

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

For: Terra

Date: Friday, August 24, 2018

PA 522-26 Production PJR

Job Date: Friday, August 24, 2018

API# 05-045-23727-00

Sincerely,

Grand Junction Cement Engineering

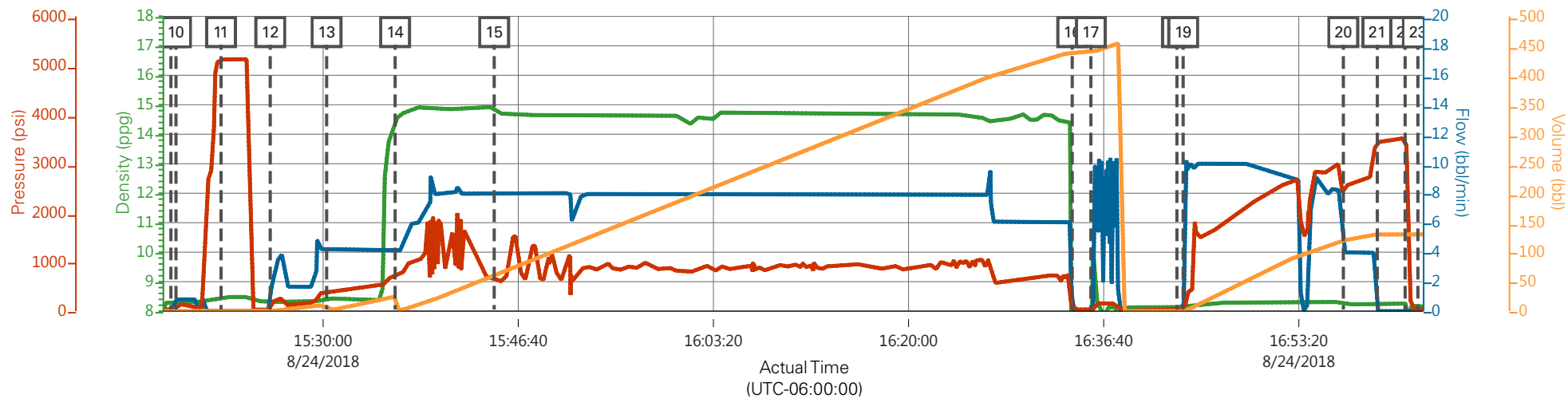
1.0 Real-Time Job Summary

1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	8/24/2018	09:00:00	USER					REQUESTED ON LOCATION @ 1400
Event	2	Pre-Convoy Safety Meeting	8/24/2018	11:00:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	8/24/2018	11:30:00	USER					1 F550, 1 PUMP TRUCK & 1 660 BULK TURCK
Event	4	Arrive at Location from Service Center	8/24/2018	12:30:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	8/24/2018	12:45:00	USER					MET WITH COMP REP AND WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE (PH- 7, CHLORIDES- 0, TEMP- 71F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Pre-Rig Up Safety Meeting	8/24/2018	12:55:00	USER					ALL HES PRESENT
Event	7	Rig-Up Completed	8/24/2018	13:30:00	USER					HES RIGGED UP EQUIPMENT WITHOUT ENTERING RED ZONE.
Event	8	Pre-Job Safety Meeting	8/24/2018	15:00:00	USER					ALL HES AND RIG CREW PRESENT
Event	9	Start Job	8/24/2018	15:17:00	COM6					TD 8473', TP 8467', SJ 32', OH 8.75", CSG 4.5" 11.6#, MUD 11.2 PPG. RIG CIRCULATED AT 450 GPM WITH 500 PSI. CALIBRATED THE PRESSURIZED MUD SCALES ON FRESH WATER.
Event	10	Prime Pumps	8/24/2018	15:17:26	USER	147.00	8.33	2.00	2.00	8.33 PPG FRESH WATER

Event	11	Test Lines	8/24/2018	15:21:17	COM6	5121.00	8.33	0.50	0.50	ALL LINES HELD PRESSURE AT 5100 PSI
Event	12	Pump Spacer 1	8/24/2018	15:25:29	COM6	36.00	8.33	1.70	10.00	8.33 PPG FRESH WATER (10 BBL)
Event	13	Pump Spacer 2	8/24/2018	15:30:18	COM6	347.00	8.33	4.20	20.00	8.4 PPG MUDFLUSH III (20 BBL)
Event	14	Pump Cement	8/24/2018	15:36:09	COM6	954.00	14.50	8.10	420.00	EXPANDACEM CEMENT 1785 SKS (420 BBLs), 14.5 PPG, 1.32 FT3/SK, 5.85 GAL/SK
Event	15	Check Weight	8/24/2018	15:44:37	COM6					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	16	Shutdown	8/24/2018	16:33:59	USER					END OF CMT
Event	17	Clean Lines	8/24/2018	16:35:34	USER					WASH UP PUMPS AND LINES
Event	18	Drop Top Plug	8/24/2018	16:42:55	USER					PLUG WENT, VERIFIED BY CO REP
Event	19	Pump Displacement	8/24/2018	16:43:27	COM6	2840.00	8.33	10.00	121.60	8.34 PPG FRESH WATER (131.6 BBLs) 3 BAGS BE6, 1 GAL MMCR & 13 SKS KCL
Event	20	Slow Rate	8/24/2018	16:57:08	USER	2488.00	8.33	3.90	10.60	SLOW RATE TO 2 BPM 4 BPM PER CO REP TO LAND PLUG
Event	21	Bump Plug	8/24/2018	17:00:02	USER	3427.00	8.33	4.00	131.60	LAND PLUG AT 2750 PSI, BROUGHT UP TO 3427 PSI FOR A 10 MIN CSG TEST.
Event	22	Check Floats	8/24/2018	17:02:25	USER	3525.00	8.33	0.00	131.60	FLOATS HELD, 1 BBL BACK TO TRUCK
Event	23	End Job	8/24/2018	17:03:30	COM6	8.00	8.19	0.00	131.60	FULL RETURNS THROUGHOUT, PIPE WAS RECIPROCATED
Event	24	Post-Job Safety Meeting (Pre Rig- Down)	8/24/2018	17:08:05	USER					ALL HES PRESENT
Event	25	Rig-Down Completed	8/24/2018	17:48:38	USER					ALL HES PRESENT
Event	26	Pre-Convoy Safety Meeting	8/24/2018	18:00:00	USER					ALL HES PRESENT
Event	27	Crew Leave Location	8/24/2018	18:05:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, CHRIS SMITH AND CREW

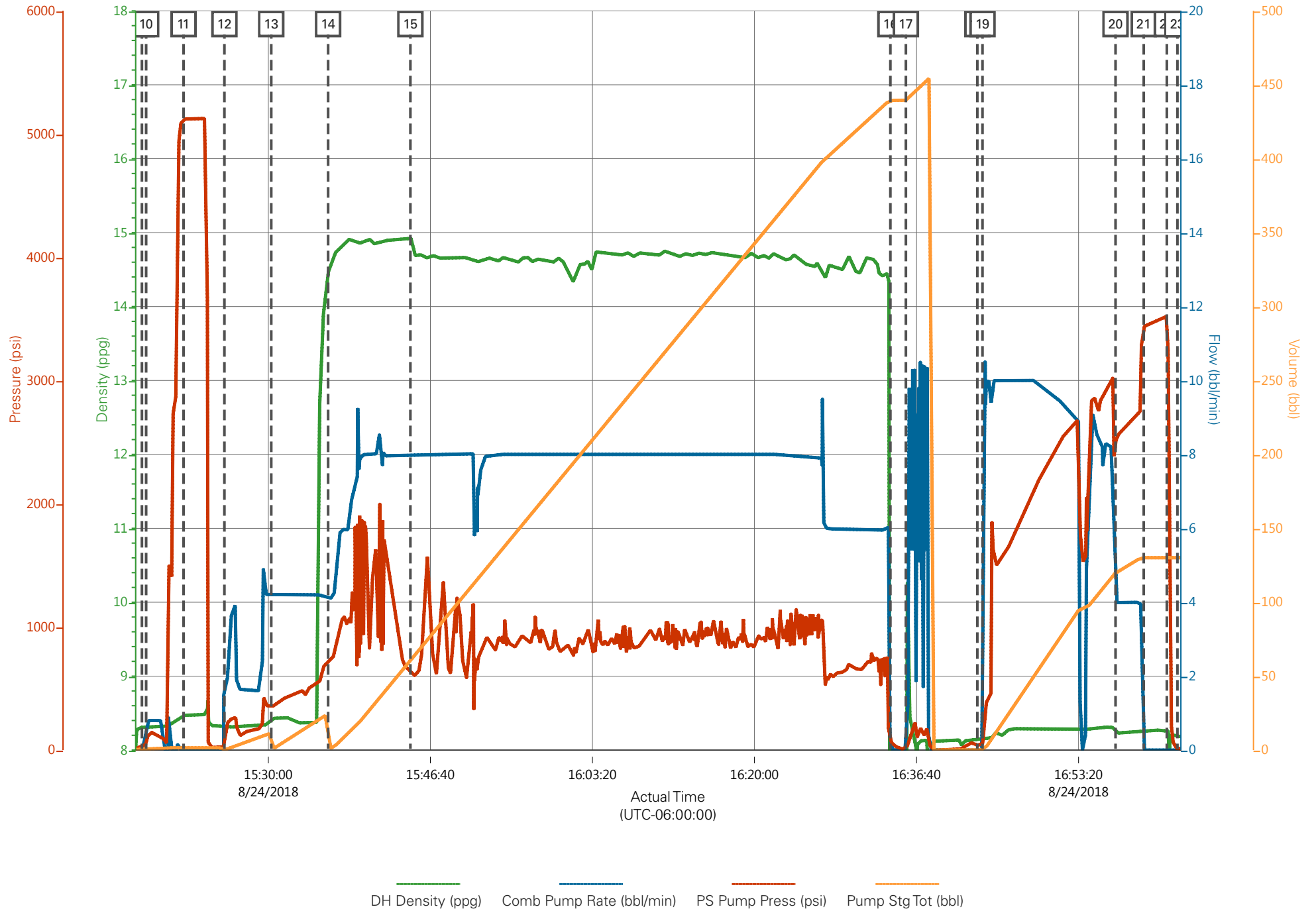
TEP - PA 522-26 - 4.5" Production



— 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)
9 Start Job	15:17:00	8.31	0.00	35.00	0.00
10 Prime Pumps	15:17:26	8.32	0.80	47.00	0.10
11 Test Lines	15:21:17	8.47	0.00	5121.00	1.50
12 Pump Spacer 1	15:25:29	8.34	1.70	36.00	0.10
13 Pump Spacer 2	15:30:18	8.43	4.20	347.00	12.00
14 Pump Cement	15:36:09	14.45	4.10	754.00	0.00
15 Check Weight	15:44:37	14.92	8.00	639.00	60.90
16 Shutdown	16:33:59	1.24	0.00	84.00	439.50
17 Clean Lines	16:35:34	-0.27	0.00	10.00	439.50
18 Drop Top Plug	16:42:55	8.13	0.00	27.00	0.00
19 Pump Displacement	16:43:27	8.13	0.00	54.00	0.00
20 Slow Rate	16:57:08	8.24	3.90	2488.00	119.80
21 Bump Plug	17:00:02	8.26	0.00	3434.00	130.10
22 Check Floats	17:02:25	8.27	0.00	3525.00	130.10
23 End Job	17:03:30	8.19	0.00	8.00	130.10

TEP - PA 522-26 - 4.5" Production



HALLIBURTON

Rockies, Grand Junction

Lab Results- Primary

Job Information

Request/Slurry	2495390/1	Rig Name	H&P 271	Date	17/AUG/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	PA 522-26

Well Information

Casing/Liner Size	4.5 in	Depth MD	8518 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
--------------------------	-----	-----------------------	----------------

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		

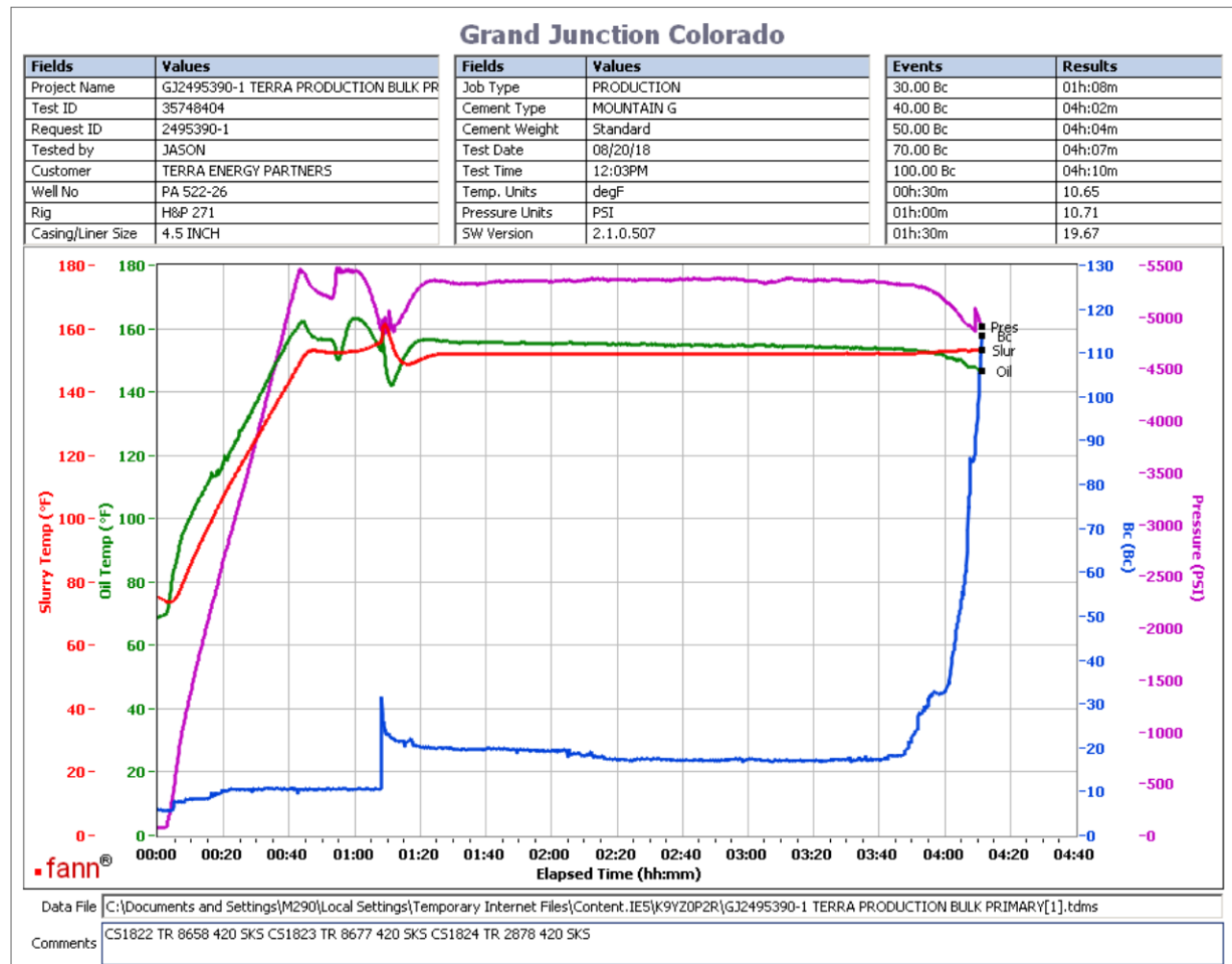
This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

Operation Test Results Request ID 2495390/1

Thickening Time - ON-OFF-ON

20/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	1:08	4:04	4:07	4:18	6	53	15	31



total sks=1785

CS1822 TR 8658 420 SKS

CS1823 TR 8677 420 SKS

CS1824 TR 2878 420 SKS

deflected from 10Bc--- > 31Bc--- > 25BC heat of hydration at 3:58

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

Operation Test Results Request ID 2495390/2

Thickening Time - ON-OFF-ON

20/AUG/2018

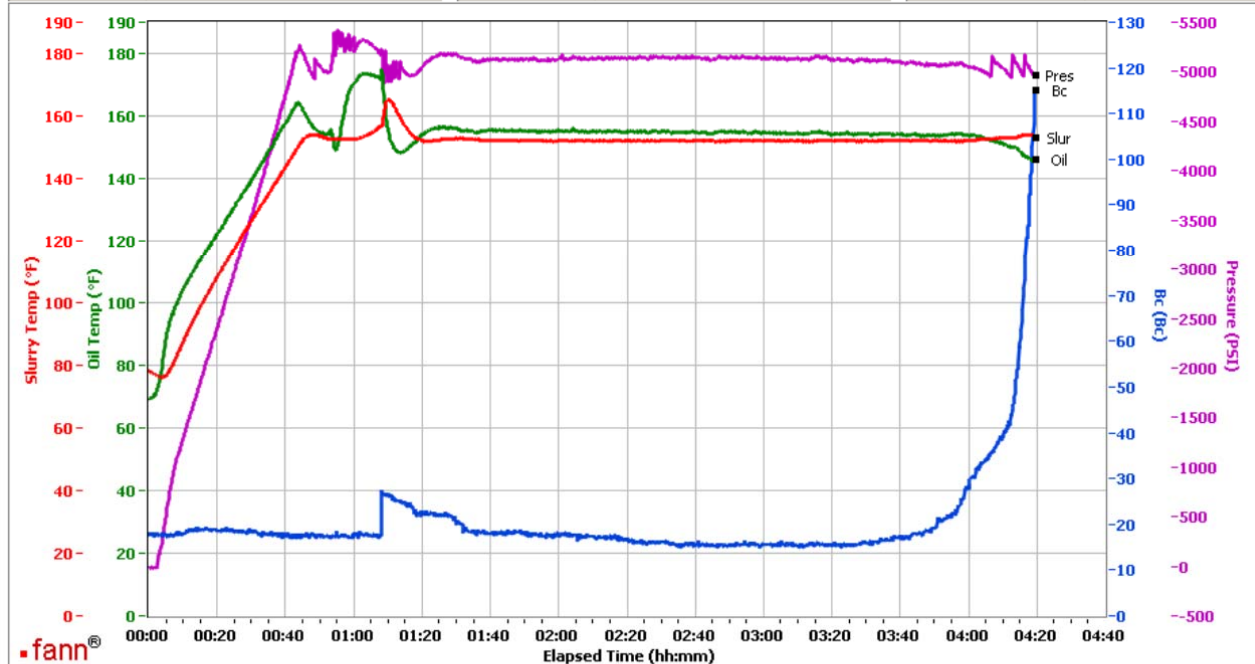
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
152	5156	43	4:00	4:13	4:16	4:18	18	53	15	28

Grand Junction, Colorado

Fields	Values
Project Name	GJ2495390-2 TERRA PRODUCTION BULK PR
Test ID	35755021
Request ID	GJ2495390-2 TT
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	PA 522-26
Rig	H&P271
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	08/20/18
Test Time	01:30 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	04h:00m
40.00 Bc	04h:10m
50.00 Bc	04h:13m
70.00 Bc	04h:16m
100.00 Bc	04h:18m
00h:30m	18.57
01h:00m	17.63
01h:30m	19.93



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\O1M7K5E7\GJ2495390-2 TERRA PRODUCTION BULK PRIMARY[1].tdms

Comments CS1825 TR#1513 420 SKS AND CS1826TR#4080 105 SKS

total sks=1785

CS1825 TR#1513 420 SKS

CS1826 TR#4080 105 SKS

deflected from 17Bc--- > 28Bc--- > 26Bc within one minute

Heat of hydration at 4:10

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.