

HALLIBURTON

iCem[®] Service

TEP ROCKY MOUNTAIN LLC

For: Terra

Date: Thursday, June 29, 2017

YOUBURG SR 521-12 Production

API #05-045-23433-00

Sincerely,

Grand Junction Cement Engineering

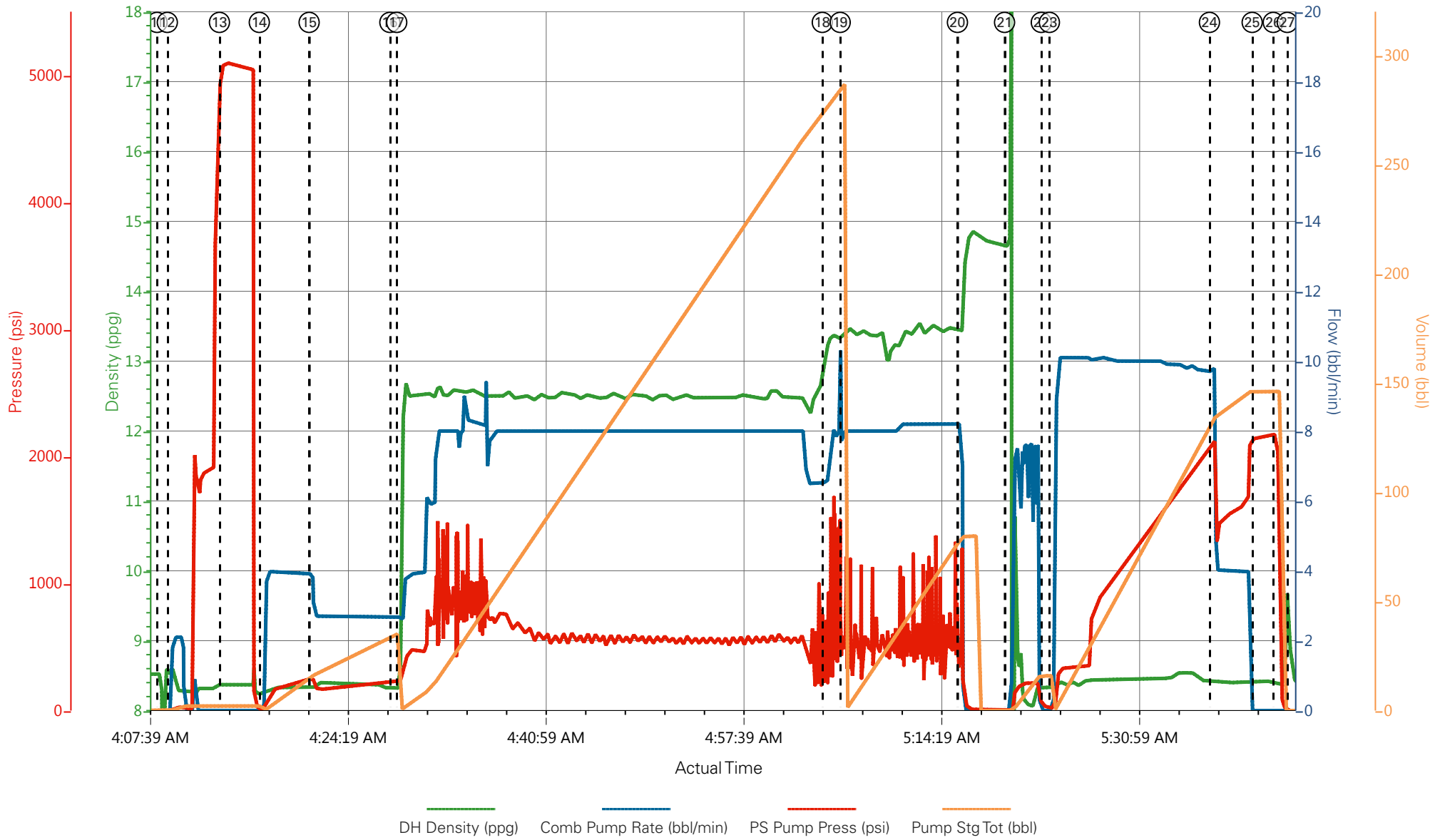
1.0 Real-Time Job Summary

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	6/28/2017	12:00:00	USER					REQUESTED ON LOCATION @ 18:00
Event	2	Pre-Convoy Safety Meeting	6/28/2017	14:45:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	6/28/2017	15:00:00	USER					1 HT 400 PUMP TRUCK E1, 1 660 BULK TRUCK, 1 450 SERVICE PICKUP
Event	4	Arrive At Loc	6/28/2017	17:00:00	USER					1 HR EARLY TO LOCATION RIG RUNNING CASING UPON HES ARRIVED ON LOCATION
Event	5	Assessment Of Location Safety Meeting	6/28/2017	17:30:00	USER					MET WITH COMP REP, AND WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE (PH- 7.0, CHLORIDES- 0, TEMP- 65 F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Spot Equipment	6/28/2017	17:45:00	USER					1 HT 400 PUMP TRUCK E1, 1 660 BULK TRUCK, 1 450 SERVICE PICKUP
Event	7	Pre-Rig Up Safety Meeting	6/28/2017	18:20:00	USER					ALL HES PRESENT
Event	8	Rig-Up Equipment	6/28/2017	18:45:00	USER					RIGGED UP TO RED ZONE
Event	9	Rig-Up Completed	6/28/2017	23:00:00	USER					CASERS RIGGED DOWN RED ZONE CLEAR FINISHED RIGGING UP TO STAND PIPE
Event	10	Pre-Job Safety Meeting	6/29/2017	03:45:00	USER					ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG CIRCULATED @ 10.7 BPM PRIOR TO JOB PRESSURE @ 800 PSI.
Event	11	Start Job	6/29/2017	04:08:30	COM5					TD 9525', TP 9515.85', SJ 35.88', SURFACE CSG 9 5/8" 32.3# H-40 SET @ 1129.3' PRODUCTION CSG 4 1/2" 11.6# P-110, OH 8 3/4", MUD 10 PPG

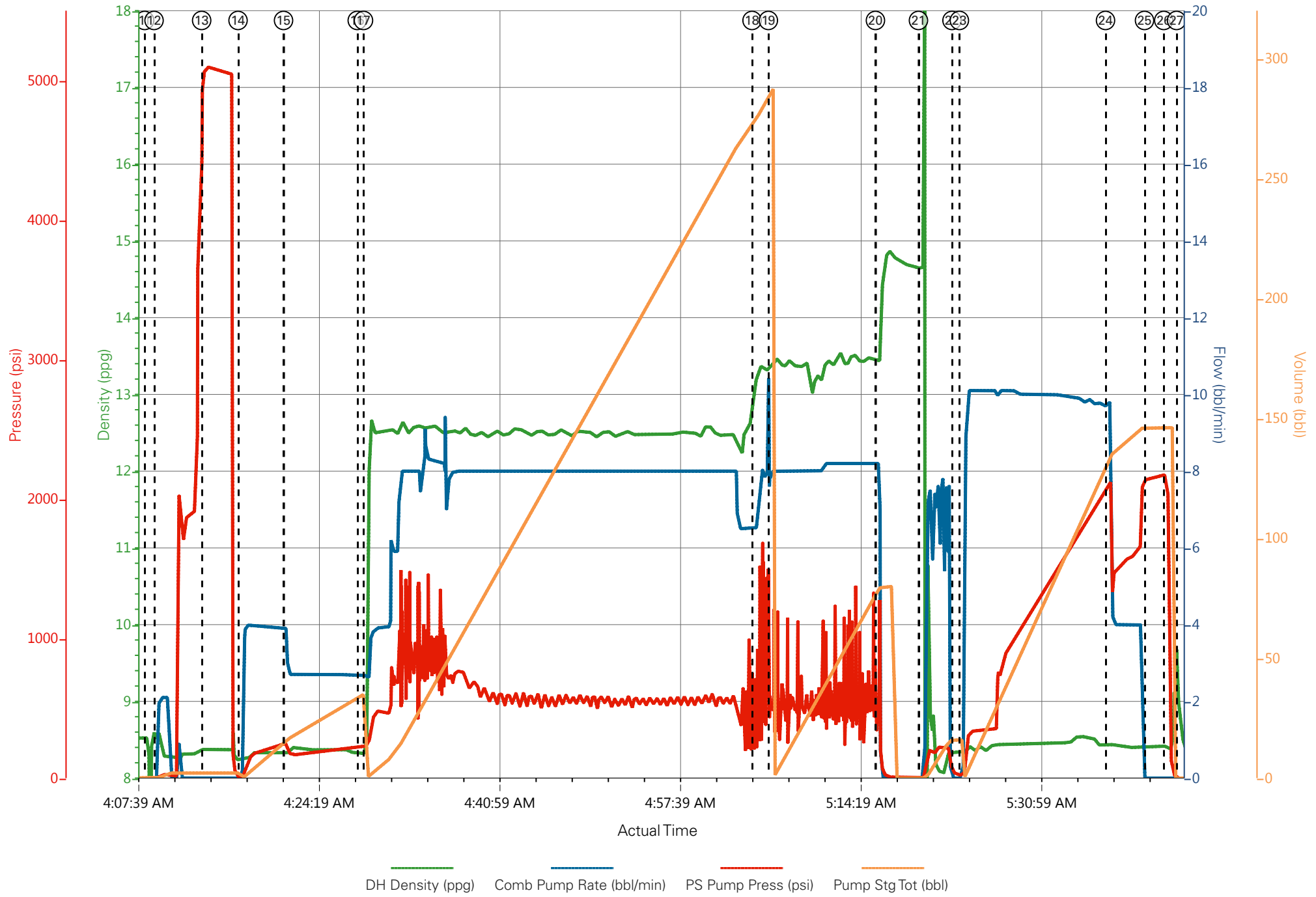
Event	12	Prime Lines	6/29/2017	04:09:21	COM5	8.33	2.0	68	2	FRESH WATER
Event	13	Test Lines	6/29/2017	04:13:45	COM5			5099		PRESSURE HELD
Event	14	Pump H2O Spacer	6/29/2017	04:17:06	COM5	8.33	4.0	190	15	PUMPED 15 BBL FRESH WATER TO ESTABLISH RETURNS, SLOWED RATE TO MIX UP FIRST TUB OF CMT
Event	15	Pump Mud Flush III	6/29/2017	04:21:18	USER	8.4	2.7	200	20	80 LBS MUD FLUSH III USED FOR 20 BBL
Event	16	Check weight	6/29/2017	04:28:06	COM5					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	17	Pump Lead Cement	6/29/2017	04:28:41	COM5	12.5	8.0	620	271	785 SKS NEOCEM CMT 12.5 PPG, 1.94 FT3/SK, 9.6 GAL/SK.
Event	18	Pump Tail Cement	6/29/2017	05:04:33	COM5	13.3	8.0	600	81.6	265 SKS THERMACEM CMT 13.3 PPG, 1.73 FT3/SK, 7.80 GAL/SK
Event	19	Check weight	6/29/2017	05:06:03	COM5					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	20	Shutdown	6/29/2017	05:15:56	USER					END OF CMT
Event	21	Clean Lines	6/29/2017	05:19:54	USER					CLEAN PUMP AND LINES TO PIT
Event	22	Drop Top Plug	6/29/2017	05:23:00	COM5					CO REP VERIFIED HES TOP PLUG PASS THROUGH FLAG INDICATOR
Event	23	Pump Displacement	6/29/2017	05:23:41	COM5	8.4	10	2030	137	1 GAL MMCR IN FIRST 10 BBLS, 3 LBS BE-6 IN FIRST 30 BBLS, 1 50 LB. BAG KCL THROUGHOUT DISPLACEMENT
Event	24	Slow Rate	6/29/2017	05:37:10	COM5	8.4	4.0	1530	10	SLOWED RATE TO BUMP PLUG
Event	25	Bump Plug	6/29/2017	05:40:46	COM5	8.4	4.0	1661	147	PLUG BUMPED
Event	26	Check Floats	6/29/2017	05:42:32	USER			2140		FLOATS HELD 1 BBL FLOW BACK TO TRUCK
Event	27	End Job	6/29/2017	05:43:43	USER					CHARGED FOR 4 ADD HRS
Event	28	Post-Job Safety Meeting (Pre Rig-Down)	6/29/2017	06:00:00	USER					ALL HES EMPLOYEES PRESENT
Event	29	Pre-Convoy Safety Meeting	6/29/2017	07:45:00	USER					ALL HES EMPLOYEES PRESENT
Event	30	Crew Leave Location	6/29/2017	08:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, DUSTIN HYDE AND CREW

TERRA, YOUBERG SR 521-12, 4 1/2" PRODUCTION



- | | | | | | |
|---|-----------------------------|----------------------|--------------------|----------------------|---|
| ① Call Out | ⑥ Spot Equipment | ⑪ Start Job | ⑯ Check weight | 21 Clean Lines | 26 Check Floats |
| ② Pre-Convoy Safety Meeting | ⑦ Pre-Rig Up Safety Meeting | ⑫ Prime Lines | ⑰ Pump Lead Cement | 22 DropTop Plug | 27 End Job |
| ③ Crew Leave Yard | ⑧ Rig-Up Equipment | ⑬ Test Lines | ⑱ Pump Tail Cement | 23 Pump Displacement | 28 Post-Job Safety Meeting (Pre Rig-Down) |
| ④ Arrive At Loc | ⑨ Rig-Up Completed | ⑭ Pump H2O Spacer | ⑲ Check weight | 24 Slow Rate | 29 Pre-Convoy Safety Meeting |
| ⑤ Assessment Of Location Safety Meeting | ⑩ Pre-Job Safety Meeting | ⑮ Pump Mud Flush III | 20 Shutdown | 25 Bump Plug | 30 Crew Leave Location |

TERRA, YOUBERG SR 521-12, 4 1/2" PRODUCTION



— DH Density (ppg)
 — Comb Pump Rate (bbl/min)
 — PS Pump Press (psi)
 — Pump Stg Tot (bbl)

Job Information

Request/Slurry	2396045/1	Rig Name	H&P 318	Date	23/JUN/2017
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 521-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	9554 ft	BHST	115°C / 239°F
Hole Size	8.75 in	Depth TVD	9338 ft	BHCT	76°C / 169°F
Pressure	5840 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	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 2396045/1

Thickening Time - ON-OFF-ON

24/JUN/2017

Test Temp (°F)	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:min)	Termination Bc
169	5840	47	3:03	4:37	4:57	12	57	15	19	5:41	86

Total sks= 785

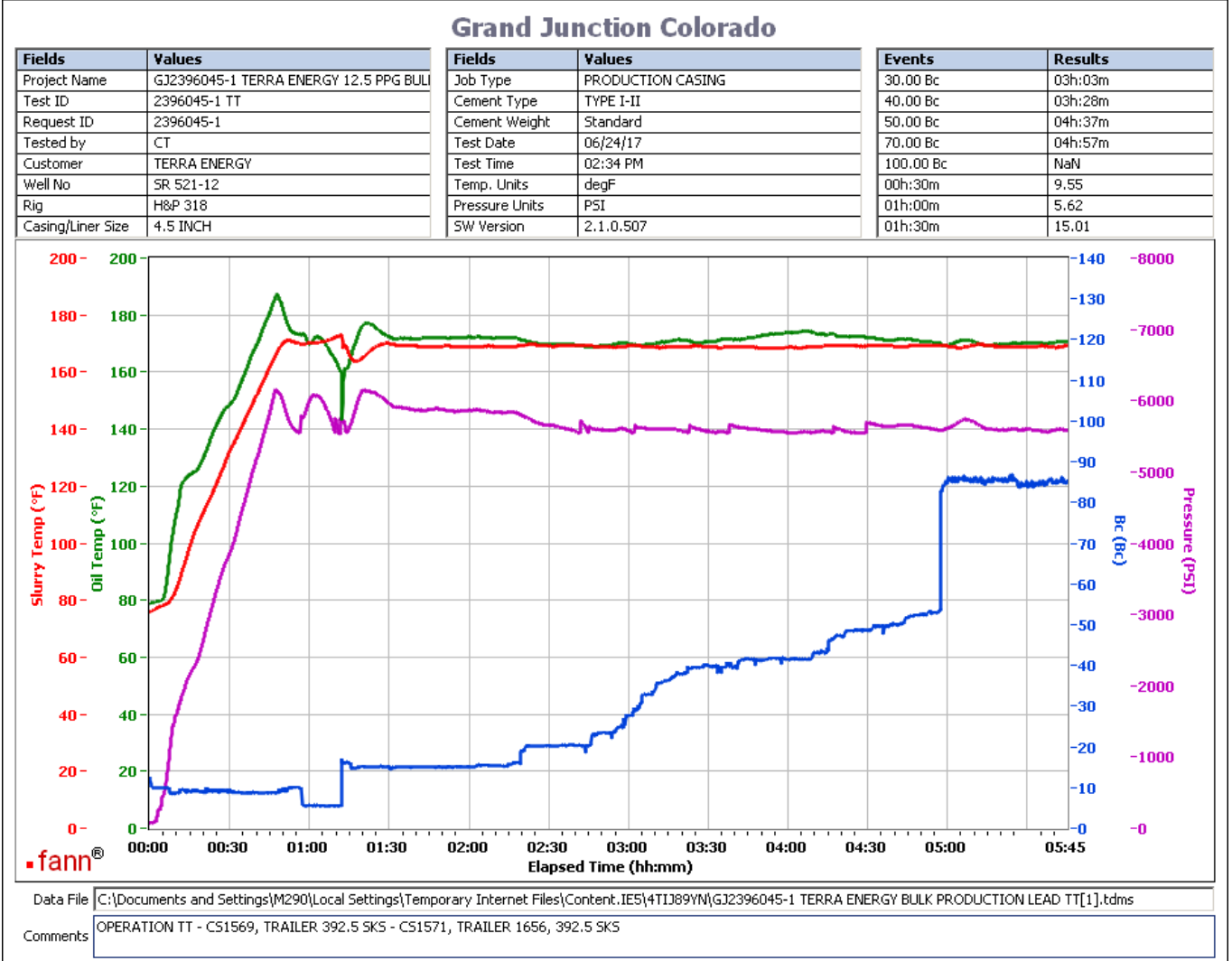
Composite:

CS1569 TR 2878 392.5 SKS

CS1571 TR 1656 392.5 SKS

Deflection: 10 - 19 to 16 Bc's after one minute

Test was terminated at 5:41, 86 Bc's as per engineers request



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Job Information

Request/Slurry	2396046/1	Rig Name	H&P 318	Date	23/JUN/2017
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SR 521-12

Well Information

Casing/Liner Size	4.5 in	Depth MD	9554 ft	BHST	115°C / 239°F
Hole Size	8.75 in	Depth TVD	9338 ft	BHCT	76°C / 169°F
Pressure	5840 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 2396046/1

Thickening Time - ON-OFF-ON

24/JUN/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	5840	47	2:23	2:29	2:29	2:29	13	57	15	11

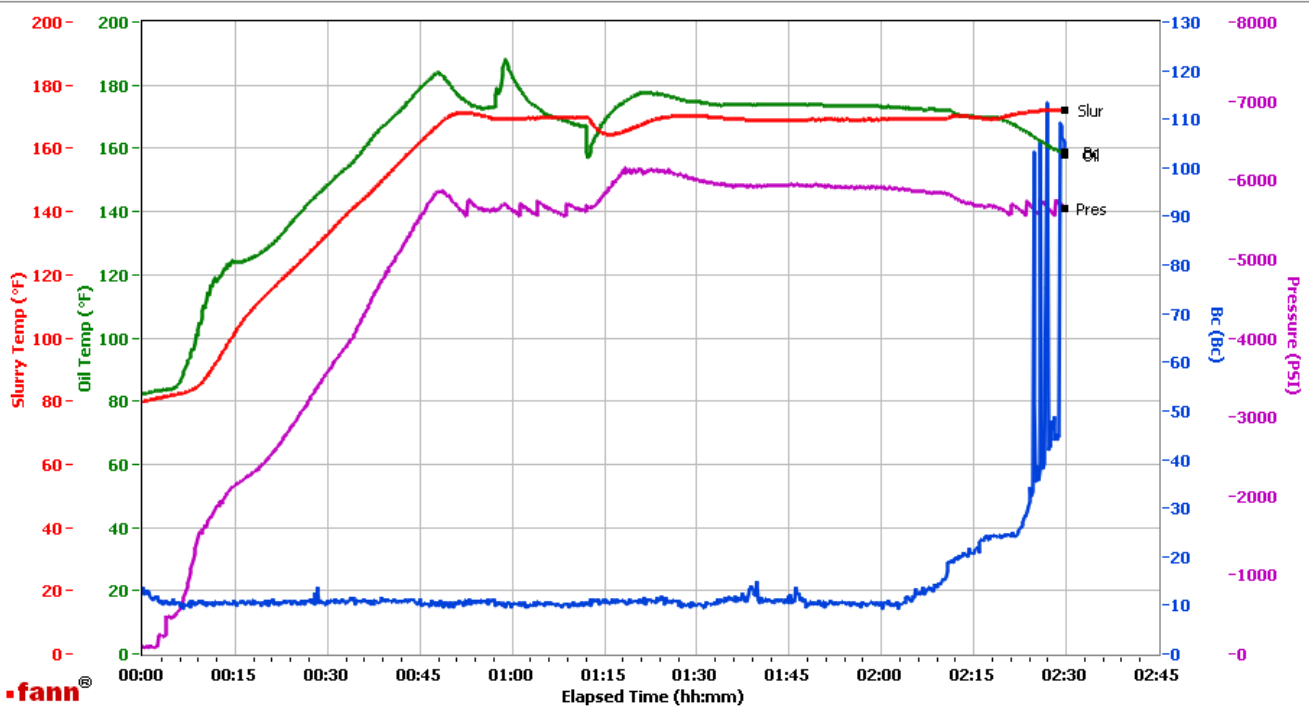
265 sks tail
 CS1581, Trailer 4053, 265 sks
 Deflection: 10 - 11

Grand Junction Colorado

Fields	Values
Project Name	2396046-1 TERRA ENERGY 13.3 PPG BULK F
Test ID	2396046-1 TT
Request ID	2396046-1
Tested by	CT
Customer	TERRA ENERGY
Well No	SR 521-12
Rig	H8P 318
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	06/24/17
Test Time	11:30 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	02h:23m
40.00 Bc	02h:26m
50.00 Bc	02h:29m
70.00 Bc	02h:29m
100.00 Bc	02h:29m
00h:30m	11.12
01h:00m	10.14
01h:30m	9.77



Data File C:\Documents and Settings\Administrator\Local Settings\Temporary Internet Files\Content.IE5\OPEF4HI7\GJ2396046-1 TERRA ENERGY BULK PRODUCTION TAIL TT[1].tdms
 Comments OPERATION TT- CS1581, TRAILER 4053, 265 SKS

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