

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

United States of America, COLORADO

For: Terra

Date: Thursday, July 05, 2018

PA 34-21 Production PJR

API #: 05-045-23724

Sincerely,

Grand Junction Cement Engineering

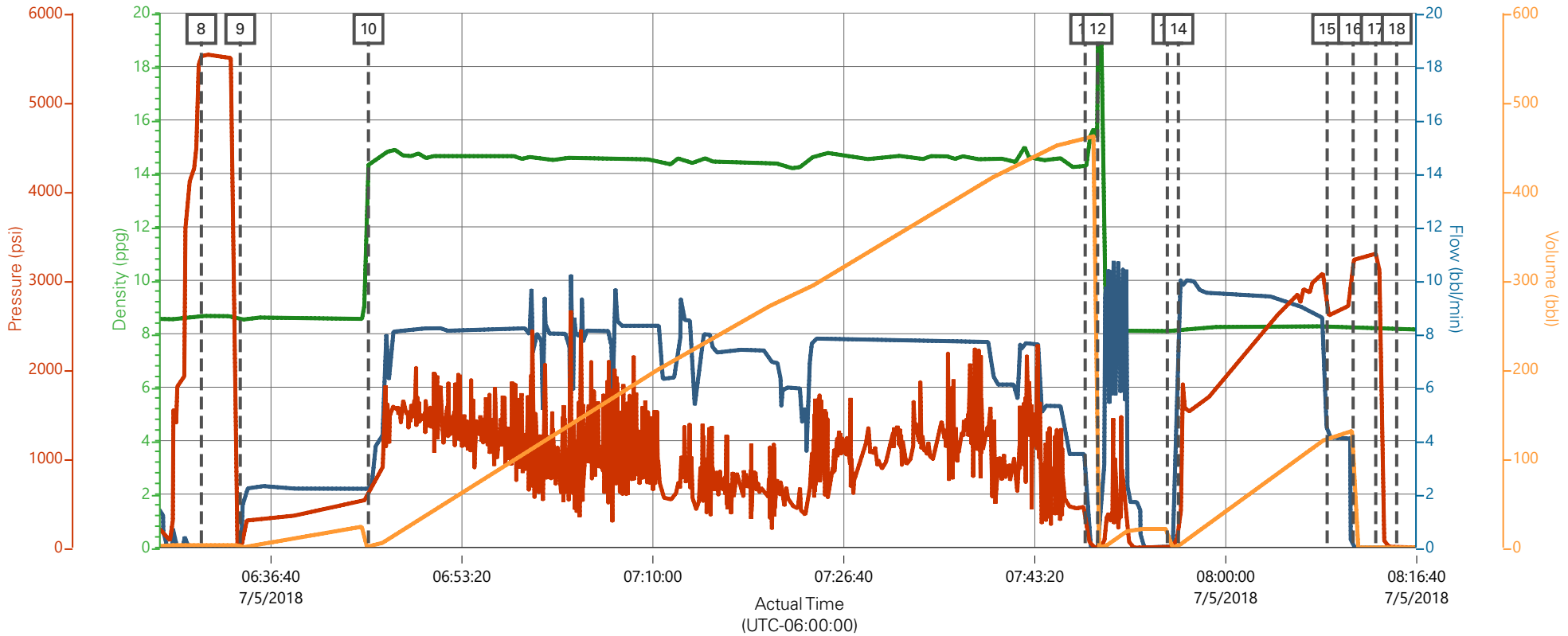
2.0 Real-Time Job Summary

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	7/4/2018	23:30:00	USER					
Event	2	Pre-Convoy Safety Meeting	7/5/2018	01:10:00	USER					JOURNEY MANAGEMENT COMPLETE, AS WELL AS JSA
Event	3	Crew Leave Yard	7/5/2018	01:30:00	USER					
Event	4	Arrive At Loc	7/5/2018	03:00:00	USER					JOURNEY MANAGEMENT CLOSED OUT.
Event	5	Assessment Of Location Safety Meeting	7/5/2018	03:30:00	USER					
Event	6	Pre-Rig Up Safety Meeting	7/5/2018	04:00:00	USER					JSA COMPLETE
Event	7	Rig-Up Equipment	7/5/2018	04:10:00	USER					
Event	8	Other	7/5/2018	05:00:00	USER					WATER TEST: PH- 6.7, TEMP-68, CL-0 TP- 8380.76 (INCLUDING STICK UP), FC-8346.65, TD- 8383, HOLE- 8 3/4, MUD# 12.4, 9 5/8 SET AT 1139
Event	9	Pre-Job Safety Meeting	7/5/2018	06:00:00	USER					JSA COMPLETE
Event	10	Start Job	7/5/2018	06:24:00	COM5					
Event	11	Test Lines	7/5/2018	06:30:35	COM5	8.33	0.00	5585.00	0.00	5585 PSI
Event	12	Pump Spacer 1	7/5/2018	06:33:59	COM5	8.33	3.00	375	20.0	MUD FLUSH
Event	13	Pump Lead Cement	7/5/2018	06:45:10	COM5	14.5	8.0	1060	426.7	1815 SKS EXPANDACEM, 14.4 PPG, 1.32 FT3/SK, 5.85 GAL/SK

Event	14	Shutdown	7/5/2018	07:47:44	COM5					TO CLEAN LINES AND PUMPS, AND DROP TOP PLUG
Event	15	Clean Lines	7/5/2018	07:48:49	COM5					TO PIT FROM PUMP, FROM FLOOR USING AIR
Event	16	Drop Top Plug	7/5/2018	07:54:54	COM5					AWAY
Event	17	Pump Displacement	7/5/2018	07:55:52	COM5	8.33	9.00	3160	129.4	KCL WATER WITH 3 BAGS BE-6, 1 GAL MMCR
Event	18	SLOW RATE	7/5/2018	08:08:51	COM5	8.33	4.00	2610.0	119.0	TO BUMP PLUG
Event	19	Bump Plug	7/5/2018	08:11:07	COM5	8.33	4.00	2700	129.4	PLUG BUMPED
Event	20	CHECK FLOATS	7/5/2018	08:13:05	COM5			3270.00		FLOATS HELD, 1.5 BBLS BACK TO TRUCK
Event	21	End Job	7/5/2018	08:14:55	COM5					GOOD CIRCULATION THROUGHOUT JOB, PIPE WORKED 5-8 FT THROUGHOUT.
Event	22	Post-Job Safety Meeting (Pre Rig-Down)	7/5/2018	08:20:00	USER					JSA COMPLETE
Event	23	Crew Leave Location	7/5/2018	10:00:00	USER					THANK YOU FOR USING HALLIBURTON CEMENT, JAMES LEIST AND CREW

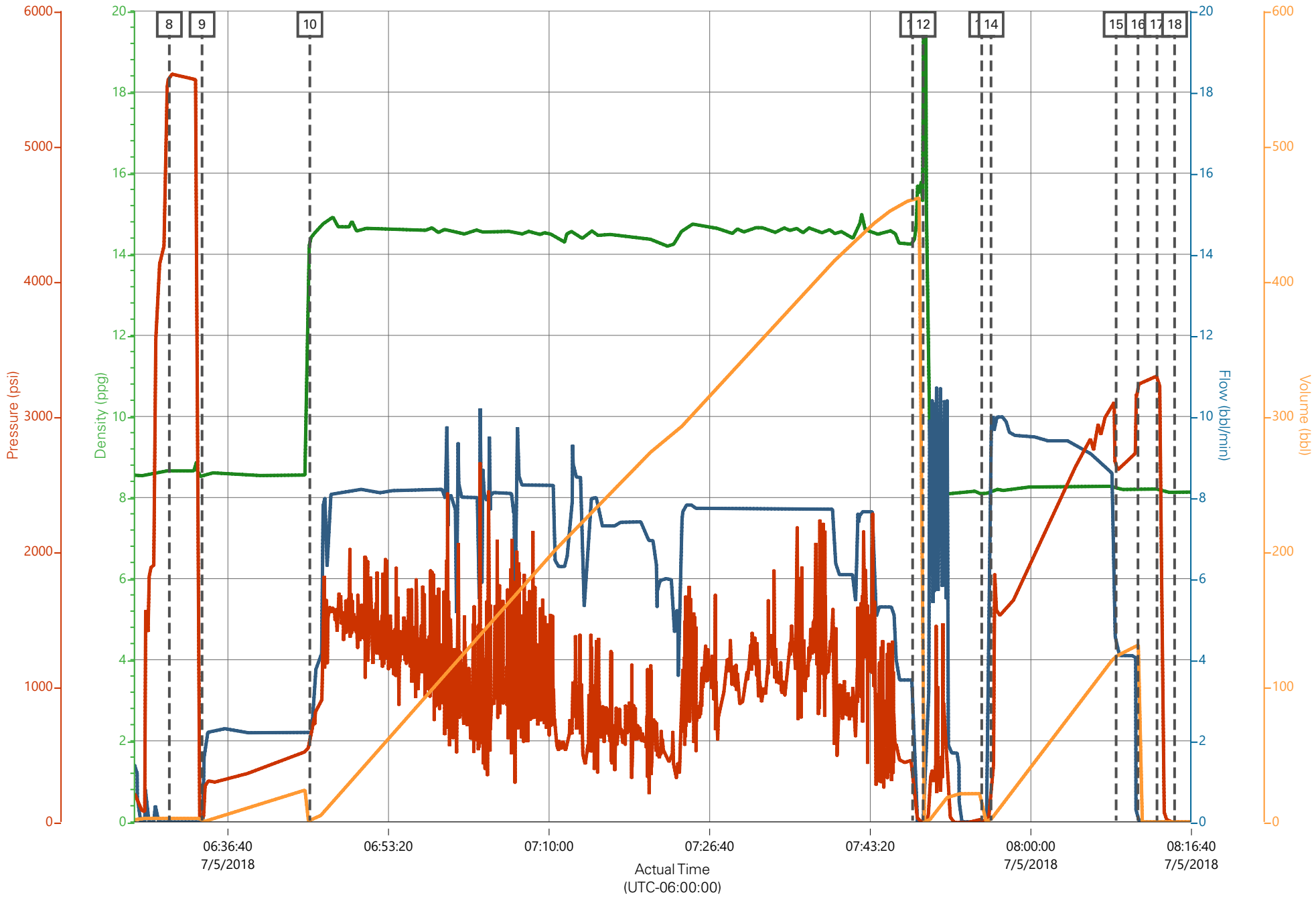
Custom Results



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

Description	Actual Time (UTC-06:00:00)	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)
8	06:30:55	8.87	0.00	5521.00	2.00
9	06:33:59	8.52	0.00	24.00	2.60
10	06:45:10	14.34	2.20	601.00	1.10
11	07:47:44	14.25	3.50	454.00	461.10
12	07:48:49	15.96	0.00	-6.00	0.00
13	07:54:54	8.10	0.00	2.00	20.90
14	07:55:52	8.11	9.00	207.00	1.80
15	08:08:51	8.24	4.40	2607.00	122.50
16	08:11:07	8.21	0.00	3238.00	130.90
17	08:13:05	8.21	0.00	3300.00	0.00
18	08:14:55	8.13	0.00	0.00	0.00

Custom Results



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

Job Information

Request/Slurry	2483760/2	Rig Name	H&P 271	Date	25/JUN/2018
Submitted By	Lukas Van Zyl	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	PA 34-26

Well Information

Casing/Liner Size	4.5 in	Depth MD	8910 ft	BHST	110°C / 230°F
Hole Size	8.75 in	Depth TVD	8810 ft	BHCT	71°C / 160°F
Pressure	5467 psi				

Drilling Fluid Information

Mud Supplier Name	AMC	Mud Trade Name		Density	
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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>	<u>Cement Properties</u>		
		ExpandaCem				Slurry Density	14.5	lbm/gal
						Slurry Yield	1.32	ft ³ /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 2483760/2

Thickening Time - ON-OFF-ON

02/JUL/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)
160	5467	45	1:10	3:41	3:47	3:49	17	55	15	49

total sks=1815

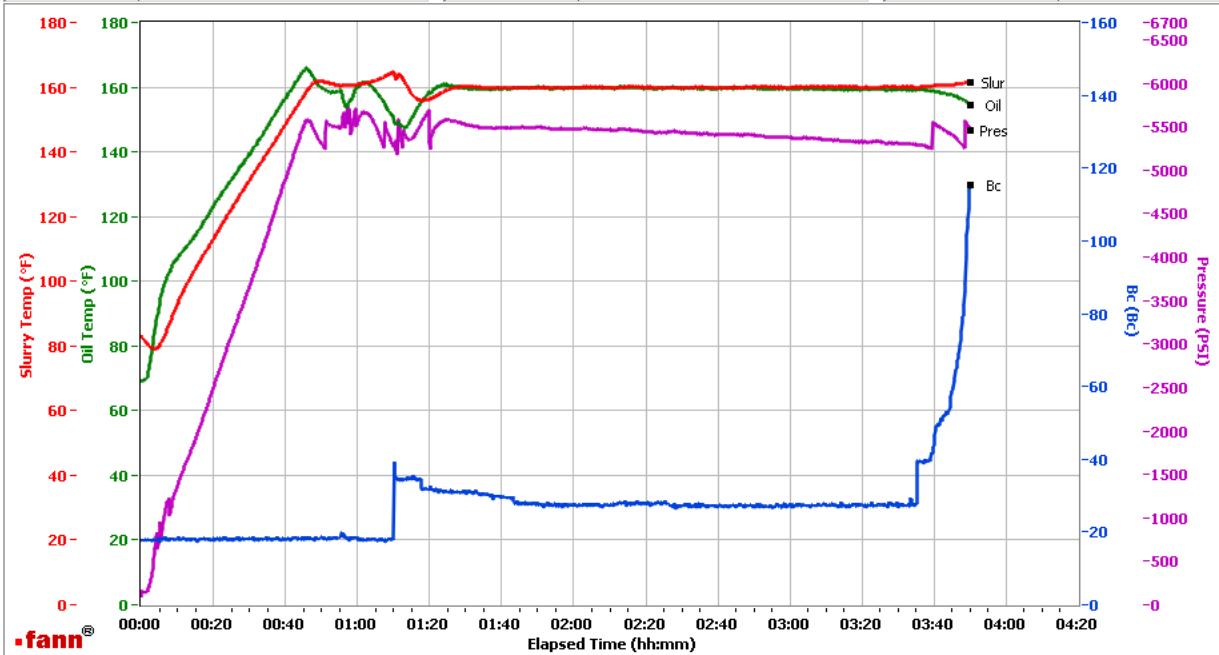
CS1382 TR#2878 425 SKS

CS1385 TR#8321 115 SKS

Deflected 18-- > 49-- > 34 after 1 minute. Heat of hydration started around 3:37

Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2483760-2 TERRA PRODUCTION BULK PR	Job Type	PRODUCTION CASING	30.00 Bc	01h:10m
Test ID	35624562	Cement Type	MOUNTAIN G	40.00 Bc	03h:39m
Request ID	GJ2483760-2	Cement Weight	Standard	50.00 Bc	03h:41m
Tested by	DEBA	Test Date	08/08/11	70.00 Bc	03h:47m
Customer	TERRA ENERGY PARTNERS	Test Time	02:35 PM	100.00 Bc	03h:49m
Well No	PA 34-26	Temp. Units	degF	00h:30m	18.39
Rig	H8P271	Pressure Units	PSI	01h:00m	17.92
Casing/Liner Size	4.5"	SW Version	2.1.0.1219	01h:30m	30.89



Data File C:\Documents and Settings\HPHT\Desktop\Test Data\GJ2483760-2 TERRA PRODUCTION BULK PRIMARY.tdms

Comments CS1382 TR#2878 425 SKS AND CS1385 tr#8321 115 SKS

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Operation Test Results Request ID 2483760/1

Thickening Time - ON-OFF-ON

01/JUL/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)
160	5467	45	3:48	3:58	4:00	4:03	11	55	15	33

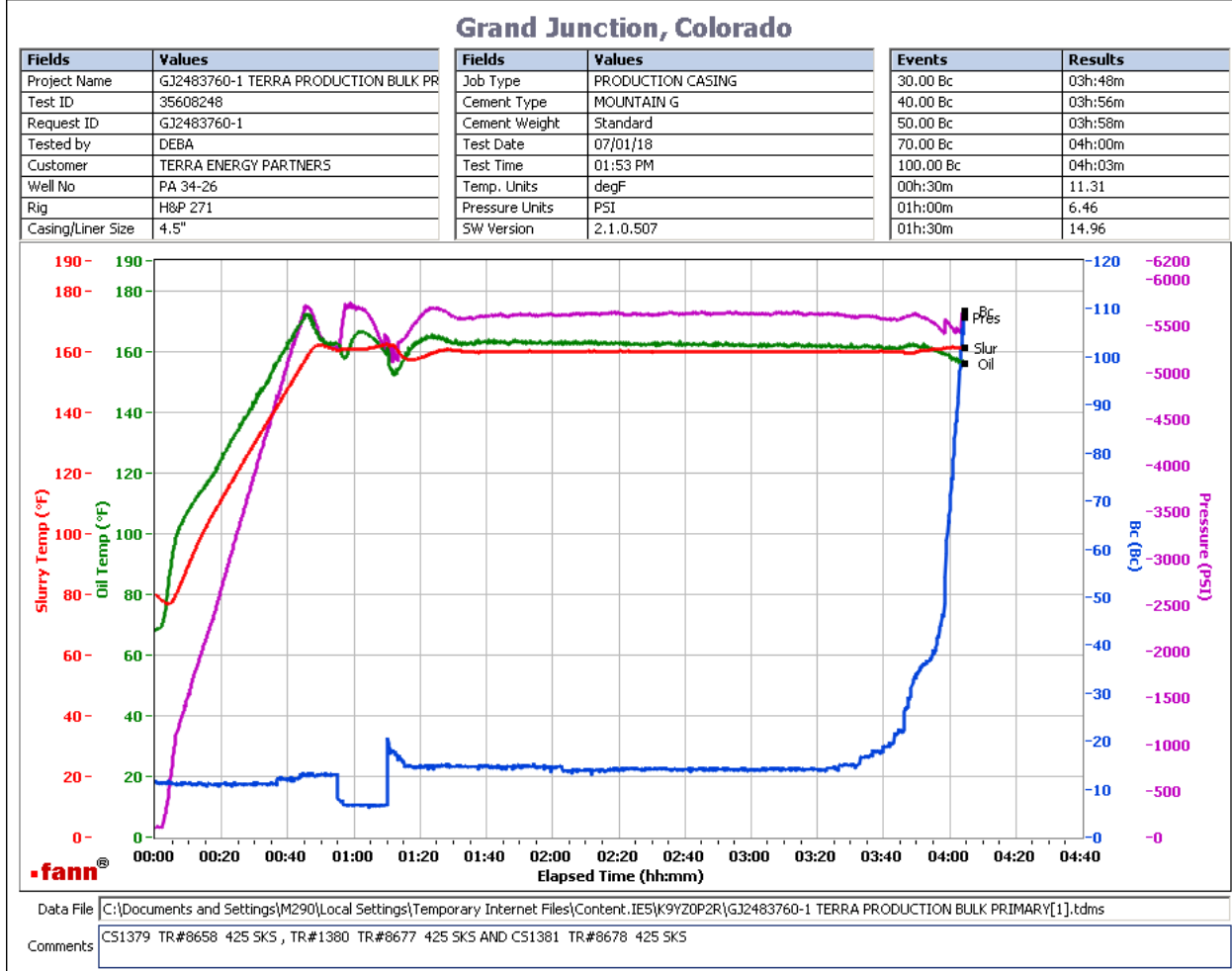
total sks=1815

CS1379 TR#8658 425 SKS

CS1380 TR#8677 425 SKS

CS1381 TR#8678 425 SKS

deflected from 7Bc-- > 33 Bc--- > 17Bc within one minute



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