

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS-EBUS

For: Terra

Date: Saturday, May 05, 2018

PA 432-26 Production

API # 05-045-23710-00

Job Date: Saturday, May 05, 2018

Sincerely,

Grand Junction Cement Engineering

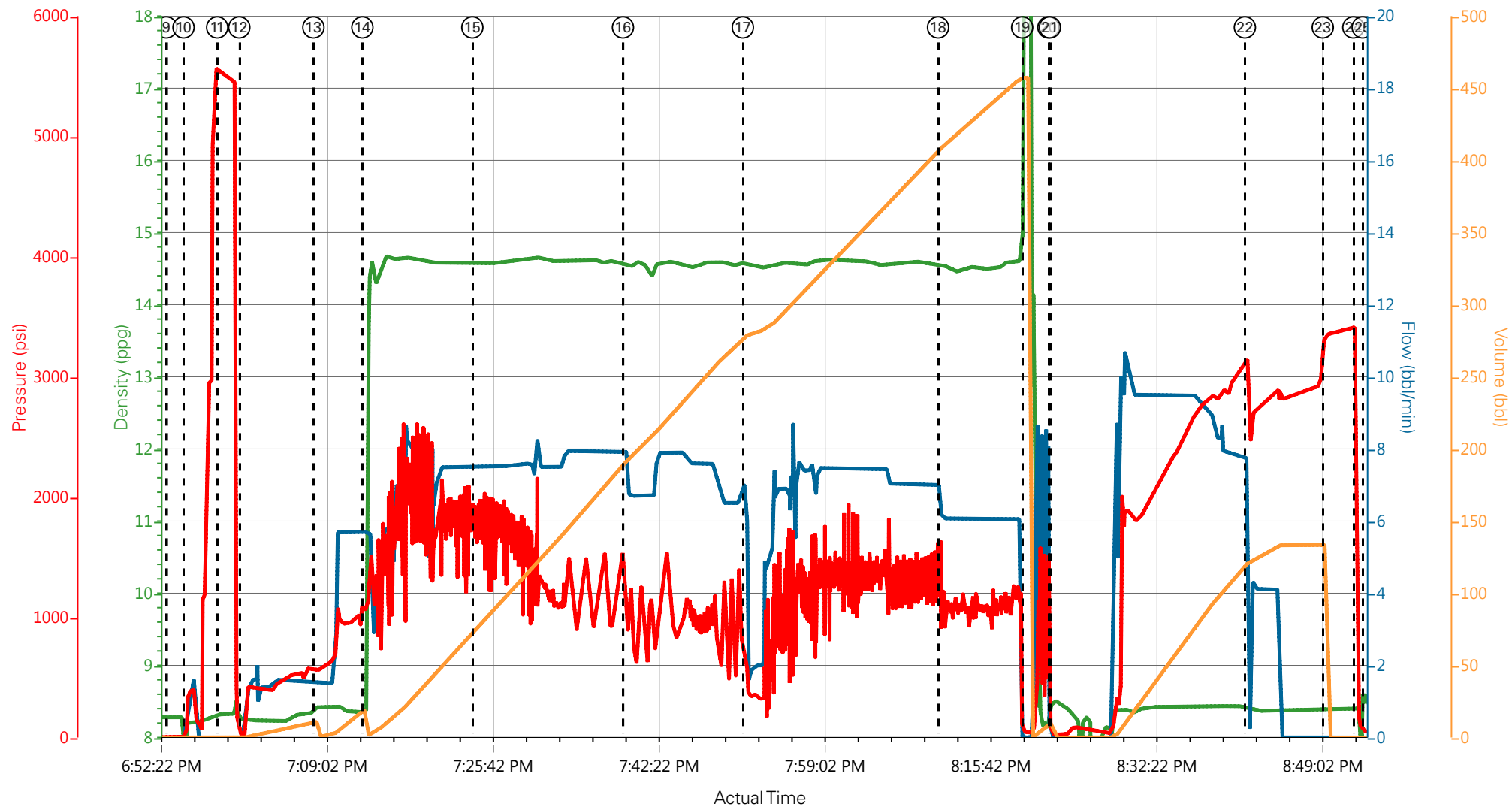
2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	5/5/2018	11:00:00	USER					REQUESTED ON LOCATION @ 15:30
Event	2	Pre-Convoy Safety Meeting	5/5/2018	12:45:00	USER					ALL HES EMPLOYEES PRESENT
Event	3	Crew Leave Yard	5/5/2018	13:00:00	USER					1 HT 400 PUMP TRUCK E2, 1 660 BULK TRUCK, 1 F450 SERVICE TRUCK
Event	4	Arrive At Loc	5/5/2018	14:00:00	USER					RIG RUNNING CASING UPON HES ARRIVAL
Event	5	Assessment Of Location Safety Meeting	5/5/2018	14:15:00	USER					MET WITH COMP REP, AND WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE (PH- 7.0, CHLORIDES- 500, TEMP- 60F). COMP REP WAS OFFERED SDS FOR ALL CHEMICALS USED BY HES.
Event	6	Pre-Rig Up Safety Meeting	5/5/2018	14:30:00	USER					ALL HES PRESENT
Event	7	Rig-Up Equipment	5/5/2018	14:40:00	USER					HES RIGGED UP EQUIPMENT WITHOUT ENTERING RED ZONE.
Event	8	Pre-Job Safety Meeting	5/5/2018	18:30:00	USER					ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG CIRCULATED @ 12 BPM PRIOR TO JOB PRESSURE @ 1717 PSI.
Event	9	Start Job	5/5/2018	18:53:13	COM6					TD 8660', TP 8654', SJ 32.83', SURFACE CSG 9 5/8" 36# H-40 SET @ 1135' PRODUCTION CSG 4 1/2" 11.6# P-110, OH 8 3/4", MUD 12.5#
Event	10	Prime Lines	5/5/2018	18:54:57	COM6	8.33	2	410	2	8.33 PPG FRESH WATER
Event	11	Test Lines	5/5/2018	18:58:20	COM6			5580		ALL LINES HELD PRESSURE AT PSI 5580
Event	12	Pump H2O Spacer	5/5/2018	19:00:33	COM6	8.33	2	550	10	FRESH WATER

Event	13	Pump Mud Flush	5/5/2018	19:08:00	COM6	8.4	4	1030	20	20 BBL MUDFLUSH III
Event	14	Pump Cement	5/5/2018	19:12:55	COM6	14.5	7..5	1800	431.4	1835 SKS EXPANDACEM CMT 14.5 PPG, 1.32 FT3/SK, 5.85 GAL/SK
Event	15	Check weight	5/5/2018	19:23:58	COM6					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	16	Slow Rate	5/5/2018	19:39:06	USER					SLOWED TO END CEMENT SILO
Event	17	Slow Rate	5/5/2018	19:51:08	USER					SLOWED TO END CEMENT SILO
Event	18	Slow Rate	5/5/2018	20:10:45	USER					SLOWED TO END CEMENT
Event	19	Shutdown	5/5/2018	20:19:12	COM6					END OF CEMENT. CLEAN PUMPS AND LINES TO PIT.
Event	20	Drop Top Plug	5/5/2018	20:21:50	COM6					VERIFIED BY FLAG INDICATOR
Event	21	Pump Displacement	5/5/2018	20:21:59	COM6	8.4	10	3146	133.6	1 GAL MMCR IN FIRST 10 BBLS, 3 LBS BE-6 IN FIRST 30 BBLS, 1 50 LB. BAG KCL THROUGHOUT DISPLACEMENT
Event	22	Slow Rate	5/5/2018	20:41:34	USER	8.4	4	2800	123.6	SLOW RATE TO 4 BPM TO BUMP PLUG
Event	23	Bump Plug	5/5/2018	20:49:24	COM6	8.4	4	2880	133.6	LANDED PLUG AT 2880 PSI, BROUGHT UP TO 3420 PSI
Event	24	Check Floats	5/5/2018	20:52:28	USER					FLOATS HELD. 1.75BBLS BACK TO TRUCK.
Event	25	End Job	5/5/2018	20:53:24	USER					HAD RETURNS THROUGHT JOB. 40# SUGAR USED
Event	26	Post-Job Safety Meeting (Pre Rig-Down)	5/5/2018	21:00:00	USER					ALL HES PRESENT
Event	27	Rig-Down Equipment	5/5/2018	21:10:00	USER					ALL HES PRESENT
Event	28	Pre-Convoy Safety Meeting	5/5/2018	21:50:00	USER					ALL HES PRESENT
Event	29	Crew Leave Location	5/5/2018	22:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, SHAWN BLOSSOM AND CREW

TERRA PA 423-26, 4.5" PRODUCTION



DH Density (ppg) 0.02 Comb Pump Rate (bbl/min) 0 PS Pump Press (psi) 44 Pump Stg Tot (bbl) 0

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

▼ **HALLIBURTON** | iCem® Service

Created: 2018-05-05 11:49:18, Version: 4.2.393

Edit

Customer: TERRA ENERGY PARTNERS-EBUS

Job Date: 5/5/2018

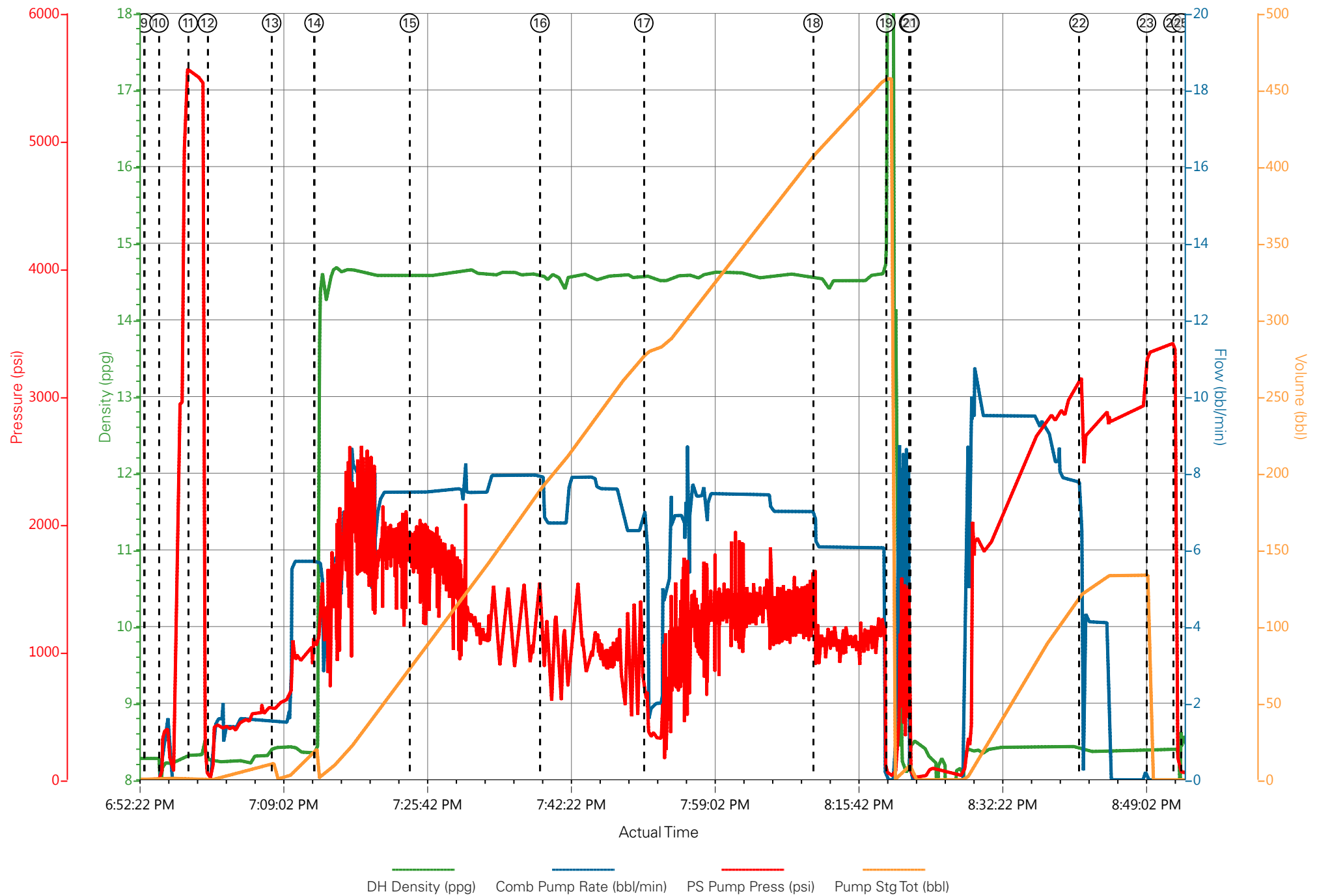
Well: PA 432-26

Representative: DARRELL LEATHERMAN

Sales Order #: 904822562

ELITE 2: DUSTY REEVES / SHAWN BLOSSOM

TERRA PA 423-26, 4.5" PRODUCTION



Job Information

Request/Slurry	2470847/2	Rig Name	H&P 271	Date	27/APR/2018
Submitted By	Lukas Van Zyl	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	PA 432-26

Well Information

Casing/Liner Size	4.5 in	Depth MD	8665 ft	BHST	106°C / 222°F
Hole Size	8.75 in	Depth TVD	8366 ft	BHCT	67°C / 152°F
Pressure	5156 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		
		VariCem				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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Operation Test Results Request ID 2470847/2

Thickening Time - ON-OFF-ON

02/MAY/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)
152	5156	43	1:08	3:32	3:36	3:38	22	53	15	36

total sks=1835

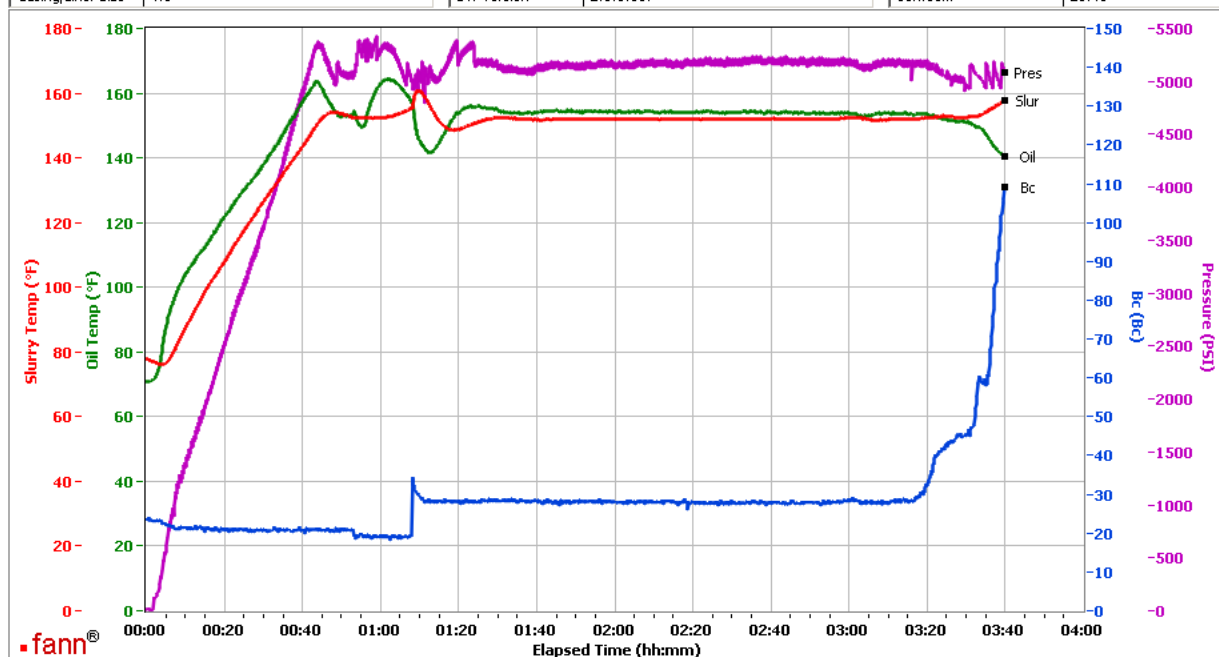
CS0979 TR#1513 425 SKS

CS0980 TR#4053 135 SKS

Deflected 20-- > 36-- > 28 after 1 minute. Please not that heat of hydration started around 3:20.

Grand Junction, Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2470847-2 TERRA PRODUCTION BULK PR	Job Type	PRODUCTION CASING	30.00 Bc	01h:08m
Test ID	35462147	Cement Type	MOUNTAIN G	40.00 Bc	03h:22m
Request ID	GJ2470847-2	Cement Weight	Standard	50.00 Bc	03h:32m
Tested by	DEBA	Test Date	05/02/18	70.00 Bc	03h:36m
Customer	TERRA ENERGY PARTNERS	Test Time	02:57 AM	100.00 Bc	03h:38m
Well No	PA 432-26	Temp. Units	degF	00h:30m	20.56
Rig	H&P 271	Pressure Units	PSI	01h:00m	19.41
Casing/Liner Size	4.5"	SW Version	2.1.0.507	01h:30m	28.41



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2470847-2 TERRA PRODUCTION BULK PRIMARY.tdms

Comments CS0979 TR#1513 425 SKS AND CS0980 TR#4053 135 SKS

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Operation Test Results Request ID 2470847/1

Thickening Time - ON-OFF-ON

01/MAY/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	5156	43	1:08	3:34	3:42	3:42	21	53	15	31

total sks=1835

CS0976 TR# 8678 425 SKS

CS0977 TR#2898 425 SKS

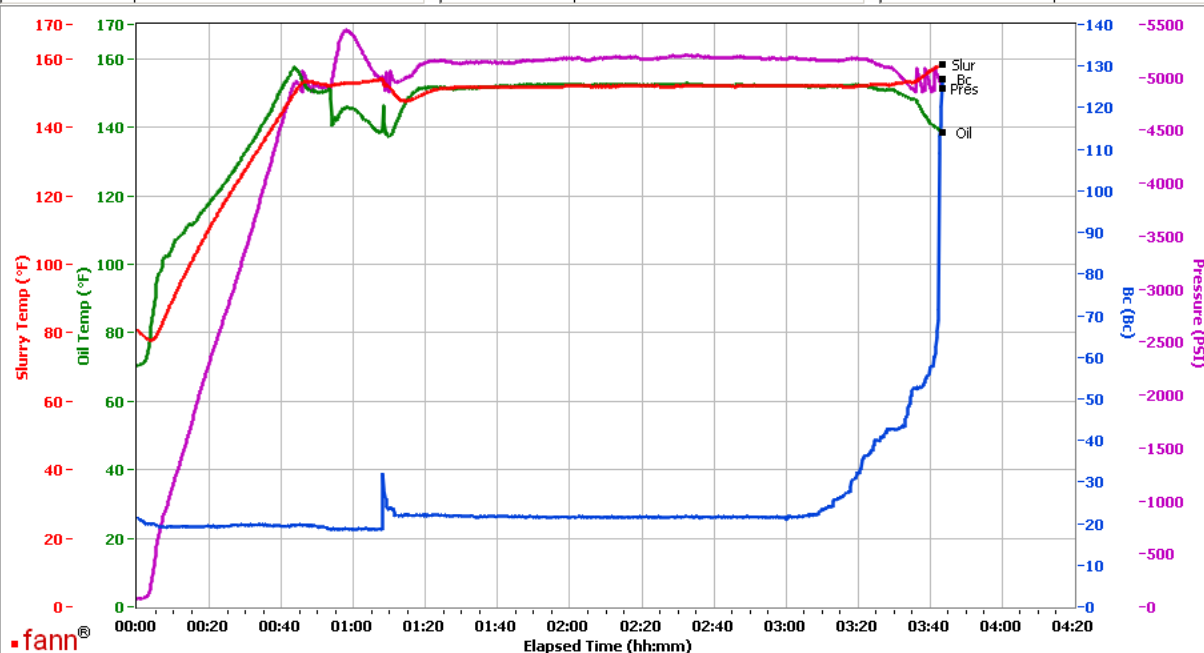
CS0978 TR#8476 425 SKS

deflected from 18Bc--- > 31Bc--23Bc after one minute

Please note heat of hydration at 3:25

Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2470847-1 TERRA PRODUCTION BULK PR	Job Type	PRODUCTION CASING	30.00 Bc	01h:08m
Test ID	35452367	Cement Type	MOUNTAIN G	40.00 Bc	03h:24m
Request ID	GJ2470847-1	Cement Weight	Standard	50.00 Bc	03h:34m
Tested by	DEBA	Test Date	05/01/18	70.00 Bc	03h:42m
Customer	TERRA ENERGY PARTNERS	Test Time	3:36 PM	100.00 Bc	03h:42m
Well No	PA 432-26	Temp. Units	degF	00h:30m	19.63
Rig	H&P 271	Pressure Units	PSI	01h:00m	18.63
Casing/Liner Size	4.5"	SW Version	2.1.0.507	01h:30m	21.88



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\K9YZ0P2R\GJ2470847-1 TERRA PRODUCTION BULK PRIMARY[1].tdms

Comments CS0976 TR#8678 425SKS, CS0977 TR#2898 425 SKS AND CS0978 TR#8476 425 SKS

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