

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

United States of America, COLORADO

Date: Friday, January 18, 2019

CLOUGH NR 334-3 Production

Terra CLOUGH NR 334-3 Production

API # 05-045-23909-00

Job Date: Saturday, December 01, 2018

Sincerely,

Grand Junction Cement Engineering

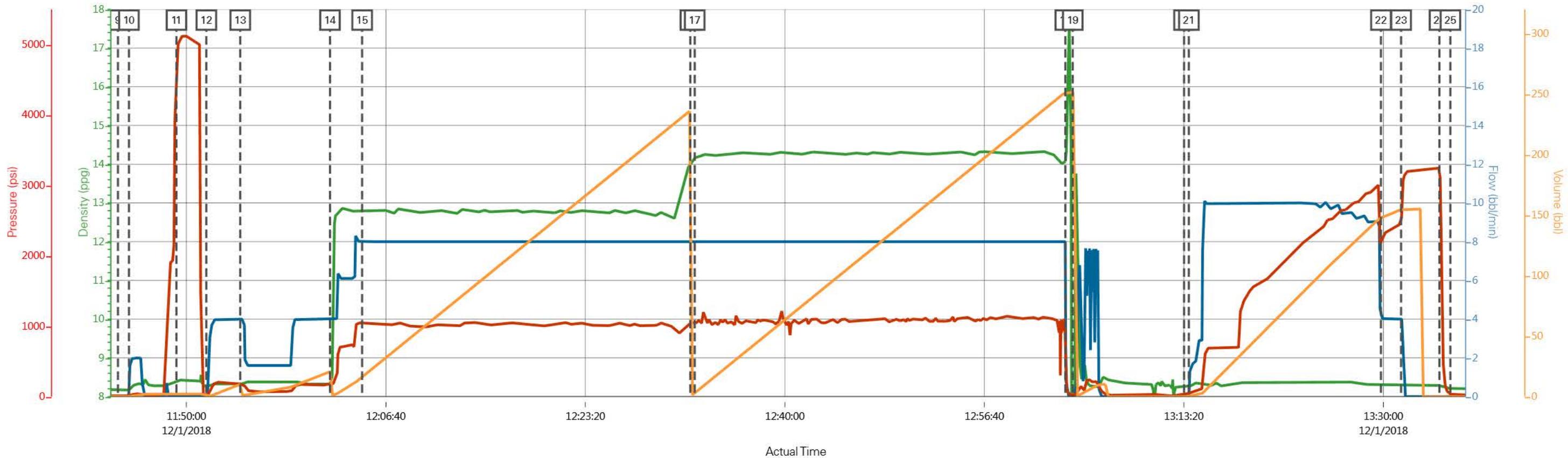
1.0 Real-Time Job Summary

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	12/1/2018	03:00:00	USER					Requested on Location @ 7:00
Event	2	Pre-Convoy Safety Meeting	12/1/2018	04:45:00	USER					
Event	3	Crew Leave Yard	12/1/2018	05:00:00	USER					1 Elite, 1 660, 1 pickup
Event	4	Arrive at Location from Service Center	12/1/2018	07:20:00	USER					Rig running casing
Event	5	Assessment Of Location Safety Meeting	12/1/2018	07:30:00	USER					JSA completed - Customer offered/received SDS - water test pH 7.0, Cl <200, temp 60 and 80 degrees
Event	6	Pre-Rig Up Safety Meeting	12/1/2018	07:45:00	USER					1 hardline to standpipe, water hoses to upright, bulk hose to 660 and 2 silos.
Event	7	Pre-Job Safety Meeting	12/1/2018	10:30:38	USER					All HES personnel, rig crew, and company rep
Event	8	Other	12/1/2018	11:00:00	USER					Rig Circulated 30 mins prior to cement job at 450 gpm 300 psi
Event	9	Start Job	12/1/2018	11:44:17	USER	8.33	0.00	11.00	0.00	TD 9995', TP 9988.69, SJ 29.48', OH 8 3/4", Csg 4.5", 11.6 lb/ft P-110, Scsg 9.625" 36# @1108', Mud 11.4 ppg.
Event	10	Fill Lines	12/1/2018	11:45:12	USER	8.28	2.00	47.00	2.00	Fresh Water
Event	11	Test Lines	12/1/2018	11:49:10	USER	8.37	0.00	5007.00	2.10	Held pressure 2 minutes no leaks
Event	12	Pump Water	12/1/2018	11:51:40	COM5	8.33	4.00	230.00	10.00	Fresh Water
Event	13	Pump Mud Flush	12/1/2018	11:54:30	COM5	8.42	4.00	177.00	20.00	Mud Flush
Event	14	Pump Lead Cement	12/1/2018	12:02:00	COM5	12.70	8.00	1080.00	212.50	NEOCEM, 645 SKS, 12.7PPG, 1.85CF/SK, 8.94GL/SK
Event	15	Check Weight	12/1/2018							Density Verified via Mud Scales

Event	16	Pump Tail Cement	12/1/2018	12:32:06	COM5	14.20	8.00	1107.00	224.00	THERMACEM 740SKS, 14.2PPG, 1.7CF/SK, 7.53GL/SK
Event	17	Check Weight	12/1/2018	12:32:28	COM5					Density Verified via Mud Scales
Event	18	Shutdown	12/1/2018	13:03:26	USER					Clean lines to pit
Event	19	Clean Lines	12/1/2018	13:04:03	COM5					Lines cleaned and blew back to pit
Event	20	Drop Top Plug	12/1/2018	13:13:21	USER					Co-Rep Verify Plug Launched
Event	21	Pump Displacement	12/1/2018	13:13:45	USER	8.46	10.00	3011.00	154.40	3 lbs BE-6, 1 gal MMCR, 2% KCl
Event	22	Slow Rate	12/1/2018	13:29:48	USER	8.29	4.10	2401.00	144.00	Slow Rate 10 bbls to calculated displacement
Event	23	Bump Plug	12/1/2018	13:31:29	USER	8.28	4.00	2454.00	154.40	Plug Bumped at 2454 psi, Brought up to 3252psi
Event	24	Check Floats	12/1/2018	13:34:41	USER	8.29	0.00	3252.00	0.00	Floats held – 2 ½ bbl back to the truck
Event	25	End Job	12/1/2018	13:35:36	USER					Good returns throughout job. Pipe was reciprocated during job.
Event	26	Post-Job Safety Meeting (Pre Rig-Down)	12/1/2018	13:40:00	USER					No sugar, HES top plug used, 0 add hours
Event	27	Pre-Convoy Safety Meeting	12/1/2018	14:45:00	USER					All HES present
Event	28	Crew Leave Location	12/1/2018	15:00:00	USER					Thanks For Using Halliburton Cement. Andrew Brennecke And Crew.

TERRA ENERGY PARTNERS - CLOUGH NR 334-3 - 4.5" PRODUCTION



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

Job Information

Request/Slurry	2516014/1	Rig Name	H&P 318	Date	18/NOV/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	NR 334-3

Well Information

Casing/Liner Size	4.5 in	Depth MD	10031 ft	BHST	120°C / 248°F
Hole Size	8.75 in	Depth TVD	9863 ft	BHCT	81°C / 178°F
Pressure	6204 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	12.7	lbm/gal
							Slurry Yield	1.85	ft ³ /sack
							Water Requirement	8.95	gal/sack
							Total Mix Fluid	8.95	gal/sack
							Water Source	Fresh Water	
							Water Chloride		

These are draft results and have not been approved for final use.

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Operation Test Results Request ID 2516014/1

Thickening Time - ON-OFF-ON, Request Test ID:35991557

26/NOV/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)
198	6204	57	3:29	4:04	4:08	4:08	9	67	15	28

Total Skis = 645

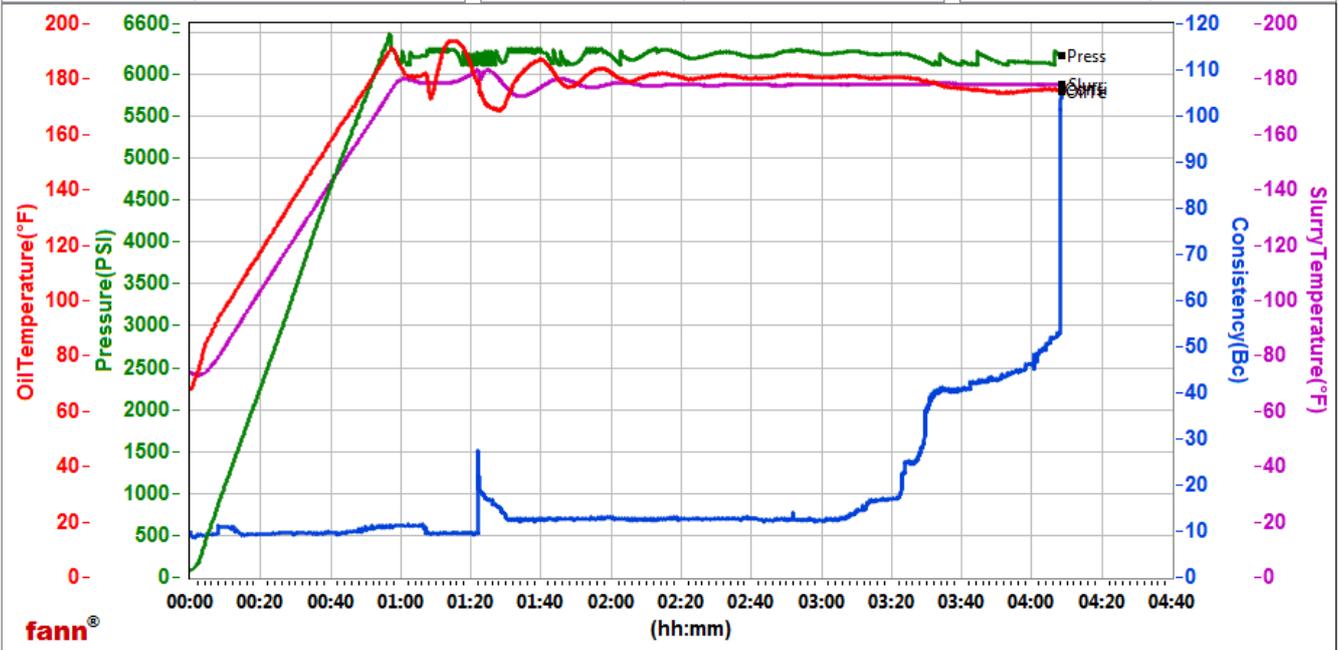
CS2520 TR#2978 400 SKS

CS2521 TR#4080 245 SKS

deflected from 10Bc--- > 28Bc--- > 19Bc within one minute

Grand Junction

Fields	Values	Fields	Values	Events	Results
Project Name	TempTest	Rig	H&P318		
SW Version	1.0	Casing/Liner Size	4.5"		
Test ID	35991557-TT	Job Type	PRODUCTION CASING		
Request ID	2516014-1	Cement Weight	GCC TYPE I-II		
Tested by	DEBA	Comments	Standard		
Customer	TERRA ENERGY PARTN	Date Time	11/26/2018 08:13:47.988		
Well No	NR 334-3	Temp. Units	degF		



Data File C:\Users\hx25273\Desktop\new Graph M290\GJ2516014-1 TERRA PRODUCTION BULK LEAED.tdms

Comments Standard

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Job Information

Request/Slurry	2516015/1	Rig Name	H&P 318	Date	18/NOV/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	NR 334-3

Well Information

Casing/Liner Size	4.5 in	Depth MD	10031 ft	BHST	120°C / 248°F
Hole Size	8.75 in	Depth TVD	9863 ft	BHCT	81°C / 178°F
Pressure	6204 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>	<u>Cement Properties</u>		
							Slurry Density	14.2	lbm/gal
							Slurry Yield	1.7	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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Operation Test Results Request ID 2516015/1

Thickening Time - ON-OFF-ON, Request Test ID:35991559

27/NOV/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)
178	6204	57	2:42	2:42	2:44	2:53	15	67	15	16

Total sks = 740

CS2524 TR#1513 370SKS

CS2526 TR#8476 370 SKS

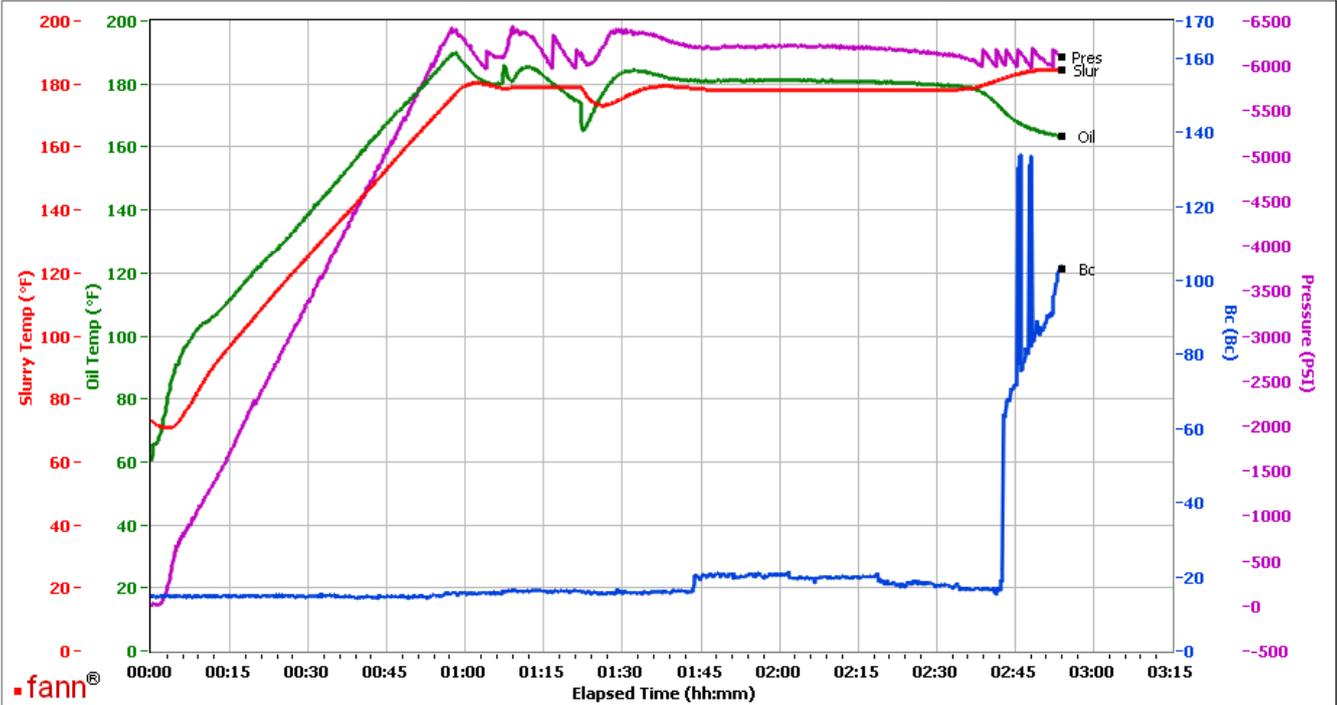
No deflection. Please note heat of hydration started around 2:37.

Grand Junction Colorado

Fields	Values
Project Name	GJ2516015-1 TERRA PRODUCTION BULK TA
Test ID	35991559-TT
Request ID	GJ2516015-1
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	NR 334-3
Rig	H&P 318
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	4.5"
Cement Weight	Standard
Test Date	11/26/18
Test Time	10:19 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	02h:42m
40.00 Bc	02h:42m
50.00 Bc	02h:42m
70.00 Bc	02h:44m
100.00 Bc	02h:53m
00h:30m	14.91
01h:00m	15.74
01h:30m	15.69



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2516015-1 TERRA PRODUCTION BULK TAIL.tdms

Comments CS2524 TR#1513 370 SKS AND CS2525 TR#8476, 370 SKS

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