

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

For: Terra

Date: Wednesday, February 07, 2018

PA 643-26 Production

API#05-045-23846

Sincerely,

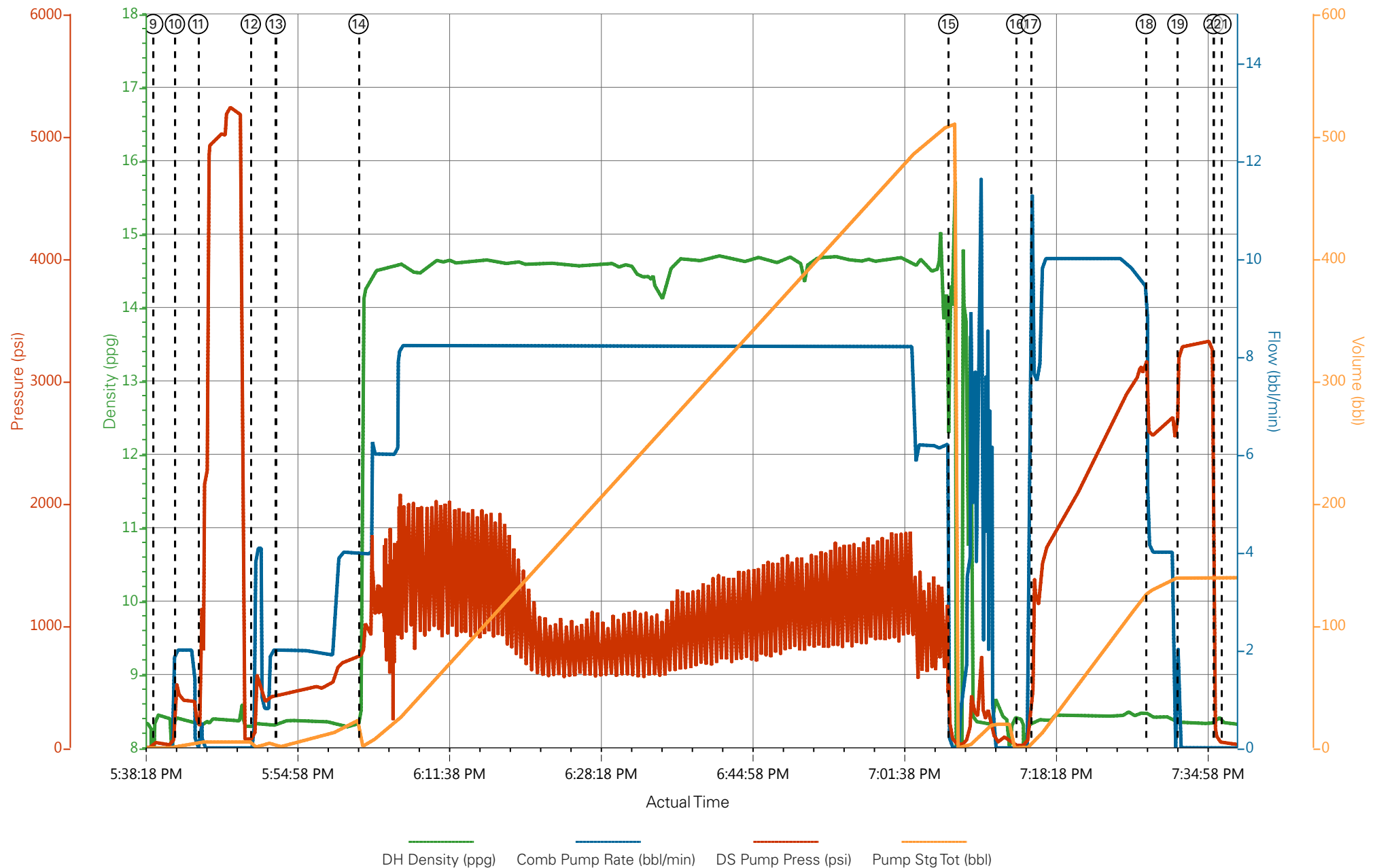
Grand Junction Cement Engineering

1.4 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	2/7/2018	11:30:00						Requested on Location @ 1300
Event	2	Pre-Convoy Safety Meeting	2/7/2018	13:00:00						
Event	3	Crew Leave Yard	2/7/2018	13:33:00						1 Elite, 1 660, 1 pickup
Event	4	Arrive At Loc	2/7/2018	16:43:54						Rig running casing
Event	5	Assessment Of Location Safety Meeting	2/7/2018	16:47:24						JSA completed - Customer offered/received SDS - water test pH 7.0, Cl <200, temp 90 degrees
Event	6	Pre-Rig Up Safety Meeting	2/7/2018	16:51:53						
Event	7	Rig-Up Equipment	2/7/2018	16:56:20						DME iron to ground manifold, standpipe, hardline to pit. Water hoses to both uprights, bulk hoses to silo and 660.
Event	8	Pre-Job Safety Meeting	2/7/2018	17:09:47						All HES personnel, rig crew, and company rep.
Event	9	Start Job	2/7/2018	17:39:27						TD 8510, TP 8504, SJ 34.41, CSG 4 1/2" 11.6#, OH 8 3/4", MUD# 12.6 PPG, Surface csg @ 1084' 9 5/8" 32.3#
Event	10	Fill Lines	2/7/2018	17:41:50		8.33	2	550	5	Fresh Water
Event	11	Test Lines	2/7/2018	17:44:23				5245		Held pressure 2 minutes
Event	12	Pump Spacer	2/7/2018	17:50:10		8.33	2	550	5	Fresh Water
Event	13	Pump Spacer 2	2/7/2018	17:52:53		8.4	4	700	20	80 lbs. Mud Flush III
Event	14	Pump Cement	2/7/2018	18:02:00		14.5	8	1200	447.9	1905 sks, 14.5 ppg, 1.32 yield, 5.86 gal/sk
Event	15	Shutdown	2/7/2018	19:06:48						Clean Lines To Pit
Event	16	Drop Top Plug	2/7/2018	19:14:16						Co-Rep Verify Plug Launched
Event	17	Pump Displacement	2/7/2018	19:15:51		8.4	10	3145	131.4	3 lbs BE-6, 1 gal MMCR, 2% KCl

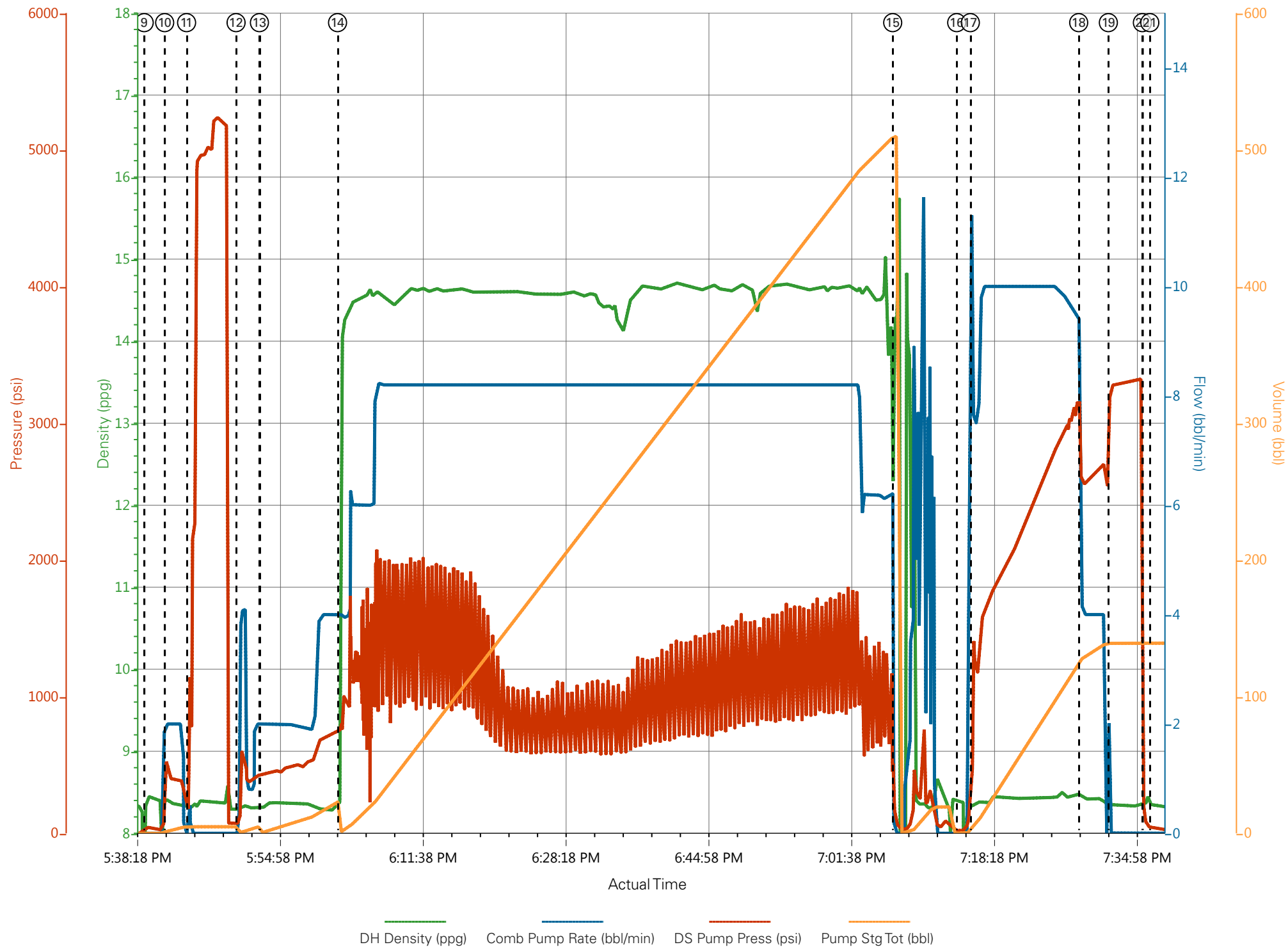
Event	18	Slow Rate	2/7/2018	19:28:30	8.4	4	2690	121	Slow Rate 10 bbls to Calculated Displacement
Event	19	Bump Plug	2/7/2018	19:31:58	8.4		3284		Plug Bumped at 2690 psi, Brought up to 3284 psi
Event	20	Check Floats	2/7/2018	19:35:56					Floats held – 1.5 bbl back to the truck
Event	21	End Job	2/7/2018	19:36:48					Good returns throughout job. Pipe was reciprocated during job.
Event	22	Pre-Rig Down Safety Meeting	2/7/2018	20:07:15					70 # sugar, HES top plug used, 0 add hours
Event	23	Rig-Down Equipment	2/7/2018	20:13:33					
Event	24	Pre-Convoy Safety Meeting	2/7/2018	20:24:35					
Event	25	Crew Leave Location	2/7/2018	20:26:20					Thanks For Using Halliburton Cement. Chris Martinez And Crew

PA 643-26 Production



① Call Out n/a;n/a;n/a;n/a	⑤ Assessment Of Location Safety Meeting -0.01;0;115;0.2	⑨ Start Job 8.48;0;45;0	⑬ Pump Spacer 2 8.3;2;437;0.6	⑰ Pump Displacement 8.31;76;136
② Pre-Convoy Safety Meeting n/a;n/a;n/a;n/a	⑥ Pre-Rig Up Safety Meeting -0.01;0;115;0.2	⑩ Fill Lines 8.41;2;451;1	⑭ Pump Cement 11.16;4;763;1	⑱ Slow Rate 8.45;4.3;2571;127.7
③ Crew Leave Yard n/a;n/a;n/a;n/a	⑦ Rig-Up Equipment -0.01;0;115;0.2	⑪ Test Lines 8.31;0;168;4.7	⑮ Shutdown 14.06;0;95;509.8	⑲ Bump Plug 8.35;0;3287;139.1
④ Arrive At Loc -0.01;0;114;0.2	⑧ Pre-Job Safety Meeting -0.01;0;116;0.2	⑫ Pump Spacer 8.29;0.4;71;0	⑯ Drop Top Plug 8.39;0;17;0	20 Check Floats 8.4;0;90;139.1

PA 643-26 Production



Job Information

Request/Slurry	2450086/2	Rig Name	H&P 271	Date	30/JAN/2018
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	PA 643-26

Well Information

Casing/Liner Size	4.5 in	Depth MD	8555 ft	BHST	101°C / 214°F
Hole Size	8.75 in	Depth TVD	7888 ft	BHCT	63°C / 145°F
Pressure	4822 psi				

Drilling Fluid Information

Mud Supplier Name	AMC	Mud Trade Name	Density
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Cement Information - Primary Design



Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
						Slurry Density	14.5	lbm/gal
						Slurry Yield	1.32	ft3/sack
						Water Requirement	5.856	gal/sack
						Total Mix Fluid	5.856	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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Operation Test Results Request ID 2450086/2

Thickening Time - ON-OFF-ON

03/FEB/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)
145	4822	49	3:02	3:06	3:06	3:06	16	56	15	23

1905 sks Total

CS0342, Trailer 7804, 100 sks

CS0341, Trailer 1656, 451.25 sks

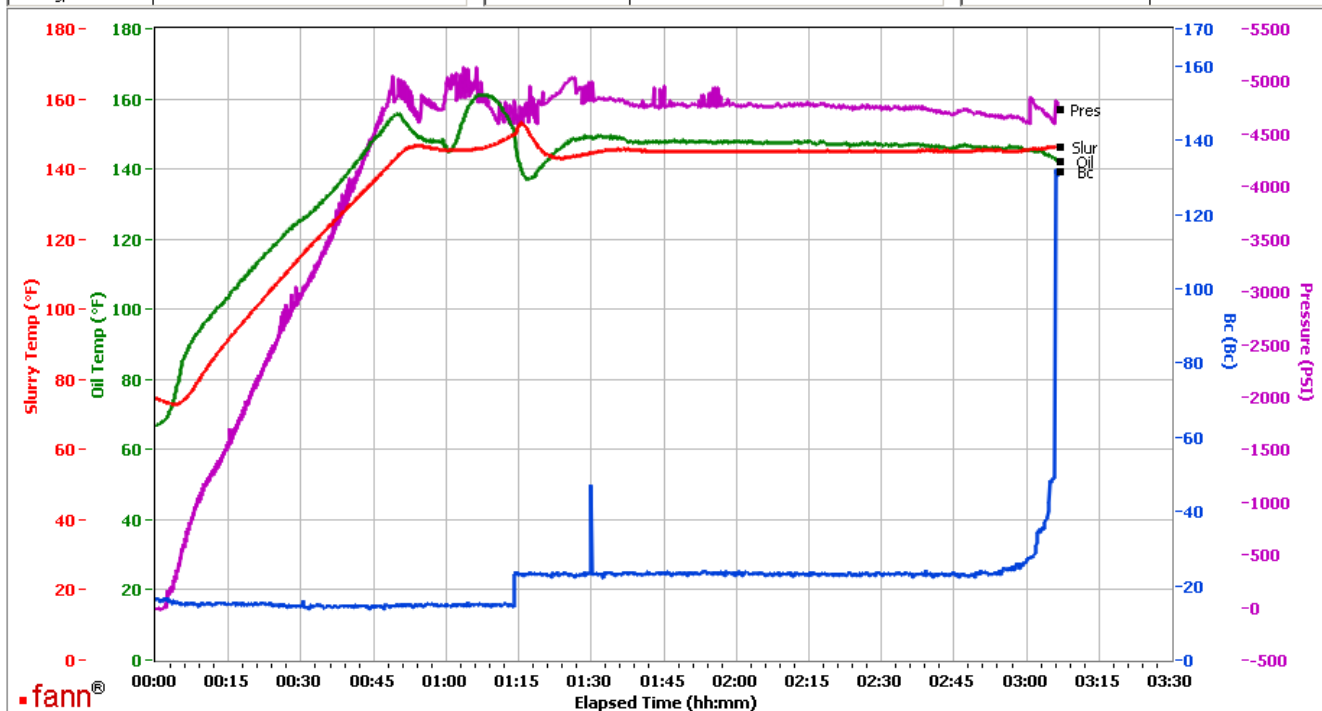
Deflection: 15 - 23 staying at 23 after one minute

Grand Junction, Colorado

Fields	Values
Project Name	2450086-2 TERRA BULK PRODUCTION PRIM
Test ID	35227875 - TT
Request ID	2450086-2
Tested by	CT
Customer	TERRA ENERGY PARTNERS
Well No	PA 643-26
Rig	H&P 271
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	02/03/18
Test Time	07:13 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:02m
40.00 Bc	03h:04m
50.00 Bc	03h:06m
70.00 Bc	03h:06m
100.00 Bc	03h:06m
00h:30m	14.24
01h:00m	14.46
01h:30m	23.11



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Comments CS0342, TRAILER 7804, 100 SKS - CS0341, TRAILER 1656, 451.25 SKS

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Operation Test Results Request ID 2450086/1

Thickening Time - ON-OFF-ON

03/FEB/2018

Test Temp (degF)	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)
145	4822	49	2:47	2:53	2:56	3:01	12	59	28

1905 sks Total

Composite:

CS0336 TR 8476 451.25 SKS

CS0337 TR 8677 451.25 SKS

CS0338 TR 2878 451.25 SKS

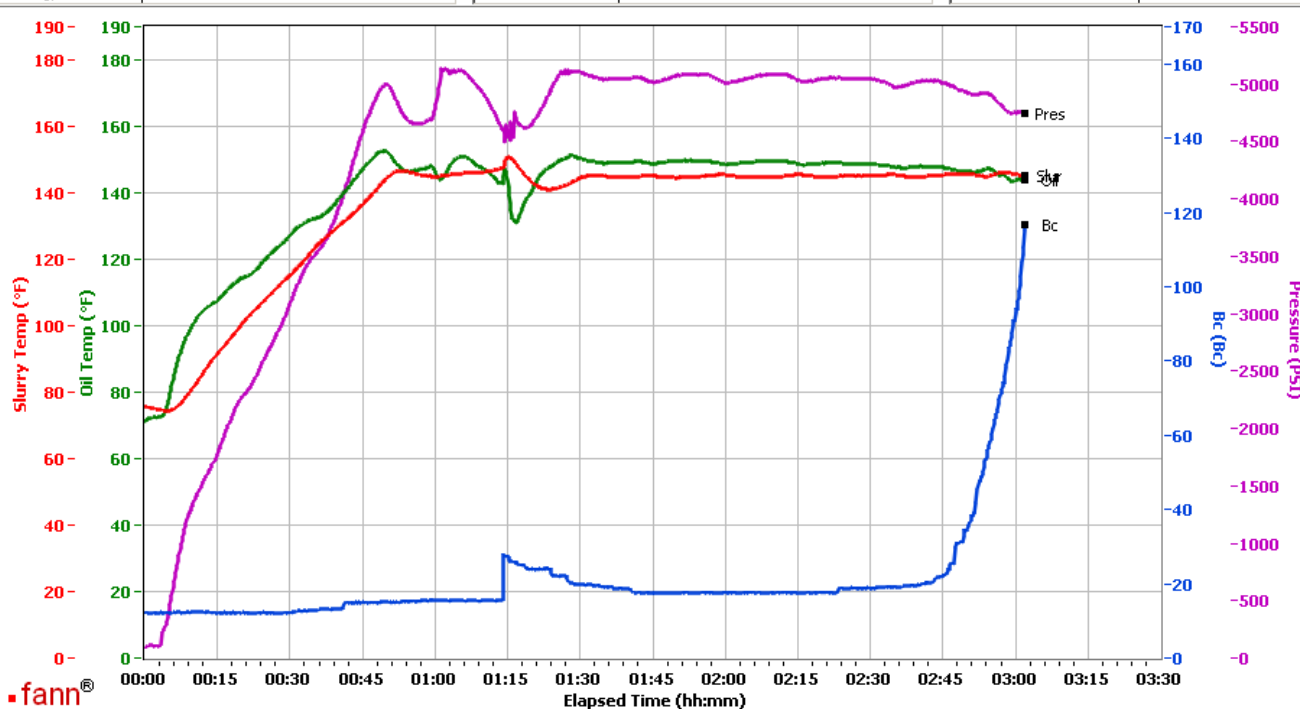
Deflection: 15 - 28 to 26 after one minute

Grand Junction Colorado

Fields	Values
Project Name	2450086-1 TERRA BULK PRODUCTION PRIM
Test ID	35217774 - TT
Request ID	2450086-1
Tested by	JASON
Customer	TERRA ENERGY PARTNERS
Well No	PA 643-26
Rig	H&P 271
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	02/03/18
Test Time	04:38 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	02h:47m
40.00 Bc	02h:51m
50.00 Bc	02h:53m
70.00 Bc	02h:56m
100.00 Bc	03h:01m
00h:30m	12.34
01h:00m	15.59
01h:30m	19.81



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Comments CS0336 TR 8476 451.25 SKS CS0337 TR 8677 451.25 SKS CS0338 TR 2878 451.25 SKS

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