

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

For: Terra

Date: Monday, October 29, 2018

NR 443-3 Production PJR

API# 05-045-23919-00

Sincerely,

Grand Junction Cement Engineering

2.0 Real-Time Job Summary

2.1 Job Event Log

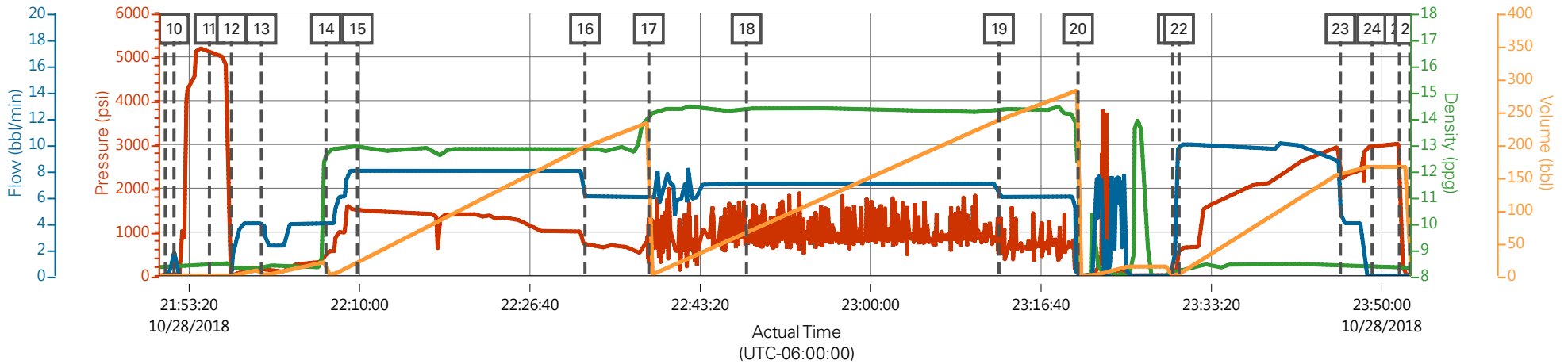
Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	10/28/2018	11:00:00	USER					REQUESTED ON LOCATION @ 17:00
Event	2	Pre-Convoy Safety Meeting	10/28/2018	13:00:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	10/28/2018	13:10:00	USER					1 HT 400 PUMP TRUCK E1, 1 660 BULK TRUCK, 1 550 SERVICE PICKUP
Event	4	Arrive At Loc	10/28/2018	15:00:00	USER					RIG RUNNING CASING WHEN HES ARRIVED AT LOCATION
Event	5	Assessment Of Location Safety Meeting	10/28/2018	15:15:00	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- 50F). COMP REP WAS OFFERED SDS FOR ALL CHEMICALS USED BY HES.
Event	6	Pre-Rig Up Safety Meeting	10/28/2018	15:30:00	USER					ALL HES PRESENT
Event	7	Rig-Up Equipment	10/28/2018	15:35:00	USER					HES RIGGED UP 1 HT400 PUMP TRUCK, 1 660 BULK TRUCK, 2 CEMENT SILOS, 2" DISCHARGE IRON, AND 4" SUCTION HOSE WITHOUT ENTERING RED ZONE.
Event	8	Pre-Job Safety Meeting	10/28/2018	21:30:13	USER					ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG CIRCULATED @ 10 BPM PRIOR TO JOB PRESSURE @ 850 PSI. 50 UNITS OF GAS .
Event	9	Start Job	10/28/2018	21:51:00	COM6					TD 10578', TP 10573.16', SJ 46.13', SURFACE

CSG 9 5/8" 36# J55 SET @ 1126' PRODUCTION
CSG 4 1/2" 11.6# P-110, OH 8 3/4", MUD 11.6 PPG

Event	10	Prime Lines	10/28/2018	21:51:51	USER	8.33	2	50	2	FRESH WATER
Event	11	Test Lines	10/28/2018	21:55:19	COM6			5060		ALL LINES HELD PRESSURE AT 5060 PSI
Event	12	Pump H2O Spacer	10/28/2018	21:57:28	COM6	8.33	2	180	10	10BBLs FRESH WATER
Event	13	Mud Flush	10/28/2018	22:00:24	COM6	8.4	4	320	20	20BBLs MUD FLUSH
Event	14	Pump Lead Cement	10/28/2018	22:06:43	COM6	12.7	8	1500	223	675 SKS NEOCEM CMT 12.7 PPG, 1.85 FT3/SK, 8.94 GAL/SK
Event	15	Check Weight	10/28/2018	22:09:48	COM6					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	16	Slow Rate	10/28/2018	22:32:03	USER					SLOWED RATE TO END LEAD SILO
Event	17	Pump Tail Cement	10/28/2018	22:38:18	COM6	14.2	7	1100	224	740 SKS THERMACEM CMT 14.2 PPG, 1.7 FT3/SK, 7.53 GAL/SK.
Event	18	Check Weight	10/28/2018	22:47:51	COM6					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	19	Slow Rate	10/28/2018	23:12:33	USER					SLOWED RATE TO END TAIL SILO
Event	20	Shutdown	10/28/2018	23:20:17	COM6					END OF CEMENT. CLEAN PUMPS AND LINES TO PIT.
Event	21	Pump Displacement	10/28/2018	23:29:33	COM6	8.4	10	2980	163.2	1 GAL MMCR IN FIRST 10 BBLs, 3 LBS BE-6 IN FIRST 30 BBLs, 1 50 LB. BAG KCL THROUGHOUT DISPLACEMENT
Event	22	Drop Top Plug	10/28/2018	23:30:10	USER					VERIFIED BY FLAG INDICATOR
Event	23	Slow Rate	10/28/2018	23:45:57	USER	8.4	4	2300	153.2	SLOW RATE TO 4 BPM TO BUMP PLUG
Event	24	Bump Plug	10/28/2018	23:49:03	COM6	8.4	4	2450	163.2	LANDED PLUG AT 2450 PSI, BROUGHT UP TO 2950 PSI
Event	25	Check Floats	10/28/2018	23:51:43	USER					FLOATS HELD, 2BBLs BACK TO TRUCK

Event	26	End Job	10/28/2018	23:52:44	COM6	GOOD RETURNS BEFORE JOB. NO RETURNS THROUGH OUT CEMENT JOB. PIPE WAS RECIPERICATED. USED TOP PLUG, NO SUGAR USED.
Event	27	Post-Job Safety Meeting (Pre Rig-Down)	10/29/2018	00:20:00	USER	ALL HES PRESENT
Event	28	Rig Down Lines	10/29/2018	00:45:00	USER	ALL HES PRESENT
Event	29	Pre-Convoy Safety Meeting	10/29/2018	02:45:00	USER	ALL HES PRESENT
Event	30	Crew Leave Location	10/29/2018	03:00:00	USER	THANK YOU FOR CHOOSING HALLIBURTON CEMENT, SHAWN BLOSSOM AND CREW

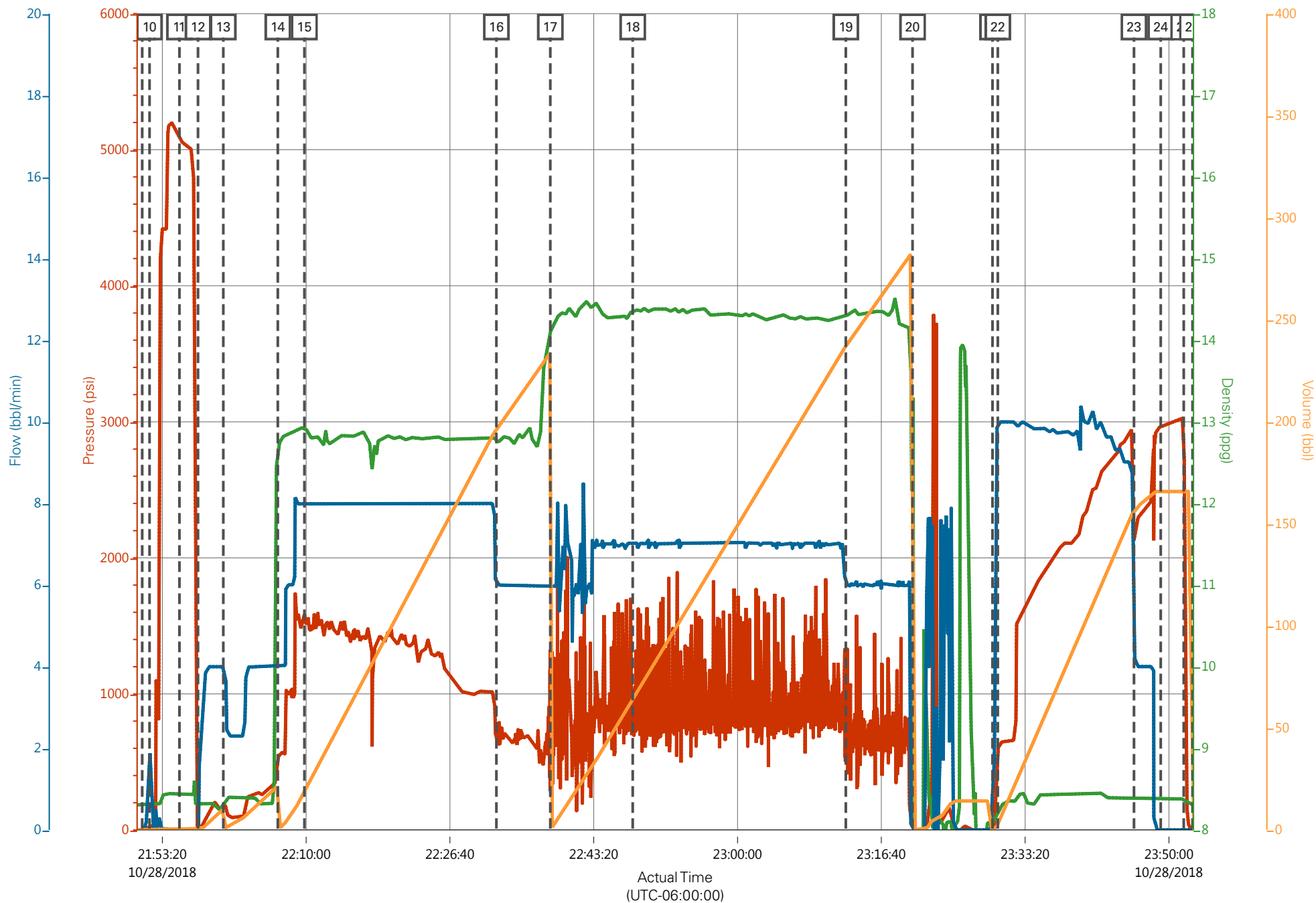
TEP NR 443-3 Production



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

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	21:51:00	-5.70	8.30	0.00	0.00
10 Prime Lines	21:51:51	26.30	8.33	1.90	0.50
11 Test Lines	21:55:19	5079.30	8.44	0.00	1.00
12 Pump H2O Spacer	21:57:28	-4.70	8.31	0.00	1.00
13 Mud Flush	22:00:24	173.30	8.31	4.00	0.00
14 Pump Lead Cement	22:06:43	511.30	12.59	4.00	21.50
15 Check Weight	22:09:48	1564.30	12.92	8.00	18.80
16 Slow Rate	22:32:03	669.30	12.74	6.00	196.40
17 Pump Tail Cement	22:38:18	475.30	14.11	6.00	233.80
18 Check Weight	22:47:51	949.30	14.33	7.00	63.90
19 Slow Rate	23:12:33	579.30	14.32	6.00	237.10
20 Shutdown	23:20:17	34.30	12.91	0.00	0.00
21 Pump Displacement	23:29:33	0.30	8.09	0.00	0.00
22 Drop Top Plug	23:30:10	592.30	8.20	10.00	2.80
23 Slow Rate	23:45:57	2147.30	8.44	4.80	156.60
24 Bump Plug	23:49:03	2973.30	8.39	0.00	165.90
25 Check Floats	23:51:43	2964.30	8.38	0.00	165.90
26 End Job	23:52:44	-11.70	8.30	0.00	0.00

TEP NR 443-3 Production



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

Job Information

Request/Slurry	2509081/1	Rig Name	H&P 318	Date	16/OCT/2018
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	NR 443-3

Well Information

Casing/Liner Size	4.5 in	Depth MD	10621 ft	BHST	121°C / 250°F
Hole Size	8.75 in	Depth TVD	9974 ft	BHCT	82°C / 180°F
Pressure	6282 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>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	Cement Properties		
		NeoCem Lead				Slurry Density	12.7	lbm/gal
						Slurry Yield	1.851	ft3/sack
						Water Requirement	8.949	gal/sack
						Total Mix Fluid	8.949	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

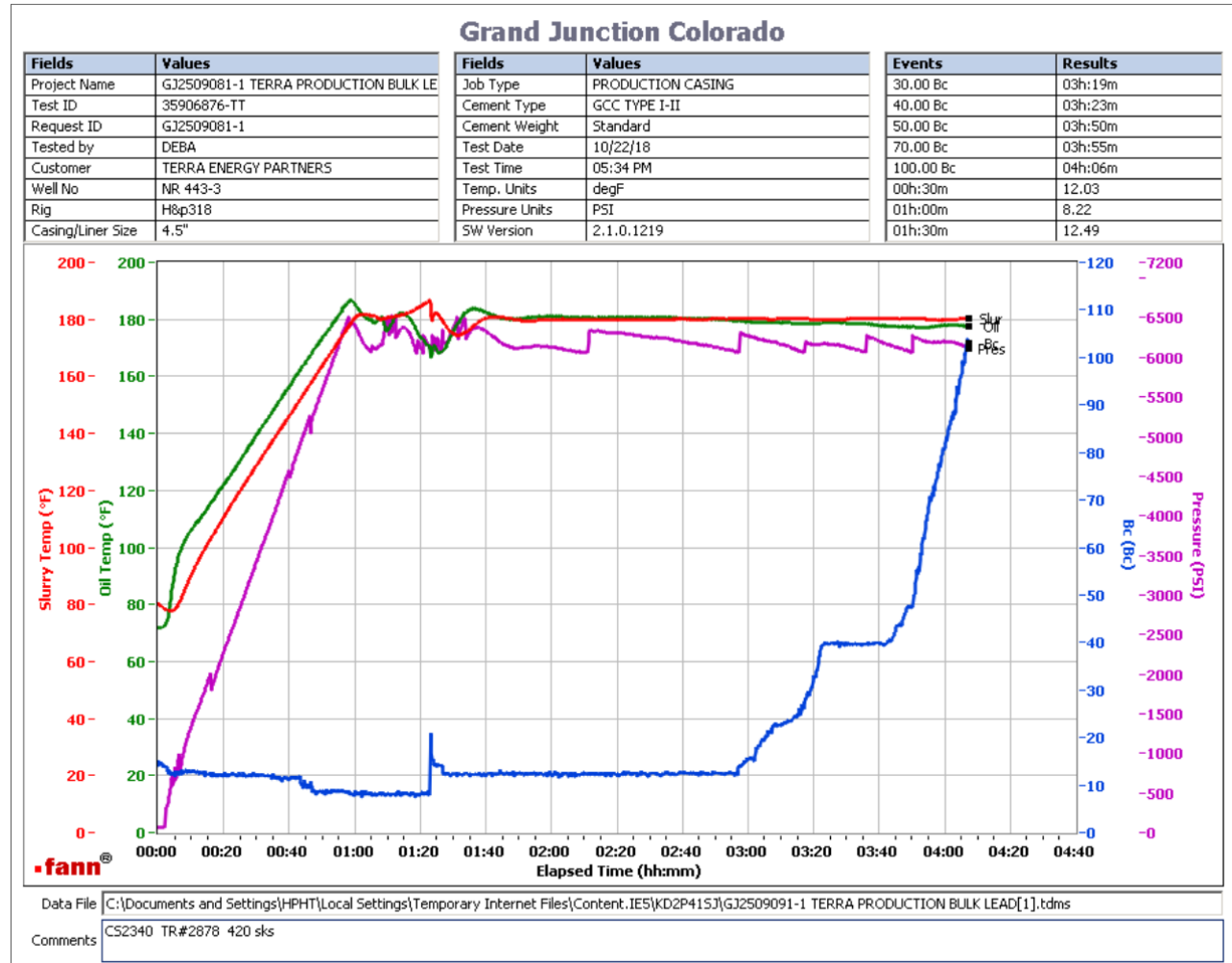
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Operation Test Results Request ID 2509081/1

Thickening Time - ON-OFF-ON

22/OCT/2018

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)
180	6282	58	3:19	3:50	3:55	4:06	15	68	15	23



Total sks = 675

CS2340 TR#2878 420 SKS

Deflected from 8Bc--- > 23Bc

Heat of hydration at 3:35

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Operation Test Results Request ID 2509081/2

Thickening Time - ON-OFF-ON

23/OCT/2018

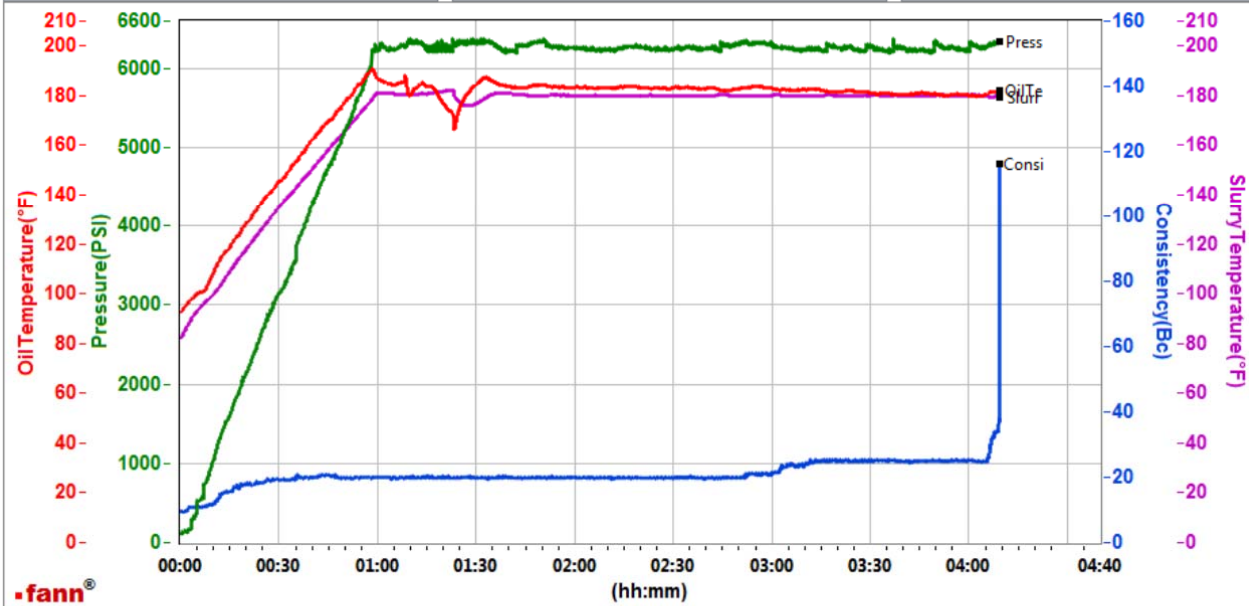
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
180	6282	58	4:06	4:09	4:09	4:09	10	68	15	20

GRAND JUNCTION

Fields	Values
Project Name	2509081-2 H&P 318 Terra
SW Version	1.0
Test ID	35923860 - TT
Request ID	2509081-2
Tested by	CT
Customer	TERRA ENERGY PARTN
Well No	NR 443-3

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	10/23/2018 07:25:31.70
Temp. Units	degF

Events	Results
30 BC	4:06
50 BC	4:09
70 BC	4:09
100 BC	4:09



Data File \\Corp.Halliburton.com\NA\GJU\Public\Z Lab\HPHT 1\GJ2509081-2 TERRA BULK PRODUCTION LEAD.tdms

Comments Standard

Total sks = 675
CS2346, Trailer 3212, 255 sks
Deflection: 20 - 20

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Rockies, Grand Junction

Lab Results- Tail

Job Information

Request/Slurry	2509082/1	Rig Name	H&P 318	Date	16/OCT/2018
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Customer	Terra Energy Partners	Location	Garfield	Well	NR 443-3

Well Information

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Drilling Fluid Information

Mud Supplier Name	Mud Trade Name	Density
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Cement Information - Tail Design



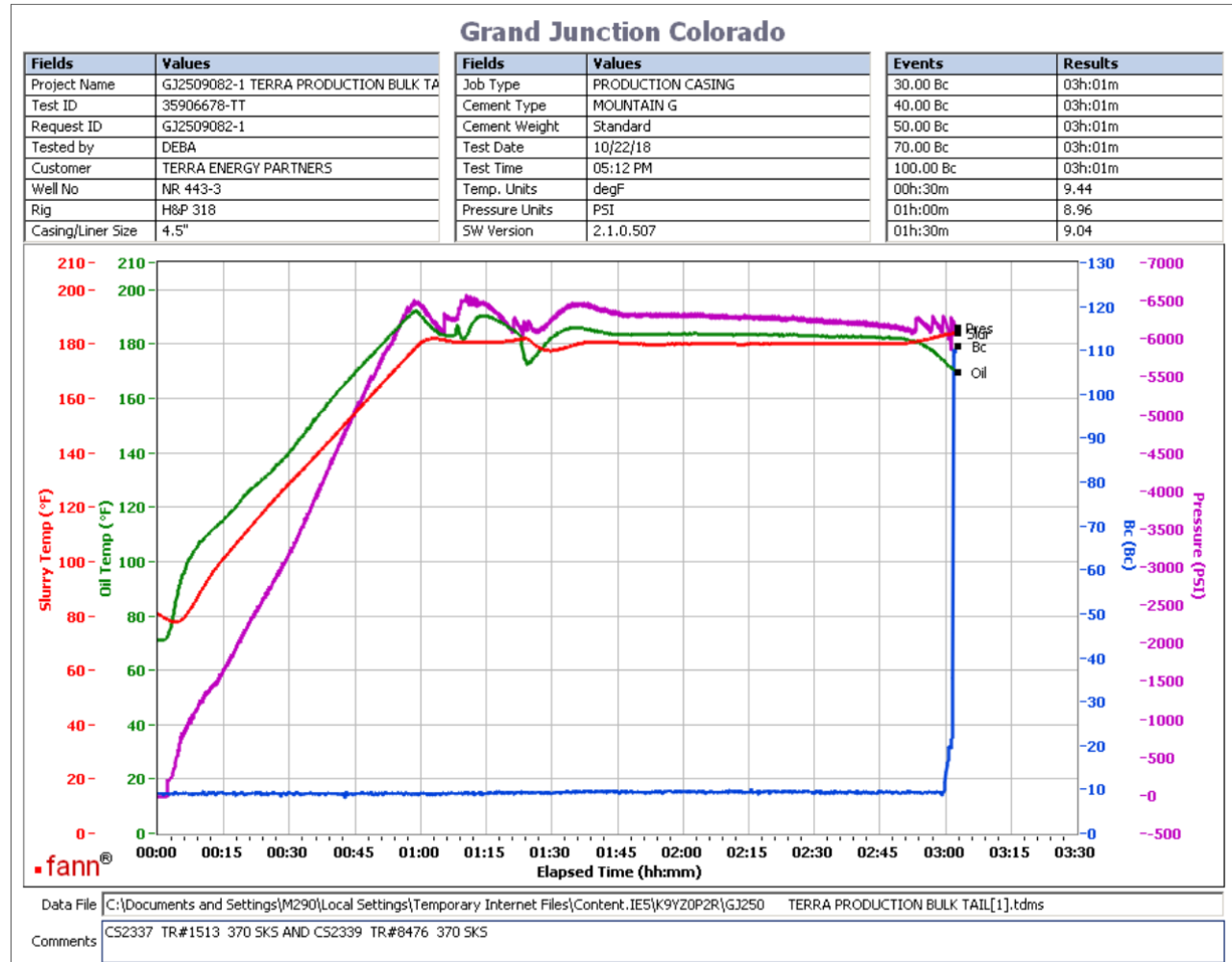
<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	Cement Properties		
		ThermaCem Tail				Slurry Density	14.2	lbm/gal
						Slurry Yield	1.704	ft3/sack
						Water Requirement	7.53	gal/sack
						Total Mix Fluid	7.53	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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Thickening Time - ON-OFF-ON

22/OCT/2018

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)
180	6282	58	3:01	3:01	3:01	3:01	9	68	15	9



Total sks = 740
 CS2337 TR#1513 370 SKS
 CS2339 TR#8476 370 SKS
 no deflection, 9Bc--- > 9Bc

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