

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

Rock Springs District, CO

For: Terra

Date: Sunday, July 14, 2019

RWF 324-8 Production PJR

API# 05-0445-24031-00

Sincerely,

Grand Junction Cement Engineering

2.0 Real-Time Job Summary

2.1 Job Event Log

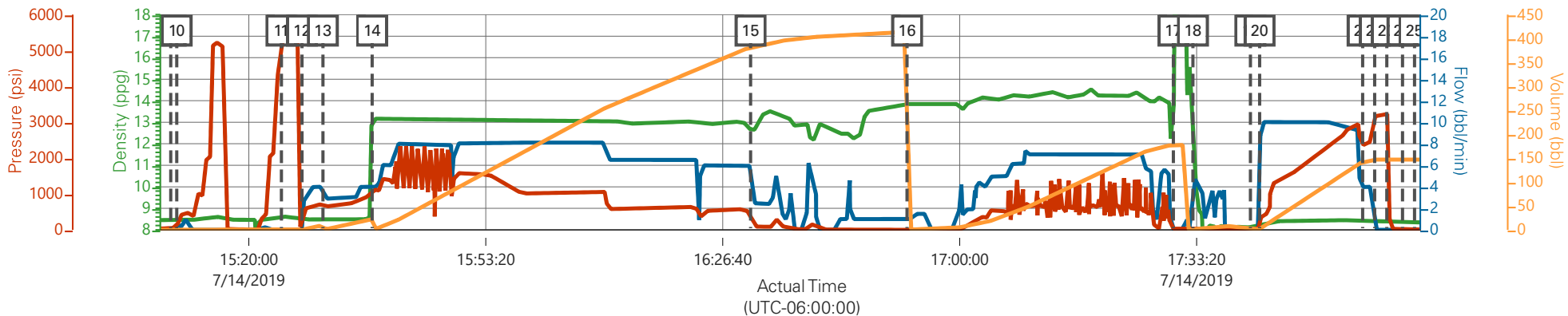
Type	Seq. No.	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	7/14/2019	03:30:00	USER					REQUESTED ON LOCATION @ 0000
Event	2	Pre-Convoy Safety Meeting	7/14/2019	06:00:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	7/14/2019	06:30:00	USER					1 F550, 1 PUMP TRUCK, 1 660 BULK TURCK & 1 TRANSPORT
Event	4	Arrive at Location from Service Center	7/14/2019	07:30:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	7/14/2019	08:00:00	USER					MET WITH COMP REP, , AND WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE (PH- 7, CHLORIDES- 0, TEMP- 68F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Safety Meeting - Pre Rig-Up	7/14/2019	08:15:00	USER					ALL HES PRESENT
Event	7	Rig-Up Equipment	7/14/2019	08:30:00	USER					HES RIGGED UP EQUIPMENT WITHOUT ENTERING RED ZONE.
Event	8	Pre-Job Safety Meeting	7/14/2019	14:30:00	USER					ALL HES AND RIG CREW PRESENT
Event	9	Start Job	7/14/2019	15:09:00	COM2					TD 9077', TP 9066.72', SJ 30.07', OH 8.75'', CSG 4.5'' 11.6#, MUD 12.7 PPG. RIG CIRCULATED WELL @ 10 BPM WITH 1070 PSI FOR APPROX 1 HRS.
Event	10	Prime Pumps	7/14/2019	15:09:51	USER	532.00	8.33	2.0	530.00	8.33 PPG FRESH WATER

Event	11	Test Lines	7/14/2019	15:24:35	COM2	56128.00	8.33	0..50	0.50	ALL LINES HELD PRESSURE AT 5628 PSI
Event	12	Pump Spacer 1	7/14/2019	15:27:28	COM2	713.00	8.33	0.00	10.00	8.33 PPG FRESH WATER (10 BBL)
Event	13	Pump Spacer 2	7/14/2019	15:30:25	COM2	929.00	8.33	4.00	20.00	8.4 PPG MUDFLUSH III (20 BBL)
Event	14	Pump Lead Cement	7/14/2019	15:37:21	COM2	1060.00	13.00	8.00	349.00	NEOCEM CEMENT 1120 SKS (349 BBLS), 13.0 PPG, 1.75 FT3/SK, 7.85 GAL/SK
Event	15	Other	7/14/2019	16:30:35	USER					SLOW DOWN, SHUTDOWN DUE TO BULK DELIVERY ISSUE.
Event	16	Pump Tail Cement	7/14/2019	16:52:36	COM2	660.00	14.20	8.00	149.00	NEOCEM CEMENT 485 SKS (149 BBLS), 14.2 PPG, 1.73 FT3/SK, 7.78 GAL/SK
Event	17	Shutdown	7/14/2019	17:30:04	USER					END OF CMT
Event	18	Clean Lines	7/14/2019	17:32:49	USER					WASH UP PUMPS AND LINES
Event	19	Drop Top Plug	7/14/2019	17:40:54	USER					PLUG WENT, VERIFIED BY CO REP.
Event	20	Pump Displacement	7/14/2019	17:42:12	COM2	2979.00	8.33	10.00	131.00	8.34 PPG FRESH WATER (141 BBLS) 3 BAGS BE6, 1 GAL MMCR & 14 SKS KCL
Event	21	Slow Rate	7/14/2019	17:56:41	USER	2408.00	8.33	4.00	10.00	SLOW RATE TO 4 BPM PER CO REP TO LAND PLUG
Event	22	Bump Plug	7/14/2019	17:58:23	USER	3178.00	8.33	0.00	141.00	LAND PLUG AT 2408 PSI, BROUGHT UP TO 3178 PSI
Event	23	Check Floats	7/14/2019	18:00:05	USER	3246.00	8.33	0.00	141.00	FLOATS HELD, 1.5 BBL BACK TO TRUCK
Event	24	Post-Job Safety Meeting (Pre Rig-Down)	7/14/2019	18:02:18	USER					ALL HES PRESENT
Event	25	End Job	7/14/2019	18:04:00	COM2					RETURNS THROUGHOUT, PIPE WAS RECIPROCATED, 16 BOXES OF WELL LIFE USED.
Event	26	Rig-Down Equipment	7/14/2019	18:12:36	USER					ALL HES PRESENT
Event	27	Pre-Convoy Safety Meeting	7/14/2019	18:37:07	USER					ALL HES PRESENT

Event 28 Crew Leave Location 7/14/2019 18:39:36 USER

THANK YOU FOR CHOOSING HALLIBURTON
CEMENT, CHRIS SMITH AND CREW

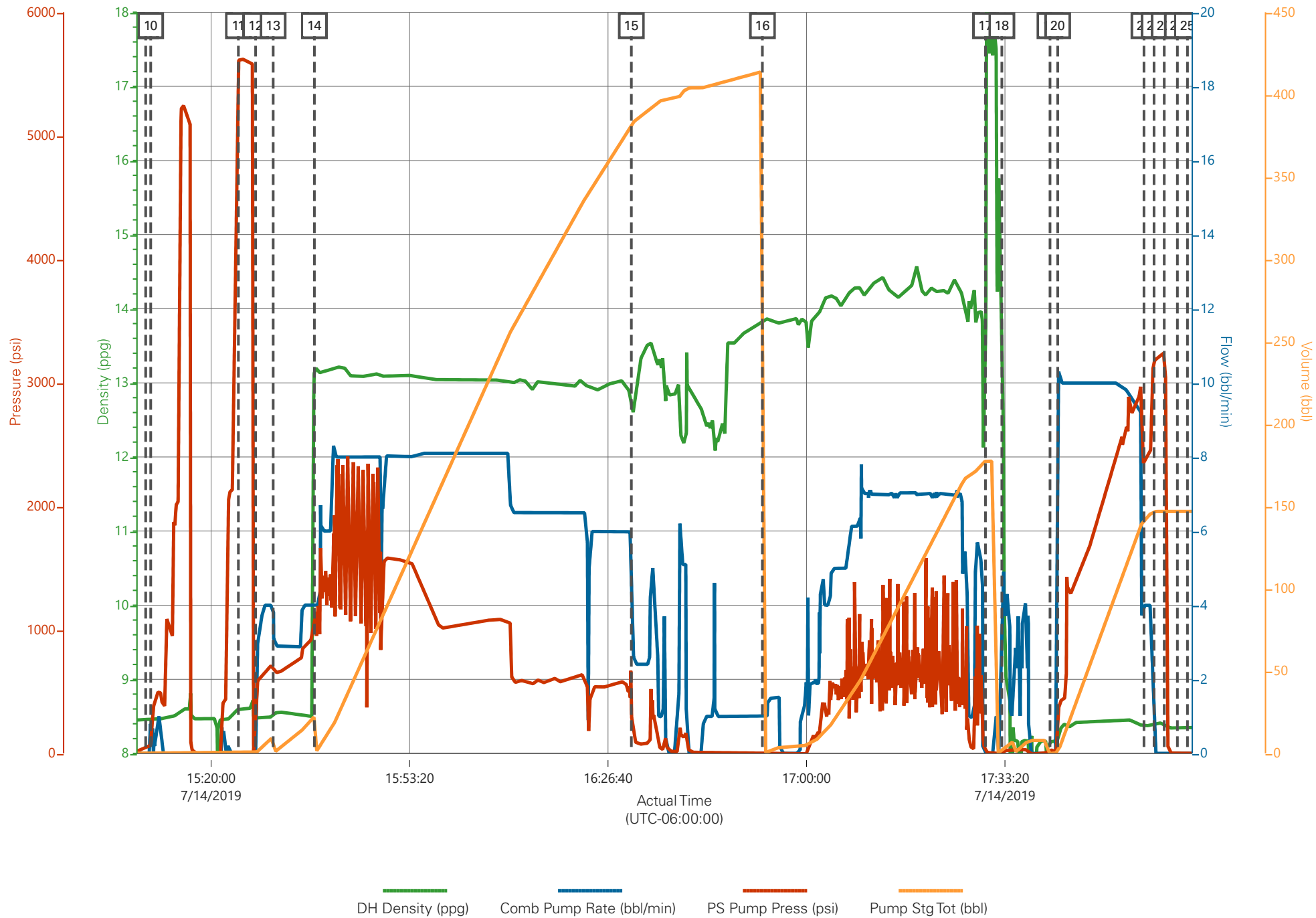
TEP - RWF 324-8 - 4.5" Production



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	15:09:00	8.46	0.00	48.00	0.00	
10 Prime Pumps	15:09:51	8.47	0.40	72.00	0.00	
11 Test Lines	15:24:35	8.61	0.00	5612.00	1.40	
12 Pump Spacer 1	15:27:28	8.47	0.00	213.00	0.00	
13 Pump Spacer 2	15:30:25	8.49	4.00	719.00	0.00	
14 Pump Lead Cement	15:37:21	13.19	4.00	1060.00	22.40	
15 Other	16:30:35	12.61	4.90	372.00	382.20	
16 Pump Tail Cement	16:52:36	13.83	1.00	-4.00	414.00	
17 Shutdown	17:30:04	13.35	0.00	23.00	177.40	
18 Clean Lines	17:32:49	13.14	3.60	-1.00	1.20	
19 Drop Top Plug	17:40:54	8.16	0.00	28.00	0.00	
20 Pump Displacement	17:42:12	8.19	7.20	223.00	0.70	
21 Slow Rate	17:56:41	8.38	4.00	2370.00	141.20	
22 Bump Plug	17:58:23	8.41	0.00	3178.00	146.90	
23 Check Floats	18:00:05	8.41	0.00	3246.00	146.90	
24 Post-Job Safety Meeting (Pre Rig-Down)	18:02:18	8.35	0.00	-3.00	146.90	
25 End Job	18:04:00	8.35	0.00	-3.00	146.90	

TEP - RWF 324-8 - 4.5" Production



Job Information

Request/Slurry	2569354/1	Rig Name	H&P 318	Date	10/JUL/2019
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RWF 324-8

Well Information

Casing/Liner Size	4.5 in	Depth MD	9123 ft	BHST	112°C / 233°F
Hole Size	8.75 in	Depth TVD	9013 ft	BHCT	73°C / 163°F
Pressure	5609 psi				

Drilling Fluid Information

Mud Supplier Name	Mud Trade Name	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		
							Slurry Density	13	lbm/gal
							Slurry Yield	1.75	ft3/sack
							Water Requirement	7.92	gal/sack
							Total Mix Fluid	7.92	gal/sack
							Water Source	Fresh Water	
							Water Chloride		

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Operation Test Results Request ID 2569354/1

Thickening Time - ON-OFF-ON, Request Test ID:36657873

12/JUL/2019

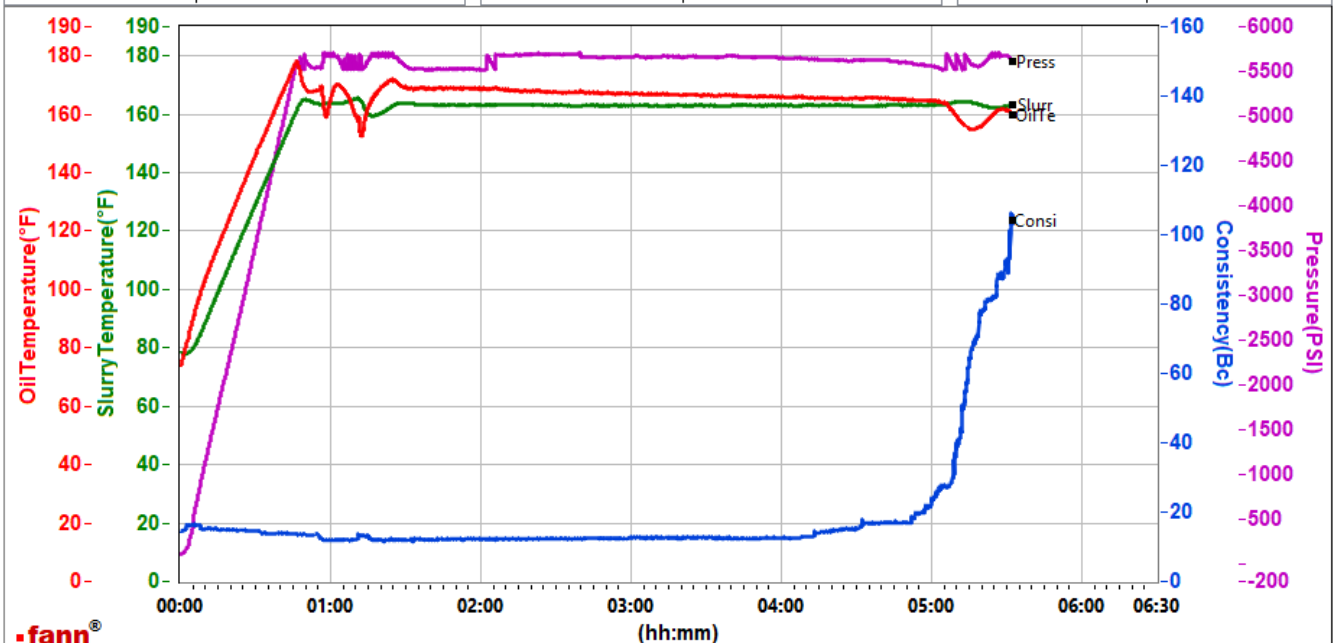
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
163	5609	46	5:08	5:12	5:17	5:31	14	56	15	13

Grand Junction

Fields	Values
Project Name	GJ2569354-1 TERRA PR
SW Version	1.0
Test ID	36657873-TT
Request ID	2569354-1
Tested by	DEBA
Customer	TERRA ENERGY PARTN
Well No	RWF 324-8

Fields	Values
Rig	H&P 318
Casing/Liner Size	4.5 INCH
Job Type	PRODUCTION
Cement Weight	GCC TYPE I-II
Comments	Light Weight
Date Time	7/11/2019 12:04:49.228
Temp. Units	degF

Events	Results
100.00 Bc	05h:31m
70.00 Bc	05h:17m
50.00 Bc	05h:12m
30.00 Bc	05h:08m



Data File N:\01 Test Graphs\GJ2569354-1 TERRA PRODUCTION BULK LEAD.tdms

Comments Light Weight

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HALLIBURTON

Rockies, Grand Junction

Lab Results- Tail

Job Information

Request/Slurry	2569353/2	Rig Name	H&P 318	Date	10/JUL/2019
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RWF 324-8

Well Information

Casing/Liner Size	4.5 in	Depth MD	9123 ft	BHST	112°C / 233°F
Hole Size	8.75 in	Depth TVD	9013 ft	BHCT	73°C / 163°F
Pressure	5609 psi				

Drilling Fluid Information

Mud Supplier Name	Mud Trade Name	Density
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Cement Information - Tail 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	14.2	lbm/gal
							Slurry Yield	1.73	ft3/sack
							Water Requirement	7.78	gal/sack
							Total Mix Fluid	7.78	gal/sack
							Water Source	Fresh Water	
							Water Chloride		

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Operation Test Results Request ID 2569353/2

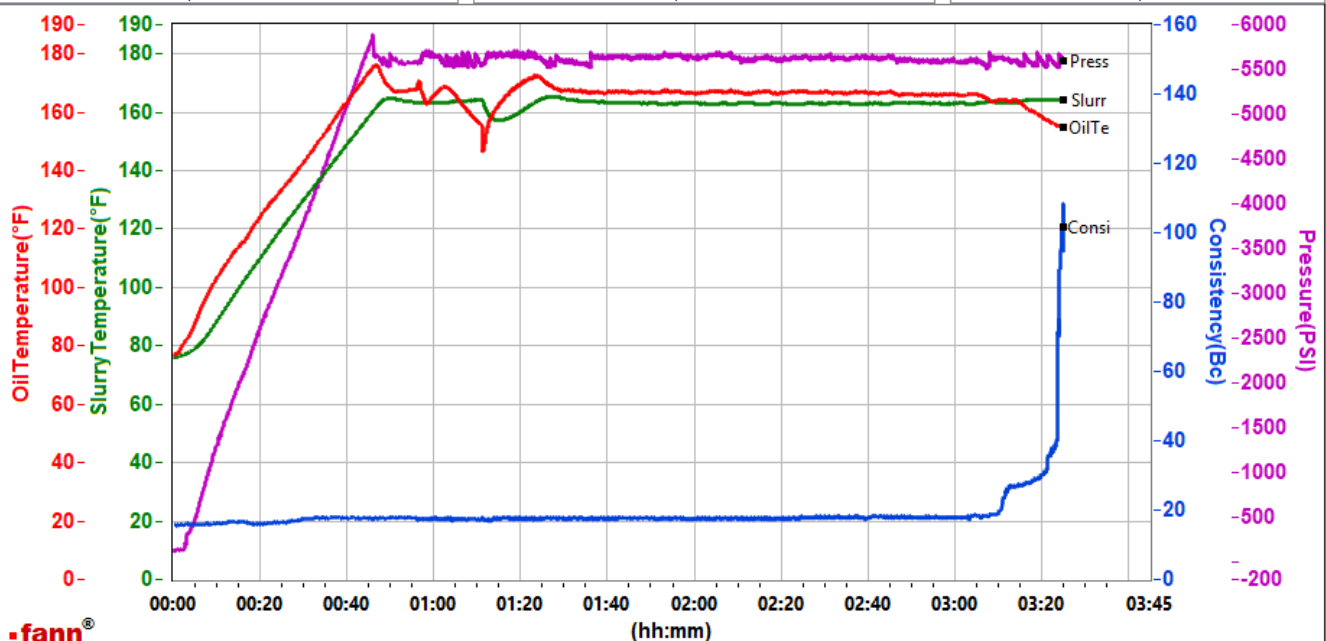
Thickening Time - ON-OFF-ON, Request Test ID:36663145

12/JUL/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)
163	5609	46	3:20	3:23	3:23	3:24	16	56	15	18

GRAND JUNCTION

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2569353-2 TERRA PR	Rig	H&P 318	100.00 Bc	03h:24m
SW Version	1.0	Casing/Liner Size	4.5 INCH	70.00 Bc	03h:23m
Test ID	36663145-TT	Job Type	PRODUCTION CASING	50.00 Bc	03h:23m
Request ID	2569353-2	Cement Weight	MOUNTAIN G	30.00 Bc	03h:20m
Tested by	JASON	Comments	Standard		
Customer	TERRA ENERGY PARTN	Date Time	7/12/2019 04:37:41.799		
Well No	RWF 324-8	Temp. Units	degF		



Data File N:\01 Test Graphs\GJ2569353-2 TERRA PRODUCTION TAIL BULK.tdms

Comments Standard

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Operation Test Results Request ID 2569353/1

Thickening Time - ON-OFF-ON, Request Test ID:36657871

12/JUL/2019

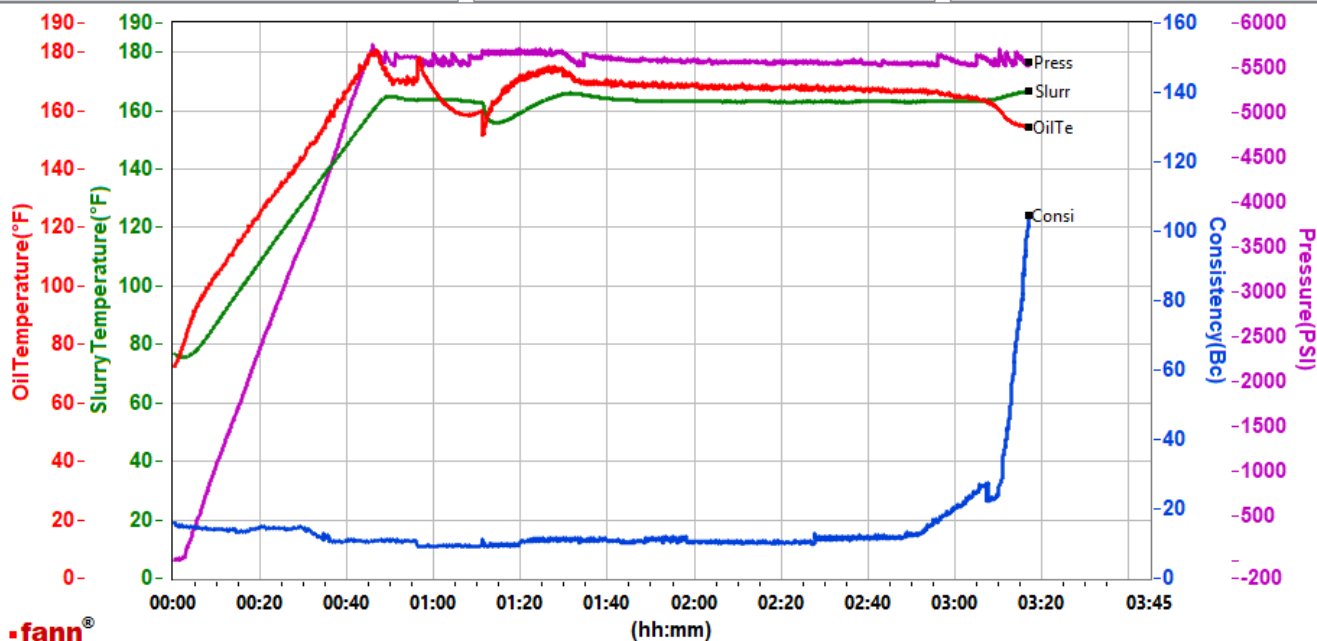
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
163	5609	46	3:11	3:13	3:14	3:16	16	56	15	11

GRAND JUNCTION

Fields	Values
Project Name	GJ2569353-1 TERRA PR
SW Version	1.0
Test ID	36657871-TT
Request ID	2569353-1
Tested by	DEBA
Customer	TERRA ENERGY PARTN
Well No	RWF 324-8

Fields	Values
Rig	H&P318
Casing/Liner Size	4.5 INCH
Job Type	PRODUCTION
Cement Weight	GCC TYPE I-II
Comments	Standard
Date Time	7/11/2019 11:04:48.153
Temp. Units	degF

Events	Results
100.00 Bc	03h:16m
70.00 Bc	03h:14m
50.00 Bc	03h:13m
30.00 Bc	03h:11m



Data File N:\01 Test Graphs\GJ2569353-1 TERRA PRODUCTION BULK TAIL.tdms

Comments Standard

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