

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

United States of America, COLORADO

Date: Saturday, March 9, 2019

### **SG 321-22 Production**

Terra SG 321-22 Production

API# 05-045-24143-00

Job Date: Sunday, February 17, 2019

Sincerely,

**Grand Junction Cement Engineering**

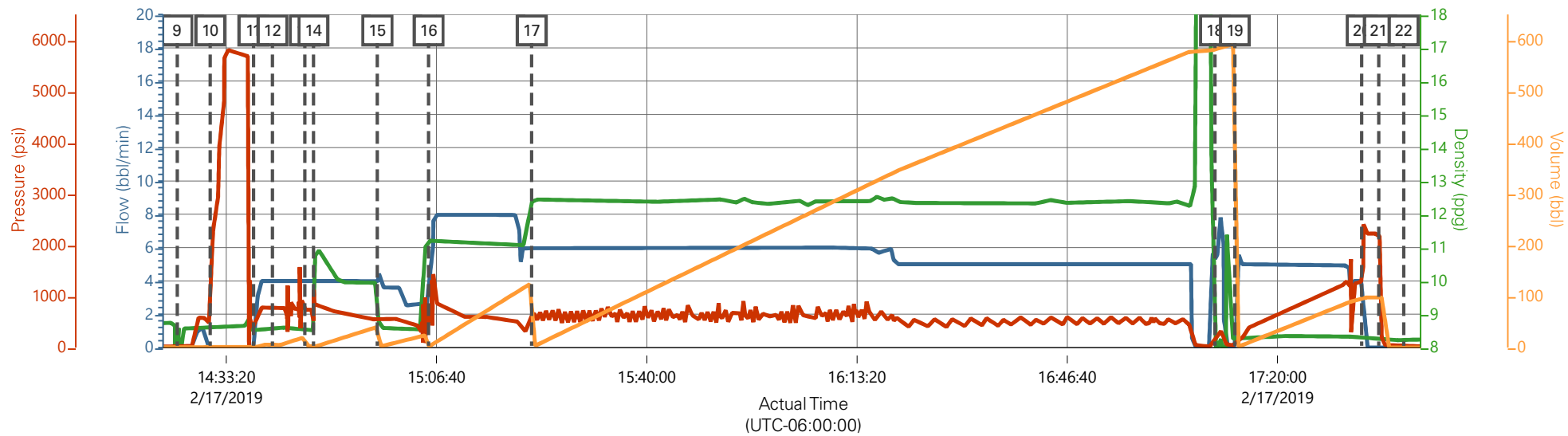
## 1.0 Real-Time Job Summary

## 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	2/17/2019	05:30:00	USER					REQUESTED ON LOCATION 2/17/19 @ 13:00
Event	2	Depart Yard Safety Meeting	2/17/2019	08:55:00	USER					JSA COMPLETED
Event	3	Crew Leave Shop	2/17/2019	09:00:00	USER					
Event	4	Arrive At Loc	2/17/2019	10:30:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	2/17/2019	10:45:00	USER					JSA COMPLETED
Event	6	Pre-Rig Up Safety Meeting	2/17/2019	10:55:00	USER					JSA COMPLETED
Event	7	Rig-Up Equipment	2/17/2019	11:00:00	USER					
Event	8	Pre-Job Safety Meeting	2/17/2019	13:00:00	USER					JSA COMPLETED, PRESSURIZED MUD SCALES CALIBRATED TO FRESH WATER
Event	9	Start Job	2/17/2019	14:25:33	COM4					4 1/2"-11.6# CASING IN 8 3/4" HOLE, TD 6377', TP 6375.6', ST 32.7', MUD 9.7 PPG, WATER TEMP 75, PH 7, CHLORIDES 0
Event	10	Test Lines	2/17/2019	14:30:47	COM4			5000.00		TEST LINES TO 5000 PSI
Event	11	Pump H2O	2/17/2019	14:37:38	COM4	4.00	8.33	700.00	10.00	10 BBLS FRESH WATER
Event	12	Pump MUDFLUSH	2/17/2019	14:40:39	COM4	4.00	8.40	700.00	20.00	20 BBLS MUDFLUSH
Event	13	Pump H2O	2/17/2019	14:45:47	COM4	4.00	8.33	700.00	5.00	5 BBLS FRESH WATER
Event	14	Pump SUPERFLUSH	2/17/2019	14:47:09	COM4	4.00	10.00	700.00	40.00	40 BBLS SUPERFLUSH 101
Event	15	Pump H2O	2/17/2019	14:57:17	COM4	4.00	8.33	550.00	40.00	20 BBLS FRESH WATER
Event	16	Pump SCAVENGER	2/17/2019	15:05:24	COM4	8.00	11.00	650.00	100.00	100 BBLS SCAVENGER, 242 SKS @ 11.0 PPG / 2.32 YLD / 12.67 GAL/SK

Event	17	Pump Cement	2/17/2019	15:21:45	COM4	5.00	12.30	500.00	548.90	548.9 BBLS PRIMARY CEMENT, 1496 SKS @ 12.3 PPG / 2.06 YLD / 10.11 GAL/SK
Event	18	Drop Top Plug	2/17/2019	17:10:05	USER					PLUG AWAY
Event	19	Pump Displacement	2/17/2019	17:13:14	COM4	5.00	8.40	1340.00	98.30	98.3 BBLS KCL WATER DISPLACEMENT WITH 3# BE-6 AND 1 GALLON MMCR, RE ESTABLISHED RETURNS AT 63 BBLS AWAY, NO CEMENT TO SURFACE
Event	20	Bump Plug	2/17/2019	17:33:21	COM4	4.00	8.40	1300.00	98.30	PLUG BUMPED AT CALCULATED, FINAL CIRCULATING PRESSURE 1300 PSI @ 4 BBL/MIN, BROUGHT TO 2220 PSI
Event	21	CHECK FLOATS	2/17/2019	17:36:03	COM4					FLOATS HELD, 1 BBL BACK TO PUMP
Event	22	End Job	2/17/2019	17:40:00	COM4					PIPE WAS RECIPRICATED THROUGHOUT, PARTIAL RETURNS WHILE PUMPING CEMENT, NO RETURNS UNTIL 63 BBLS AWAY ON DISPLACEMENT, NO CEMENT TO SURFACE, 30# SUGAR USED, NO ADD HOURS CHARGED
Event	23	Pre-Rig Down Safety Meeting	2/17/2019	18:25:00	USER					JSA COMPLETED
Event	24	Rig-Down Equipment	2/17/2019	18:30:00	USER					
Event	25	Pre-Convoy Safety Meeting	2/17/2019	18:55:00	USER					JSA COMPLETED
Event	26	Crew Leave Location	2/17/2019	19:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND JUNCTION, CO - RYAN MARTIN AND CREW

# TERRA - FEDERAL SG 321-22 - 4 1/2" PRODUCTION



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	14:25:33	0.00	7.77	8.00	0.00
10 Test Lines	14:30:47	0.00	8.54	478.00	1.80
11 Pump H2O	14:37:38	0.00	8.52	325.00	1.80
12 Pump MUDFLUSH	14:40:39	4.00	8.55	784.00	10.20
13 Pump H2O	14:45:47	4.00	8.52	710.00	20.30
14 Pump SUPERFLUSH	14:47:09	4.00	8.52	716.00	5.40
15 Pump H2O	14:57:17	4.00	9.95	533.00	40.10
16 Pump SCAVENGER	15:05:24	3.60	11.26	500.00	1.50
17 Pump Cement	15:21:45	5.90	12.36	500.00	0.00
18 Drop Top Plug	17:10:05	5.50	9.06	193.00	582.00
19 Pump Displacement	17:13:14	0.00	8.23	49.00	0.00
20 Bump Plug	17:33:21	4.00	8.26	1289.00	96.50
21 CHECK FLOATS	17:36:03	0.00	8.28	2225.00	97.70
22 End Job	17:40:00	0.00	8.22	17.00	0.00

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Created: 2019-02-17 12:19:45, (UTC-07:00), Version: 4.5.139

Edit

Customer : TERRA ENERGY PARTNERS

Job Date : 2/17/2019

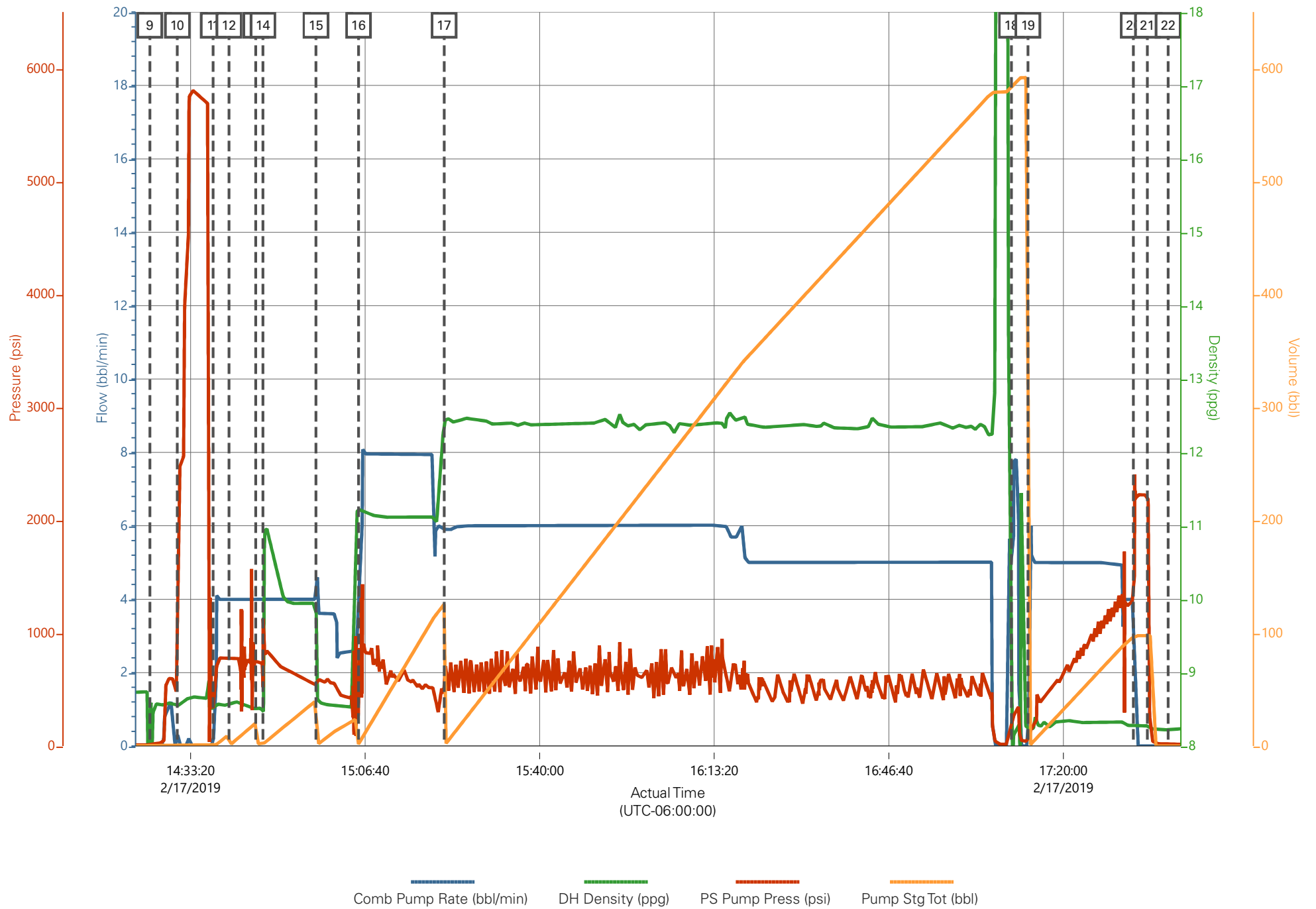
Well : FEDERAL SG 321-22

Representative : CRAIG BORGSTEDE

Sales Order # : 905494698

ELITE #1 : KYLE ROGERS / RYAN MARTIN

# TERRA - FEDERAL SG 321-22 - 4 1/2" PRODUCTION



# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Lead

### Job Information

<b>Request/Slurry</b>	2535628/1	<b>Rig Name</b>	H&P 318	<b>Date</b>	15/FEB/2019
<b>Submitted By</b>	Connor Matthews	<b>Job Type</b>	Production Casing	<b>Bulk Plant</b>	Grand Junction
<b>Customer</b>	Terra Energy Partners	<b>Location</b>	Garfield	<b>Well</b>	SG 321-22

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	6499 ft	<b>BHST</b>	85°C / 185°F
<b>Hole Size</b>	7.875 in	<b>Depth TVD</b>	6170 ft	<b>BHCT</b>	50°C / 122°F
<b>Pressure</b>	3619 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	Baroid	<b>Mud Trade Name</b>	BARADRIL-N	<b>Density</b>	
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### 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>	<b>Cement Properties</b>		
		NeoCem Primary					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		

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# **Operation Test Results Request ID 2535628/1**

**Thickening Time - ON-OFF-ON, Request Test ID:36238731**

**16/FEB/2019**

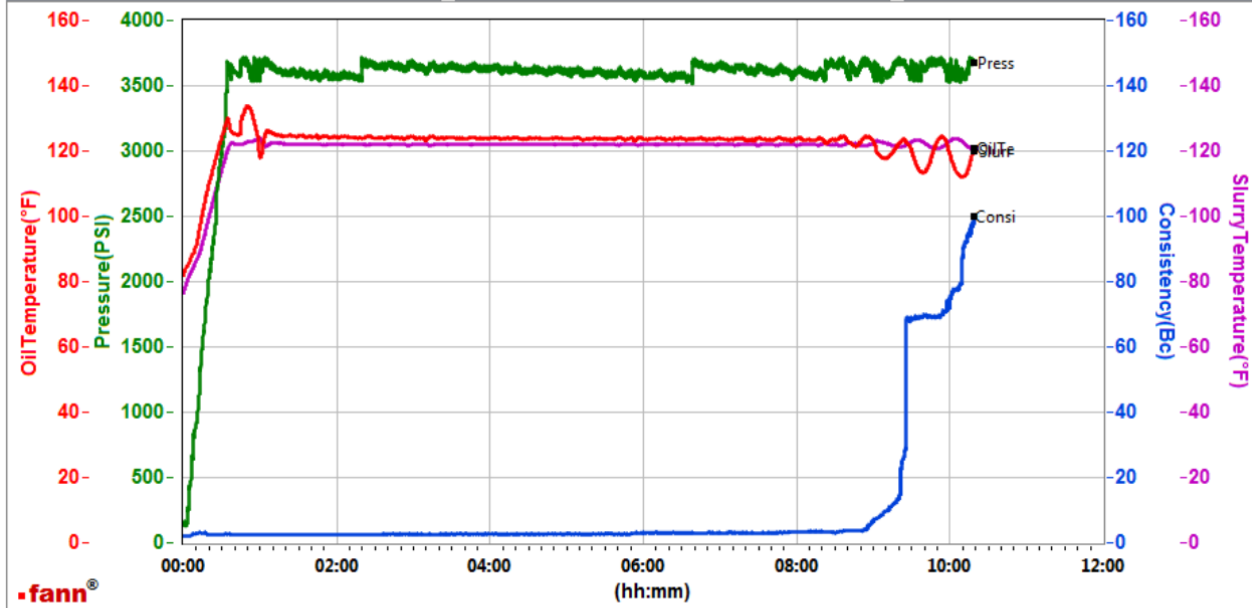
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
122	3619	34	9:41	9:41	9:55	10:18	3	44	15	3

## **GRAND JUNCTION**

Fields	Values
Project Name	2535628-1 H&P 318 Terra
SW Version	1.0
Test ID	36238731 - TT
Request ID	2535628-1
Tested by	CT
Customer	TERRA ENERGY PARTN
Well No	SG 321-22

Fields	Values
Rig	H&P 318
Casing/Liner Size	4.5 INCH
Job Type	PRODUCTION CASING
Cement Weight	GCC TYPE II
Comments	Standard
Date Time	2/15/2019 14:29:23.290
Temp. Units	degF

Events	Results
30 BC	9:41
50 BC	9:41
70 BC	9:55
100 BC	10:18



Data File C:\Users\H185329\Desktop\000 Graphs\GJ2535628-1A TERRA BULK PRODUCTION PRIMARY.tdms

Comments Standard

Total sks = 1496  
 CS0217, Trailer 8677, 400 sks  
 CS0218, Trailer 2878, 400 sks  
 Deflection: 3 – 3

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# **Operation Test Results Request ID 2535628/2**

**Thickening Time - ON-OFF-ON, Request Test ID:36239797**

**16/FEB/2019**

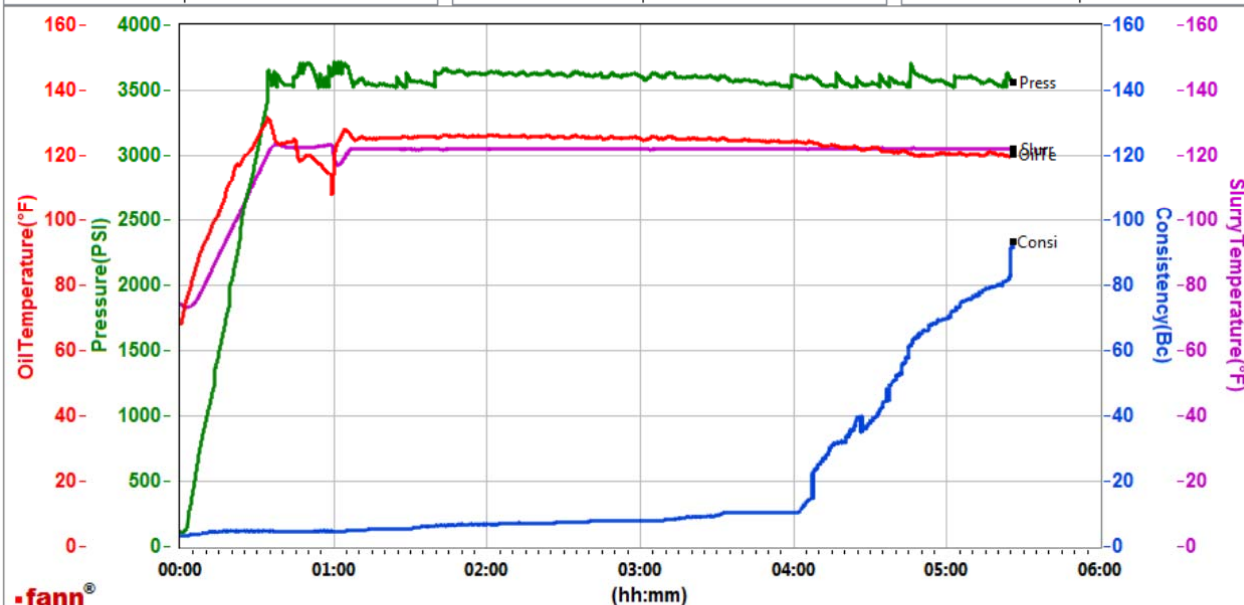
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
122	3619	34	4:14	4:39	5:00	5:26	3	44	15	5

## **GRAND JUNCTION**

Fields	Values
Project Name	2535628-2 H&P 318 Terra
SW Version	1.0
Test ID	3623
Request ID	2535628-2
Tested by	CT
Customer	TERRA ENERGY PARTN
Well No	SG 321-22

Fields	Values
Rig	H&P 318
Casing/Liner Size	4.5 INCH
Job Type	PRODUCTION CASING
Cement Weight	GCC TYPE I-II
Comments	Standard
Date Time	2/15/2019 14:33:09.540
Temp. Units	degF

Events	Results
30 BC	4:14
50 BC	4:39
70 BC	5:00
100 BC	5:26



Data File C:\Users\H185329\Desktop\000 Graphs\GJ2535628-2 TERRA BULK PRODUCTION PRIMARY.tdms

Comments Standard

Total sks = 1496  
CS0220, Trailer 8476, 400 sks  
CS0221, Trailer 6813, 296 sks  
Deflection: 5 - 5

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