

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

United States of America, COLORADO

For: TEP

Date: Friday, August 10, 2018

Federal PA 312-26 Production PJR

API #: 05-045-23721

Sincerely,

Grand Junction Cement Engineering

2.0 Real-Time Job Summary

2.1 Job Event Log

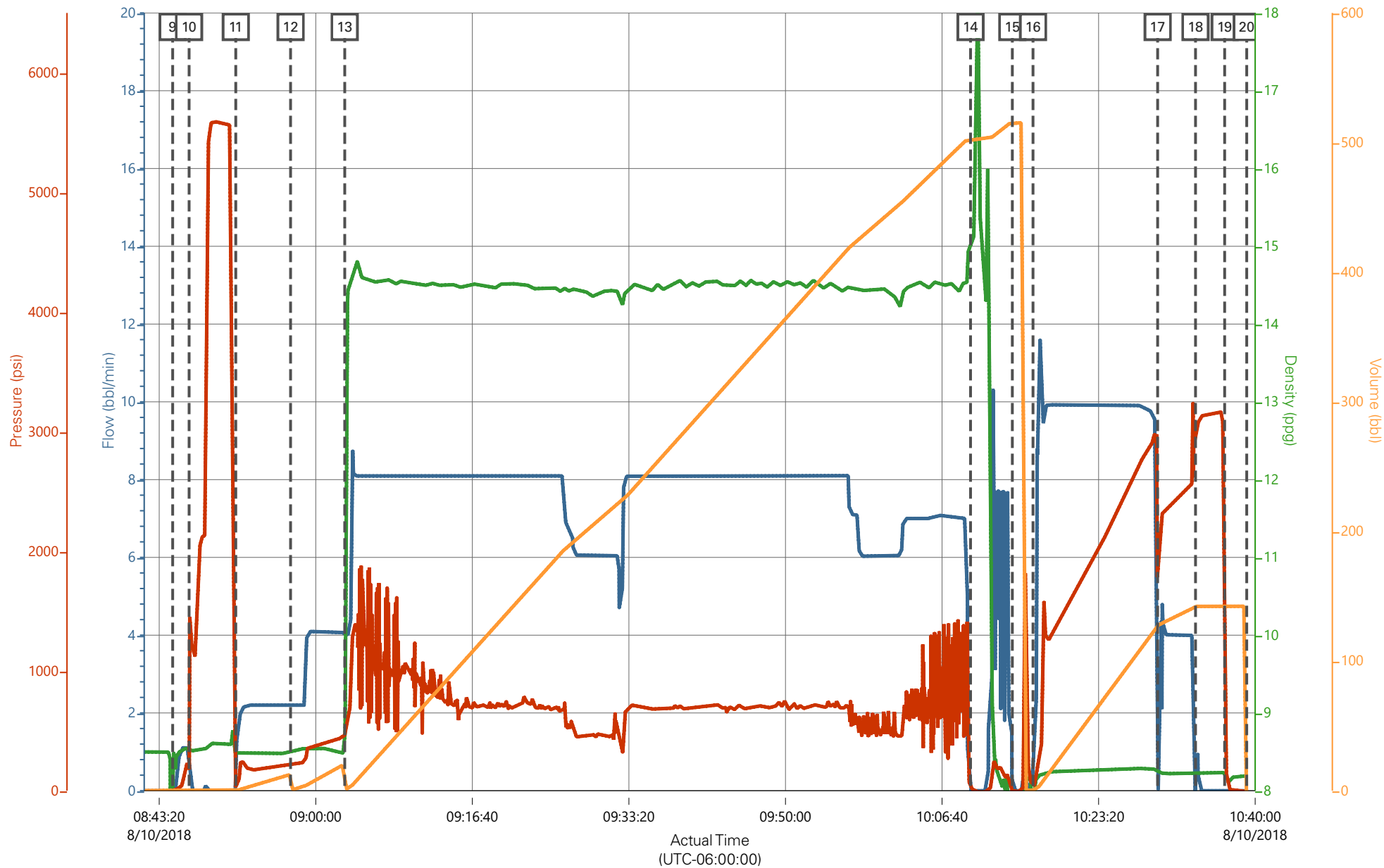
Type	Seq. No.	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	8/9/2018	23:00:00	USER					REQUESTED ON LOCATION 8/10/18 @ 05:00
Event	2	Depart Yard Safety Meeting	8/10/2018	01:25:00	USER					JSA COMPLETED
Event	3	Crew Leave Shop	8/10/2018	01:30:00	USER					
Event	4	Arrive At Loc	8/10/2018	03:00:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	8/10/2018	03:15:00	USER					JSA COMPLETED
Event	6	Pre-Rig Up Safety Meeting	8/10/2018	05:25:00	USER					JSA COMPLETED
Event	7	Rig-Up Equipment	8/10/2018	05:30:00	USER					
Event	8	Pre-Job Safety Meeting	8/10/2018	08:00:00	USER					JSA COMPLETED, PRESSURIZED MUD SCALES CALIBRATED TO FRESH WATER
Event	9	Start Job	8/10/2018	08:44:46	COM4					4 1/2"-11.6# CASING IN 8 3/4" OH, TD 8793', TP 8787.3', ST 30.4', MUD 10.8 PPG, WATER TEMP 65, PH 7, CHLORIDES 0
Event	10	Test Lines	8/10/2018	08:46:31	COM4			5000.00		TEST LINES TO 5000PSI, ALL LINES HELD
Event	11	Pump Spacer 1	8/10/2018	08:51:29	COM4	2.00	8.33	220.00	10.00	10 BBL H2O SPACER
Event	12	Pump Spacer 2	8/10/2018	08:57:19	COM4	4.00	8.40	390.00	20.00	20 BBL MUDFLUSH

Event	13	Pump Cement	8/10/2018	09:03:05	COM4	8.00	14.50	700.00	439.60	439.6 BBLS PRIMARY CEMENT, 1870 SKS @ 14.5 PPG / 1.32 YLD / 5.85 GAL/SK
Event	14	Clean Lines	8/10/2018	10:09:42	COM4					
Event	15	Drop Top Plug	8/10/2018	10:14:09	USER					PLUG AWAY
Event	16	Pump Displacement	8/10/2018	10:16:21	COM4	10.00	8.40	3000.00	135.70	135.7 BBL KCL WATER DISPLACEMENT WITH 1 GALLON MMCR AND 3# BE-6
Event	17	Slow Rate	8/10/2018	10:29:37	USER	4.00	8.40	2350.00	120.00	SLOW RATE AT 120 BBLs AWAY (15 BBLs BEFORE BUMP) DUE TO PRESSURE AT 3000 PSI @ 10 BBL/MIN, 2350 PSI @ 4 BBL/MIN
Event	18	Bump Plug	8/10/2018	10:33:39	COM4	4.00	8.40	2570.00	135.70	PLUG BUMPED AT CALCULATED, FINAL CIRCULATING PRESSURE 2570 PSI @ 4 BBL/MIN, BROUGHT TO 3130 PSI
Event	19	CHECK FLOATS	8/10/2018	10:36:45	COM4					FLOATS HELD, 1.5 BBL BACK TO PUMP
Event	20	End Job	8/10/2018	10:39:06	COM4					PIPE WAS RECIPRICATED, GOOD RETURNS THROUGHOUT THE ENTIRE JOB, 1- 4 1/2" TOP PLUG, 1 GALLON MMCR AND 3# BE-6 USED, NO SUGAR USED, NO ADD HOURS CHARGED, DERRICK CHARGE REMOVED
Event	21	Pre-Rig Down Safety Meeting	8/10/2018	11:00:00	USER					JSA COMPLETED
Event	22	Rig-Down Equipment	8/10/2018	11:05:00	USER					
Event	23	Pre-Convoy Safety Meeting	8/10/2018	11:55:00	USER					JSA COMPLETED

THANK YOU FOR CHOOSING
HALLIBURTON CEMENTING
OF GRAND JUNCTION, CO -
RYAN MARTIN AND CREW

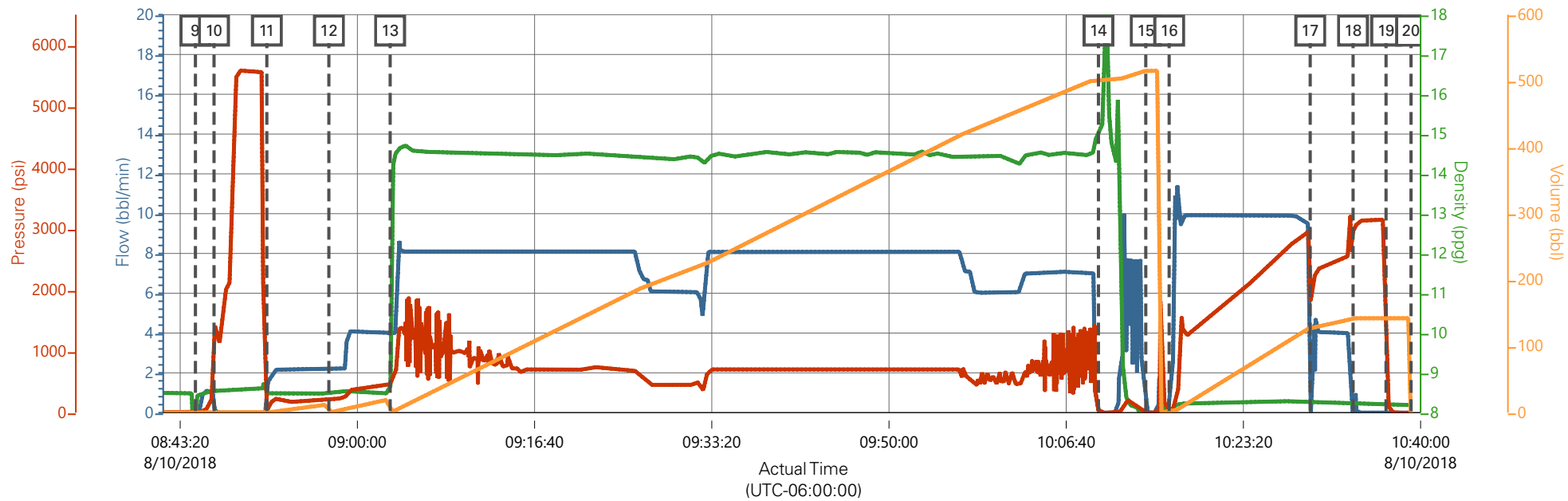
Event	24	Crew Leave Location	8/10/2018	12:00:00	USER
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TEP - FEDERAL PA 312-26 - 4 1/2" PRODUCTION CASING



Comb Pump Rate (bbl/min) 0 DH Density (ppg) 8.19 PS Pump Press (psi) -8 Pump Stg Tot (bbl) 0

TEP - FEDERAL PA 312-26 - 4 1/2" PRODUCTION CASING



Comb Pump Rate (bbl/min) 0 DH Density (ppg) 8.19 PS Pump Press (psi) -8 Pump Stg Tot (bbl) 0

Description	Actual Time (UTC-06:00:00)	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stg Tot (bbl)
9 Start Job	08:44:46	0.00	8.38	-4.00	0.00
10 Test Lines	08:46:31	0.90	8.51	180.00	1.20
11 Pump Spacer 1	08:51:29	0.00	8.48	23.00	1.30
12 Pump Spacer 2	08:57:19	2.20	8.49	217.00	0.30
13 Pump Cement	09:03:05	4.00	8.54	462.00	0.50
14 Clean Lines	10:09:42	0.00	15.05	28.00	502.90
15 Drop Top Plug	10:14:09	0.00	-0.13	-4.00	515.30
16 Pump Displacement	10:16:21	1.80	6.72	47.00	0.40
17 Slow Rate	10:29:37	0.00	8.27	1818.00	128.00
18 Bump Plug	10:33:39	0.00	8.23	2983.00	142.20
19 CHECK FLOATS	10:36:45	0.00	8.25	1727.00	142.30
20 End Job	10:39:06	0.00	8.19	-7.00	0.00

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Created: 2018-08-10 03:19:17, (UTC-06:00), Version: 4.5.139

Edit

Customer : TERRA ENERGY PARTNERS
Representative : COY BURR

Job Date : 8/10/2018
Sales Order # : 905043880

Well : FEDERAL PA 312-26
ELITE #8 : KIEL CRIST / RYAN MARTIN

Job Information

Request/Slurry	2491974/2	Rig Name	H&P 271	Date	01/AUG/2018
Submitted By	Lukas Van Zyl	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	PA 312-26

Well Information

Casing/Liner Size	4.5 in	Depth MD	8817 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		
		ExpandaCEm				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 2491974/2

Thickening Time - ON-OFF-ON

09/AUG/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)
152	5156	43	3:57	3:57	4:01	4:07	19	53	15

total sks=1870

CS1730 TR#8678 425 SKS

CS1732 TR#1513 425 SKS

CS1733 TR#4053 170 SKS

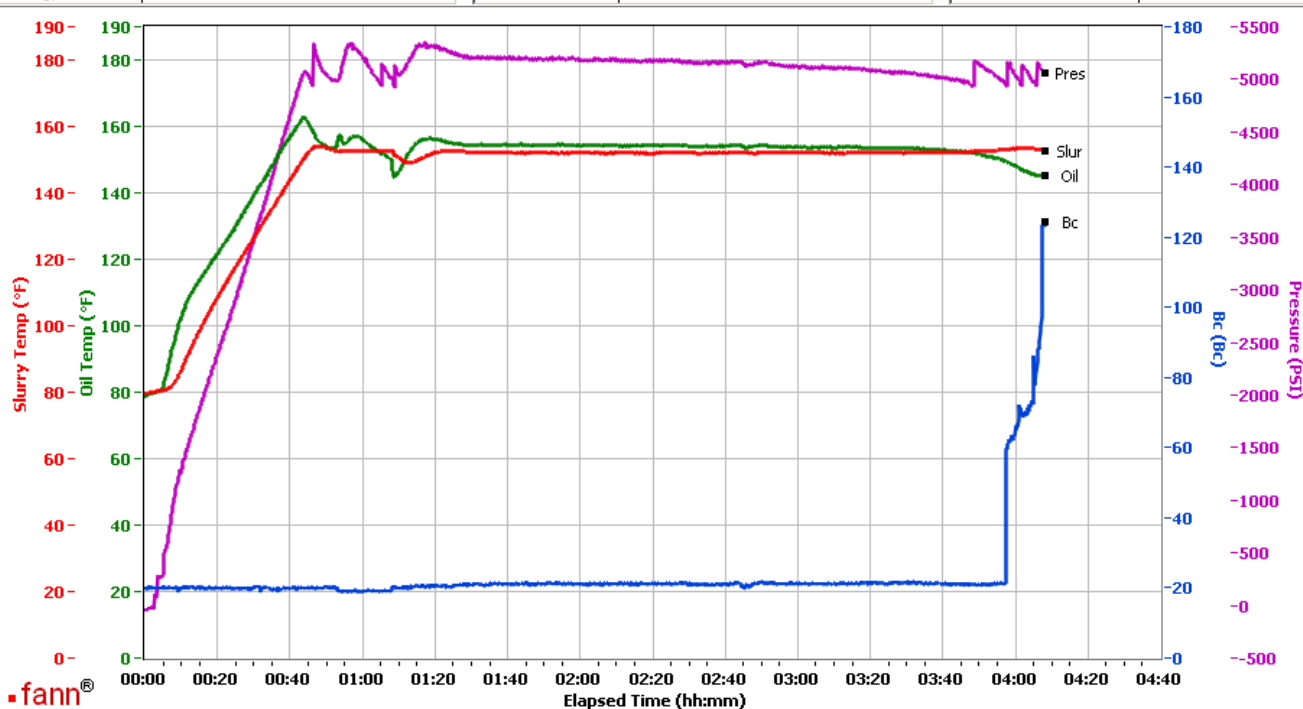
Deflection:

Grand Junction Colorado

Fields	Values
Project Name	GJ2491974-2 TERRA PRODUCTION BULK PR
Test ID	35725204
Request ID	GJ2491974-2
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	PA 312-26
Rig	H&P 271
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	08/08/18
Test Time	08:26 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:57m
40.00 Bc	03h:57m
50.00 Bc	03h:57m
70.00 Bc	04h:01m
100.00 Bc	04h:07m
00h:30m	19.87
01h:00m	18.87
01h:30m	21.00



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Comments CS1730 TR#8677 425 SKS AND CS1732 TR#1513 425 SKS AND CS1733 TR#4053 170 SKS

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Operation Test Results Request ID 2491974/1

Thickening Time - ON-OFF-ON

08/AUG/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	4:03	4:09	4:09	4:13	15	53	15	24

total sks=1870

CS1728 TR#8658 425 SKS

CS1729 TR#2878 425 SKS

deflected from 12Bc-- > 24Bc

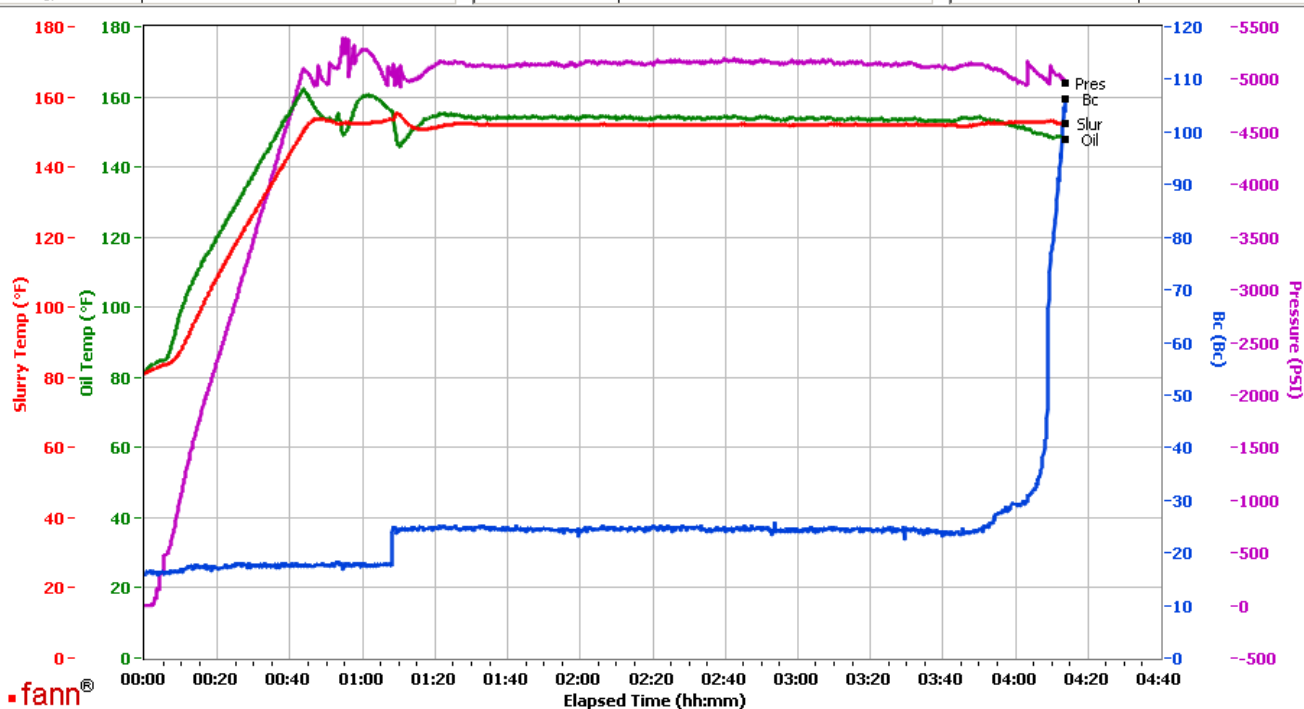
Heat of hydration at 4:00

Grand Junction, Colorado

Fields	Values
Project Name	GJ2491974-1 TERRA PRODUCTION BULK PR
Test ID	35707934
Request ID	GJ2491974-1 TT
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	PA 312-26
Rig	H&P 271
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	08/08/18
Test Time	3:38 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	04h:03m
40.00 Bc	04h:08m
50.00 Bc	04h:09m
70.00 Bc	04h:09m
100.00 Bc	04h:13m
00h:30m	17.57
01h:00m	17.57
01h:30m	24.94



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Comments CS1728 TR#8658 425 SKS AND CS1729 TR#2878 425 SKS

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