

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

United States of America, COLORADO

Date: Wednesday, March 13, 2019

### **SG 411-22 Production**

Terra SG 411-22 Production

API# 05-045-24135-00

Job Date: Thursday, February 28, 2019

Sincerely,

**Grand Junction Cement Engineering**

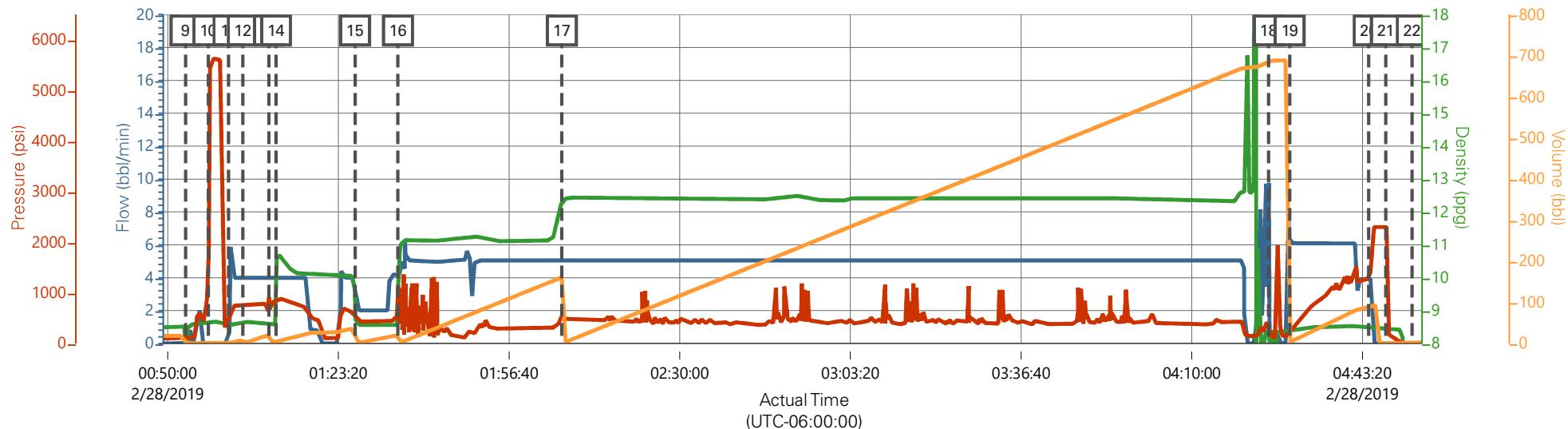
## 1.0 Real-Time Job Summary

## 1.1 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	2/27/2019	16:30:00	USER					REQUESTED ON LOCATION 2/27/19 @ 22:00
Event	2	Depart Yard Safety Meeting	2/27/2019	18:55:00	USER					JSA COMPLETED
Event	3	Crew Leave Shop	2/27/2019	19:00:00	USER					
Event	4	Arrive At Loc	2/27/2019	21:00:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	2/27/2019	21:15:00	USER					JSA COMPLETED
Event	6	Pre-Rig Up Safety Meeting	2/27/2019	21:25:00	USER					JSA COMPLETED
Event	7	Rig-Up Equipment	2/27/2019	21:30:00	USER					
Event	8	Pre-Job Safety Meeting	2/28/2019	00:30:00	USER					JSA COMPLETED, PRESSURIZED MUD SCALES CALIBRATED TO FRESH WATER
Event	9	Start Job	2/28/2019	00:53:29	COM4					4 1/2"-11.6# CASING IN 8 3/4" OH, TD 6100', TP 6092' + 3' STICK UP, ST 32', MUD 9.4 PPG, WATER TEMP 80, PH 7, CHLORIDES 0
Event	10	Test Lines	2/28/2019	00:57:57	COM4			5000.00		TEST LINES TO 5000 PSI
Event	11	Pump H2O	2/28/2019	01:01:53	COM4	4.00	8.33	780.00	10.00	10 BBLS FRESH WATER
Event	12	Pump MUDFLUSH	2/28/2019	01:04:41	COM4	4.00	8.40	780.00	20.00	20 BBLS MUDFLUSH
Event	13	Pump H2O	2/28/2019	01:09:47	COM4	4.00	8.33	770.00	5.00	5 BBLS FRESH WATER
Event	14	Pump SUPERFLUSH	2/28/2019	01:11:10	COM4	4.00	10.00	740.00	40.00	40 BBLS SUPERFLUSH
Event	15	Pump H2O	2/28/2019	01:26:36	COM4	4.00	8.33	740.00	20.00	20 BBLS FRESH WATER
Event	16	Pump SCAVENGER CEMENT	2/28/2019	01:34:58	COM4	5.00	11.00	300.00	100.00	100 BBLS SCAVENGER CEMENT, 242 SKS @ 11.0 PPG / 2.32 YLD / 12.67 GAL/SK

Event	17	Pump Cement	2/28/2019	02:06:59	COM4	5.00	12.30	400.00	528.30	528.3 BBLS PRIMARY CEMENT, 1440 SKS @ 12.3 PPG / 2.06 YLD / 10.11 GAL/SK
Event	18	Drop Top Plug	2/28/2019	04:25:01	COM4					PLUG AWAY
Event	19	Pump Displacement	2/28/2019	04:29:07	COM4	6.00	8.40	1480.00	94.00	94 BBLS KCL DISPLACEMENT
Event	20	Bump Plug	2/28/2019	04:44:34	COM4	4.00	8.40	1300.00	94.00	PLUG BUMPED AT CALCULATED, FINAL CIRCULATING PRESSURE 1300 PSI @ 4 BBL/MIN, BROUGHT TO 2300 PSI
Event	21	CHECK FLOATS	2/28/2019	04:47:54	COM4					FLOATS HELD, 1 BBL BACK TO PUMP
Event	22	End Job	2/28/2019	04:53:00	COM4					PIPE WAS RECIPRICATED, GOOD RETURNS UNTIL HALF WAY THROUGH CEMENT, NO RETURNS FOR REMAINDER OF JOB, 40# SUGAR USED, NO ADD HOURS CHARGED
Event	23	Pre-Rig Down Safety Meeting	2/28/2019	05:25:00	USER					JSA COMPLETED
Event	24	Rig-Down Equipment	2/28/2019	05:30:00	USER					
Event	25	Pre-Convoy Safety Meeting	2/28/2019	05:55:00	USER					JSA COMPLETED
Event	26	Crew Leave Location	2/28/2019	06:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND JUNCTION, CO - RYAN MARTIN AND CREW

# TERRA - FEDERAL SG 411-22 - 4 1/2" PRODUCTION CASING



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

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	00:53:29	0.00	8.52	87.00	0.00
10 Test Lines	00:57:57	0.00	8.59	1767.00	2.00
11 Pump H2O	01:01:53	0.00	8.52	411.00	2.00
12 Pump MUDFLUSH	01:04:41	4.00	8.62	752.00	0.00
13 Pump H2O	01:09:47	4.00	8.59	737.00	20.50
14 Pump SUPERFLUSH	01:11:10	4.00	8.83	811.00	0.00
15 Pump H2O	01:26:36	4.00	8.88	589.00	0.00
16 Pump SCAVENGER CEMENT	01:34:58	4.10	8.86	525.00	20.80
17 Pump Cement	02:06:59	5.00	12.28	507.00	161.00
18 Drop Top Plug	04:25:01	9.20	8.38	390.00	687.00
19 Pump Displacement	04:29:07	6.10	8.46	320.00	2.90
20 Bump Plug	04:44:34	4.00	8.48	1289.00	91.50
21 CHECK FLOATS	04:47:54	0.00	8.47	2310.00	0.00
22 End Job	04:53:00	0.00	-0.05	-8.00	0.00

▼ HALLIBURTON | iCem® Service

Created: 2019-02-27 21:56:27, (UTC-07:00), Version: 4.5.139

Edit

Customer : TERRA ENERGY PARTNERS

Job Date : 2/28/2019

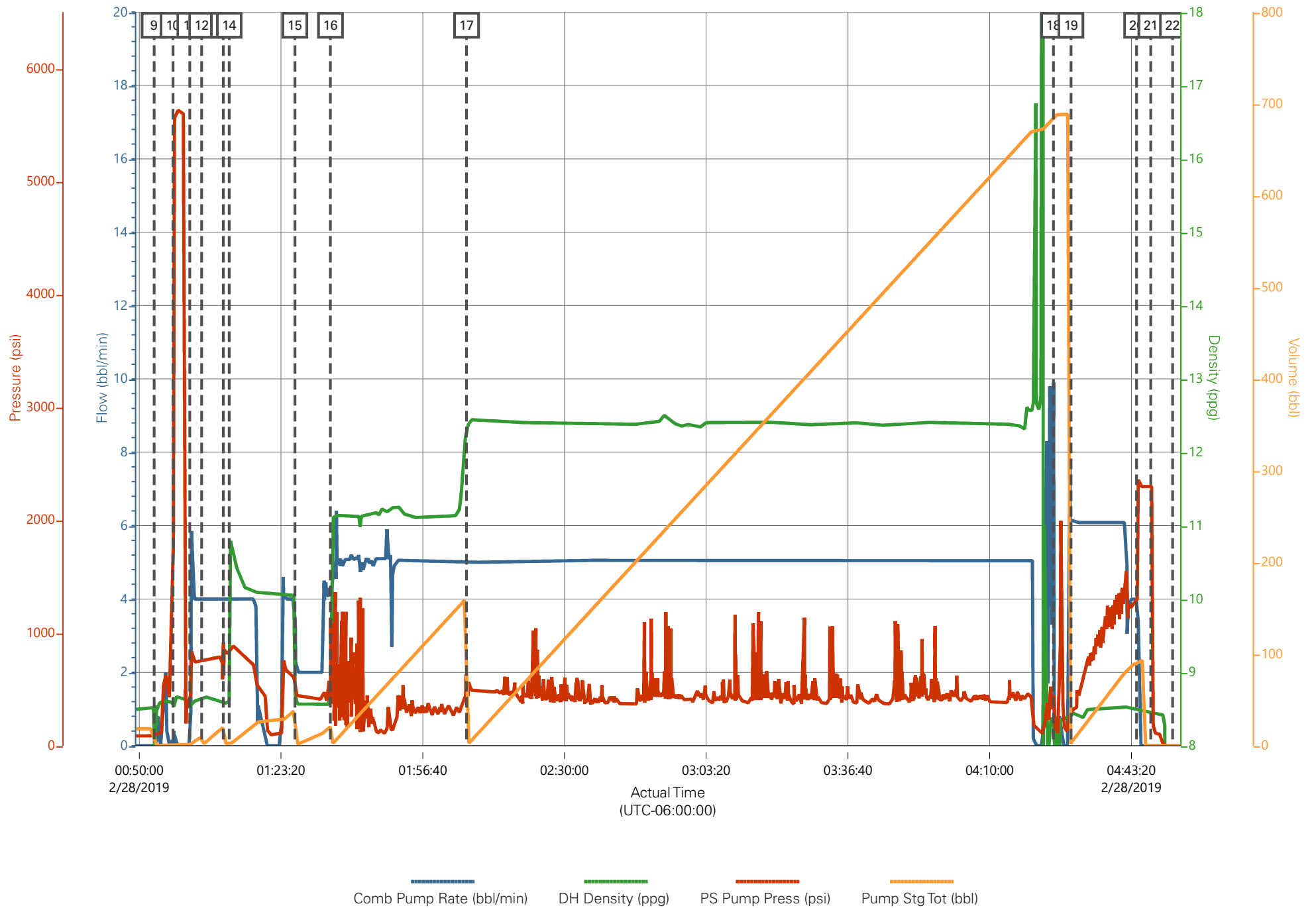
Well : FEDERAL SG 411-22

Representative : MATT HUTSON

Sales Order # : 905516871

ELITE #8 : KIEL CRIST / RYAN MARTIN

# TERRA - FEDERAL SG 411-22 - 4 1/2" PRODUCTION CASING



## Job Information

Request/Slurry	2537586/2	Rig Name	H&P 318	Date	24/FEB/2019
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SG 411-22

## Well Information

Casing/Liner Size	4.5 in	Depth MD	6159 ft	BHST	85°C / 185°F
Hole Size	7.875 in	Depth TVD	6195 ft	BHCT	50°C / 122°F
Pressure	3611 psi				

## Drilling Fluid Information

Mud Supplier Name	Baroid	Mud Trade Name	BARADRIL-N	Density	9.9 lbm/gal
-------------------	--------	----------------	------------	---------	-------------

## Cement Information - Lead Design



<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>MP</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	Cement Properties		
							Slurry Density	12.3	lbm/gal
							Slurry Yield	2.07	ft3/sack
							Water Requirement	10.16	gal/sack
							Total Mix Fluid	10.16	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 2537586/2

## Thickening Time - ON-OFF-ON, Request Test ID:36267408

26/FEB/2019

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)
122	3611	34	7:44	8:04	8:42	9:17	8	44	15	6

Total sks = 1440

CS0255 TR# MT613 400 SKS

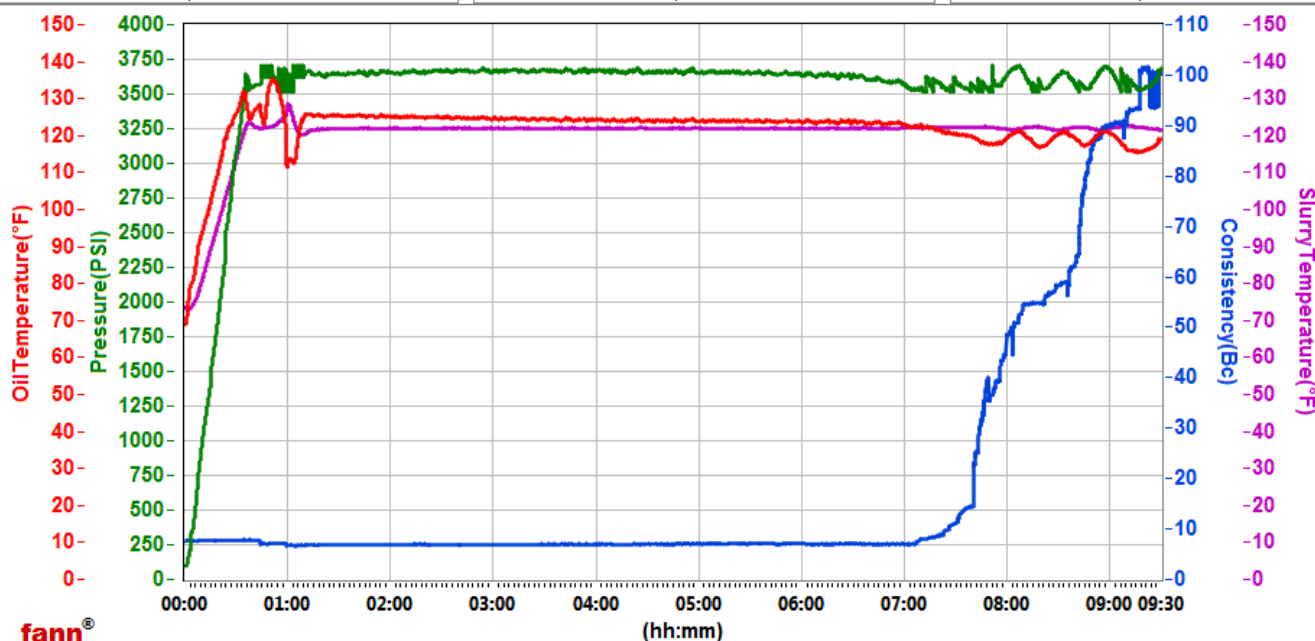
CS0256 TR# 6813 240 SKS

no deflection, 6Bc---- > 6Bc

Heat of hydration at 7:17

### GRAND JUNCTION

Fields	Values	Fields	Values	Events	Results
Project Name	TempTest	Rig	H&P 318		
SW Version	1.0	Casing/Liner Size	4.5INCHE		
Test ID	36267408-TT	Job Type	PRODUCTION CASING		
Request ID	2537586-2	Cement Weight	GCC TYPE I-II		
Tested by	DS	Comments	Light Weight		
Customer	TERRA ENERGY PARTN	Date Time	2/25/2019 12:39:07.743		
Well No	SG 411-22	Temp. Units	degF		



Data File C:\Users\hx25273\Desktop\HPHT Graphs\GJ2537586-2 TERRA PRODUCTION BULK PRIMARY.tdms

Comments Light Weight

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 2537586/1**

**Thickening Time - ON-OFF-ON, Request Test ID:36264696**

**26/FEB/2019**

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)
122	3611	34	6:56	7:03	7:44	7:46	5	44	15	5

Total sks = 1440 SKS

CS0252 TR#1513 400 SKS

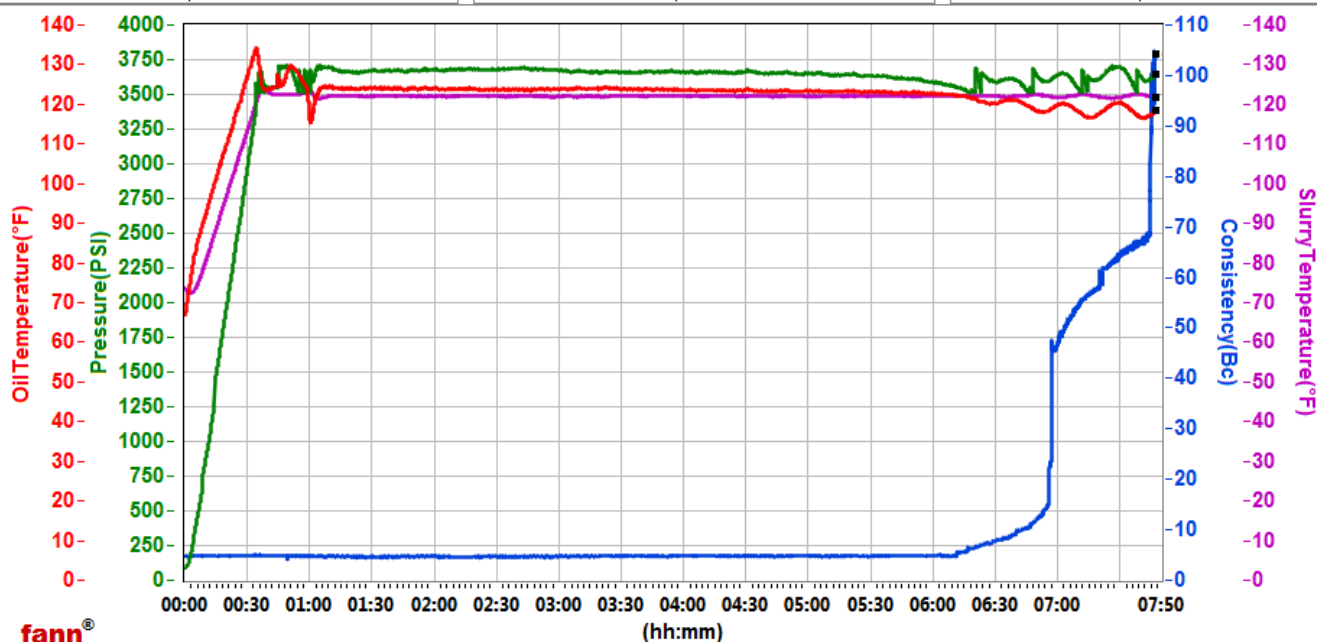
CS0253 TR#8476 400 SKS

no deflection, 5Bc--- > 5Bc

Heat of hydration at 6:17

## **GRAND JUNCTUION**

Fields	Values	Fields	Values	Events	Results
Project Name	TempTest	Rig	H&P 318		
SW Version	1.0	Casing/Liner Size	4.5 INCH		
Test ID	36264896-TT	Job Type	PRODUC TION CASING		
Request ID	2537586-1	Cement Weight	GCC TYPE I-II		
Tested by	DS	Comments	Light Weight		
Customer	TERRA ENERGY PARTN	Date Time	2/25/2019 10:01:19.550		
Well No	SG 411-22	Temp. Units	degF		



Data File E:\01D57F50 GJ-HPHT-3\TestData\GJ2537586-1 TERRA PRODUCTION BULK PRIMARY.tdms

Comments Light Weight

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.