

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

For: Terra Energy

Ware SR 513-12

API# 05-045-23441-00

TEP WARE SR 513-12 Production

Job Date: Thursday, December 28, 2017

Sincerely,

Grand Junction Cement Engineering

1.0 Real-Time Job Summary

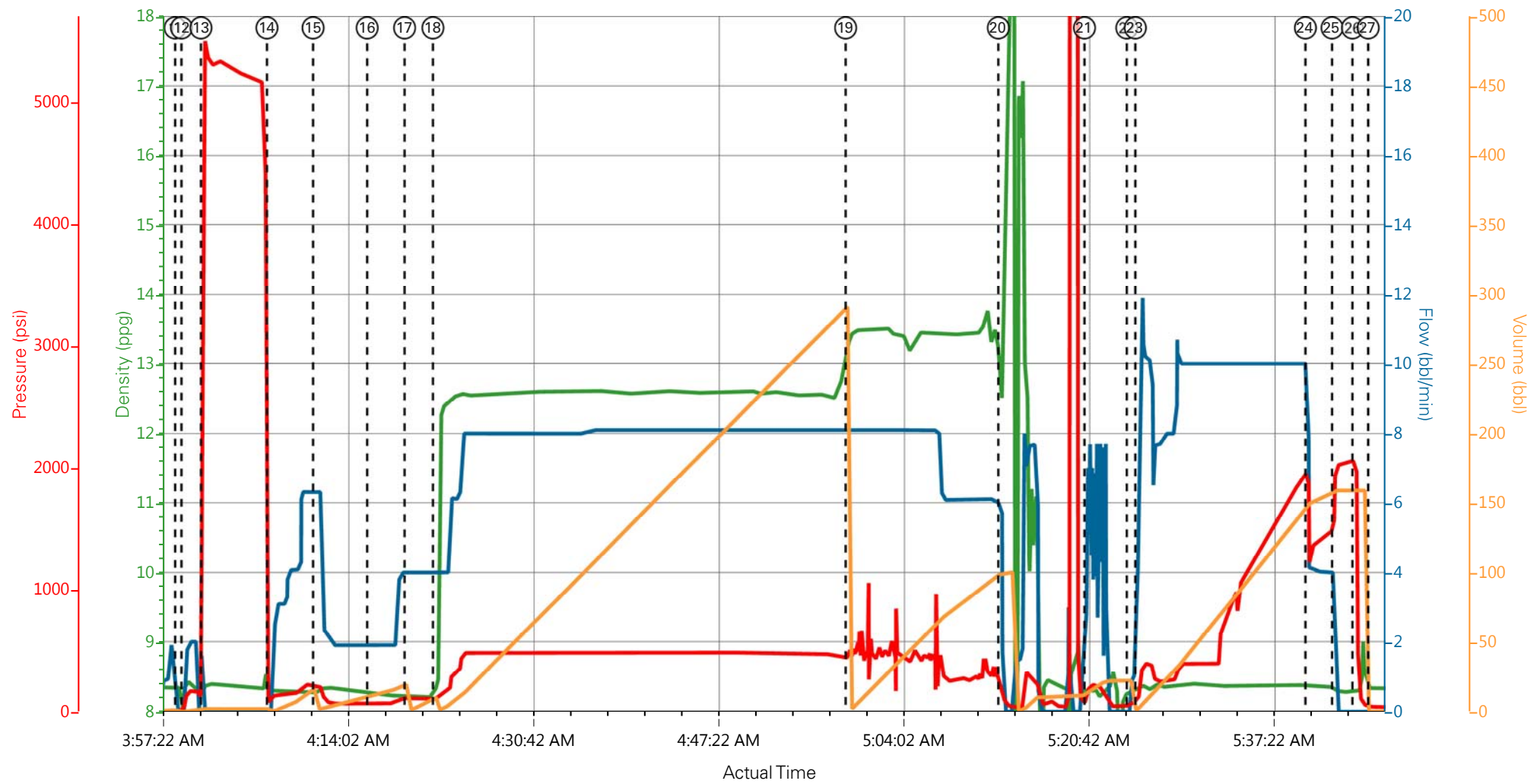
1.1 Job Event Log

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	12/27/2017	16:00:00	USER					ON LOCATION 22:00
Event	2	Pre-Convoy Safety Meeting	12/27/2017	18:15:00	USER					JOURNEY CREATED - ALL HES INVOLVED IN SAFETY MEETING
Event	3	Crew Leave Yard	12/27/2017	18:30:00	USER					1-F-550 PICKUP WITH IRON TRAILER, 1-ELITE PUMP TRUCK, 1-660 BULK TRUCK
Event	4	Arrive At Loc	12/27/2017	20:45:00	USER					HES ARRIVED 1-HOUR EARLY
Event	5	Assessment Of Location Safety Meeting	12/27/2017	21:00:00	USER					RIG WAS RUNNING CASING - HES REP SPOKE WITH COMPANY REP
Event	6	Pre-Rig Up Safety Meeting	12/27/2017	22:30:00	USER					JSA FILLED OUT - ALL HES INVOLVED IN SAFETY MEETING
Event	7	Rig-Up Equipment	12/27/2017	22:45:00	USER					RIG UP IRON TO THE RIG STAND PIPE AND WASH UP LINE TO THE PIT - WATER HOSES TO BOTH RIG UPRIGHT'S - BULK EQUIPMENT TO PUMP TRUCK
Event	8	Rig-Up Completed	12/27/2017	23:45:00	USER					COMPLETED SAFELY
Event	9	Water Test/Well Info	12/28/2017	00:35:00	USER					TEMP- 50, CHLOR- 0, PH- 7 / WELL INFO: TD- 9866FT TP- 9860FT SJ- 48.21FT OH- 8 3/4" CSG- 4 1/2" 11.6# P-110 MUD WT- 9.2 SRF CSG- 9 5/8" SET AT 1131FT
Event	10	Pre-Job Safety Meeting	12/28/2017	02:15:00	USER					ALL HES, RIG CREW AND COMPANY REP INVOLVED IN SAFETY MEETING
Event	11	Start Job	12/28/2017	03:58:45	COM5					START JOB
Event	12	Fill Lines	12/28/2017	03:59:19	USER	8.34	2	177	2	FILL LINES WITH 2 BBLs OF WATER AHEAD TO

PRESSURE TEST										
Event	13	Test Lines	12/28/2017	04:01:05	COM5			5450		PRESSURE TEST LINES TO 5450 PSI - PRESSURE TEST GOOD
Event	14	Fresh Water Spacer	12/28/2017	04:07:01	COM5	8.34	6	210	10	10 BBL FRESH WATER SPACER AHEAD
Event	15	Mud Flush Spacer	12/28/2017	04:11:10	COM5	8.55	4	112	20	20 BBL MUD FLUSH SPACER AHEAD
Event	16	Check weight	12/28/2017	04:16:02	COM5					VERIFIED WEIGHT OF FIRST TUB OF CEMENT VIA PRESSURIZED MUD SCALES
Event	17	Fresh Water Spacer	12/28/2017	04:19:24	COM5	8.34	4	108	10	10 BBL FRESH WATER SPACER AHEAD
Event	18	Pump Lead Cement	12/28/2017	04:21:57	COM5	12.5	8	540	278.1	805SKS OF NEOCEM CEMENT (278.1BBLS) 12.5PPG 1.94YIELD 9.6GAL/SK WEIGHT OF CEMENT VERIFIED VIA PRESSURIZED MUD SCALES THROUGHOUT LEAD CEMENT
Event	19	Pump Tail Cement	12/28/2017	04:59:05	COM5	13.5	8	500	81.6	265SKS OF THERMACEM CEMENT (81.6BBLS) 13.5PPG 1.73YIELD 7.81GAL/SK WEIGHT OF CEMENT VERIFIED VIA PRESSURIZED MUD SCALES THROUGHOUT TAIL CEMENT
Event	20	Shutdown	12/28/2017	05:12:49	USER					SHUTDOWN END OF CEMENT
Event	21	Clean Lines	12/28/2017	05:20:34	USER					CLEAN LINES TO THE PIT WITH RIG SUPPLIED AIR AND FRESH WATER - READY TANKS FOR DISPLACEMENT
Event	22	Drop Top Plug	12/28/2017	05:24:23	USER					TOP PLUG AWAY - NO PROBLEMS
Event	23	Pump Displacement	12/28/2017	05:25:09	COM5	8.45	10	1977	142.1	FRESH WATER DISPLACEMENT WITH 1-BAG OF KCL PER 10 BBLS AND 1-GAL MMCR AND 3 POUNDS OF BE-6
Event	24	Slow Rate	12/28/2017	05:40:27	USER	8.45	4	1460	10	SLOW RATE TO BUMP THE PLUG - PRESSURE PRIOR TO SLOWING WAS 1977 PSI AT 10 BPM - PRESSURE AFTER SLOWING WAS 1460 PSI AT 4 BPM
Event	25	Bump Plug	12/28/2017	05:42:51	USER	8.45	4	1576	152.1	PLUG BUMPED AT CALCULATED DISPLACEMENT - PLUG BUMPED AT 1576 PSI TOOK TO 2053 PSI
Event	26	Check Floats	12/28/2017	05:44:41	USER			2053		FLOATS HELD 1 BBL BACK TO TANKS - RIG USED NO SUGAR - NO DERRICK CHARGE - NO ADD HOURS
Event	27	End Job	12/28/2017	05:46:06	COM5					THANK YOU FOR CHOOSING HALLIBURTON CEMENT CARL KUKUS AND CREW

Event	28	Pre-Rig Down Safety Meeting	12/28/2017	05:50:00	USER	JSA REVIEWED - ALL HES INCLUDED IN SAFETY MEETING
Event	29	Rig-Down Equipment	12/28/2017	06:00:00	USER	WASH UP AND BLOW DOWN PUMP TRUCK - RIG DOWN ALL IRON, WATER HOSES AND BULK EQUIPMENT
Event	30	Rig-Down Completed	12/28/2017	07:00:00	USER	COMPLETED SAFELY
Event	31	Pre-Convoy Safety Meeting	12/28/2017	07:05:00	USER	JOURNEY CREATED - ALL HES INCLUDED IN SAFETY MEETING
Event	32	Crew Leave Location	12/28/2017	07:30:00	USER	1-F-550 PICKUP WITH IRON TRAILER, 1-ELITE PUMP TRUCK, 1-660 BULK TRUCK

TEP - WARE SR 513-12 - 904522990 - 4 1/2" PRODUCTION



DH Density (ppg) 8.33 Comb Pump Rate (bbl/min) 0 DS Pump Press (psi) 35 Pump Stg Tot (bbl) 0

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

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Created: 2017-12-27 21:57:52, Version: 4.2.393

Edit

Customer : TERRA ENERGY PARTNERS

Job Date : 12/28/2017 1:07:43 AM

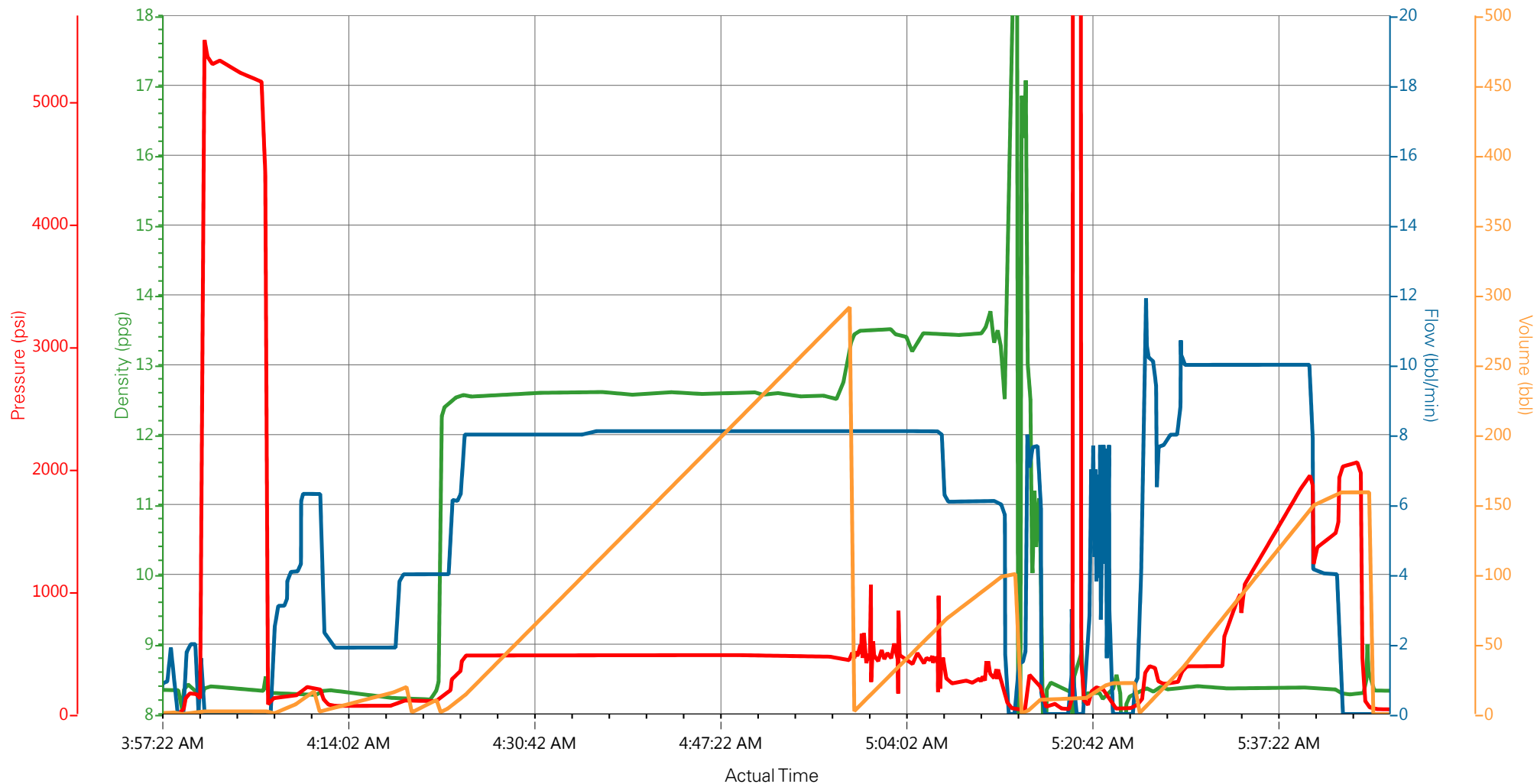
Well : SR 513-12

Representative : Nathan Burr

Sales Order # : 904522990

Elite 4 : Martin/Kukus

TEP - WARE SR 513-12 - 904522990 - 4 1/2" PRODUCTION



DH Density (ppg) 8.33 Comb Pump Rate (bbl/min) 0 DS Pump Press (psi) 35 Pump Stg Tot (bbl) 0

Job Information

Request/Slurry	2439895/1	Rig Name	H&P 318	Date	21/DEC/2017
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 513-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	10099 ft	BHST	118°C / 245°F
Hole Size	8.75 in	Depth TVD	9723 ft	BHCT	79°C / 175°F
Pressure	6090 psi				

Drilling Fluid Information

Mud Supplier Name	Mud Trade Name	Density
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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	

These are draft results and have not been approved for final use.

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Operation Test Results Request ID 2439895/1

Thickening Time - ON-OFF-ON

23/DEC/2017

Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)	Termination time (hh:mm)	Termination Bc
175	6090	57	5:56	6:37	7:13	12	67	15	16	12:41	92

Total sks=805

CS3463, Trailer 8976, 402.5 sks

CS3464, Trailer 1513, 402.5 sks

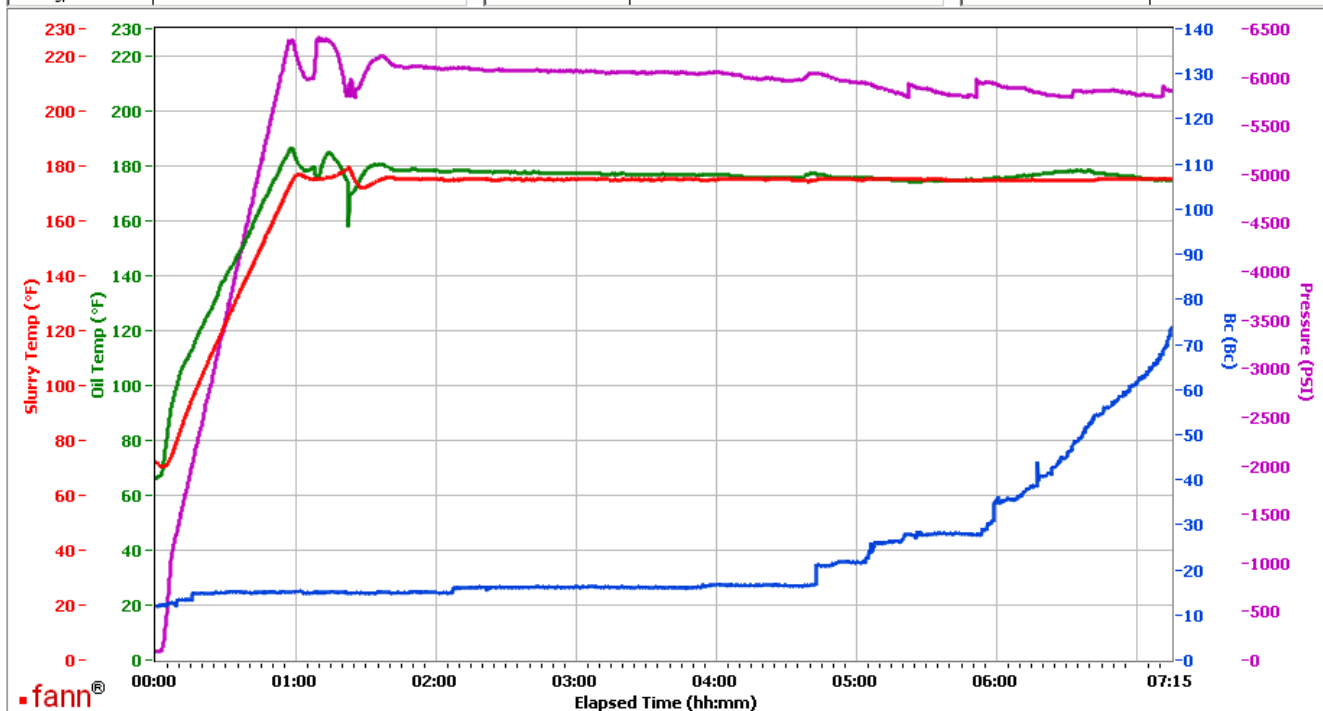
Deflection: 16 - 16

Grand Junction Colorado

Fields	Values
Project Name	2439895-1 TERRA BULK PRODUCTION LEAD
Test ID	35122951 - TT
Request ID	2439895-1
Tested by	CT
Customer	TERRA ENERGY
Well No	SR 513-12
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	12/23/17
Test Time	02:27 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	05h:56m
40.00 Bc	06h:17m
50.00 Bc	06h:37m
70.00 Bc	07h:13m
100.00 Bc	NaN
00h:30m	14.85
01h:00m	15.14
01h:30m	14.81



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Comments CS3463, TRAILER 8976, 402.5 SKS - CS3464, TRAILER 1513, 402.5 SKS

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HALLIBURTON

Rockies, Grand Junction

Lab Results- Tail

Job Information

Request/Slurry	2439896/1	Rig Name	H&P 318	Date	21/DEC/2017
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 513-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	10099 ft	BHST	118°C / 245°F
Hole Size	8.75 in	Depth TVD	9723 ft	BHCT	79°C / 175°F
Pressure	6090 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 2439896/1

Thickening Time - ON-OFF-ON

24/DEC/2017

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)
175	6090	57	2:42	2:49	3:00	3:39	15	67	15	16

265 sks tail

CS3484 TR 4064 265 SKS

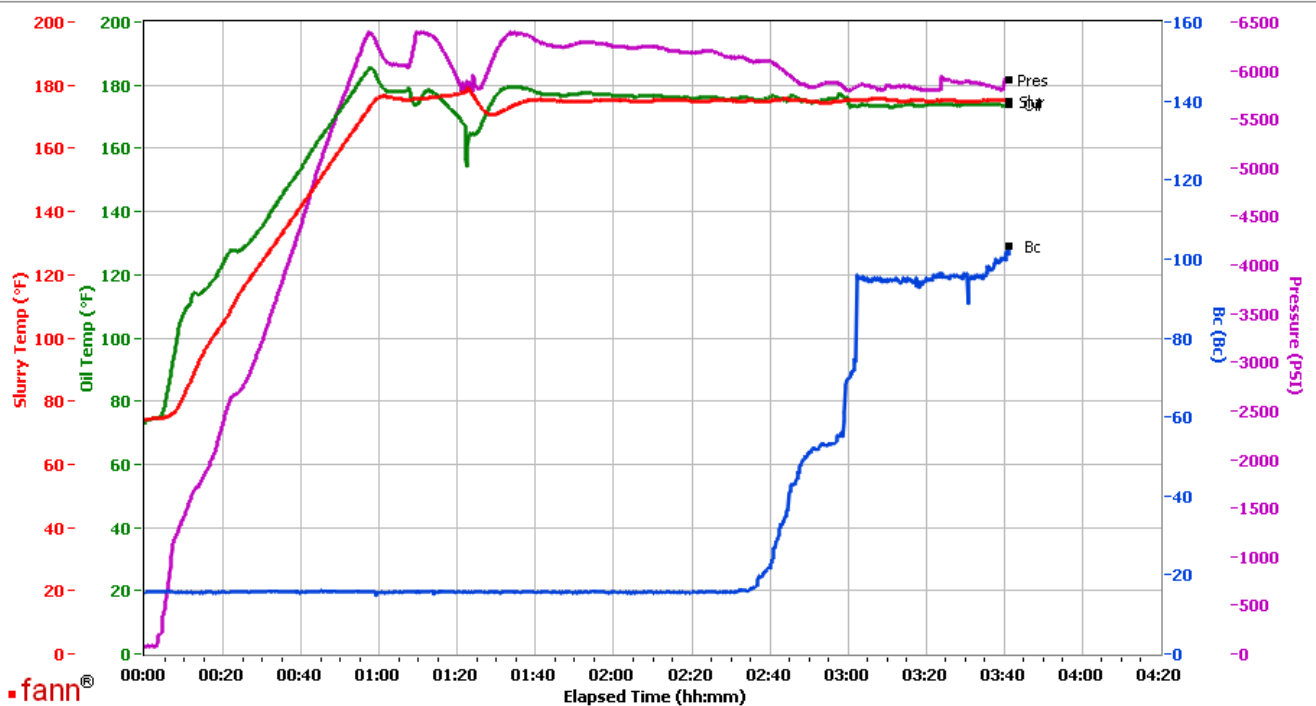
No deflection

Grand Junction Colorado

Fields	Values
Project Name	GJ2439896-1 TERRA PRODUCTION TAIL BU
Test ID	35122953
Request ID	2439896-1
Tested by	JASON
Customer	TERRA ENERGY PARTNERS
Well No	SR 513-12
Rig	H&P 318
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION
Cement Type	MOUNTAIN G
Cement Weight	Light Weight
Test Date	12/24/17
Test Time	09:06 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	02h:42m
40.00 Bc	02h:44m
50.00 Bc	02h:49m
70.00 Bc	03h:00m
100.00 Bc	03h:39m
00h:30m	15.79
01h:00m	15.51
01h:30m	15.58



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Comments CS3484 TR 4064 265 SKS

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