

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

**For: Terra**

Date: Saturday, April 21, 2018

**FEDERAL PA 32-26 Production PJR**

**API #: 05-045-23728**

Sincerely,

**Grand Junction Cement Engineering**

## 2.0 Real-Time Job Summary

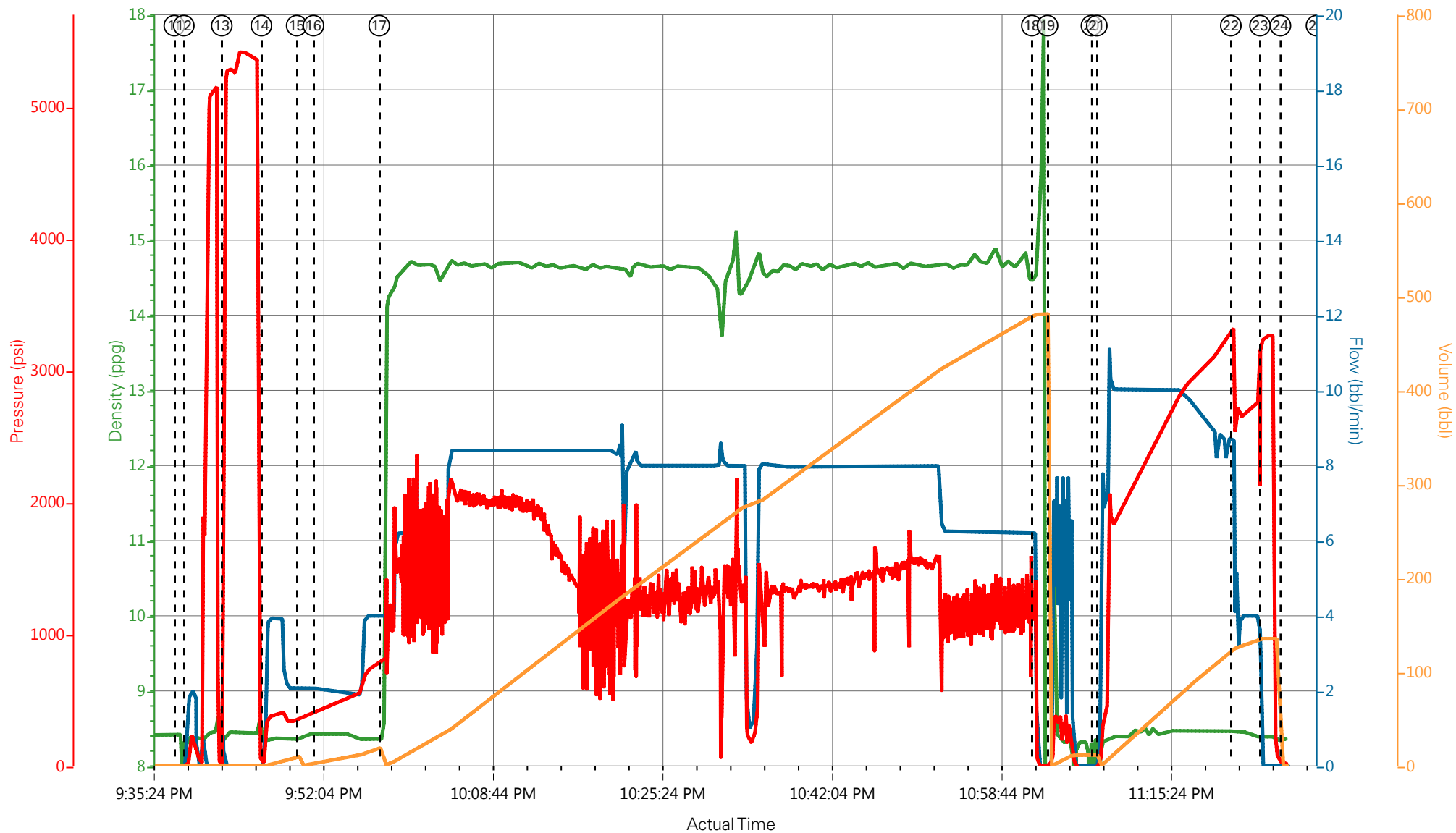
## 2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	Downhole Density (ppg)	Combined Pump Rate (bbl/min)	Pass-Side Pump Pressure (psi)	Pump Stage Total (bbl)	Comments
Event	1	Call Out	4/20/2018	14:00:00	USER					ON LOCATION 19:00
Event	2	Pre-Convoy Safety Meeting	4/20/2018	16:30:00	USER					JOURNEY CREATED - ALL HES INVOLVED IN SAFETY MEETING
Event	3	Crew Leave Yard	4/20/2018	17:00:00	USER					1-F-550 PICKUP, 1-ELITE PUMP TRUCK, 1-660 BULK TRUCK
Event	4	Arrive At Loc	4/20/2018	18:30:00	USER					HES ARRIVED 30-MINS EARLY
Event	5	Assessment Of Location Safety Meeting	4/20/2018	18:45:00	USER					RIG WAS RUNNING CASING - HES SPOKE WITH COMPANY REP AND SPOTTED EQUIPMENT
Event	6	Pre-Rig Up Safety Meeting	4/20/2018	19:00:00	USER					JSA FILLED OUT AND REVIEWED BY ALL HES ON LOCATION
Event	7	Rig-Up Equipment	4/20/2018	19:10:00	USER					RIG-UP IRON TO THE RIG STAND PIPE AND WASH UP LINE TO RIG CATCH TANK - RIG UP BULK EQUIPMENT TO PUMP TRUCK - WATER HOSES TO BOTH RIG UPRIGHTS
Event	8	Well Info/Water Test	4/20/2018	19:20:03	USER					TD: 8782FT TP: 8775FT SJ: 29.85FT OH: 8.75 CSG: 4 1/2" 11.6# SRF: 1134FT 9.625 - WATER TEST- TEMP: 50 CHLOR: 0 PH: 7
Event	9	Rig-Up Completed	4/20/2018	20:30:00	USER					COMPLETED SAFELY

Event	10	Pre-Job Safety Meeting	4/20/2018	20:45:00	USER					ALL HES, RIG CREW AND COMPANY REP IN ATTENDANCE
Event	11	Start Job	4/20/2018	21:37:43	COM5					START JOB
Event	12	Fill Lines	4/20/2018	21:38:39	USER	8.34	2	270	2	FILL LINES WITH 2BBLs OF WATER TO PRESSURE TEST
Event	13	Test Lines	4/20/2018	21:42:23	COM5			5426		PRESSURE TEST LINES TO 5426PSI - PRESSURE TEST GOOD
Event	14	Fresh Water Spacer	4/20/2018	21:46:17	COM5	8.34	2	370	10	10BBL FRESH WATER SPACER AHEAD - PRESSURE WAS 370PSI AT 2BPM
Event	15	Mud Flush Spacer	4/20/2018	21:49:45	COM5	8.45	4	800	20	20BBL MUD FLUSH SPACER AHEAD - PRESSURE WAS 800 PSI AT 4BPM
Event	16	Check weight	4/20/2018	21:51:24	COM5					VERIFIED WEIGHT OF FIRST TUB OF CEMENT
Event	17	Pump Cement	4/20/2018	21:57:52	COM5	14.5	8	2000	432.6	1840SKS OF EXPANDACEM CEMENT (432.6BBLs) 14.5PPG 1.32YIELD 5.85GAL/SK WEIGHT OF CEMENT VERIFIED VIA PRESSURIZED MUD SCALES THROUGHOUT CEMENT
Event	18	Shutdown	4/20/2018	23:02:01	USER					SHUTDOWN END OF CEMENT
Event	19	Clean Lines	4/20/2018	23:03:33	USER					CLEAN LINES TO RIG 3- SIDED TANK - CLEAN LINES WITH RIG SUPPLIED AIR - READY TANKS FOR DISPLACEMENT
Event	20	Drop Top Plug	4/20/2018	23:07:52	USER					TOP PLUG LAUNCHED NO PROBLEMS - POSITIVE DISPLACEMENT MANIFOLD USED

Event	21	Pump Displacement	4/20/2018	23:08:24	COM5	8.45	10	3330	125.5	FRESH WATER DISPLACEMENT WITH 1- BAG OF KCL PER 10BBLs OF DISPLACEMENT WITH 3 POUNDS OF BE-6 AND 1- GAL MMCR
Event	22	Slow Rate	4/20/2018	23:21:34	USER	8.45	4	2680	10	SLOW RATE TO LAND THE PLUG - PRESSURE PRIOR TO SLOWING WAS 3330 PSI AT 9BPM - PRESSURE AFTER SLOWING WAS 2680 PSI AT 4BPM
Event	23	Bump Plug	4/20/2018	23:24:27	COM5	8.45	4	2742	135.5	PLUG BUMPED AT CALCULATED DISPLACEMENT - PLUG BUMPED AT 2742 PSI AT 4BPM TOOK TO 3270 PSI
Event	24	End Job	4/20/2018	23:26:27	COM5			3270		THANK YOU FOR CHOOSING HALLIBURTON CEMENT CARL KUKUS AND CREW
Event	25	Pre-Rig Down Safety Meeting	4/20/2018	23:30:00	USER					JSA REVIEWED - ALL HES INVOLVED IN SAFETY MEETING
Event	26	Rig-Down Equipment	4/20/2018	23:35:00	USER					WASH UP AND BLOW DOWN PUMP TRUCK - RIG DOWN ALL LINES AND EQUIPMENT
Event	27	Rig-Down Completed	4/21/2018	00:35:00	USER					COMPLETED SAFELY
Event	28	Pre-Convoy Safety Meeting	4/21/2018	00:40:00	USER					JOURNEY CREATED - ALL HES INVOLVED IN SAFETY MEETING
Event	29	Crew Leave Location	4/21/2018	00:50:00	USER					1-F-550 PICKUP, 1-ELITE PUMP TRUCK, 1-660 BULK TRUCK

# TEP - FEDERAL PA 32-26 - 904782559 - 4 1/2" PRODUCTION



DH Density (ppg) 8.36 Comb Pump Rate (bbl/min) 0 PS Pump Press (psi) 18 Pump Stg Tot (bbl) 0

7 Rig-Up Equipment 9 Rig-Up Completed 11 Start Job 13 Test Lines 15 Mud Flush Spacer 17 Pump Cement 19 Clean Lines 21 Pump Displacement 23 Bump Plug 25 F  
 8 Well Info/Water Test 10 Pre-Job Safety Meeting 12 Fill Lines 14 FreshWater Spacer 16 Check weight 18 Shutdown 20 Drop Top Plug 22 Slow Rate 24 End Job 26 F

**HALLIBURTON** | iCem® Service

Created: 2018-04-20 19:08:51, Version: 4.2.393

Edit

Customer : TERRA ENERGY PARTNERS

Job Date : 4/20/2018 8:23:37 PM

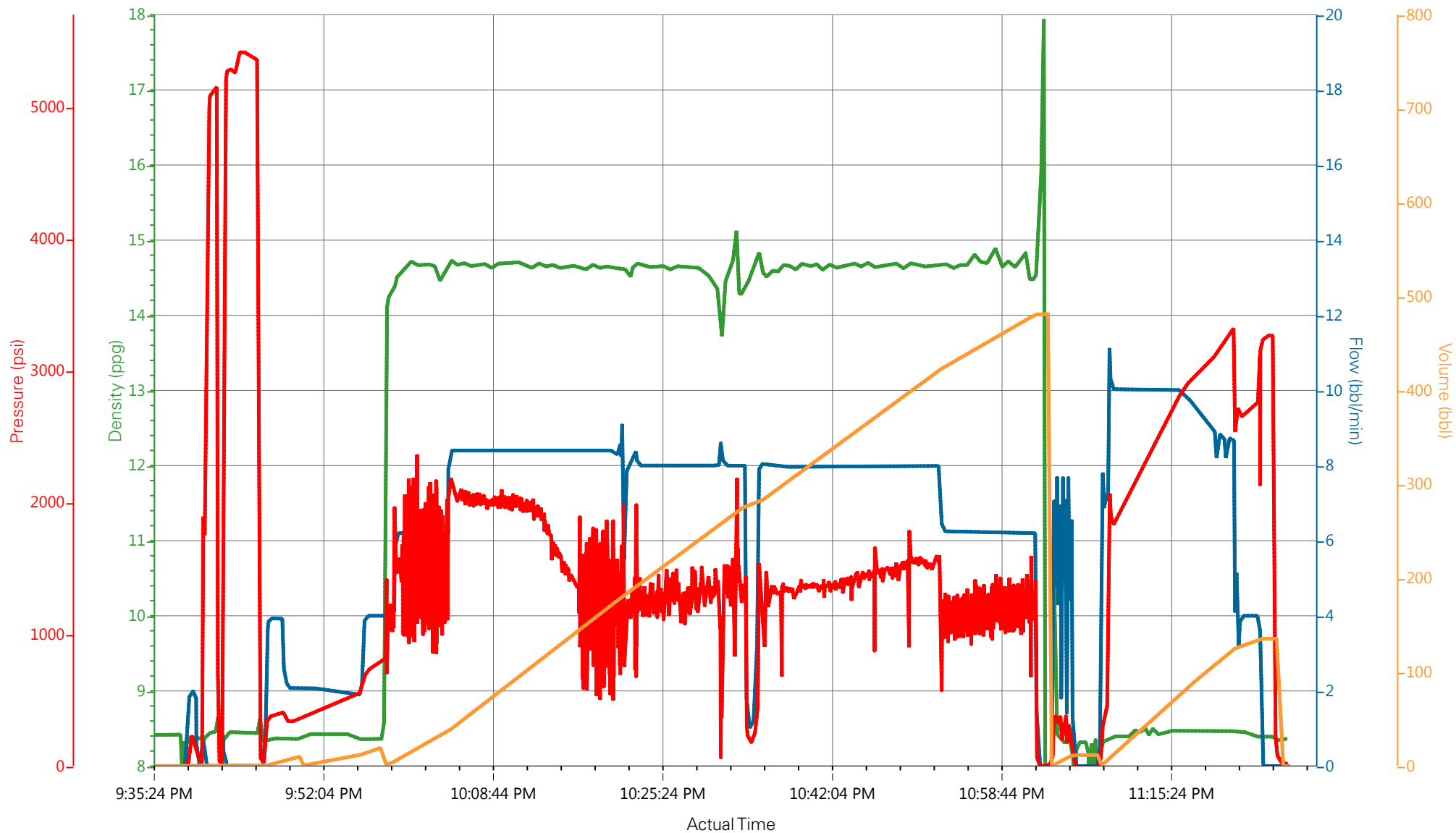
Well : FEDERAL PA 32-26

Representative : Coy Burr

Sales Order # : 904782559

Elite 2 : D. Martin/C.Kukus

# TEP - FEDERAL PA 32-26 - 904782559 - 4 1/2" PRODUCTION



DH Density (ppg) 8.36 Comb Pump Rate (bbl/min) 0 PS Pump Press (psi) 18 Pump Stg Tot (bbl) 0

### Job Information

<b>Request/Slurry</b>	2466898/1	<b>Rig Name</b>	H&P 271	<b>Date</b>	12/APR/2018
<b>Submitted By</b>	Lukas Van Zyl	<b>Job Type</b>	Production Casing	<b>Bulk Plant</b>	Grand Junction
<b>Customer</b>	Terra Energy Partners	<b>Location</b>	Garfield	<b>Well</b>	PA 32-26

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	8823 ft	<b>BHST</b>	106°C / 222°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	8356 ft	<b>BHCT</b>	67°C / 152°F
<b>Pressure</b>	5149 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	AMC	<b>Mud Trade Name</b>		<b>Density</b>	
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### Cement Information - Primary Design



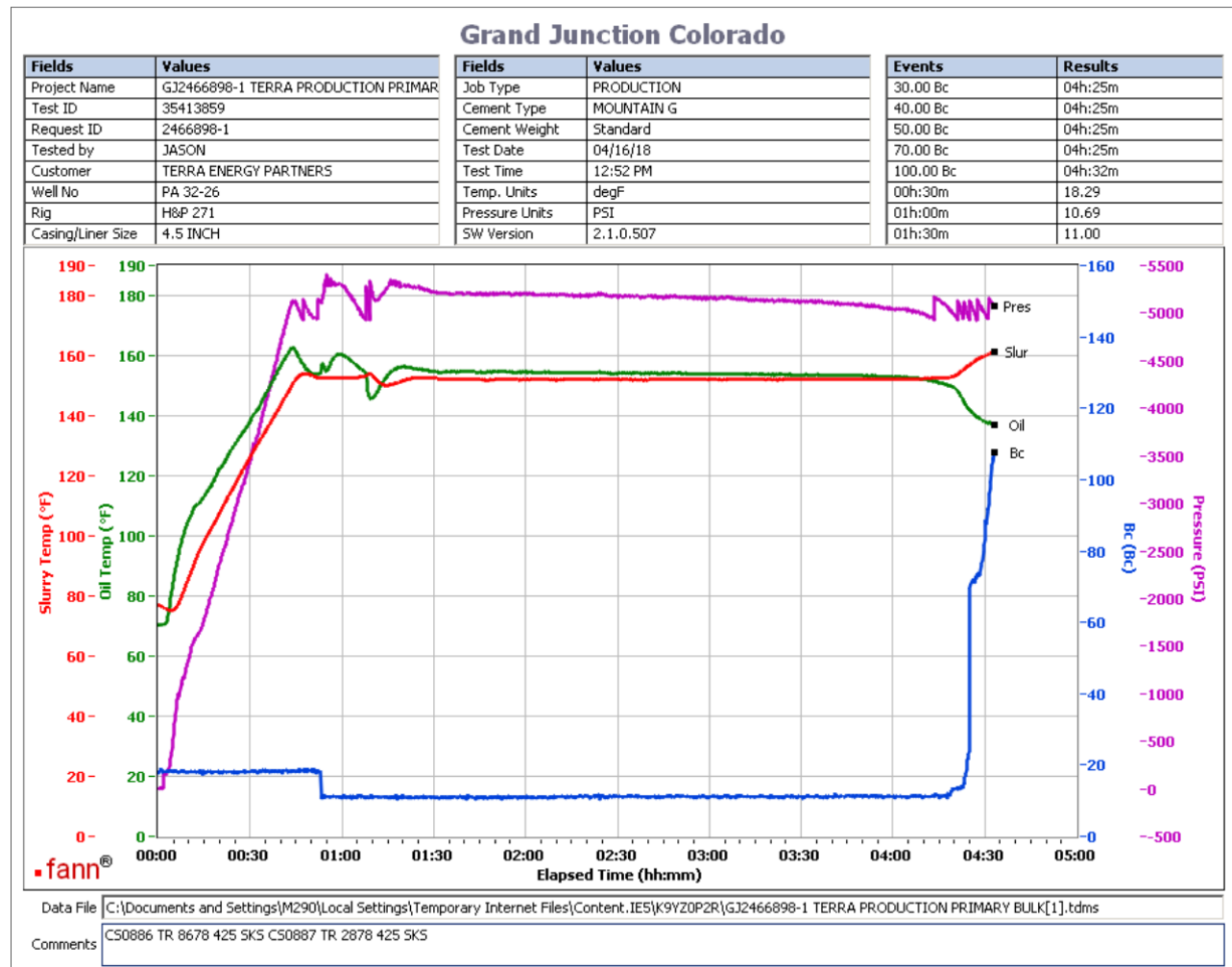
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		ExpandaCem Primary				Slurry Density	14.5	lbm/gal
						Slurry Yield	1.32	ft3/sack
						Water Requirement	5.849	gal/sack
						Total Mix Fluid	5.849	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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Thickening Time - ON-OFF-ON

17/APR/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)
152	5149	43	4:25	4:25	4:25	4:32	18	53	15	11



total sks =1840

Composite:

CS0886 TR 8678 425 SKS

CS0887 TR 2878 425 SKS

Deflection: 11 – 11

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Thickening Time - ON-OFF-ON

17/APR/2018

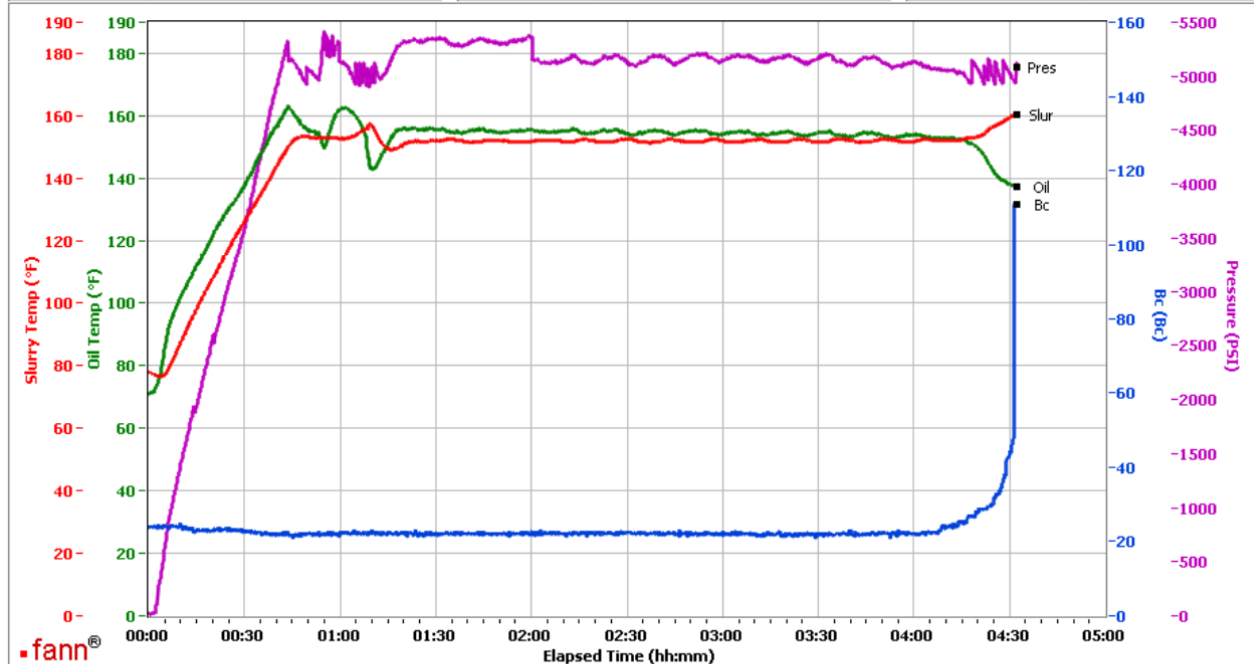
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
152	5149	43	4:24	4:31	4:31	4:31	24	53	15	22

Grand Junction, Colorado

Fields	Values
Project Name	GJ2466898-2 TERRA PRODUCTION PRIMAR
Test ID	35423324
Request ID	2466898-2
Tested by	JASON
Customer	TERRA ENERGY PARTNERS
Well No	PA 32-26
Rig	H&P 271
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	04/16/18
Test Time	10:42 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	04h:24m
40.00 Bc	04h:29m
50.00 Bc	04h:31m
70.00 Bc	04h:31m
100.00 Bc	04h:31m
00h:30m	22.69
01h:00m	22.72
01h:30m	22.23



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\4T1J89YN\GJ2466898-2 TERRA PRODUCTION PRIMARY BULK[1].tdms

Comments CS0888 TR 1513 425 SKS CS0889 TR 8476 425 SKS CS0890 TR 1972 140 SKS

total sks=1840

Composite:

CS0888 TR 1513 425 SKS

CS0889 TR 8476 425 SKS

CS0890 TR 1972 140 SKS

Deflection: 22 - 22

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