

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

United States of America, COLORADO

For: Terra

Date: Sunday, September 09, 2018

FEDERAL PA 434-24 Production

API# 05-045-23764

Sincerely,

Grand Junction Cement Engineering

1.0 Real-Time Job Summary

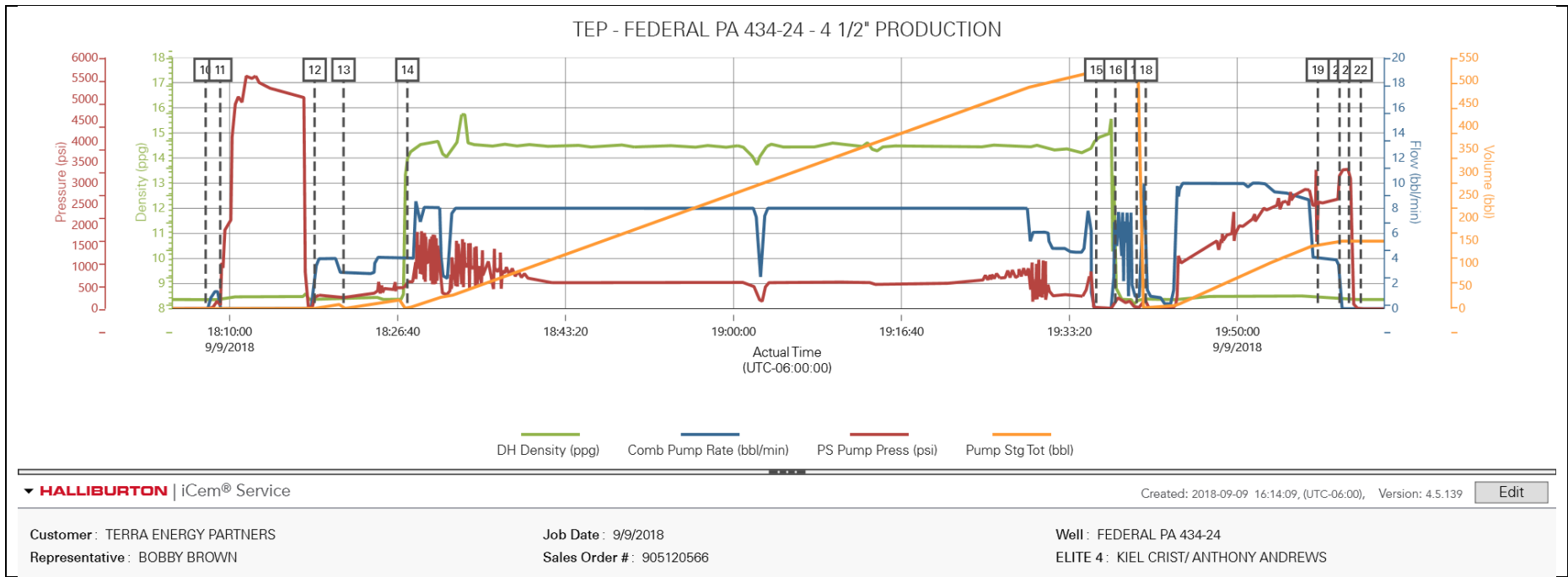
1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	9/9/2018	11:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	9/9/2018	13:15:00	USER					
Event	3	Crew Leave Yard	9/9/2018	13:30:00	USER					
Event	4	Arrive At Loc	9/9/2018	15:00:00	USER					REQUESTED ON LOC TIME WAS 1700, CREW ARRIVED @ 1500, RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	9/9/2018	15:05:00	USER					
Event	6	Spot Equipment	9/9/2018	15:15:00	USER					
Event	7	Pre-Rig Up Safety Meeting	9/9/2018	15:25:00	USER					
Event	8	Rig-Up Equipment	9/9/2018	15:30:00	USER					
Event	9	Pre-Job Safety Meeting	9/9/2018	17:30:00	USER					
Event	10	Start Job	9/9/2018	18:07:37	COM5					TD: 8840 TP: 8833 SJ: 33 MW: 11PPG 4 1/2" 11.6#/FT CSG IN 8 3/4" OH WATER TEST: PH: 6.5 POTASSIUM: 700 CHLORIDES: 0 SULFATES: <200 TEMP: 70 DEGREES PRESSURIZED MUD SCALES WERE VERIFIED ON DRINKING WATER PRIOR TO JOB.
Event	11	Test Lines	9/9/2018	18:09:04	COM5			5000.00		5000 PSI TEST, SUCCESSFUL
Event	12	Pump Spacer 1	9/9/2018	18:18:26	COM5	8.33	4.00	298.00	10.00	FRESH H2O SPACER
Event	13	Pump Spacer 2	9/9/2018	18:21:18	COM5	8.40	4.00	264.00	20.00	MUDFLUSH SPACER
Event	14	Pump Cement	9/9/2018	18:27:38	COM5	14.50	8.00	660.00	450.2	1915 SKS @ 14.5 PPG 1.32 YLD 5.85 GAL/SK H2O
Event	15	Shutdown	9/9/2018	19:36:00	USER					

Event	16	Clean Lines	9/9/2018	19:37:54	COM5					
Event	17	Drop Plug	9/9/2018	19:40:01	USER					PLUG AWAY
Event	18	Pump Displacement	9/9/2018	19:40:55	COM5	8.48	10.00	2610.00	136.4	FRESH H2O W/ KCL, 1 GAL MMCR, 3# BE-6
Event	19	Slow Rate	9/9/2018	19:57:59	USER	8.48	4.00	2556.00	125.0	
Event	20	Bump Plug	9/9/2018	20:00:09	COM5	8.48	4.00	3213.00	136.4	PLUG BUMPED AT CALCULATED DISPLACEMENT
Event	21	Check Floats	9/9/2018	20:01:05	COM5					FLOATS HELD, GAINED 1.5 BBL BACK TO PUMP
Event	22	End Job	9/9/2018	20:02:15	COM5					
Event	23	Post-Job Safety Meeting (Pre Rig-Down)	9/9/2018	20:25:00	USER					
Event	24	Rig-Down Equipment	9/9/2018	20:30:00	USER					GOOD CIRCULATION THROUGHOUT JOB. PIPE WAS RECIPROCATED DURING JOB. TOP PLUG USED. THE RIG WAS SEEING 1800 UNITS OF GAS AFTER CIRCULATING, CUSTOMER WAS AWARE OF THE POTENTIAL PROBLEMS THE GAS COULD CAUSE FOR CMT DOWNHOLE.
Event	25	Pre-Convoy Safety Meeting	9/9/2018	21:15:00	USER					NO ADD HOURS CHARGED.
Event	26	Crew Leave Location	9/9/2018	21:30:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND JCT, CO ANTHONY ANDREWS AND CREW

2.0 Attachments

2.1 905120566-Custom Results.png



HALLIBURTON

Rockies, Grand Junction

Lab Results- Primary

Job Information

Request/Slurry	2498822/1	Rig Name	H&P 271	Date	04/SEP/2018
Submitted By	Lukas Van Zyl	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	PA 434-24

Well Information

Casing/Liner Size	4.5 in	Depth MD	8870 ft	BHST	111°C / 231°F
Hole Size	8.75 in	Depth TVD	8477 ft	BHCT	72°C / 161°F
Pressure	5509 psi				

Drilling Fluid Information

Mud Supplier Name	AMC	Mud Trade Name	Density
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Cement Information - Primary Design



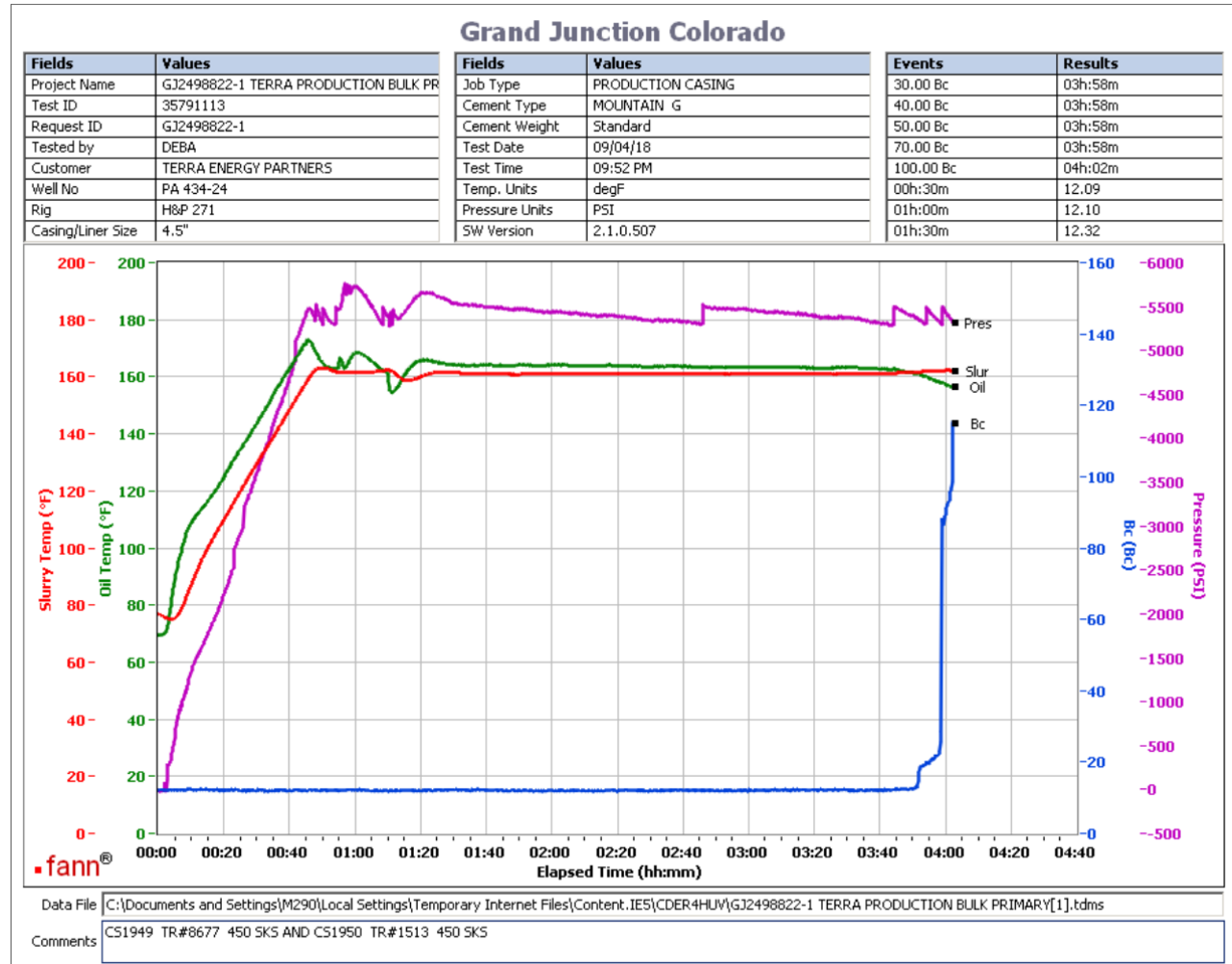
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	Cement Properties		
		ExpandaCem Primary				Slurry Density	14.5	lbm/gal
						Slurry Yield	1.32	ft3/sack
						Water Requirement	5.849	gal/sack
						Total Mix Fluid	5.849	gal/sack
						Water Source	Fresh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

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Thickening Time - ON-OFF-ON

05/SEP/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)
161	5509	45	3:58	3:58	3:58	4:02	12	55	15	12



total sks=1915
 CS1949 TR#8677 450 SKS
 CS1950 TR#1513 450 SKS
 Deflection: 12 – 12

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Operation Test Results Request ID 2498822/2

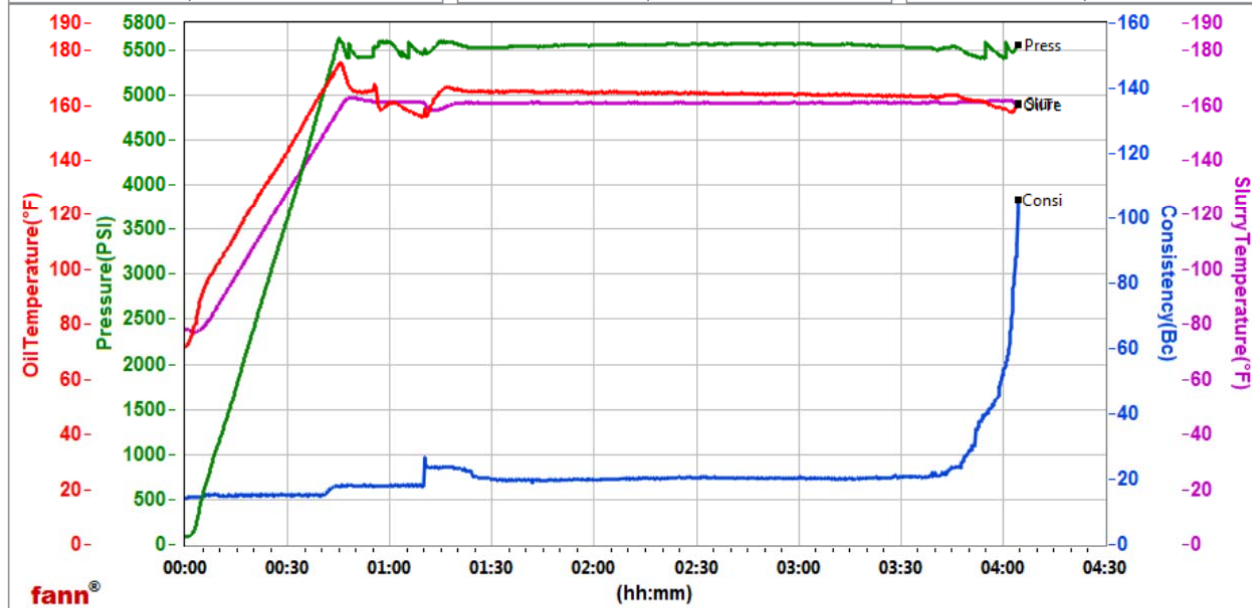
Thickening Time - ON-OFF-ON

06/SEP/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)
161	5509	45	3:50	3:59	4:02	4:04	14	55	15	27

Grand Junction

Fields	Values	Fields	Values	Events	Results
Project Name	TempTest	Rig	H&P 271	30 BC	3:50
SW Version	1.0	Casing/Liner Size	4.5"	50 BC	3:59
Test ID	35795421	Job Type	PRODUCTION CASING	70 BC	4:02
Request ID	GJ2498822-2 TT	Cement Weight	MOUNTAIN G	100 BC	4:04
Tested by	DEBA	Comments	Standard		
Customer	TERRA ENERGY PARTN	Date Time	9/5/2018 11:36:50.259		
Well No	PA 434-24	Temp. Units	degF		



Data File C:\Users\H185329\Desktop\000 Graphs\GJ2498822-2 TERRAPRODUCTION PRIMARY BULKms.tdms

Comments Standard

total sks=1915

CS1954 TR#2878 450 sks

CS1955 TR#4549 115 SKS

CS1956 TR#8658 450 sks

Deflection: 18 - 27 to 24 after one minute

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