

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

For: Terra Energy

Ware SR 24-12

API# 05-045-23445-00
Ware SR 24-12 Production
Job Date: Sunday, February 04, 2018

Sincerely,

Grand Junction Cement Engineering

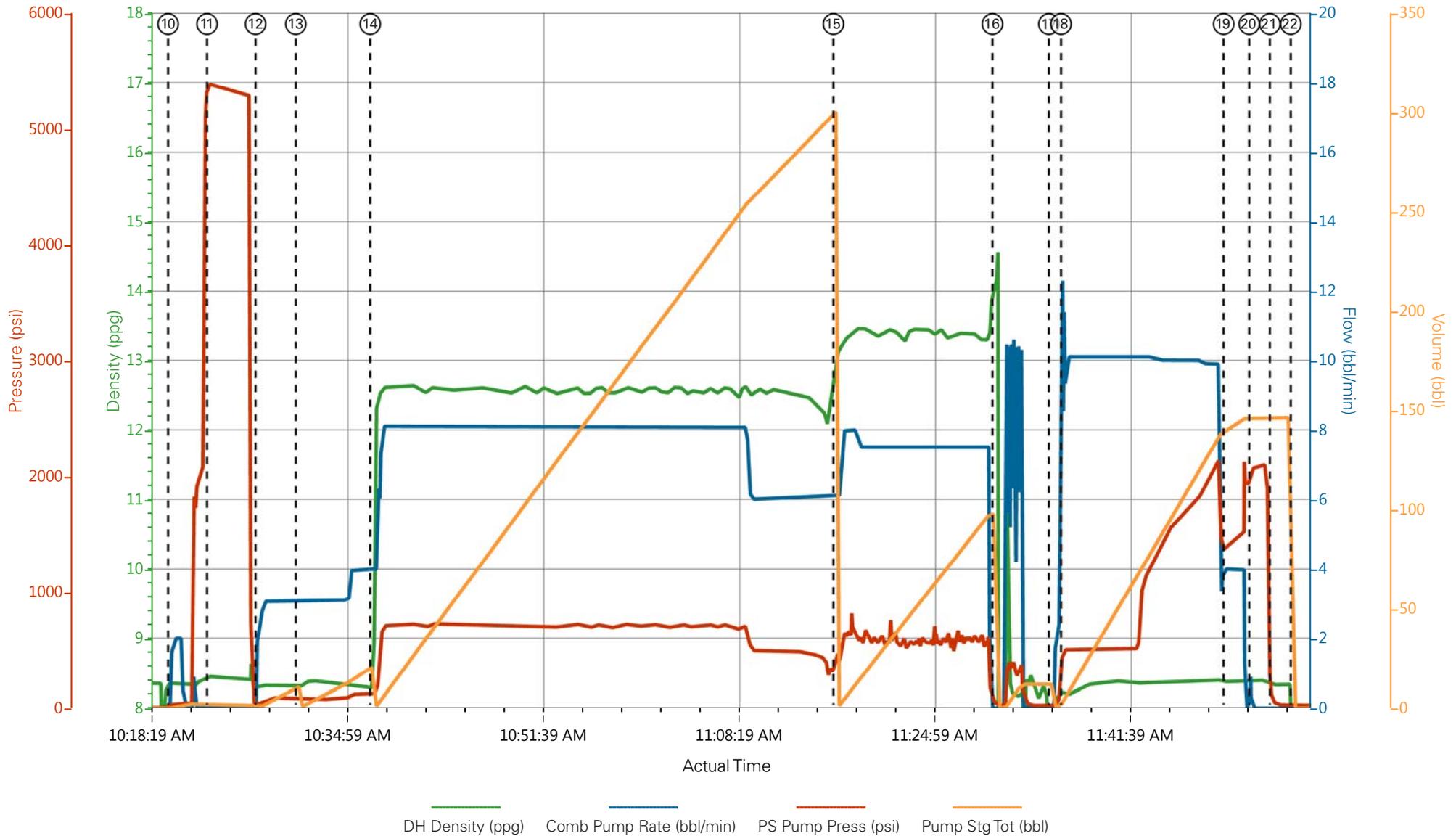
Real-Time Job Summary

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	2/3/2018	22:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	2/4/2018	00:01:00	USER					JSA COMPLETED
Event	3	Crew Leave Yard	2/4/2018	00:20:00	USER					
Event	4	Arrive At Loc	2/4/2018	02:00:00	USER					OSR SIGNED WOC, RIG RUNNING CASING HAD LOSS CIRCULATION ISSUES
Event	5	Assessment Of Location Safety Meeting	2/4/2018	02:36:59	USER					1 ELITE, 1 660, 1 SILO
Event	6	PRE RIG UP SAFETY MEETING	2/4/2018	03:00:00	USER					JSA COMPLETE
Event	7	Rig-Up Equipment	2/4/2018	03:30:00	USER					
Event	8	Other	2/4/2018	03:45:00	USER					4.5 11.6# TD- 9542, TP-9535, S.J.-31.3, HOLE- 8 3/4, MUD#- 9.2, SURFACE CASING SET AT 1117 9 5/8 32.3#
Event	9	Pre-Job Safety Meeting	2/4/2018	10:00:00	USER					JSA COMPLETE
Event	10	Start Job	2/4/2018	10:20:00	COM5					
Event	11	Test Lines	2/4/2018	10:23:18	COM5	8.45	0.00	5393.00	2.1	5393 PSI
Event	12	Pump Spacer 1	2/4/2018	10:27:26	COM5	8.33	2.30	47.00	10.00	FRESH WATER
Event	13	Pump Spacer 2	2/4/2018	10:30:51	COM5	8.40	4.00	115.00	20.00	MUD FLUSH
Event	14	Pump Lead Cement	2/4/2018	10:37:12	COM5	12.5	8.00	720.00	279.9	810 SKS, 12.5 PPG, 1.94 FT3/SK, 9.6 GAL/SK
Event	15	Pump Tail Cement	2/4/2018	11:16:37	COM5	13.30	7.5	560.00	81.6	265 SKS, 13.3 PPG, 1.73 FT3/SK, 7.81 GAL/SK
Event	16	Clean Lines	2/4/2018	11:30:09	COM5					TO PIT FROM MANIFOLD ON GROUND, THEN BLEW AIR FROM RIG FLOOR TO CLEAN OUT STAND PIPE

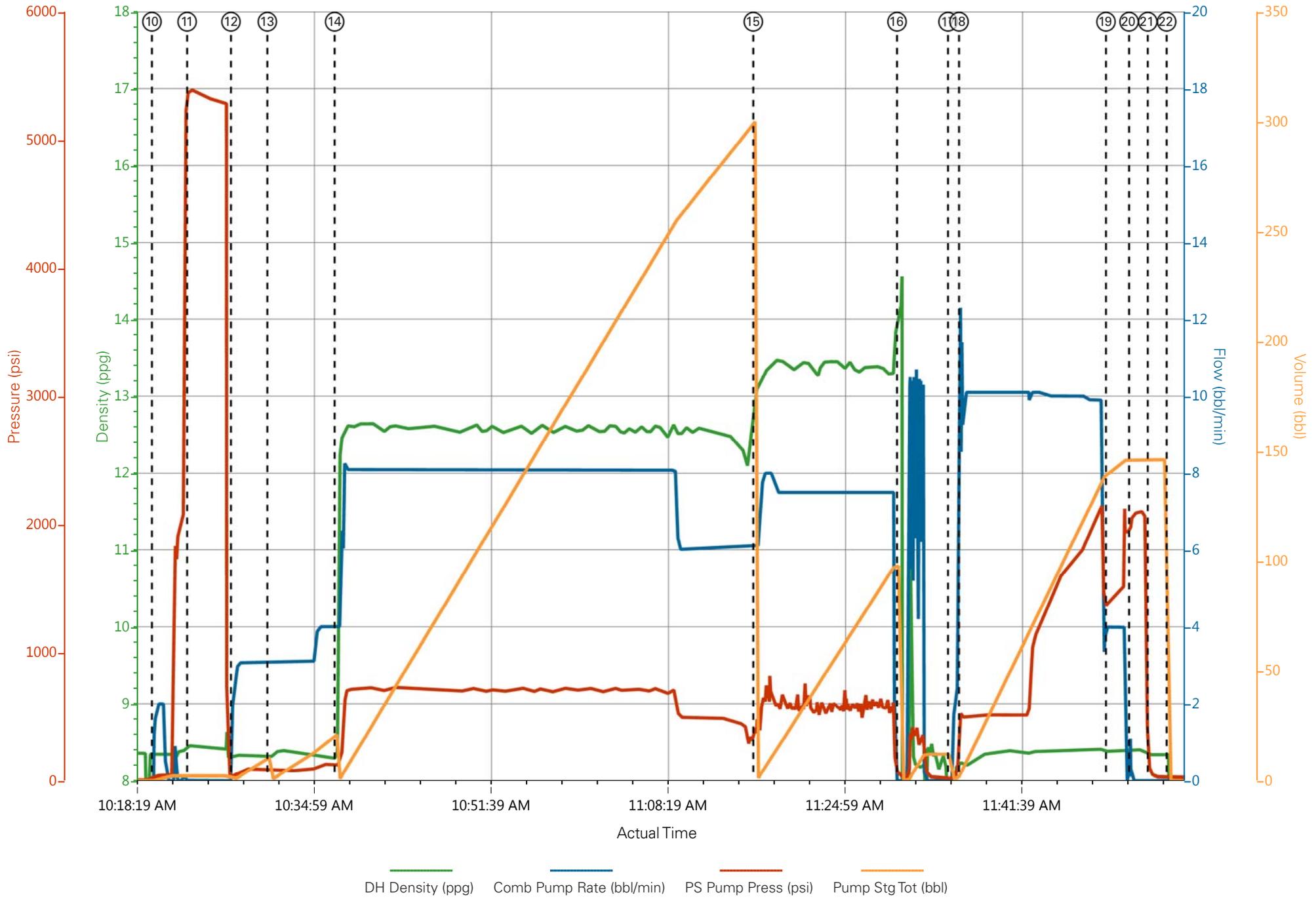
Event	17	Drop Top Plug	2/4/2018	11:34:57	COM5						AWAY USING POSITIVE DISPLACEMENT
Event	18	Pump Displacement	2/4/2018	11:35:59	COM5	8.40	10.00	2047	147.3		KCL WATER, 3 BAGS BE-6, 1 GAL MMCR
Event	19	Slow Rate	2/4/2018	11:49:49	USER	8.40	4.00	1380	137.00		TO BUMP PLUG
Event	20	Bump Plug	2/4/2018	11:52:00	COM5	8.40	4.00	1570	147.3		PLUG BUMPED
Event	21	Check Floats	2/4/2018	11:53:45	USER			2100			FLOATS HELD, 1 BBL BACK TO TRUCK
Event	22	End Job	2/4/2018	11:55:32	COM5						
Event	23	Other	2/4/2018	12:05:00	USER						INTERMITTENT RETURNS THROUGH OUT JOB. HAD CIRCULATION AT BEGINNING OF JOB
Event	24	Post-Job Safety Meeting (Pre Rig-Down)	2/4/2018	12:10:00	USER						
Event	25	Rig Down Lines	2/4/2018	13:00:00	USER						
Event	26	Crew Leave Location	2/4/2018	13:30:00	USER						THANK YOU FOR USING HALLIBURTON CEMENT, JAMES LEIST AND CREW

TEP - SR 24-12 - 4.5 PRODUCTION CASING



- | | | | | |
|---|--------------------------|---------------------|---|------------------------|
| ① Call Out | ⑦ Rig-Up Equipment | ⑬ Pump Spacer 2 | ⑲ Slow Rate | 25 Rig Down Lines |
| ② Pre-Convoy Safety Meeting | ⑧ Other | ⑭ Pump Lead Cement | 20 Bump Plug | 26 Crew Leave Location |
| ③ Crew Leave Yard | ⑨ Pre-Job Safety Meeting | ⑮ Pump Tail Cement | 21 Check Floats | |
| ④ Arrive At Loc | ⑩ Start Job | ⑯ Clean Lines | 22 End Job | |
| ⑤ Assessment Of Location Safety Meeting | ⑪ Test Lines | ⑰ Drop Top Plug | 23 Other | |
| ⑥ PRE RIG UP SAFETY MEETING | ⑫ Pump Spacer 1 | ⑱ Pump Displacement | 24 Post-Job Safety Meeting (Pre Rig-Down) | |

TEP - SR 24-12 - 4.5 PRODUCTION CASING



Job Information

Request/Slurry	2449820/1	Rig Name	H&P 318	Date	29/JAN/2018
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 24-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	9524 ft	BHST	116°C / 241°F
Hole Size	8.75 in	Depth TVD	9475 ft	BHCT	77°C / 171°F
Pressure	5933 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>	<u>Cement Properties</u>		
						Slurry Density	12.5	lbm/gal
						Slurry Yield	1.941	ft ³ /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 2449820/1

Thickening Time - ON-OFF-ON

31/JAN/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)
171	5933	48	5:01	5:16	5:25	6:04	6	58	15	7

Total sks = 810

Composite:

CS0309 TR# 8677 405 SKS

CS0310 TR# 2878 405 SKS

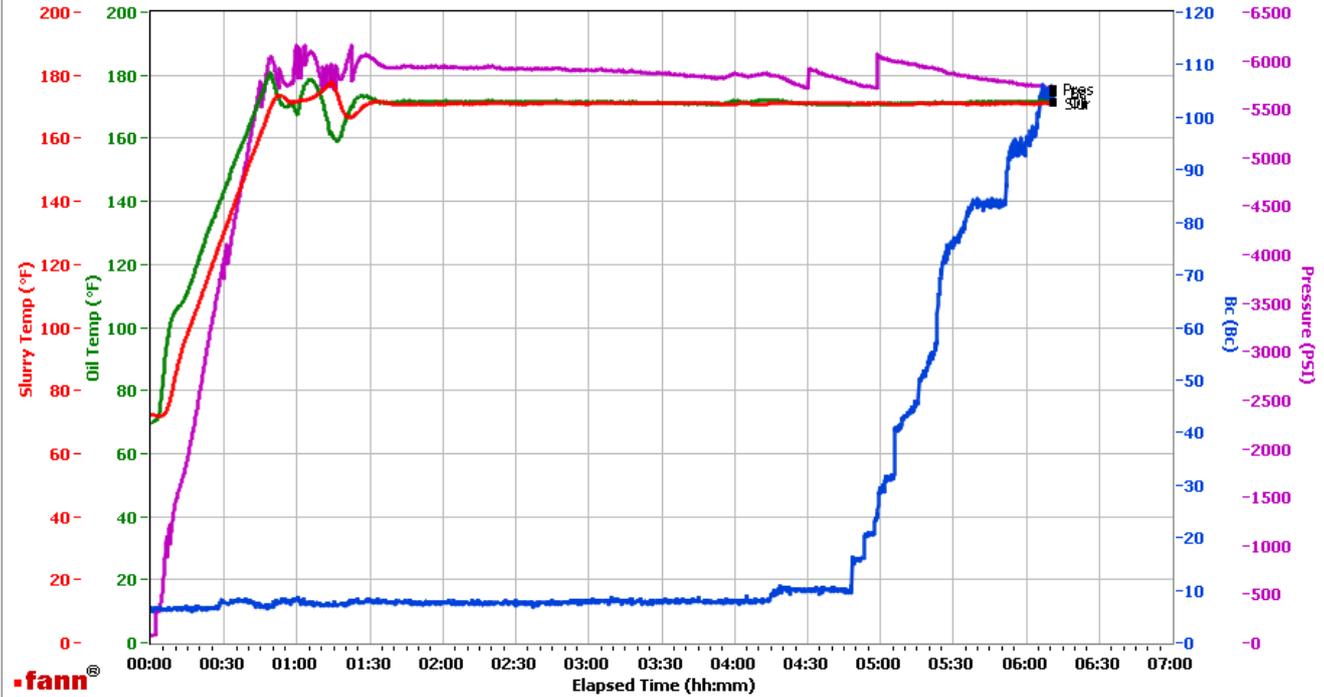
No deflected was observed. 7Bc--- > 7Bc

Grand Junction Colorado

Fields	Values
Project Name	GJ2449820-1 TERRA PRODUCTION BULK LE
Test ID	35214787
Request ID	GJ2449820-1
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	SR 24-12
Rig	H&P 318
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	GCC TYPE I-II
Cement Weight	Standard
Test Date	01/31/18
Test Time	12:20 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.1219

Events	Results
30.00 Bc	05h:01m
40.00 Bc	05h:05m
50.00 Bc	05h:16m
70.00 Bc	05h:25m
100.00 Bc	06h:04m
00h:30m	7.89
01h:00m	8.17
01h:30m	7.61



Data File C:\Documents and Settings\HPHT\Local Settings\Temporary Internet Files\Content.IE5\KD2P41SJ\GJ2449820-1 TERRA PRODUCTION BULK LEAD[1].tdms
 Comments COMPOSITE: CS0309 TR#8677 405 SKS & cCS0310 TR#2878 405 SKS

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Job Information

Request/Slurry	2449821/1	Rig Name	H&P 318	Date	29/JAN/2018
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 24-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	9524 ft	BHST	116°C / 241°F
Hole Size	8.75 in	Depth TVD	9475 ft	BHCT	77°C / 171°F
Pressure	5933 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>	Cement Properties	
						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 2449821/1

Thickening Time - ON-OFF-ON

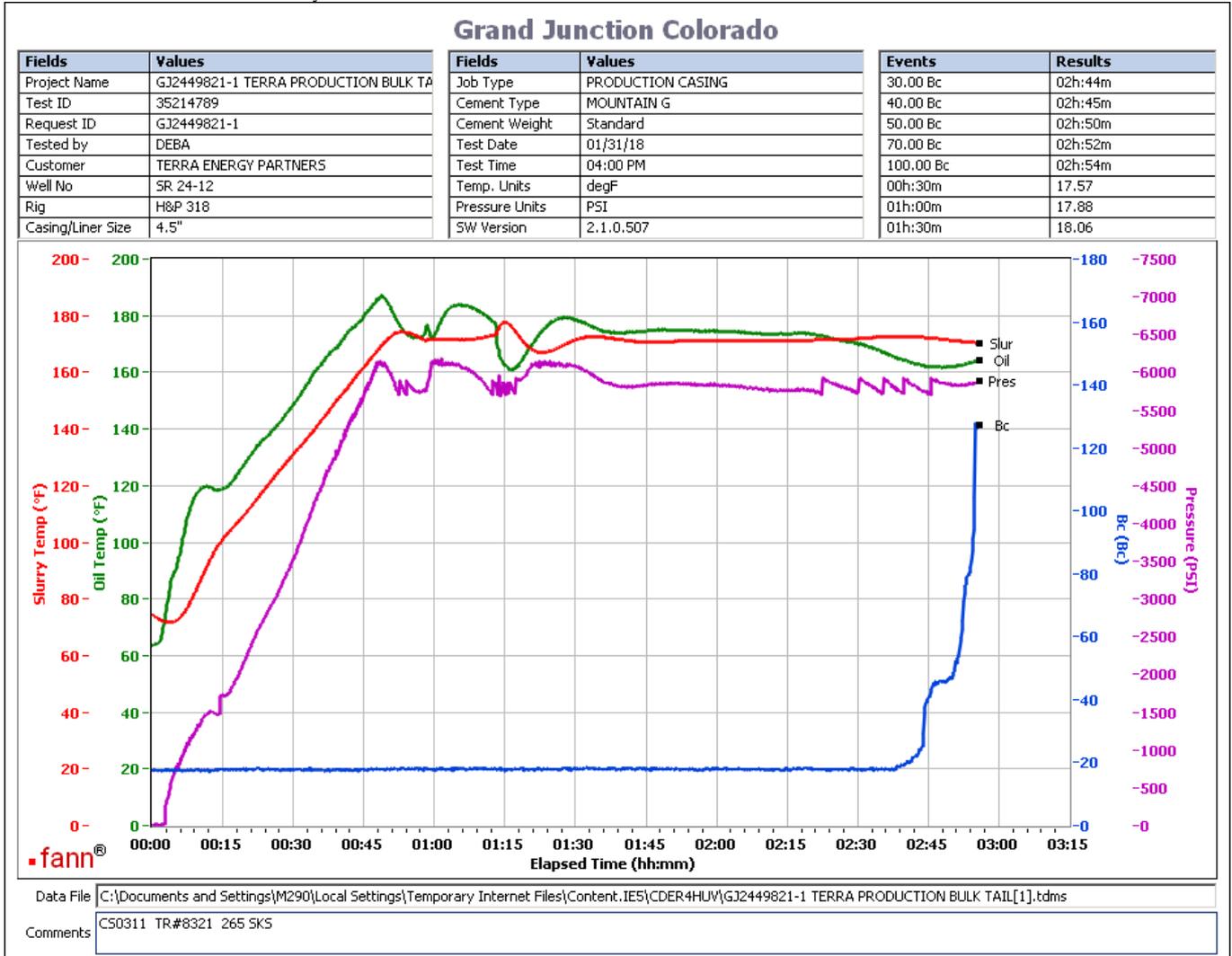
31/JAN/2018

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)	Peak reading (BC)
171	5933	48	2:44	2:50	2:52	2:54	17	58	15	18

265 sks tail

CS0311 TR#8321 265 SKS

No deflection. Please note that heat of hydration started around 2:25.



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