HALLIBURTON

iCem® Service

TERRA ENERGY PARTNERS-EBUS

For: Terra

Date: Friday, March 15, 2019

SG 341-21 Production PJR

API #05-045-24133-00

Sincerely,

Grand Junction Cement Engineering

2.0 Real-Time Job Summary

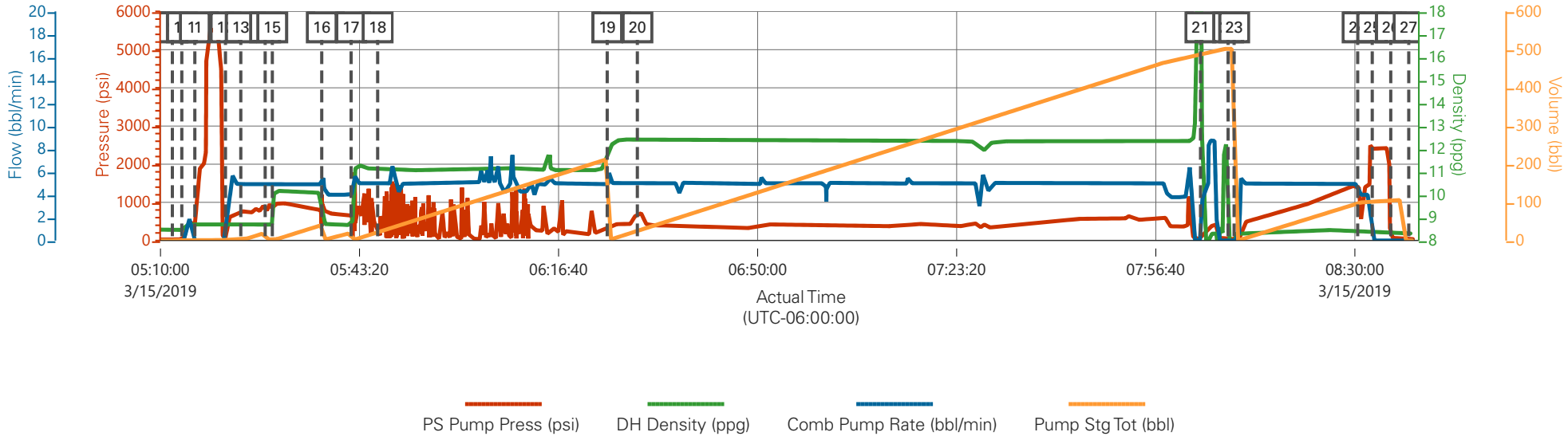
2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	3/14/2019	16:15:00	USER					REQUESTED ON LOCATION @ 23:30
Event	2	Pre-Convoy Safety Meeting	3/14/2019	19:20:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	3/14/2019	19:30:00	USER					1 HT 400 PUMP TRUCK E8, 1 660 BULK TRUCK, 1 TRANSPORT, 1 550 SERVICE PICKUP
Event	4	Arrive At Loc	3/14/2019	21:45:00	USER					RIG RUNNING CASING WHEN HES ARRIVED AT LOCATION
Event	5	Assessment Of Location Safety Meeting	3/14/2019	21:50:00	USER					MET WITH COMP REP, AND WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE (PH- 7.0, CHLORIDES- 500, TEMP- 60F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES. CALIBRATED MUD SCALES ON WATER.
Event	6	Pre-Rig Up Safety Meeting	3/14/2019	22:00:00	USER					ALL HES PRESENT
Event	7	Rig-Up Equipment	3/14/2019	22:10:00	USER					HES RIGGED UP 1 HT400 PUMP TRUCK, 1 660 BULK TRUCK, 2 CEMENT SILOS, 1 TRANSPORT, 2" DISCHARGE IRON, AND 4" SUCTION HOSE WITHOUT ENTERING RED ZONE.
Event	8	Pre-Job Safety	3/15/2019	04:30:00	USER					ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG

		Meeting								CIRCULATED @ 9 BPM PRIOR TO JOB PRESSURE @ 550 PSI. 125 UNITS OF GAS.
Event	9	Start Job	3/15/2019	05:12:00	COM6					TD 6944', TP 6942.09', SJ 44.68', SURFACE CSG 9 5/8'' 32.3# H-40 SET @ 1030' PRODUCTION CSG 4 ½'' 11.6# P-110, OH 8 3/4'', MUD 10#
Event	10	Prime Lines	3/15/2019	05:13:35	COM6	8.33	2	520	2	FRESH WATER
Event	11	Test Lines	3/15/2019	05:15:46	COM6			5540		ALL LINES HELD PRESSURE AT PSI 5540
Event	12	Pump H2O	3/15/2019	05:20:53	COM6	8.33	5	630	10	10BBLS FRESH WATER
Event	13	Mud Flush	3/15/2019	05:23:27	COM6	8.4	5	800	20	20BBLS MUD FLUSH
Event	14	Pump H20	3/15/2019	05:27:32	COM6	8.33	5	850	5	5BBLS FRESH WATER
Event	15	Super Flush	3/15/2019	05:28:44	COM6	11	5	980	40	40BBLS SUPER FLUSH
Event	16	Pump H2O	3/15/2019	05:37:01	COM6	8.33	5	680	20	20BBLS FRESH WATER
Event	17	Pump Scavanger Cement	3/15/2019	05:41:56	COM6	11	5	800	100	242 SKS ECONOCEM CMT 11 PPG, 2.32 FT3/SK, 12.67 GAL/SK
Event	18	Check Weight	3/15/2019	05:46:22	USER					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	19	Pump Primary Cement	3/15/2019	06:24:49	COM6	12.3	5	620	454.8	1575 SKS NEOCEM CMT 12.3 PPG, 2.06 FT3/SK, 10.11 GAL/SK. CEMENT WAS CUT BY 338SKS TO 1237 PRE CO-REP AFTER TALKING TO SUPER ATTENDANT. ONCE WE STARTED TO GET SCAVANGER TO SURFACE.
Event	20	Check Weight	3/15/2019	06:29:52	USER					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	21	Clean Lines	3/15/2019	08:04:09	COM6					END OF CEMENT. CLEAN PUMPS AND LINES TO PIT.
Event	22	Drop Plug	3/15/2019	08:08:47	COM6					VERIFED BY FLAG INDICATOR
Event	23	Pump Displacement	3/15/2019	08:09:47	COM6	8.4	5	1360	107	1 GAL MMCR IN FIRST 10 BBLS, 3 LBS BE-6 IN FIRST 30 BBLS, 1 50 LB. BAG KCL THROUGHOUT

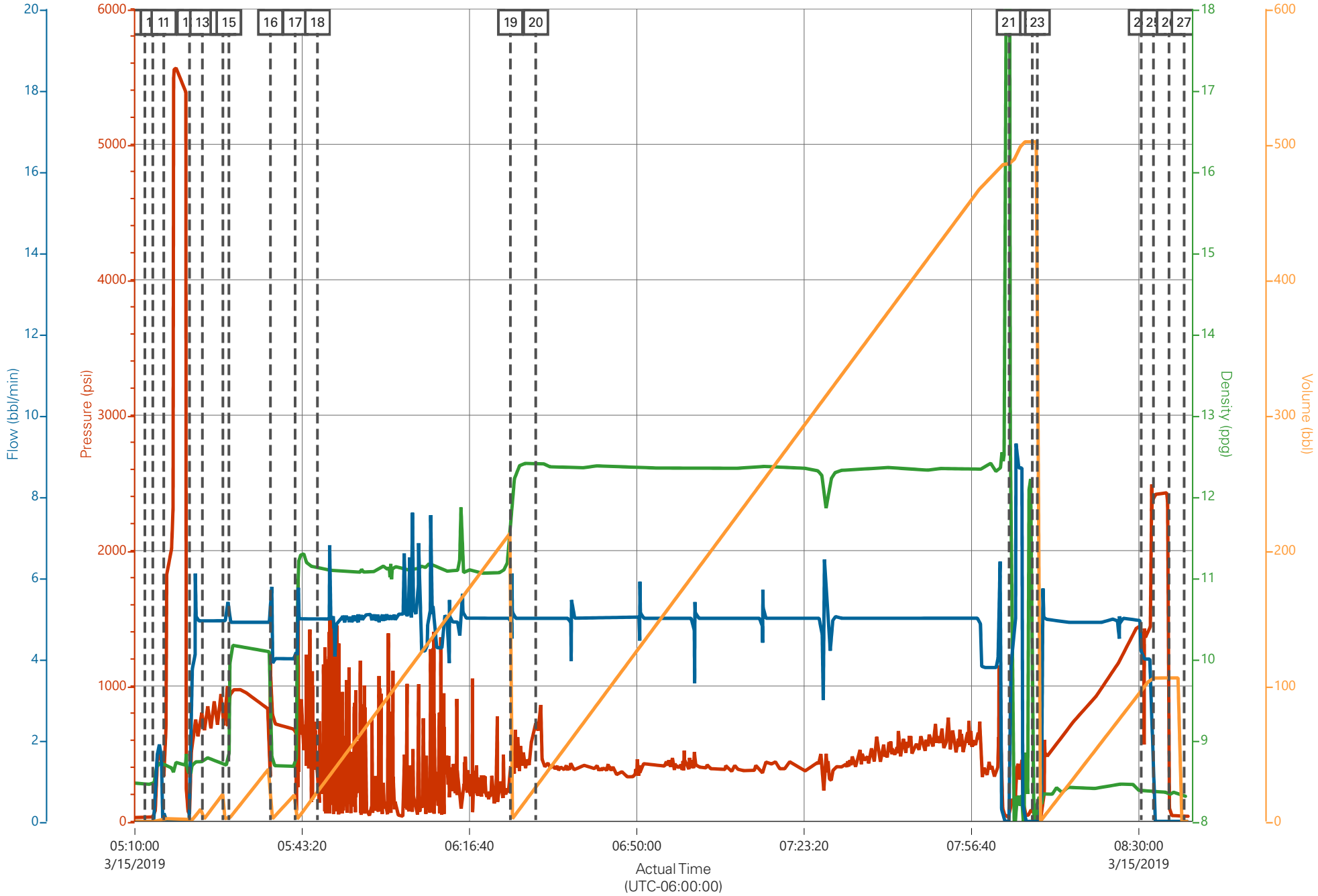
										DISPLACEMENT
Event	24	Slow Rate	3/15/2019	08:30:28	COM6	8.4	4	1340	97	SLOW RATE TO 4 BPM TO BUMP PLUG
Event	25	Bump Plug	3/15/2019	08:32:54	COM6	8.4	4	1365	107	LANDED PLUG AT 1365 PSI, BROUGHT UP TO 2420 PSI
Event	26	Check Floats	3/15/2019	08:36:01	COM6					FLOATS HELD. 1BBLS BACK TO TRUCK.
Event	27	End Job	3/15/2019	08:39:01	COM6					RETURNS THROUGHT JOB. PIPE WAS RECIPRICATED DURING JOB. RETURNS SLOWED SLIGHTLY ONCE ON DISPLACEMENT. USED 165# OF WELL LIFE IN THE FIRST 300BBLS OF CEMENT, USED TOP PLUG, AND NO SUGAR USED. CIRCULATED 65BBLS OF SCAVANGER TO SURFACE.
Event	28	Post-Job Safety Meeting (Pre Rig-Down)	3/15/2019	08:45:00	USER					ALL HES PRESENT
Event	29	Rig Down Lines	3/15/2019	08:55:00	USER					ALL HES PRESENT
Event	30	Pre-Convoy Safety Meeting	3/15/2019	10:00:00	USER					ALL HES PRESENT
Event	31	Crew Leave Location	3/15/2019	10:20:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, SHAWN BLOSSOM AND CREW

TEP SG 341-21 Production



	Description	Actual Time (UTC-06:00:00)	PS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)
9	Start Job	05:12:00	28.00	8.46	0.00	0.00
10	Prime Lines	05:13:35	29.00	8.45	0.00	0.00
11	Test Lines	05:15:46	334.00	8.70	0.00	2.00
12	Pump H2O	05:20:53	48.00	8.60	0.00	0.00
13	Mud Flush	05:23:27	798.00	8.73	5.00	0.00
14	Pump H20	05:27:32	827.00	8.72	5.00	20.20
15	Super Flush	05:28:44	868.00	8.69	4.90	6.00
16	Pump H2O	05:37:01	1201.00	10.10	4.90	0.00
17	Pump Scavanger Cement	05:41:56	699.00	8.67	4.00	20.20
18	Check Weight	05:46:22	341.00	11.13	5.00	21.60
19	Pump Primary Cement	06:24:49	267.00	11.72	5.00	213.20
20	Check Weight	06:29:52	706.00	12.39	5.00	25.30
21	Clean Lines	08:04:09	26.00	20.52	0.00	485.30
22	Drop Plug	08:08:47	70.00	11.28	0.00	501.90
23	Pump Displacement	08:09:47	48.00	8.31	0.00	501.90
24	Slow Rate	08:30:28	1398.00	8.38	4.00	97.55
25	Bump Plug	08:32:54	2416.00	8.38	0.00	106.00
26	Check Floats	08:36:01	132.00	8.31	0.00	106.00
27	End Job	08:39:01	38.00	8.31	0.00	0.00

TEP SG 341-21 Production



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Rockies, Grand Junction

Lab Results- Lead

Job Information

Request/Slurry	2541012/2	**Rig Name**	H&P 318	**Date**	11/MAR/2019
Submitted By	Connor Matthews	**Job Type**	Production Casing	**Bulk Plant**	Grand Junction
Customer	Terra Energy Partners	**Location**	Garfield	**Well**	SG 341-21

Well Information

Casing/Liner Size	4.5 in	**Depth MD**	6944 ft	**BHST**	87°C / 188°F
Hole Size	7.875 in	**Depth TVD**	6346 ft	**BHCT**	51°C / 124°F
Pressure	3742 psi				

Drilling Fluid Information

Mud Supplier Name	Baroid	**Mud Trade Name**	BARADRIL-N	**Density**

Cement Information - Lead Design

Conc	UOM	Cement/Additive	MP	Sample Type	Sample Date	Lot No.

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	

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Operation Test Results Request ID 2541012/2

Thickening Time - ON-OFF-ON, Request Test ID:36307208 — 12/MAR/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)
124	3742	34	6:25	7:08	7:38	10:39	4	44	15	4

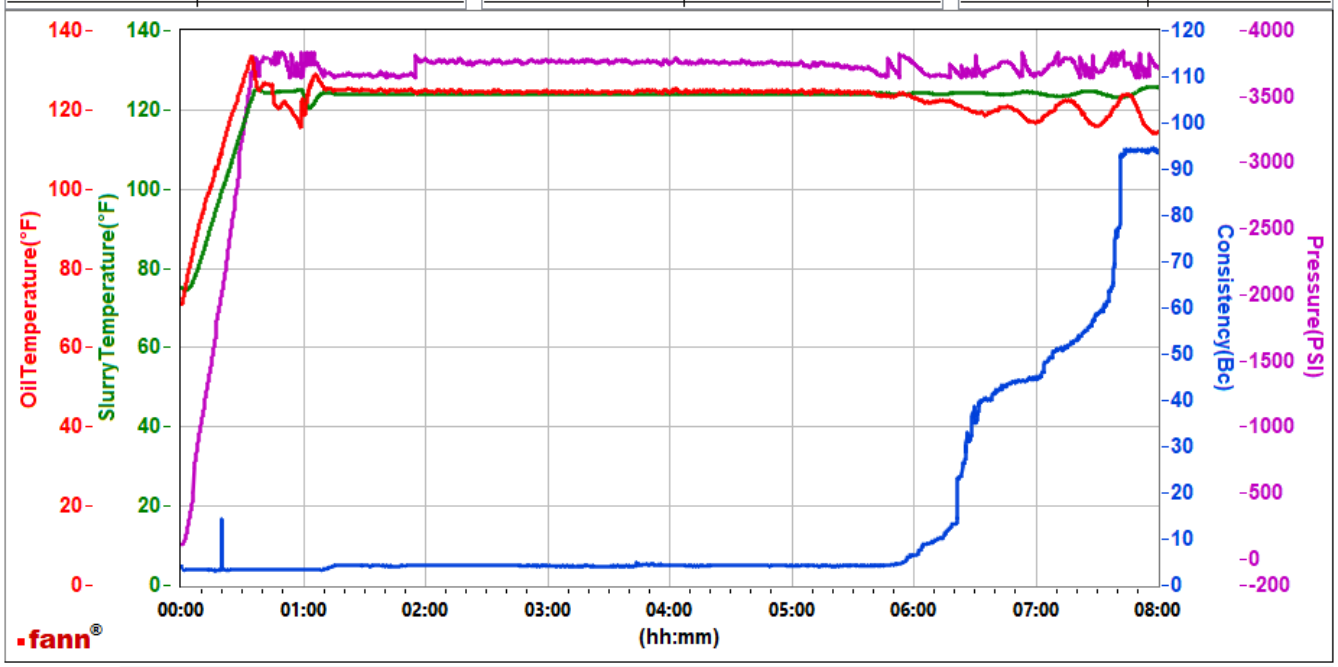
Total sks = 1575
CS0322 TR#MT199 400 SKS
CS0323 TR#2878 375 SKS
No deflection. Please note heat of hydration started around 5:59.

GRAND JUNCTION

Fields	Values
Project Name	GJ2541012-2 Terra Bulk I
SW Version	1.0
Test ID	36307208- TT
Request ID	2541012-2
Tested by	DS
Customer	TERRA ENERGY PARTN
Well No	SG341-21

Fields	Values
Rig	H&P 318
Casing/Liner Size	4.5 INCH
Job Type	PRODUCTION CASING
Cement Weight	GCC TYPE I-II
Comments	Light Weight
Date Time	3/11/2019 13:45:58.636
Temp. Units	degF

Events	Results
30 Bc	6:25
50 Bc	7:08
70 Bc	7:38
100 Bc	10:39



Data File N:\01 Test Graphs\GJ2541012-2 TERRA BULK PRODUCTION PRIMARY.tdms

Comments Light Weight

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Operation Test Results Request ID 2541012/1

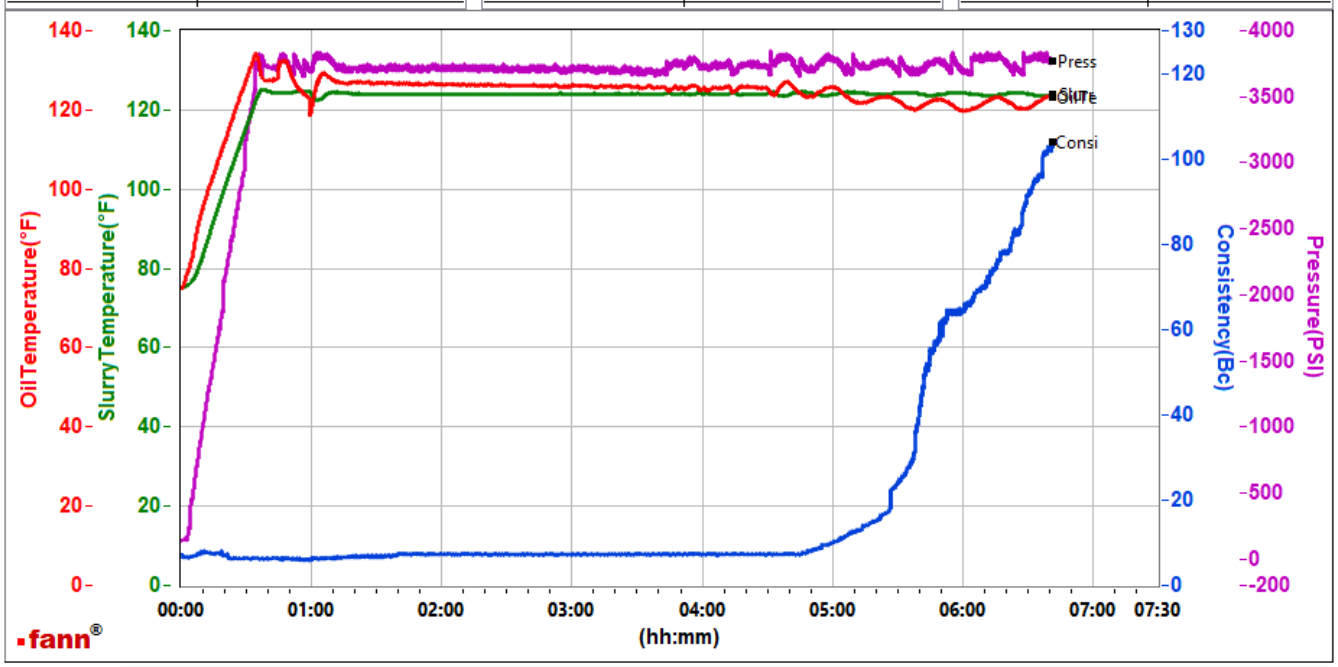
Thickening Time - ON-OFF-ON, Request Test ID:36306012 — 12/MAR/2019

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)
124	3742	34	5:37	5:42	6:08	6:37	7	44	15	7

Total sks = 1575
CS0318 TR#1513 400 SKS
CS0319 TR#8476 400 SKS
No deflection. Please note small heat of hydration started around 4:45.

GRAND JUNCTION

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2541012-1 Terra Bulk I	Rig	H&P 318	30 Bc	5:37
SW Version	1.0	Casing/Liner Size	4.5 INCH	50 Bc	5:42
Test ID	36306012 - TT	Job Type	PRODUCTION CASING	70 Bc	6:08
Request ID	2541012-1	Cement Weight	GCC TYPE I-II	100 Bc	6:37
Tested by	DS	Comments	Light Weight		
Customer	TERRA ENERGY PARTN	Date Time	3/11/2019 10:49:39.955		
Well No	SG 341-21	Temp. Units	degF		



Data File N:\01 Test Graphs\GJ2541012-1 TERRA BULK PRODUCTION LEAD.tdms

Comments Light Weight

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