

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

United States of America, COLORADO

Date: Monday, June 18, 2018

### **PA 531-26**

API # 05-045-23726-00

Terra PA 531-26 Production

Job Date: Tuesday, June 12, 2018

Sincerely,

**Grand Junction Cement Engineering**

## 1.0 Real-Time Job Summary

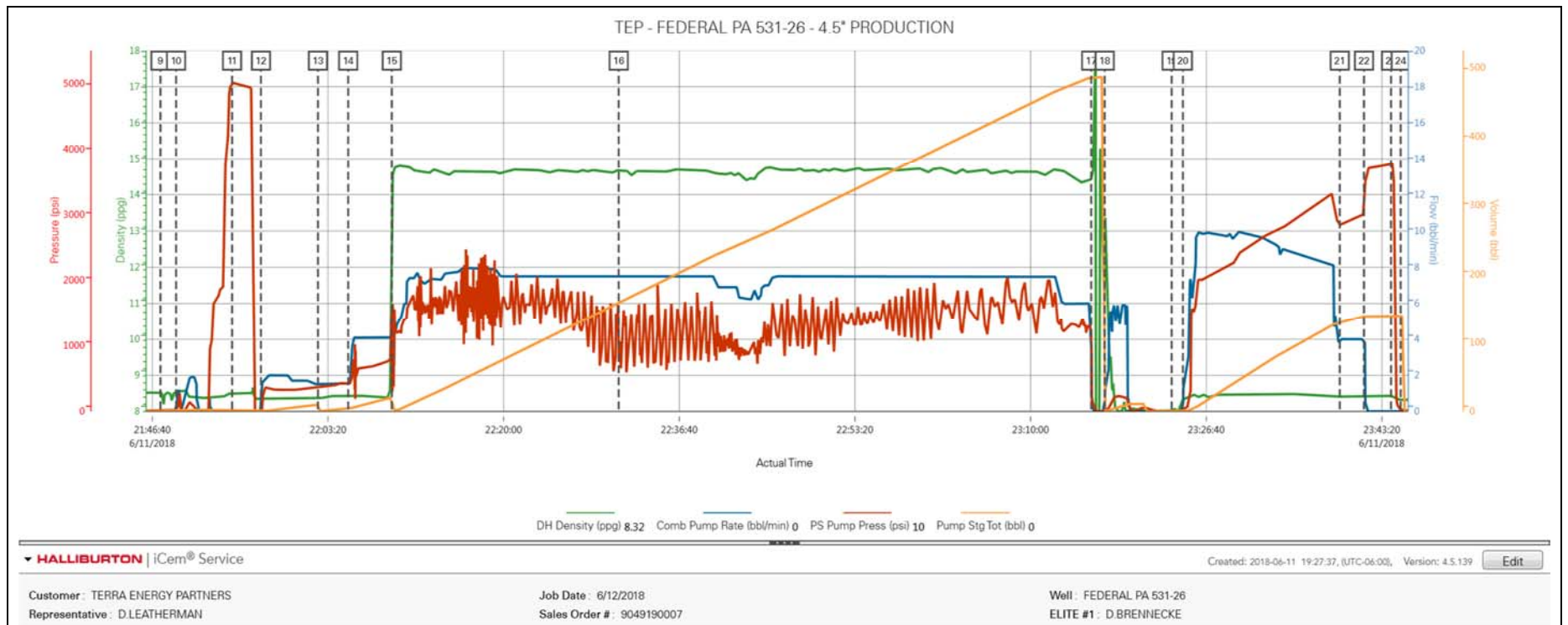
## 1.1 Job Event Log

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	6/11/2018	14:30:00	USER					Requested on Location @ 19:30
Event	2	Pre-Convoy Safety Meeting	6/11/2018	16:00:00	USER					
Event	3	Crew Leave Yard	6/11/2018	16:30:00	USER					1 Elite, 1 660, 1 pickup
Event	4	Arrive at Location from Service Center	6/11/2018	17:45:00	USER					Rig running casing
Event	5	Assessment Of Location Safety Meeting	6/11/2018	18:00:00	USER					JSA completed - Customer offered/received SDS - water test pH 7.0, CI <200, temp 69 degrees
Event	6	Pre-Rig Up Safety Meeting	6/11/2018	18:10:00	USER					1 hardline to standpipe, water hoses to upright, bulk hose to 660.
Event	7	Other	6/11/2018	20:00:00	USER					Rig Circulated 1 1/2 bottoms up prior to cement job at 470 gpm 1800 psi
Event	8	Pre-Job Safety Meeting	6/11/2018	21:15:00	USER					All HES personnel, rig crew, and company rep
Event	9	Start Job	6/11/2018	21:47:26	USER	8.40	0.00	0.00	0.00	TP 8901.24', SJ 32.7', OH 8.75'', Csg 4.5" 11.6lb/ft P110 SCsg 9.625" 36 lb/ft Shoe @ 1103', Mud 12.9 ppg.
Event	10	Fill Lines	6/11/2018	21:48:55	USER	8.46	2.00	125.00	3.00	Fresh Water
Event	11	Test Lines	6/11/2018	21:54:14	USER	8.50	0.00	5009.00	3.10	Held pressure 2 minutes no leaks
Event	12	Pump Water Spacer	6/11/2018	21:56:58	COM5	8.35	2.00	400.00	10.00	Fresh water
Event	13	Pump Mud Flush Spacer	6/11/2018	22:02:23	COM5	8.40	4.00	750.00	20.00	Mud Flush III

Event	14	Check Weight	6/11/2018	22:05:15	COM5					Weight verified by pressurized mud scales
Event	15	Pump Lead Cement	6/11/2018	22:09:23	USER	14.50	7.50	2003.00	450.20	1915 Sks 14.5 ppg 1.32 yield 5.85 gal/sk
Event	16	Check Weight	6/11/2018	22:30:55	COM5					Weight verified by pressurized mud scales
Event	17	Shutdown	6/11/2018	23:15:45	USER					End of cement
Event	18	Clean Lines	6/11/2018	23:17:02	USER					Cleaned lines and blew lines back to pit
Event	19	Drop Top Plug	6/11/2018	23:23:23	USER					Plug away
Event	20	Pump Displacement	6/11/2018	23:24:27	COM5	8.40	10.00	3260.00	137.50	KCL water, 3# BE6, 1 GAL MMCR
Event	21	Slow Rate	6/11/2018	23:39:20	USER	8.40	4.00	2831.00	127.50	Slow Rate 10 bbls to calculated displacement
Event	22	Bump Plug	6/11/2018	23:41:38	COM5	8.41	4.00	3007.00	137.50	Plug bumped 3007 psi
Event	23	Check Floats	6/11/2018	23:44:12	USER	8.43	0.00	3770.00	137.5	Floats held – 1 ½ bbl back to the truck
Event	24	End Job	6/11/2018	23:45:07	COM5	8.32	0.00	2.00	0.00	Good returns throughout job. Pipe was reciprocated throughout job also.
Event	25	Post-Job Safety Meeting (Pre Rig-Down)	6/11/2018	23:50:00	USER					All HES present
Event	26	Pre-Convoy Safety Meeting	6/12/2018	00:45:00	USER					All HES present
Event	27	Crew Leave Location	6/12/2018	01:00:00	USER					Thanks For Using Halliburton Cement. Andrew Brennecke And Crew.

## 2.0 Attachments

### 2.1 904910007 4.5 PRODUCTION-Custom Results.png



### Job Information

Request/Slurry	2478854/2	Rig Name	H&P 271	Date	03/JUN/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	PA 531-26

### Well Information

Casing/Liner Size	4.5 in	Depth MD	9064 ft	BHST	106°C / 223°F
Hole Size	8.75 in	Depth TVD	8396 ft	BHCT	67°C / 153°F
Pressure	5177 psi				

### Drilling Fluid Information

Mud Supplier Name	AMC	Mud Trade Name	Density
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### Cement Information - Primary Design

Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		ExpandaCem				Slurry Density	14.5	lbm/gal
						Slurry Yield	1.32	ft3/sack
						Water Requirement	5.849	gal/sack
						Total Mix Fluid	5.849	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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# Operation Test Results Request ID 2478854/2

## Thickening Time - ON-OFF-ON

09/JUN/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)
153	5177	43	1:08	3:45	3:47	3:47	7	53	15	32

total sks=1915

CS1198, Trailer 8678, 450 sks

CS1197, Trailer 8677, 450 sks

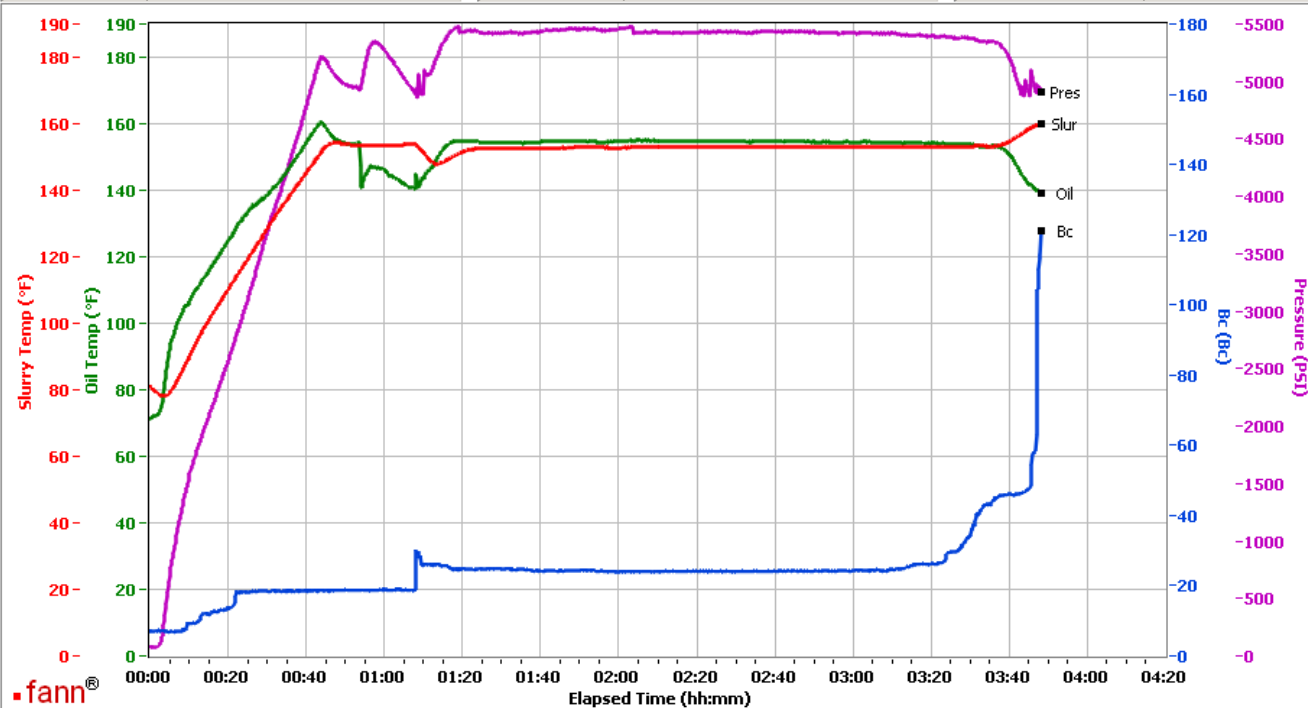
Deflection: 18 - 32

## Grand Junction Colorado

Fields	Values
Project Name	GJ2478854-2 TERRA BULK PRODUCTION PR
Test ID	35565324 - TT
Request ID	2478854-2
Tested by	CT
Customer	TERRA ENERGY PARTNERS
Well No	PA 531-26
Rig	H&P 271
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	06/09/18
Test Time	04:04 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	01h:08m
40.00 Bc	03h:31m
50.00 Bc	03h:45m
70.00 Bc	03h:47m
100.00 Bc	03h:47m
00h:30m	18.36
01h:00m	19.17
01h:30m	24.72



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\K9YZ0P2R\GJ2478854-2 TERRA BULK PRODUCTION PRIMARY[1].tdms

Comments CS1198, TRAILER 8678, 450 SKS - CS1197, TRAILER 8677, 450 SKS

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# Operation Test Results Request ID 2478854/1

## Thickening Time - ON-OFF-ON

08/JUN/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)
153	5177	43	3:18	3:29	3:31	3:31	17	53	15	19

total sks= 1915

CS1191, Trailer 1513, 450 sks

CS1192, Trailer 8476, 450 sks

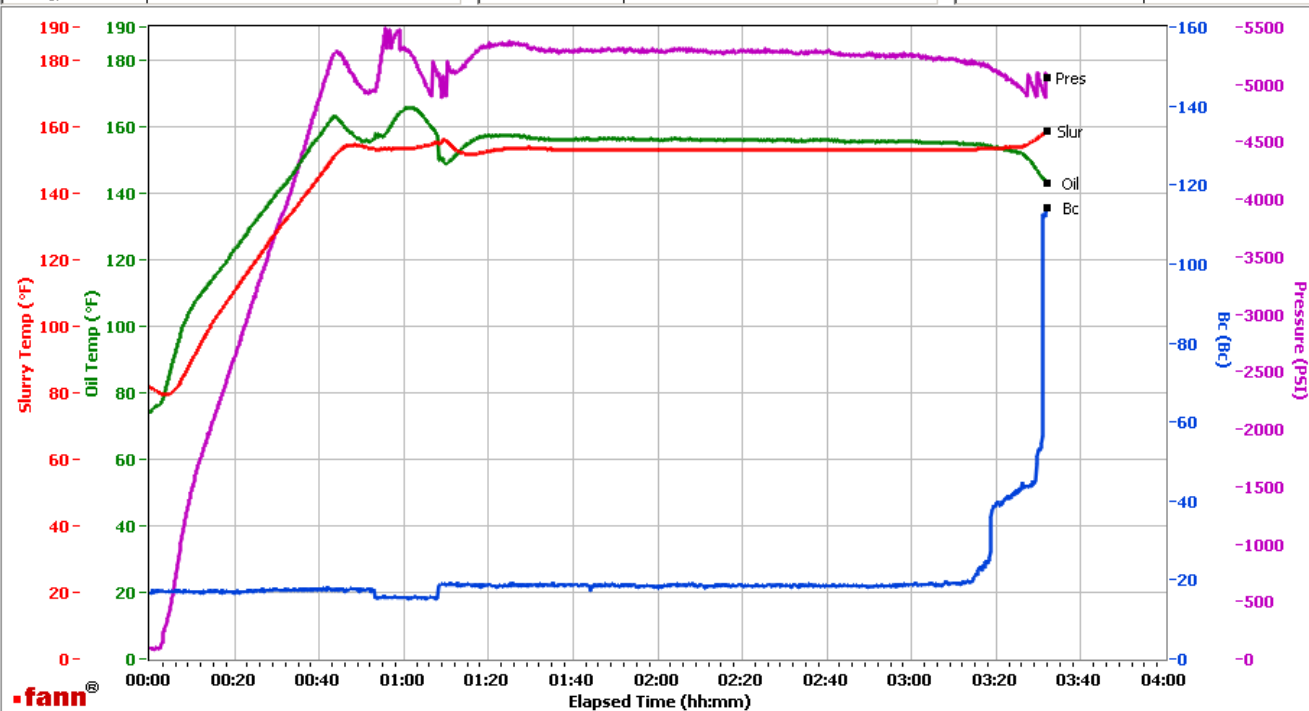
CS1193, Trailer 3212 - Front Pod, 115 sks

## Grand Junction Colorado

Fields	Values
Project Name	GJ2478854-1 TERRA BULK PRODUCTION PR
Test ID	35549674 - TT
Request ID	2478854-1
Tested by	CT
Customer	TERRA ENERGY PARTNERS
Well No	PA 531-26
Rig	H&P 271
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	06/08/18
Test Time	09:31 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:18m
40.00 Bc	03h:20m
50.00 Bc	03h:29m
70.00 Bc	03h:31m
100.00 Bc	03h:31m
00h:30m	17.68
01h:00m	15.61
01h:30m	18.58



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Comments CS1191, TRAILER 1513, 450 SKS - CS1192, TRAILER 8476, 450 SKS - CS1193, TRAILER 3212 - FRONT POD

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