

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

United States of America, COLORADO

### **For: Terra**

Date: Thursday, April 26, 2018

### **PA 33-26 Production PJR**

API #: 05-045-23720

Sincerely,

**Grand Junction Cement Engineering**

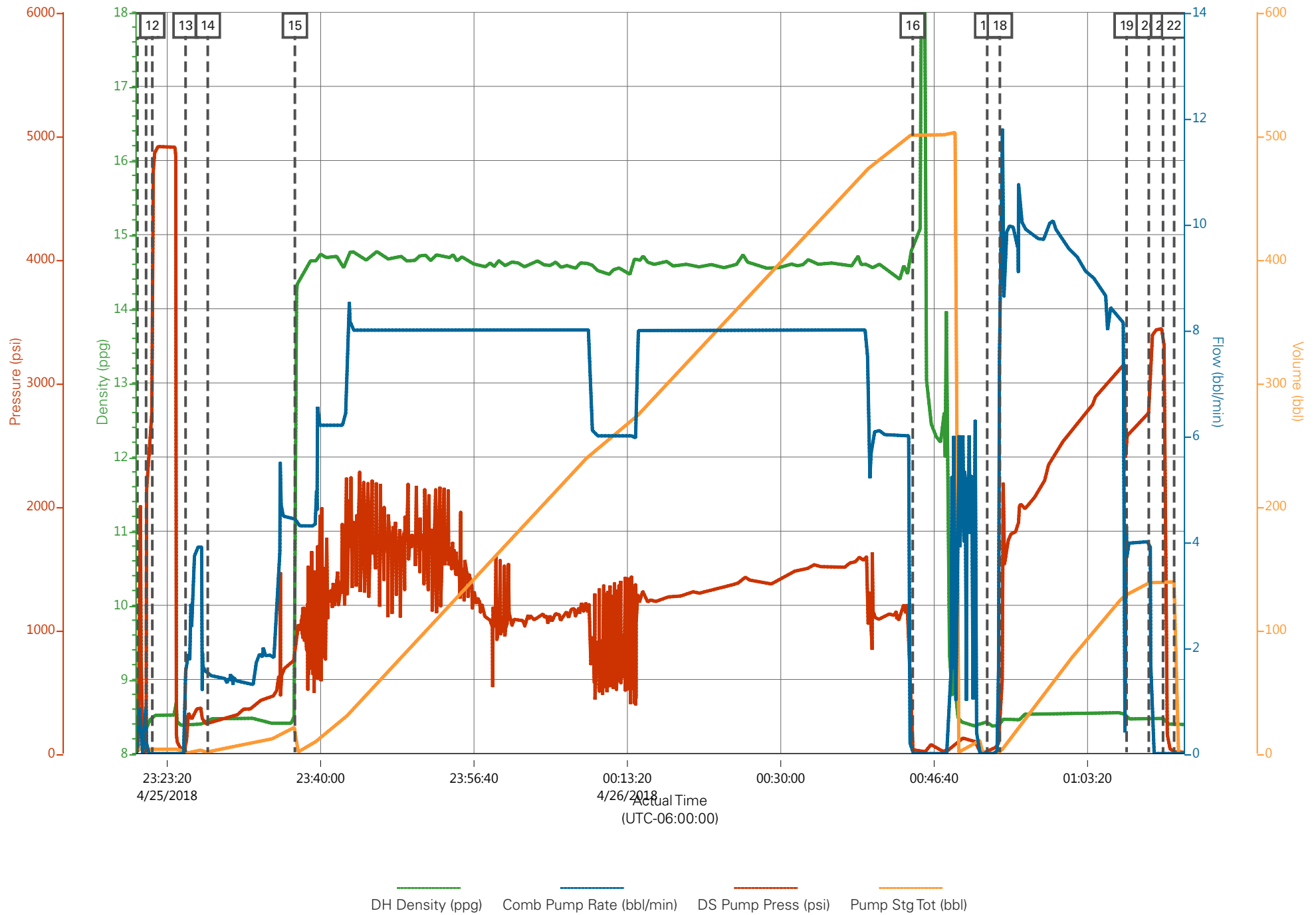
## 1.0 Real-Time Job Summary

## 1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density (ppg)	DS Pump Press (psi)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	4/25/2018	14:00:00						Requested on Location @ 20:00
Event	2	Pre-Convoy Safety Meeting	4/25/2018	16:00:00						
Event	3	Crew Leave Yard	4/25/2018	16:20:00						1 Elite, 1 660, 1 pickup
Event	4	Arrive at Rig	4/25/2018	20:00:00						Rig running casing
Event	5	Assessment Of Location Safety Meeting	4/25/2018	20:10:00						JSA completed - Customer offered/received SDS - water test pH 7.0, Cl <200, temp 55 degrees
Event	6	Pre-Rig Up Safety Meeting	4/25/2018	20:15:00						
Event	7	Rig-Up Equipment	4/25/2018	20:30:00						1 hardline to standpipe, water hoses to upright, bulk hose to Silos and 660.
Event	8	Other	4/25/2018	20:40:00						Rig Circulated 1 hour prior to cement job
Event	9	Pre-Job Safety Meeting	4/25/2018	22:00:00						All HES personnel, rig crew, and company rep
Event	10	Start Job	4/25/2018	23:20:06						TD 8517', TP 8510.14, SJ 34.8', FC 8475.34 OH 8 3/4", Csg 4 1/2" 11.6#, Surface Csg 9.625" 36# @ 1135', Mud 12.7 ppg.
Event	11	Fill Lines	4/25/2018	23:21:02		8.33	280	2	5	Fresh Water
Event	12	Test Lines	4/25/2018	23:21:43		8.33	4950			Held pressure 2 minutes no

									leaks
Event	13	Pump Spacer	4/25/2018	23:25:20	8.33	370	4	5	Fresh Water
Event	14	Pump Mud Flush	4/25/2018	23:27:44	8.4	680	4	20	80 lbs. Mud Flush III
Event	15	Pump Cement	4/25/2018	23:37:12	14.5	1900	8	430.2	1830 Sks 14.5 ppg 1.32 yield 5.85 gal/sk
Event	16	Shutdown	4/26/2018	00:44:20					Wash lines to pit
Event	17	Drop Top Plug	4/26/2018	00:52:26					Co-Rep Verify Plug Launched
Event	18	Pump Displacement	4/26/2018	00:53:48	8.4	3150	10	132	3 lbs BE-6, 1 gal MMCR, 2% KCl
Event	19	Slow Rate	4/26/2018	01:07:35	8.4	2730	4	122	Slow Rate 10 bbls to calculated displacement
Event	20	Bump Plug	4/26/2018	01:09:59	8.4	3435			Plug Bumped at 2730 psi, Brought up to 3435 psi
Event	21	Check Floats	4/26/2018	01:11:32					Floats held – 1 ½ bbl back to the truck
Event	22	End Job	4/26/2018	01:12:44					Good returns throughout job. Pipe was reciprocated during job.
Event	23	Pre-Rig Down Safety Meeting	4/26/2018	01:36:40					No sugar, HES top plug used, 0 add hours
Event	24	Rig-Down Equipment	4/26/2018	01:39:36					
Event	25	Pre-Convoy Safety Meeting	4/26/2018	01:45:58					
Event	26	Crew Leave Location	4/26/2018	01:51:18					Thanks For Using Halliburton Cement. Chris Martinez And Crew.

# PA 33-26 Production



## Job Information

Request/Slurry	2468061/2	Rig Name	H&P 271	Date	18/APR/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	PA 33-26

## Well Information

Casing/Liner Size	4.5 in	Depth MD	8533 ft	BHST	106°C / 222°F
Hole Size	8.75 in	Depth TVD	8341 ft	BHCT	67°C / 152°F
Pressure	5139 psi				

## Drilling Fluid Information

Mud Supplier Name	AMC	Mud Trade Name	Density
-------------------	-----	----------------	---------

## Cement Information - Primary Design



Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
		VariCem				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		

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

# Operation Test Results Request ID 2468061/2

## Thickening Time - ON-OFF-ON

22/APR/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)
152	5139	43	1:08	3:46	3:53	3:56	15	53	15	31

total sks=1830

CS0926, Trailer 8678, 425 sks

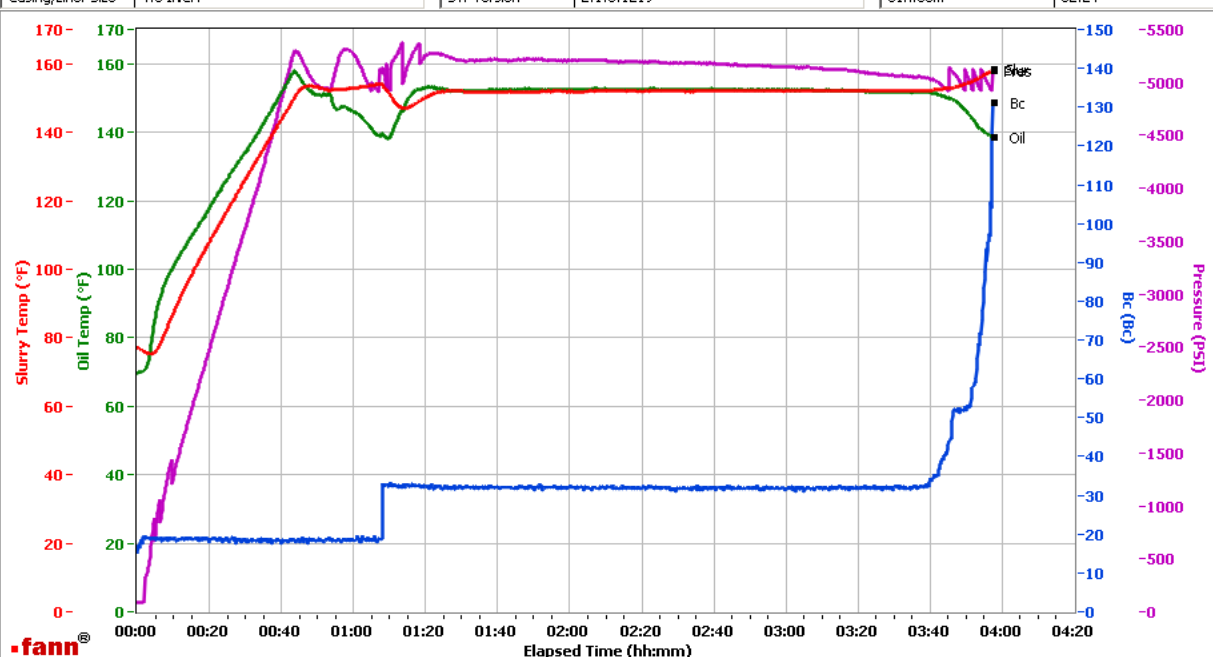
CS0927, Trailer 8476, 425 sks

CS0928, Trailer 1972, 130 sks

deflected from 18Bc--- > 31Bc from the graph

## Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	2468061-2 TERRA BULK PRODUCTION PRIM	Job Type	PRODUCTION CASING	30.00 Bc	01h:08m
Test ID	35437331 - TT	Cement Type	MOUNTAIN G	40.00 Bc	03h:43m
Request ID	2468061-2	Cement Weight	Standard	50.00 Bc	03h:46m
Tested by	CT	Test Date	04/21/18	70.00 Bc	03h:53m
Customer	TERRA ENERGY PARTNERS	Test Time	04:55 PM	100.00 Bc	03h:56m
Well No	PA 33-26	Temp. Units	degF	00h:30m	18.82
Rig	H&P 271	Pressure Units	PSI	01h:00m	18.44
Casing/Liner Size	4.5 INCH	SW Version	2.1.0.1219	01h:30m	32.24



Data File C:\Documents and Settings\HPHT\Local Settings\Temporary Internet Files\Content.IE5\09ERK9UN\GJ2468061-2 TERRA BULK PRODUCTION PRIMARY[1].tdms

Comments CS0926, TRAILER 8678, 425 SKS - CS0927, TRAILER 8476, 425 SKS - CS0928, TRAILER 1972, 130 SKS

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

## Operation Test Results Request ID 2468061/1

### Thickening Time - ON-OFF-ON

22/APR/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)
152	5139	43	3:15	3:27	3:31	3:34	24	53	15	16

total sks=1830

CS0924, Trailer 8658, 425 sks

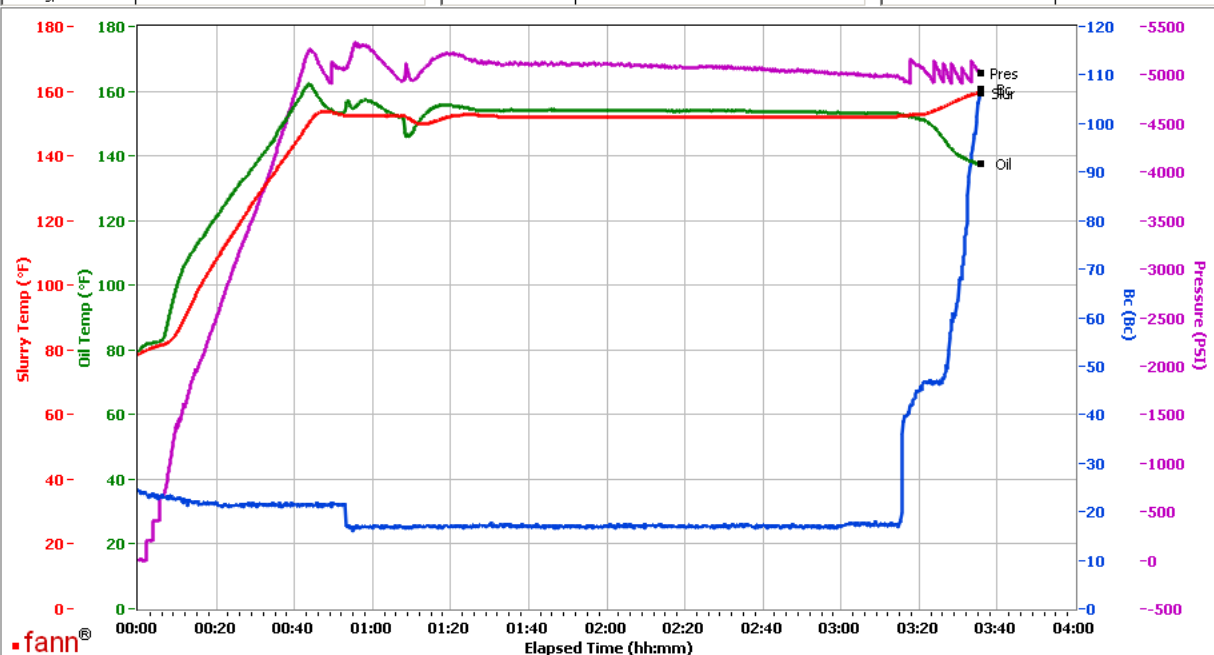
CS0925, Trailer 8677, 425 sks

deflected from 21Bc--- > 16Bc

please note heat of hydration at 3:18

### Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	2468061-1 TERRA BULK PRODUCTION PRIM	Job Type	PRODUCTION CASING	30.00 Bc	03h:15m
Test ID	35429097 - TT	Cement Type	MOUNTAIN G	40.00 Bc	03h:17m
Request ID	2468061-1	Cement Weight	Standard	50.00 Bc	03h:27m
Tested by	CT	Test Date	04/21/18	70.00 Bc	03h:31m
Customer	TERRA ENERGY PARTNERS	Test Time	01:47 PM	100.00 Bc	03h:34m
Well No	PA 33-26	Temp. Units	degF	00h:30m	21.44
Rig	H&P 271	Pressure Units	PSI	01h:00m	16.47
Casing/Liner Size	4.5 INCH	SW Version	2.1.0.507	01h:30m	17.32



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\0HU9OBIZ\GJ2468061-1 TERRA BULK PRODUCTION PRIMARY[1].tdms

Comments CS0924, TRAILER 8658, 425 SKS - CS0925, TRAILER 8677, 425 SKS

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.