bc	02h:46m
50.00 Bc	02h:52m
70.00 Bc	02h:54m
100.00 Bc	03h:10m
00h:30m	17.79
01h:00m	15.94
01h:30m	16.24



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2413349-1 TERRA ENERGY BULK PRODUCTION TAIL.tdms

Comments CS2321, TRAILER 4549, 265 SKS

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