

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

### **For: Terra**

Date: Sunday, November 04, 2018

CLOUGH NR 34-3

API# 05-045-23908-00

Job Date: Sunday, November 04, 2018

Sincerely,

**Grand Junction Cement Engineering**

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

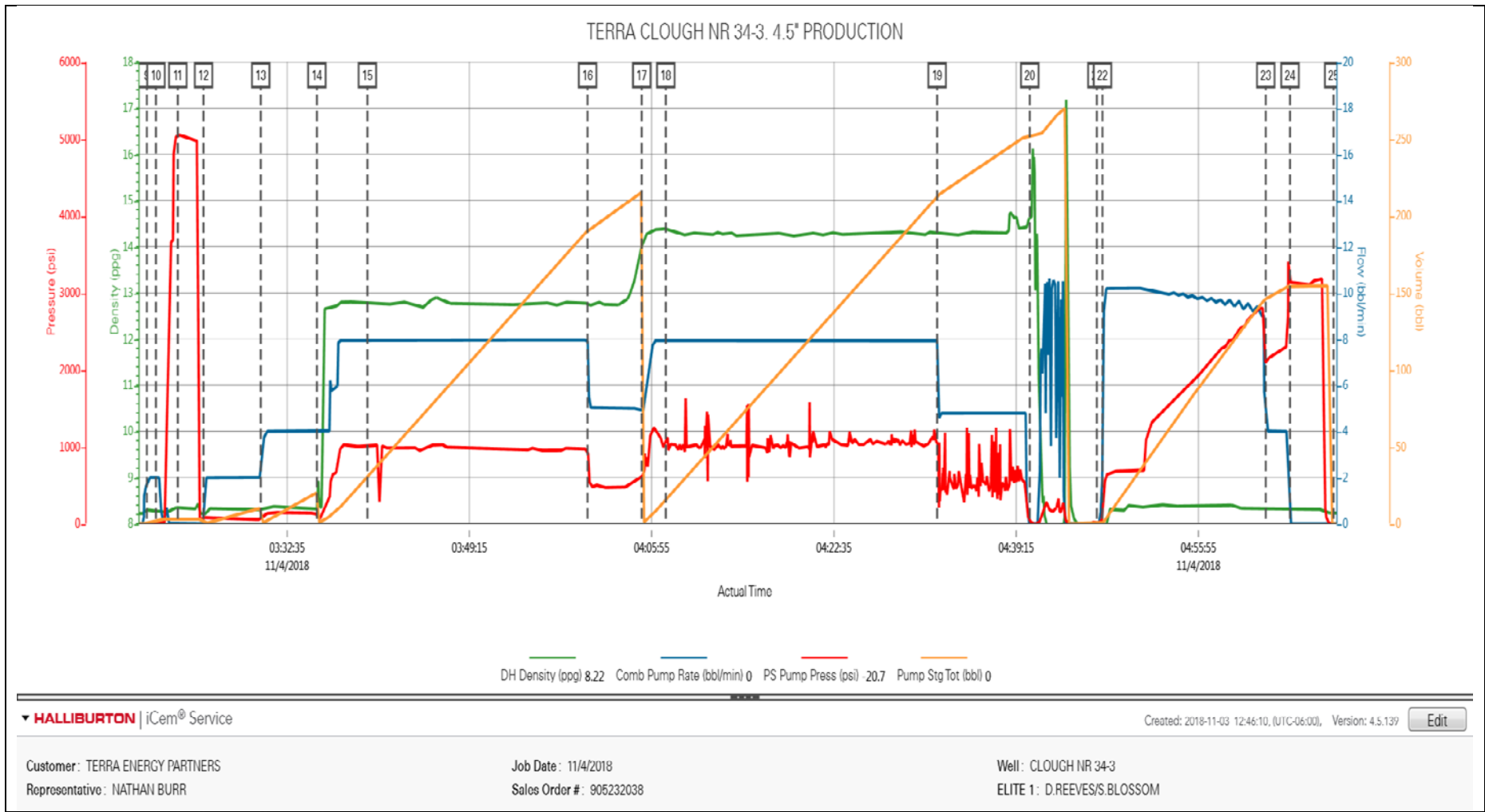
Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	11/3/2018	17:00:00	USER					REQUESTED ON LOCATION @ 23:00
Event	2	Pre-Convoy Safety Meeting	11/3/2018	19:00:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	11/3/2018	19:10:00	USER					1 HT 400 PUMP TRUCK E1, 1 660 BULK TRUCK, 1 550 SERVICE PICKUP
Event	4	Arrive At Loc	11/3/2018	21:30:00	USER					RIG RUNNING CASING WHEN HES ARRIVED AT LOCATION
Event	5	Assessment Of Location Safety Meeting	11/3/2018	21:40:00	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- 62F). COMP REP WAS OFFERED SDS FOR ALL CHEMICLES USED BY HES.
Event	6	Pre-Rig Up Safety Meeting	11/3/2018	21:45:00	USER					ALL HES PRESENT
Event	7	Rig-Up Equipment	11/3/2018	21:50:00	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	11/4/2018	03:00:00	USER						ALL HES EMPLOYEES AND RIG CREW PRESENT, RIG CIRCULATED @ 10 BPM PRIOR TO JOB PRESSURE @ 1025 PSI. 25 UNITS OF GAS. CALLIBRATED MUD SCALES ON WATER.
Event	9	Start Job	11/4/2018	03:19:46	COM6						TD 9993', TP 9986', SJ 31.68', SURFACE CSG 9 5/8" 36# J55 SET @ 1127' PRODUCTION CSG 4 ½" 11.6# P-110, OH 8 3/4", MUD 11.3 PPG
Event	10	Prime Lines	11/4/2018	03:20:36	USER	8.33	2	75	2	FRESH WATER	
Event	11	Test Lines	11/4/2018	03:22:36	COM6	5120					ALL LINES HELD PRESSURE AT 5120 PSI
Event	12	Pump H2O Spacer	11/4/2018	03:24:57	COM6	8.33	2	85	10	10BBLS FRESH WATER	
Event	13	Mud Flush	11/4/2018	03:30:11	COM6	8.4	4	175	20	20BBLS MUD FLUSH	
Event	14	Pump Lead Cement	11/4/2018	03:35:19	COM6	12.7	8	1000	213	645 SKS NEOCEM CMT 12.7 PPG, 1.85 FT3/SK, 8.94 GAL/SK	
Event	15	Check Weight	11/4/2018	03:39:56	COM6						WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	16	Slow Rate	11/4/2018	04:00:04	USER						SLOWED TO END LEAD SILO
Event	17	Pump Tail Cement	11/4/2018	04:05:01	COM6	14.2	8	1100	224	740 SKS THERMACEM CMT 14.2 PPG, 1.7 FT3/SK, 7.53 GAL/SK.	
Event	18	Check Weight	11/4/2018	04:07:13	COM6						WEIGHT VERIFIED VIA PRESSUREIZED MUD SCALES
Event	19	Slow Rate	11/4/2018	04:32:02	USER						SLOWED TO END TAIL SILO
Event	20	Clean Lines	11/4/2018	04:40:30	COM6						END OF CEMENT. CLEAN PUMPS AND LINES TO PIT.
Event	21	Drop Top Plug	11/4/2018	04:46:38	COM6						VERIFIED BY FLAG

										INDICATOR
Event	22	Pump Displacement	11/4/2018	04:47:09	COM6	8.4	10	2810	154.3	1 GAL MMCR IN FIRST 10 BBLS, 3 LBS BE-6 IN FIRST 30 BBLS, 1 50 LB. BAG KCL THROUGHOUT DISPLACEMENT
Event	23	Slow Rate	11/4/2018	05:02:05	USER	8.4	4	2140	144.3	SLOW RATE TO 4 BPM TO BUMP PLUG
Event	24	Bump Plug	11/4/2018	05:04:18	COM6	8.4	4	2350	154.3	LANDED PLUG AT 2350 PSI, BROUGHT UP TO 3150 PSI
Event	25	End Job	11/4/2018	05:08:17	COM6					RETURNS THROUGH OUT JOB. PIPE WAS RECIPERICATED. USED TOP PLUG, NO SUGAR USED.
Event	26	Post-Job Safety Meeting (Pre Rig-Down)	11/4/2018	05:10:00	USER					ALL HES PRESENT
Event	27	Rig Down Lines	11/4/2018	05:15:00	USER					ALL HES PRESENT
Event	28	Pre-Convoy Safety Meeting	11/4/2018	06:45:00	USER					ALL HES PRESENT
Event	29	Crew Leave Location	11/4/2018	07:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT, SHAWN BLOSSOM AND CREW

3.0 Attachments

3.1 CHART .png



**Job Information**

Request/Slurry	2510496/1	Rig Name	H&P 318	Date	23/OCT/2018
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	NR 34-3

**Well Information**

Casing/Liner Size	4.5 in	Depth MD	10000 ft	BHST	120°C / 248°F
Hole Size	8.75 in	Depth TVD	9894 ft	BHCT	81°C / 178°F
Pressure	6226 psi				

**Drilling Fluid Information**

Mud Supplier Name	Mud Trade Name	Density
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**Cement Information - Lead Design**

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		NeoCem				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 2510496/1

## Thickening Time - ON-OFF-ON

29/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)
178	6226	58	4:42	4:42	4:43	4:43	12	68	15	12

Total sks = 645

CS2372 TR#8678 420 SKS

CS2377 TR#8321 225 SKS

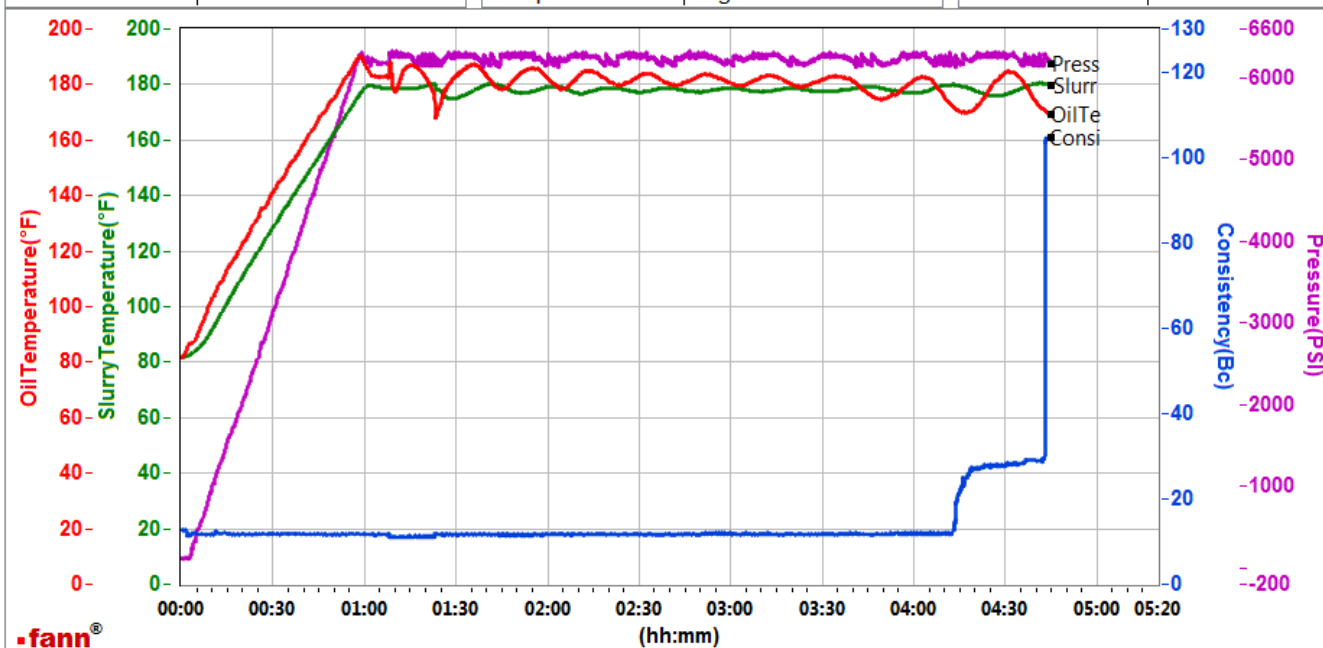
No deflection

## GRAND JUNCTION LAB

Fields	Values
Project Name	GJ2510496-1 Terra Prodi
SW Version	1.0
Test ID	35791318 - TT
Request ID	2510496-1-1
Tested by	DEBA
Customer	TERRA ENERGY PARTN
Well No	NR 34-3

Fields	Values
Rig	H&P 318
Casing/Liner Size	9.625 INCH
Job Type	PRODUCTION CASING
Cement Weight	GCC TYPE I-II
Comments	Standard
Date Time	10/28/2018 14:15:43.23
Temp. Units	degF

Events	Results
30 Bc	04:42
40 Bc	04:42
50 Bc	04:42
70 Bc	04:43
100 Bc	04:43



Data File N:\01 Test Graphs\GJ2510496-1 TERRA PRODUCTION BULK LEAD.tdms

Comments Standard

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2510497/1	Rig Name	H&P 318	Date	23/OCT/2018
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	NR 34-3

### Well Information

Casing/Liner Size	4.5 in	Depth MD	10000 ft	BHST	120°C / 248°F
Hole Size	8.75 in	Depth TVD	9894 ft	BHCT	81°C / 178°F
Pressure	6226 psi				

### Drilling Fluid Information

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



Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		ThermaCem				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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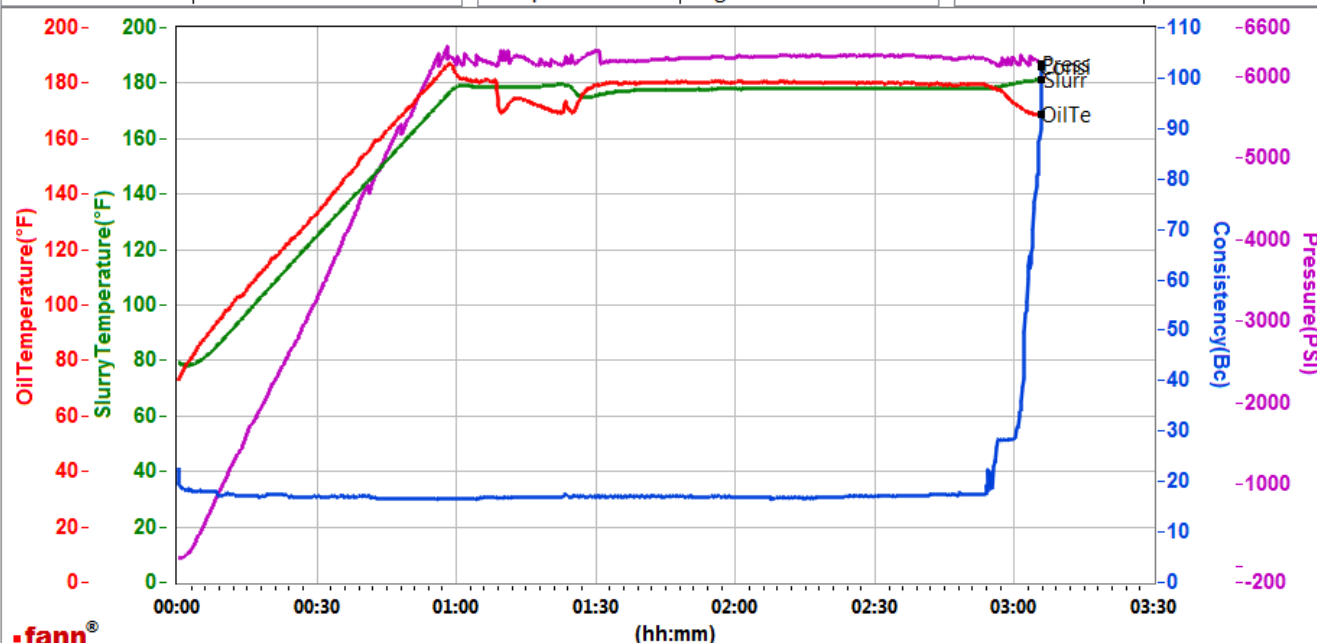
**Thickening Time - ON-OFF-ON**
**29/OCT/2018**

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)
178	6226	58	3:00	3:02	3:04	3:05	22	68	15	17

No deflection

**GREAND JUNCTION**

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2510497-1 Terra Prodi	Rig	H&P 318	30 Bc	03:00
SW Version	1.0	Casing/Liner Size	4.5"	40 Bc	03:02
Test ID	35936451-TT	Job Type	PRODUCTION CASING	50 Bc	03:02
Request ID	GJ2510497-1	Cement Weight	MOUNTAIN G	70 Bc	03:04
Tested by	DEBA	Comments	Standard	100 Bc	03:05
Customer	TERRA ENERGY PARTN	Date Time	10/28/2018 13:10:30.127		
Well No	NR 34-3	Temp. Units	degF		



Data File N:\01 Test Graphs\GJ2510497-1 TERRA PRODUCTION BULK TAIL .tdms

Comments Standard

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