HALLIBURTON

iCem® Service

TERRA ENERGY PARTNERS

United States of America, COLORADO

For: Terra

Date: Monday, July 30, 2018

NR 411-3 Production PJR

API #05-045-23900-00

Sincerely,

Grand Junction Cement Engineering

1.0 Real-Time Job Summary

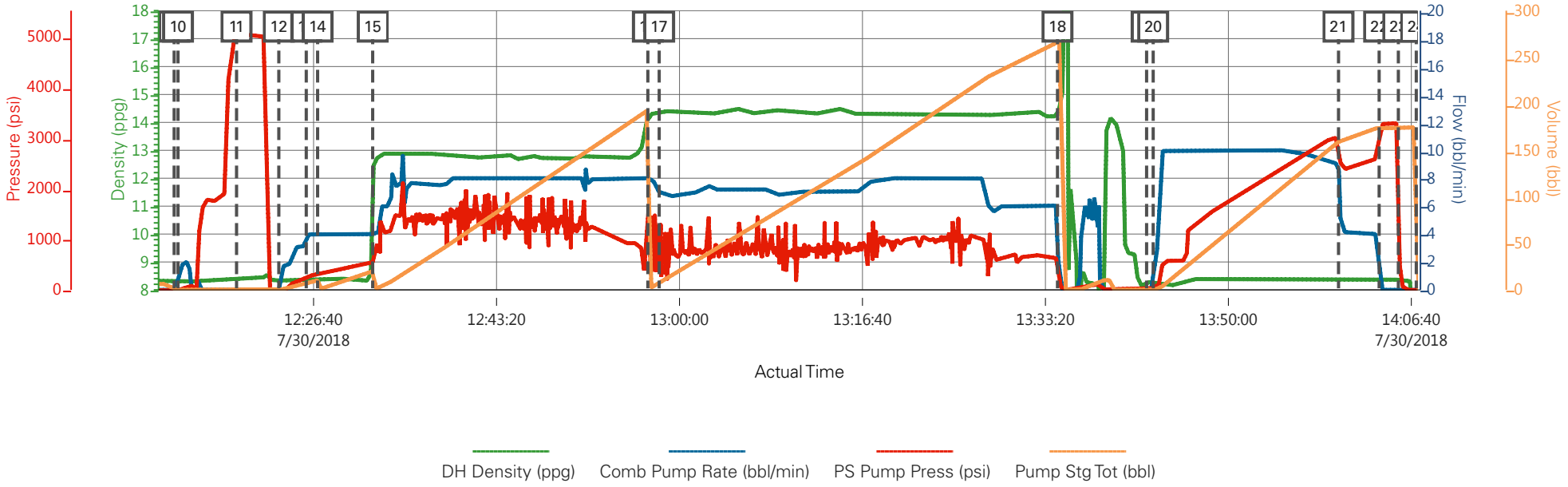
1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	7/30/2018	00:00:00	USER					REQUESTED ON LOCATION @ 6:30
Event	2	Depart Yard Safety Meeting	7/30/2018	02:15:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	7/30/2018	02:30:00	USER					1 HT 400 PUMP TRUCK E8, 2 660 BULK TRUCK, 1 550 SERVICE PICKUP
Event	4	Arrive At Loc	7/30/2018	04:00:00	USER					ARRIVED 2.5 HOURS EARLY TO LOCATION. RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	7/30/2018	04:15:00	USER					MET WITH COMP REP, WENT OVER NUMBERS AND JOB PROCEDURE. WALKED AROUND LOCATION AND COLLECTED WATER SAMPLE. COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Spot Equipment	7/30/2018	04:45:00	USER					1 HT 400 PUMP TRUCK E8, 2 660 BULK TRUCK, 1 550 SERVICE PICKUP
Event	7	Pre-Rig Up Safety Meeting	7/30/2018	05:00:00	USER					ALL HES PRESENT
Event	8	Pre-Job Safety	7/30/2018	10:45:00	USER					ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG

		Meeting								CIRCULATED @ 11 BPM PRIOR TO JOB PRESSURE @ 890 PSI. AFTER MEETING FLUSHED LINES FROM PUMP TO FLOOR DOWN THE MOUSE HOLE WITH 3 BBLS FRESH WATER.
Event	9	Start Job	7/30/2018	12:13:58	COM5					TD 10,820', TP 10,810', SJ 30.89', FC 10,779.11', SURFACE CSG 9 5/8'' 36# J-55 SET @ 1123', PRODUCTION CSG 4 ½'' 11.6# P-110, OH 8 3/4'', MUD 11.6 PPG
Event	10	Prime Lines	7/30/2018	12:14:19	COM5	8.33	2.0	150	2	FRESH WATER
Event	11	Test Lines	7/30/2018	12:19:39	USER			5000		PRESSURE HELD
Event	12	Pump H2O Spacer	7/30/2018	12:23:30	COM5	8.33	4.0	300	10	FRESH WATER
Event	13	Check Weight	7/30/2018	12:26:00	COM5					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	14	Pump Mud Flush	7/30/2018	12:27:02	COM5	8.4	4.0	420	20	20 BBL MUDFLUSH III.
Event	15	Pump Lead Cement	7/30/2018	12:32:03	COM5	12.7	8.0	1300	175	530 SKS NEOCEM CMT, 12.7 PPG, 1.85 FT3/SK, 8.94 GAL/SK
Event	16	Pump Tail Cement	7/30/2018	12:57:07	COM5	14.2	8.0	1000	224	740 SKS THERMACEM CMT, 14.2 PPG, 1.7 FT3/SK, 7.53 GAL/SK
Event	17	Check Weight	7/30/2018	12:58:09	COM5					WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	18	Shutdown	7/30/2018	13:34:26	USER					END OF CEMENT. CLEANED PUMP AND LINES FROM MANIFOLD TO PIT, BLEW LINES FROM FLOOR TO PIT DOWN WITH RIG AIR
Event	19	Drop Top Plug	7/30/2018	13:42:33	USER					VERIFIED BY FLAG INDICATOR
Event	20	Pump Displacement	7/30/2018	13:43:09	COM5	8.4	10.0	3000	157	1 GAL MMCR IN FIRST 10 BBLS, 3 LBS BE-6 IN FIRST 30 BBLS, 1 50 LB. BAG KCL THROUGHOUT DISPLACEMENT
Event	21	Slow Rate	7/30/2018	14:00:02	USER	8.4	4.0	3270	10	SLOWED RATE TO BUMP PLUG

Event	22	Bump Plug	7/30/2018	14:03:44	COM5	8.4	4.0	3270	167	PLUG BUMPED
Event	23	Check Floats	7/30/2018	14:05:29	USER			3270		FLOATS HELD 2 BBL BACK TO TRUCK.
Event	24	End Job	7/30/2018	14:07:07	COM5					RETURNS THROUGHOUT UNTIL THE END OF TAIL WHERE WE LOST THEM. INTERMITTEN RETURNS DURING DISPLACEMENT. PIPE WAS RECIPICATED DURING CEMENT. USED TOP PLUG, 1 GAL MMCR, 3 BE-6, AND 80 LBS MUD FLUSH III FOR JOB.
Event	25	Post-Job Safety Meeting (Pre Rig-Down)	7/30/2018	14:15:00	USER					ALL HES PRESENT
Event	26	Pre-Convoy Safety Meeting	7/30/2018	15:45:00	USER					ALL HES PRESENT
Event	27	Depart Location	7/30/2018	16:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, DUSTIN HYDE AND CREW

Terra - NR 411-3 - 4 1/2" Production



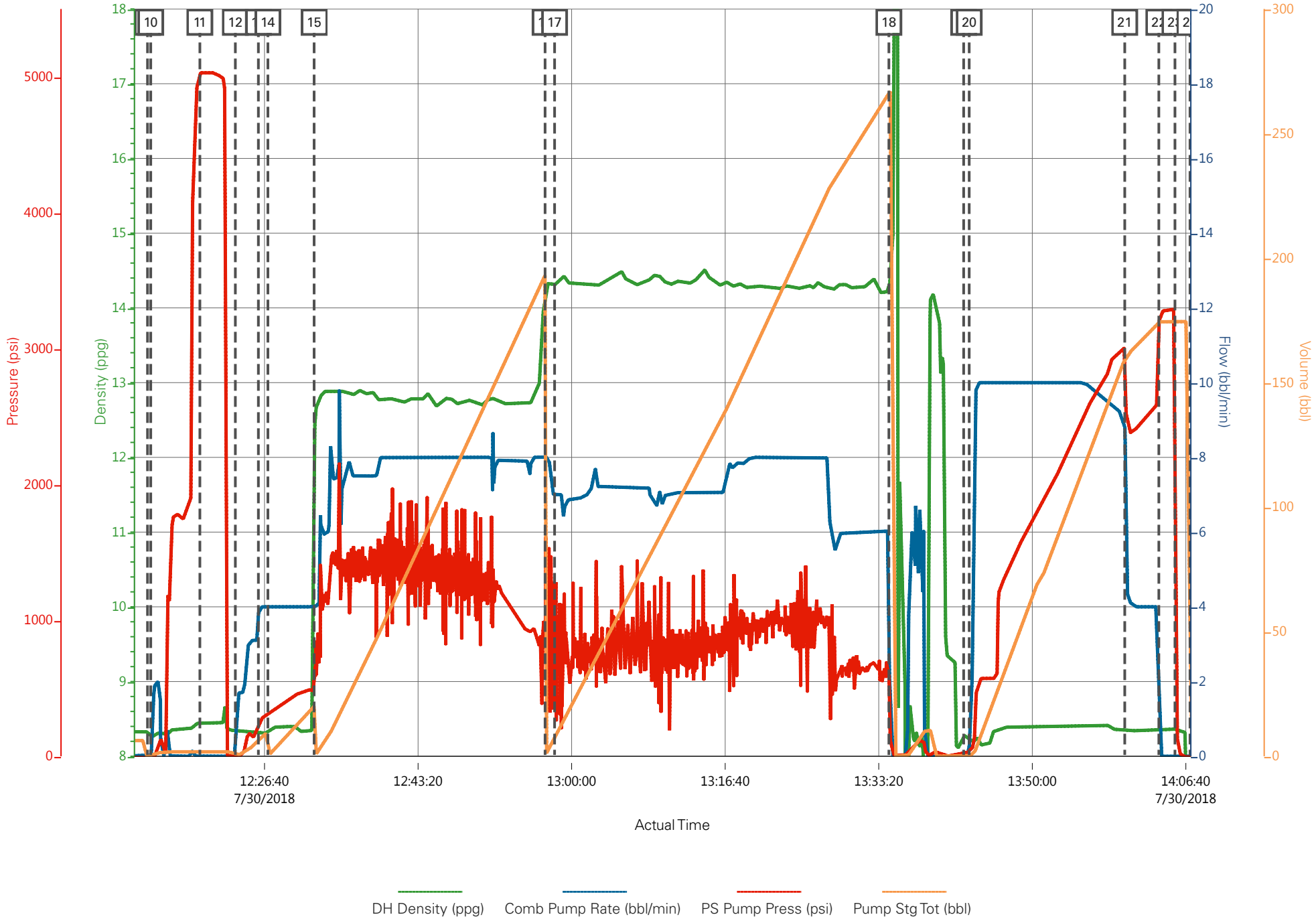
	Description	Actual Time	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)
9	Start Job	12:13:58	8.32	0.00	-2.00	0.00
10	Prime Lines	12:14:19	8.25	0.00	-17.00	0.00
11	Test Lines	12:19:39	8.45	0.00	5029.00	1.80
12	Pump H2O Spacer	12:23:30	8.34	0.00	-7.00	1.80
13	Check Weight	12:26:00	8.31	3.70	224.00	6.00
14	Pump Mud Flush	12:27:02	8.31	4.00	304.00	0.00
15	Pump Lead Cement	12:32:03	11.76	4.00	554.00	0.00
16	Pump Tail Cement	12:57:07	14.13	8.00	960.00	193.10
17	Check Weight	12:58:09	14.33	7.00	1001.00	7.90
18	Shutdown	13:34:26	14.22	6.10	564.00	266.80
19	Drop Top Plug	13:42:33	8.29	0.00	29.00	0.00
20	Pump Displacement	13:43:09	8.26	0.00	18.00	0.00
21	Slow Rate	14:00:02	8.36	9.00	3015.00	159.30
22	Bump Plug	14:03:44	8.36	0.00	3103.00	174.50
23	Check Floats	14:05:29	8.37	0.00	2720.00	174.50
24	End Job	14:07:07	0.18	0.00	-8.00	0.00

Customer : TERRA ENERGY PARTNERS
Representative : Karl Schneider

Job Date : 7/30/2018
Sales Order # : 905016487

Well : CLOUGH NR 411-3
Elite 8 : Hyde / D. Brennecke

Terra - NR 411-3 - 4 1/2" Production



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Customer : TERRA ENERGY PARTNERS
Representative : Karl Schneider

Job Date : 7/30/2018
Sales Order # : 905016487

Well : CLOUGH NR 411-3
Elite 8 : Hyde / D. Brennecke

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Rockies, Grand Junction

Lab Results- Lead

Job Information

Request/Slurry	2489912/1	**Rig Name**	H&P 318	**Date**	23/JUL/2018
Submitted By	Lukas Van Zyl	**Job Type**	Production Casing	**Bulk Plant**	Grand Junction
Customer	Terra Energy Partners	**Location**	Garfield	**Well**	NR 411-3

Well Information

Casing/Liner Size	4.5 in	**Depth MD**	10862 ft	**BHST**	122°C / 251°F
Hole Size	8.75 in	**Depth TVD**	10054 ft	**BHCT**	88°C / 190°F
Pressure	6338 psi				

Drilling Fluid Information

Mud Supplier Name	**Mud Trade Name**	**Density**

Cement Information - Lead Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.
		NeoCem Lead			

Cement Properties

Slurry Density	12.7	lbm/gal
Slurry Yield	1.853	ft3/sack
Water Requirement	8.959	gal/sack
Total Mix Fluid	8.959	gal/sack
Water Source	Fresh Water	
Water Chloride		

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Operation Test Results Request ID 2489912/1

Thickening Time - ON-OFF-ON 24/JUL/2018

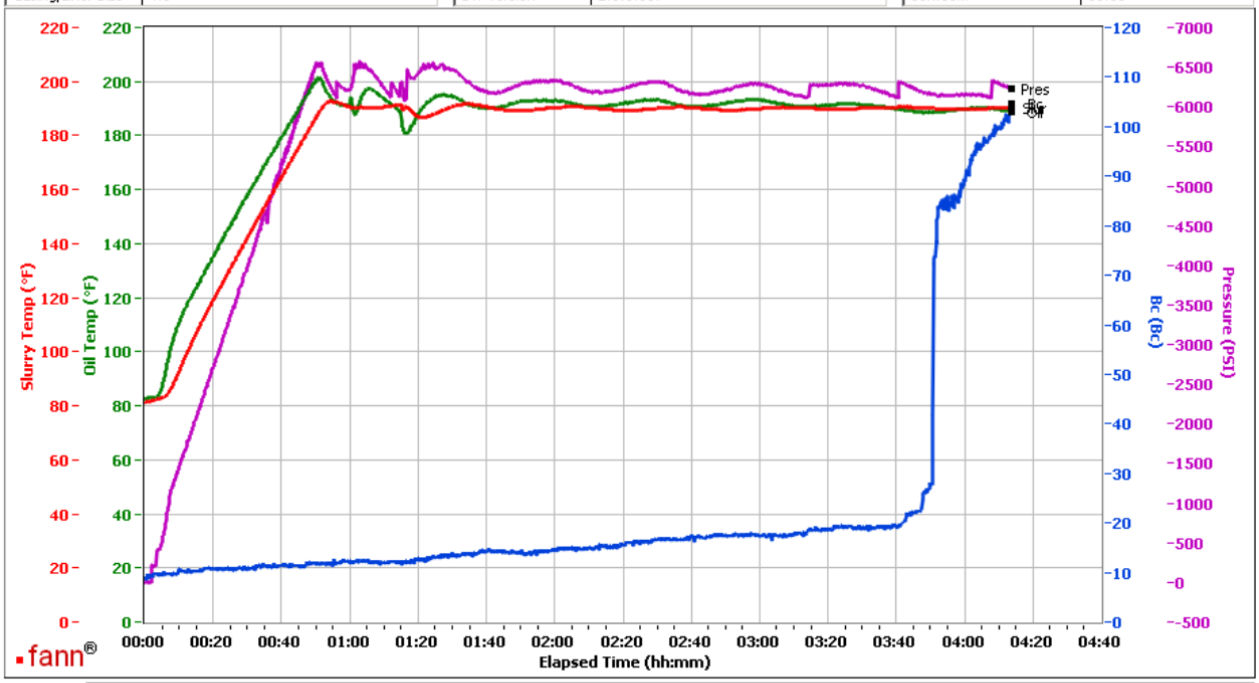
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
190	6338	50	3:50	3:50	3:50	4:09	9	60	15	12

Grand Junction Colorado

Fields	Values
Project Name	GJ2489912-1 TERRA PRODUCTION BULK LE
Test ID	35683442
Request ID	GJ2489912-1 TT
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	NR 411-3
Rig	H&P 318
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	GCC TYPE I-II
Cement Weight	Standard
Test Date	07/24/18
Test Time	01:29 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:50m
40.00 Bc	03h:50m
50.00 Bc	03h:50m
70.00 Bc	03h:50m
100.00 Bc	04h:09m
00h:30m	10.40
01h:00m	11.87
01h:30m	13.33



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Comments CS1576 TR#1972 265 SKS AND CS1557 TR#3212 265sKS

Total sks = 530
CS1576 TR# 1972 265 SKS
CS1577 TR# 3212 265 SKS
no deflection, 12Bc--- > 12Bc

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Rockies, Grand Junction

Lab Results- Tail

Job Information

Request/Slurry	2489913/1	**Rig Name**	H&P 318	**Date**	23/JUL/2018
Submitted By	Lukas Van Zyl	**Job Type**	Production Casing	**Bulk Plant**	Grand Junction
Customer	Terra Energy Partners	**Location**	Garfield	**Well**	NR 411-3

Well Information

Casing/Liner Size	4.5 in	**Depth MD**	10862 ft	**BHST**	122°C / 251°F
Hole Size	8.75 in	**Depth TVD**	10054 ft	**BHCT**	88°C / 190°F
Pressure	6338 psi				

Drilling Fluid Information

Mud Supplier Name	**Mud Trade Name**	**Density**

Cement Information - Tail Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.
		ThermaCem Tail			

Cement Properties

Slurry Density	14.2	lbm/gal
Slurry Yield	1.705	ft3/sack
Water Requirement	7.526	gal/sack
Total Mix Fluid	7.526	gal/sack
Water Source	Fresh Water	
Water Chloride		

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Operation Test Results Request ID 2489913/1

Thickening Time - ON-OFF-ON 25/JUL/2018

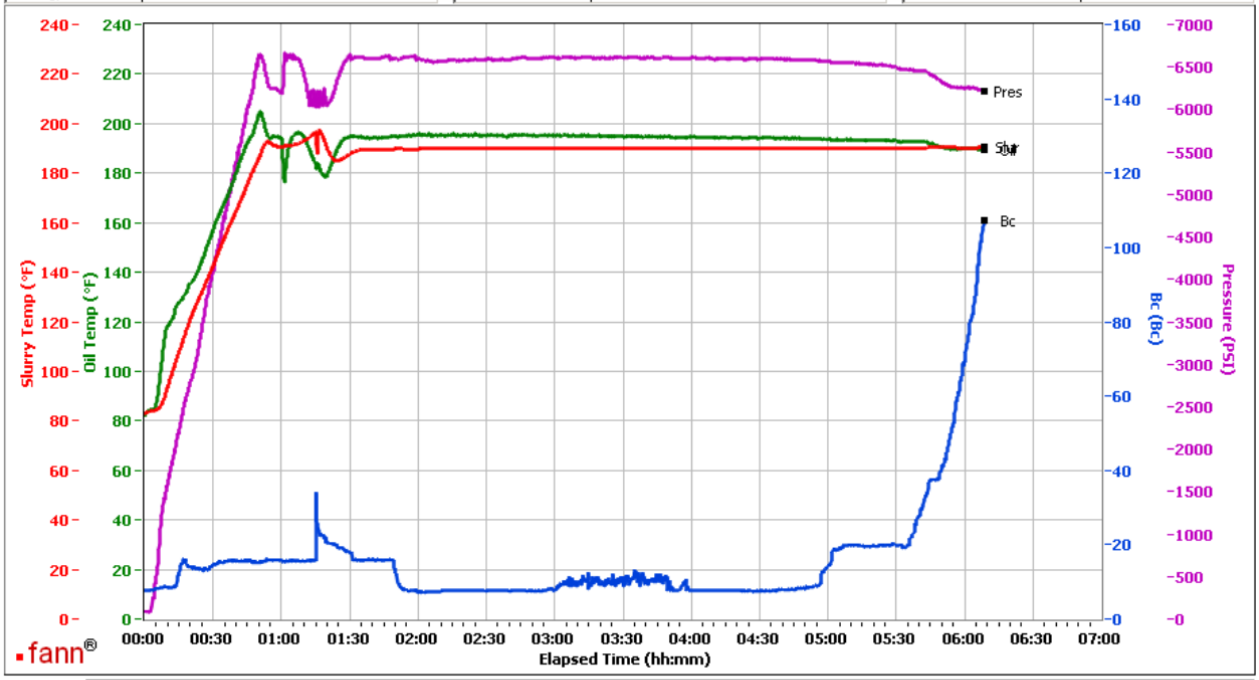
Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:min)	50 Bc (hh:min)	70 Bc (hh:min)	100 Bc (hh:min)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
190	6338	50	1:15	5:54	6:00	6:07	8	60	15	35

Grand Junction Colorado

Fields	Values
Project Name	GJ2489913-1 TERRA PRODUCTION BULK TA
Test ID	45683444
Request ID	GJ2489913-1
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	NR 411-3
Rig	H&P 318
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	07/25/18
Test Time	04:43 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	01h:15m
40.00 Bc	05h:49m
50.00 Bc	05h:54m
70.00 Bc	06h:00m
100.00 Bc	06h:07m
00h:30m	14.46
01h:00m	16.01
01h:30m	18.08



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Comments CS1582 TR#8658 370 SKS AND CS1585 TR#8677 370 SKS

Total sks = 740
CS1582 TR#8658 370 SKS
CS1585 TR#8677 370 SKS
Deflection: 16 - 35

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