

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

United States of America, COLORADO

For: Terra

Date: Sunday, March 03, 2019

SG 511-22 Production PJR

API# 05-045-24136-00

Sincerely,

Grand Junction Cement Engineering

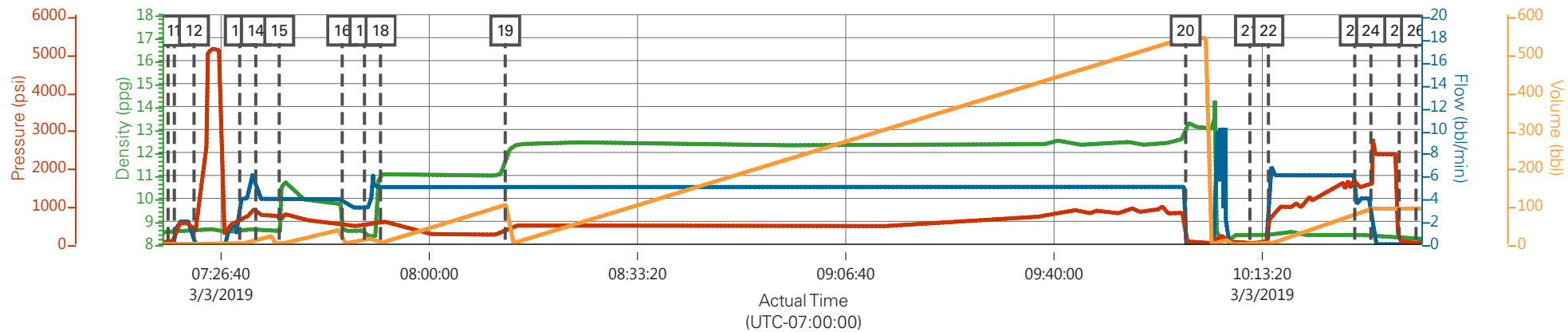
1.0 Real-Time Job Summary

1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	3/3/2019	00:30:00						Requested on Location @ 06:00
Event	2	Pre-Convoy Safety Meeting	3/3/2019	01:50:00						
Event	3	Crew Leave Yard	3/3/2019	02:00:00						1 Elite, 1 660, 1 pickup, 1 Transport
Event	4	Arrive At Loc	3/3/2019	06:00:00						Rig on bottom with casing
Event	5	Assessment Of Location Safety Meeting	3/3/2019	06:10:00						JSA completed - Customer offered/received SDS - water test pH 7.0, Cl <200, temp 63 degrees
Event	6	Pre-Rig Up Safety Meeting	3/3/2019	06:30:00						
Event	7	Rig-Up Equipment	3/3/2019	06:40:00						DME iron to ground manifold, standpipe, hardline to pit. Water hoses to both uprights and Transport, bulk hoses to Silo and 660.
Event	8	Other	3/3/2019	06:45:00						Rig Circulated 1 hour prior to cement job at 10 bpm 800 psi. Mud scales calibrated to drinking water prior to job.
Event	9	Pre-Job Safety Meeting	3/3/2019	07:00:00						All HES personnel, rig crew, and company rep.
Event	10	Start Job	3/3/2019	07:18:11						TD 6105', TP 6098', SJ 32.63', OH 8.75'', Csg 4.5" 11.6 lb/ft hcp-110 Prev. Csg. 9.625" 32.3# @ 1035', Mud 9.3 ppg.
Event	11	Fill Lines	3/3/2019	07:19:11		8.33	2	560	5	Fresh Water
Event	12	Test Lines	3/3/2019	07:22:20				5119		Held pressure 2 minutes

Event	13	Pump Spacer	3/3/2019	07:29:39	8.33	4	650	5	Fresh Water
Event	14	Pump Spacer	3/3/2019	07:32:13	8.4	4	700	20	80 lbs. Mud Flush III
Event	15	Pump Spacer	3/3/2019	07:35:59	10.0	4	620	40	Super Flush 101
Event	16	Pump Spacer	3/3/2019	07:46:04	8.33	4	600	20	Fresh Water
Event	17	Check Weight	3/3/2019	07:49:37					Density verified via mud cup
Event	18	Pump Lead Cement	3/3/2019	07:52:11	11.0	5	380	100	242 sks, 11.0 ppg, 2.32 yield, 12.67 gal/sk
Event	19	Pump Tail Cement	3/3/2019	08:12:09	12.3	5	490	526.5	1435 sks, 12.3 ppg, 2.06 Yield, 10.11 gal/sk
Event	20	Shutdown	3/3/2019	10:01:05					Wash lines to pit
Event	21	Drop Top Plug	3/3/2019	10:11:21					Co-Rep Verify Plug Launched
Event	22	Pump Displacement	3/3/2019	10:14:19	8.4	6	1800	94	3 lbs BE-6, 1 gal MMCR, 2% KCl
Event	23	Slow Rate	3/3/2019	10:28:08	8.4	4	1598	84	Slow Rate 10 bbls to Calculated Displacement
Event	24	Bump Plug	3/3/2019	10:30:44			2347		Plug Bumped at 1598 psi, Brought up to 2347 psi
Event	25	Check Floats	3/3/2019	10:35:15					Floats held – 1 bbl back to the truck
Event	26	End Job	3/3/2019	10:37:56					Good returns throughout job. Pipe was reciprocated during job. 127 bbl of tail cement to surface.
Event	27	Pre-Rig Down Safety Meeting	3/3/2019	11:03:17					40 lbs sugar used, HES top plug used, 0 add hours
Event	28	Rig-Down Equipment	3/3/2019	11:07:19					
Event	29	Pre-Convoy Safety Meeting	3/3/2019	11:15:23					
Event	30	Crew Leave Location	3/3/2019	11:17:51					Thanks for using Halliburton Cement, Chris Martinez and crew.

Terra, SG 511-22, 4 1/2" Production



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

Description	Actual Time (UTC-07:00:00)	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Pump Stg Tot (bbl)
10 Start Job	07:18:11	8.55	0.00	83.00	0.00
11 Fill Lines	07:19:11	8.57	0.00	76.00	0.00
12 Test Lines	07:22:20	8.61	0.00	386.00	0.00
13 Pump Spacer	07:29:39	8.59	3.90	695.00	3.80
14 Pump Spacer	07:32:13	8.64	5.30	916.00	11.00
15 Pump Spacer	07:35:59	8.56	3.90	736.00	4.70
16 Pump Spacer	07:46:04	8.74	4.00	571.00	0.20
17 Check Weight	07:49:37	8.60	3.20	477.00	12.00
18 Pump Lead Cement	07:52:11	11.01	5.00	608.00	3.10
19 Pump Tail Cement	08:12:09	11.64	5.00	368.00	102.70
20 Shutdown	10:01:05	13.26	0.00	90.00	538.60
21 Drop Top Plug	10:11:21	8.40	0.00	30.00	0.00
22 Pump Displacement	10:14:19	8.39	0.80	81.00	0.20
23 Slow Rate	10:28:08	8.42	6.00	1542.00	82.10
24 Bump Plug	10:30:44	8.35	4.00	1590.00	92.70
25 Check Floats	10:35:15	8.26	0.00	107.00	93.80
26 End Job	10:37:56	8.24	0.00	38.00	93.80

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Created: 2019-03-03 05:48:43, (UTC-07:00), Version: 5.0.161.0

Edit

Customer : TERRA ENERGY PARTNERS

Job Date : 3/3/2019

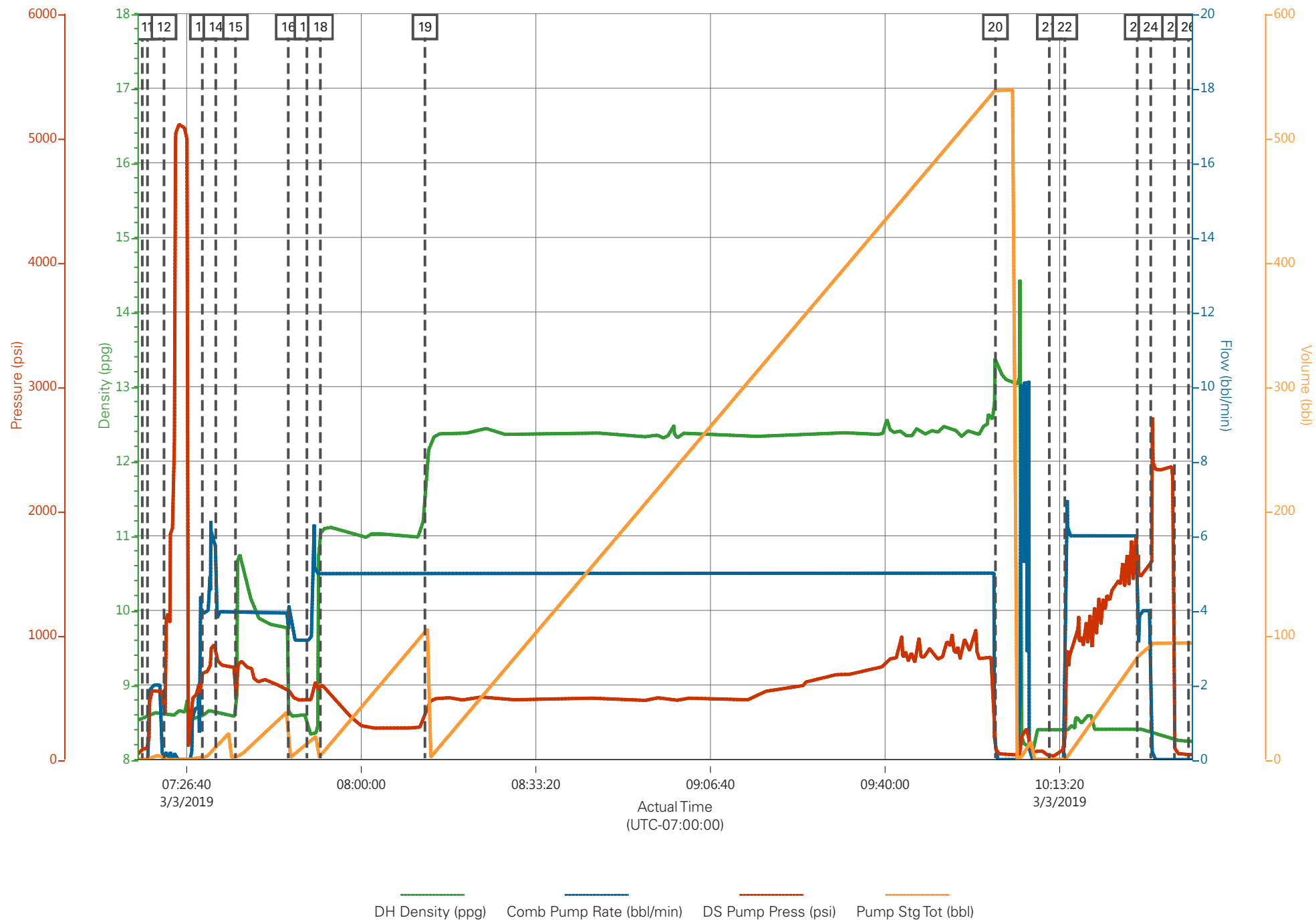
Well : SG

Representative : Nathan Burr

Sales Order # : 905527891

Elite 8 : Seth Lewis

Terra, SG 511-22, 4 1/2" Production



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

HALLIBURTON

Rockies, Grand Junction

Lab Results- Lead

Job Information

Request/Slurry	2538518/1	Rig Name	H&P 318	Date	28/FEB/2019
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	SG 511-22

Well Information

Casing/Liner Size	4.5 in	Depth MD	6187 ft	BHST	85°C / 185°F
Hole Size	7.875 in	Depth TVD	6163 ft	BHCT	50°C / 122°F
Pressure	6314 psi				

Drilling Fluid Information

Mud Supplier Name	Baroid	Mud Trade Name	BARADRIL-N	Density	
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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>	Cement Properties		
		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 2538518/1

Thickening Time - ON-OFF-ON, Request Test ID:36276049

01/MAR/2019

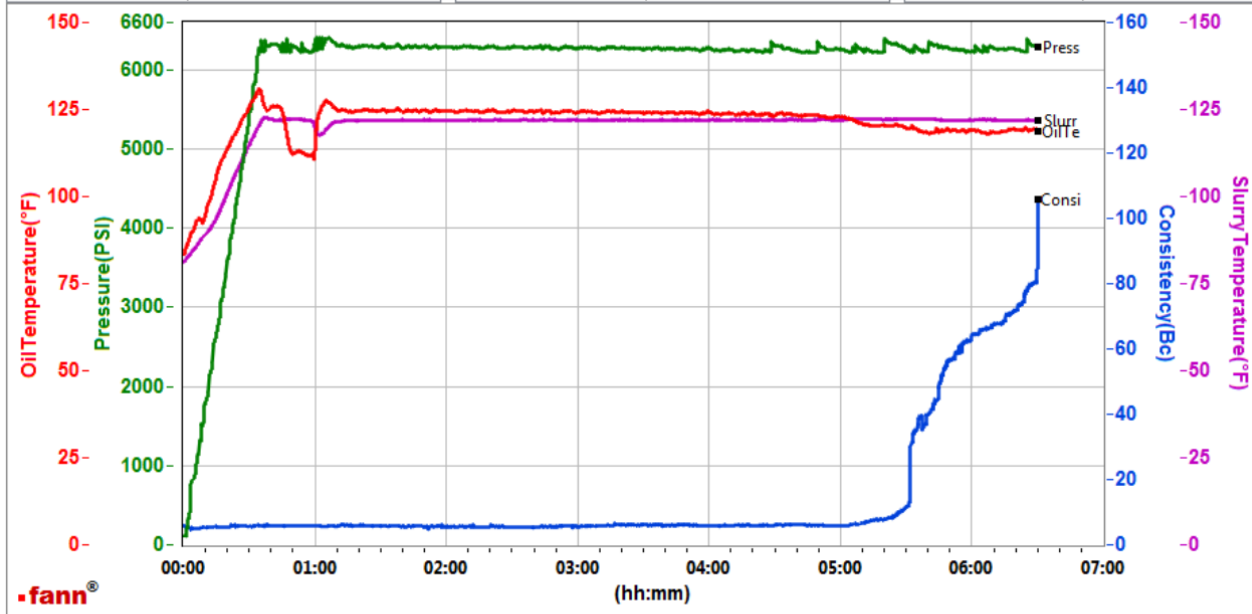
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
122	6314	34	5:32	5:45	6:15	6:29	5	44	15	6

GRAND JUNCTION

Fields	Values
Project Name	H&P 318 Terra Energy Bu
SW Version	1.0
Test ID	36276049 - TT
Request ID	2538518-1
Tested by	LC JM
Customer	TERRA ENERGY
Well No	SG 511-22

Fields	Values
Rig	H&P 318
Casing/Liner Size	4.5INCHE
Job Type	PRODUCTION
Cement Weight	GCC TYPE I-II
Comments	Light Weight
Date Time	3/1/2019 05:44:26.618
Temp. Units	degF

Events	Results
30 BC	5:32
50 BC	5:45
70 BC	6:15
100 BC	6:29



Data File C:\Users\H185329\Desktop\000 Graphs\GJ2538518-1 TERRA PRODUCTION BULK PRIMARY.tdms

Comments Light Weight

Total sks = 1435
 CS0279 TR# 8678 400 SKS
 CS0280 TR# 8677 400 SKS
 Deflection: 6 – 6

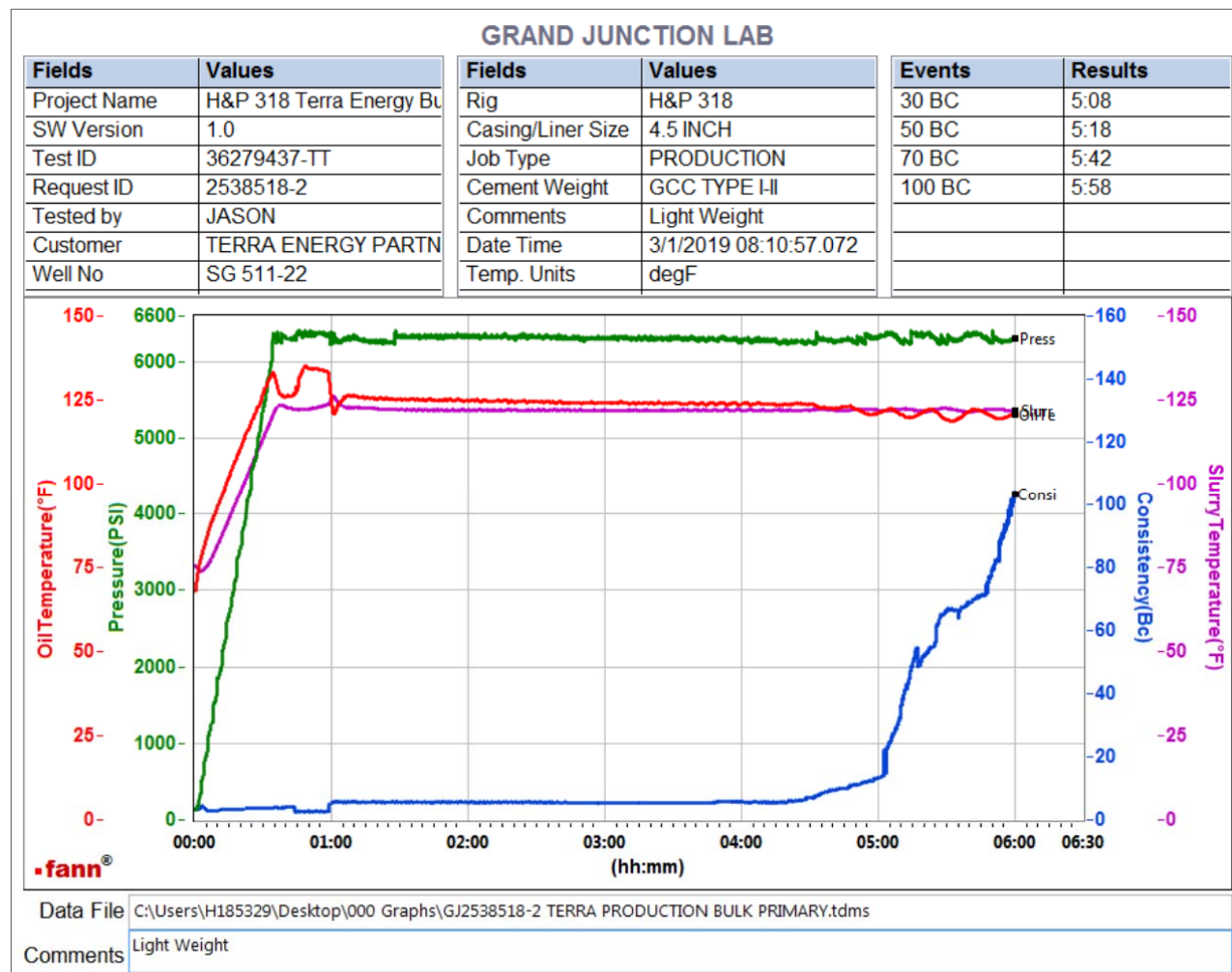
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Operation Test Results Request ID 2538518/2

Thickening Time - ON-OFF-ON, Request Test ID:36279437

01/MAR/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	6314	34	5:08	5:18	5:42	5:58	4	44	15	5



Total sks = 1435
 CS0281 TR 8658 400 SKS
 CS0282 TR 3212 235 SKS
 Deflection: 4 - 5

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