

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

United States of America, COLORADO

Date: Friday, June 01, 2018

### **RU 524-17**

API# 05-045-23731-00

Terra RU 524-17 Production

Job Date: Tuesday, May 22, 2018

Sincerely,

**Grand Junction Cement Engineering**

## 1.0 Real-Time Job Summary

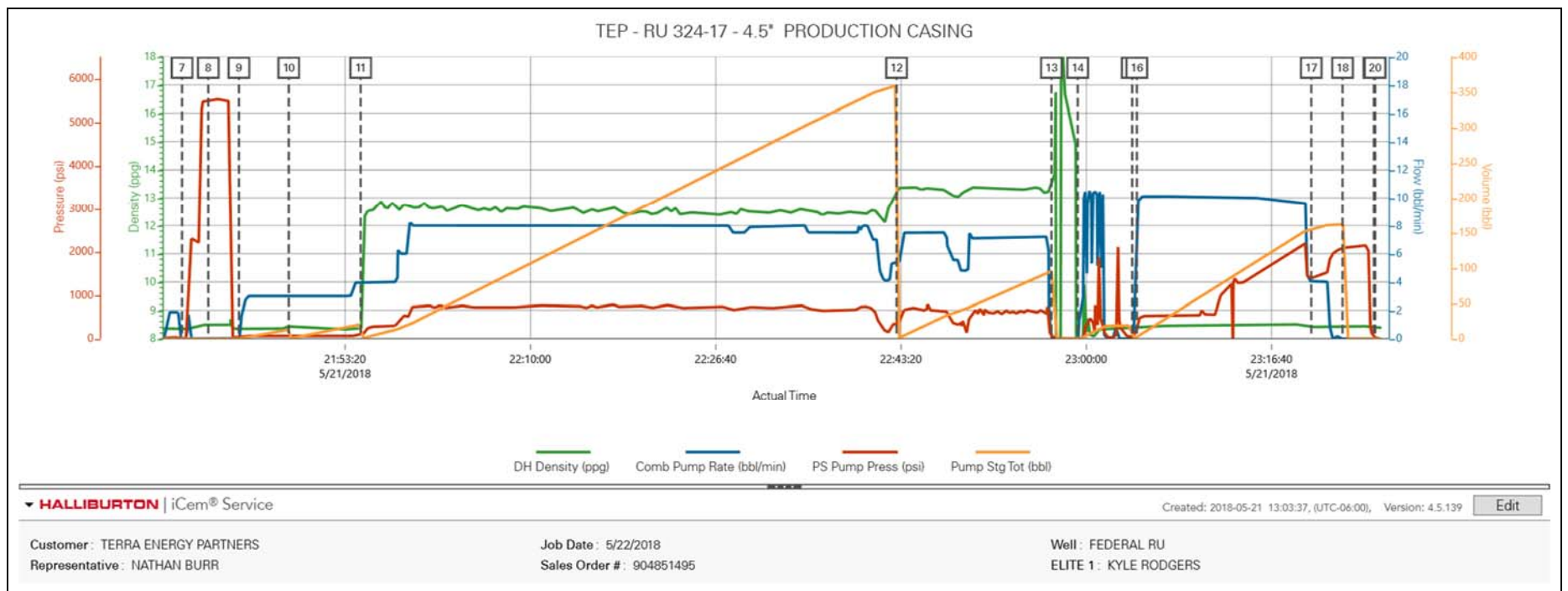
### 1.1 Job Event Log

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	5/21/2018	11:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	5/21/2018	13:20:00	USER					JOURNEY MANAGEMENT COMPLETE, AS WELL AS JSA
Event	3	Crew Leave Yard	5/21/2018	13:30:00	USER					
Event	4	Arrive At Loc	5/21/2018	15:30:00	USER					JOURNEY MANAGEMENT CLOSED OUT. RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	5/21/2018	16:00:00	USER					JSA COMPLETE
Event	6	Other	5/21/2018	16:04:32	USER					WATER TEST: PH-7, TEMP-60, CL-0, TP- 10548, TD- 10558, F.C.- 10517, HOLE-8 3/4, 9 5/8- 1140, MUD#- 9.2
Event	7	Pre-Rig Up Safety Meeting	5/21/2018	16:20:00	USER					JSA COMPLETE
Event	8	Rig-Up Equipment	5/21/2018	16:30:00	USER					
Event	9	Pre-Job Safety Meeting	5/21/2018	19:00:00	USER					JSA COMPLETE
Event	10	Start Job	5/21/2018	21:38:40	COM5					
Event	11	Test Lines	5/21/2018	21:41:02	COM5	8.33	0.00	5565.00	0.10	5565 PSI
Event	12	Pump Spacer 1	5/21/2018	21:43:47	COM5	8.33	3.00	190.0	10.0	FRESH WATER
Event	13	Pump Spacer 2	5/21/2018	21:48:16	COM5	8.44	3.00	231.0	20.0	MUD FLUSH
Event	14	Pump Lead Cement	5/21/2018	21:54:44	COM5	12.50	8.00	750.0	323.0	935 SKS NEOCEM, 12.5 PPG, 1.94 FT3/SK, 9.6 GAL/SK

Event	15	Pump Tail Cement	5/21/2018	22:42:56	COM5	13.30	7.2	560.0	81.6	265 SKS THERMACEM, 13.3 PPG, 1.73 FT3/SK, 7.81 GAL/SK
Event	16	Shutdown	5/21/2018	22:56:52	COM5					TO WASH PUMPS AND LINES
Event	17	Clean Lines	5/21/2018	22:59:14	COM5					CLEAN PUMPS AND LINES TO PIT, PUMPED AIR FROM FLOOR TO PIT
Event	18	Drop Top Plug	5/21/2018	23:04:08	COM5					AWAY
Event	19	Pump Displacement	5/21/2018	23:04:33	COM5	8.33	10.0	2200	163.0	KCL WATER WITH 1 GAL MMCR, 3 BAGS BE-6
Event	20	SLOW RATE	5/21/2018	23:20:14	COM5	8.33	4.00	1386.00	153.00	SLOW RATE
Event	21	Bump Plug	5/21/2018	23:23:03	COM5	8.33	4.00	1530.0	163.0	PLUG BUMPED
Event	22	CHECK FLOATS	5/21/2018	23:25:52	COM5			2148.0		FLOATS HELD 1.5 BBLS BACK TO TRUCK
Event	23	End Job	5/21/2018	23:25:59	COM5					GOOD CIRCULATION THROUGH OUT JOB, PIPE WORKED 5-10 FT. UNTIL DISPLACEMENT
Event	24	Post-Job Safety Meeting (Pre Rig-Down)	5/22/2018	00:10:00	USER					JSA COMPLETE
Event	25	Rig Down Lines	5/22/2018	00:30:00	USER					
Event	26	Crew Leave Location	5/22/2018	01:00:00	USER					THANK YOU FOR USING HALLIBURTON CEMENT, JAMES LEIST AND CREW

## 2.0 Attachments

### 2.1 CHART.png



## Job Information

Request/Slurry	2473988/1	Rig Name	H&P 318	Date	11/MAY/2018
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 524-17

## Well Information

Casing/Liner Size	4.5 in	Depth MD	10755 ft	BHST	127°C / 260°F
Hole Size	8.75 in	Depth TVD	10563 ft	BHCT	92°C / 197°F
Pressure	6698 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	12.5	lbm/gal
						Slurry Yield	1.941	ft3/sack
						Water Requirement	9.623	gal/sack
						Total Mix Fluid	9.623	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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# Operation Test Results Request ID 2473988/1

## Thickening Time - ON-OFF-ON

16/MAY/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)
197	6698	52	4:31	4:31	4:31	4:54	8	62	15	8

Total sks = 935

Composite:

CS1049 TR 8677 400 SKS

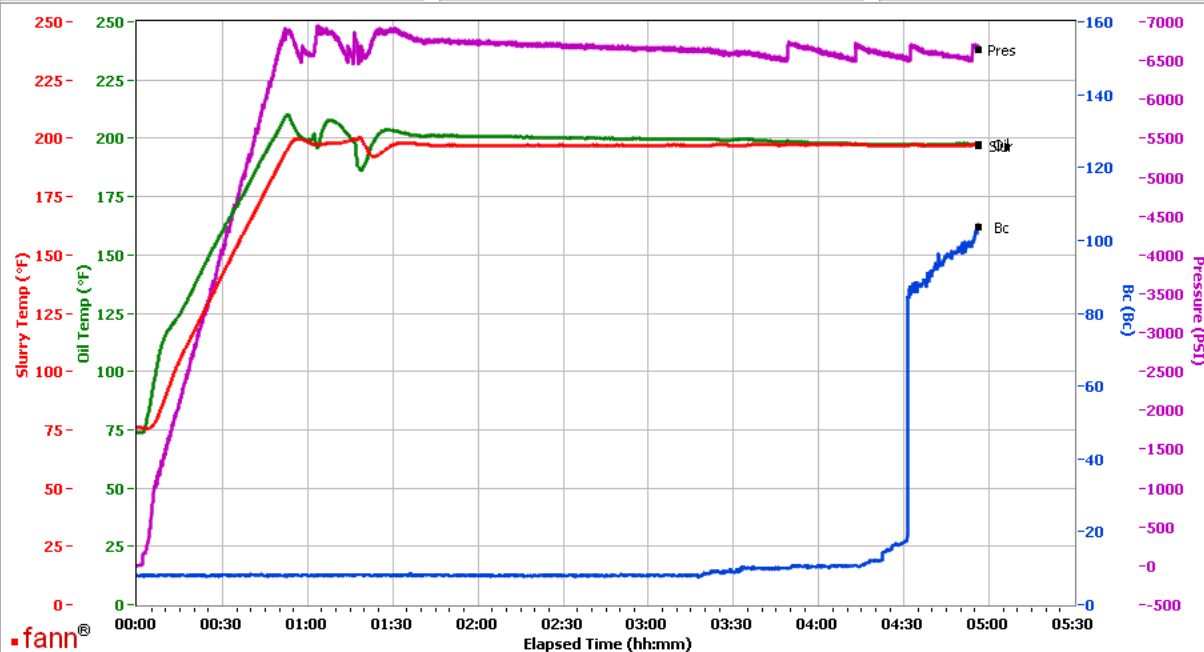
CS1050 TR 2878 400 SKS

CS1051 TR 4549 135 SKS

Deflection: 8 - 8

## Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2473988-1 TERRA BULK PRODUCTION LE	Job Type	PRODUCTION CASING	30.00 Bc	04h:31m
Test ID	35490059 - TT	Cement Type	GCC TYPE I-II	40.00 Bc	04h:31m
Request ID	2473988-1	Cement Weight	Standard	50.00 Bc	04h:31m
Tested by	CT	Test Date	05/15/18	70.00 Bc	04h:31m
Customer	TERRA ENERGY PARTNERS	Test Time	04:31 PM	100.00 Bc	04h:54m
Well No	RU 524-17	Temp. Units	degF	00h:30m	7.88
Rig	H&P 318	Pressure Units	PSI	01h:00m	8.23
Casing/Liner Size	4.5 INCH	SW Version	2.1.0.507	01h:30m	8.49



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\0HU90BIZ\GJ2473988-1 TERRA BULK PRODUCTION LEAD[1].tdms

Comments CS1049 TR 8677 400 SKS CS1050 TR 2878 400 SKS CS1051 TR 4549 135 SKS

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2473989/1	Rig Name	H&P 318	Date	11/MAY/2018
Submitted By	Aaron Katz	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 524-17

### Well Information

Casing/Liner Size	4.5 in	Depth MD	10755 ft	BHST	127°C / 260°F
Hole Size	8.75 in	Depth TVD	10563 ft	BHCT	92°C / 197°F
Pressure	6698 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	13.3	lbm/gal
						Slurry Yield	1.734	ft3/sack
						Water Requirement	7.809	gal/sack
						Total Mix Fluid	7.809	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

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# Operation Test Results Request ID 2473989/1

## Thickening Time - ON-OFF-ON

17/MAY/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)
197	6698	52	3:41	3:48	3:55	4:33	13	62	15	13

Total sks = 265

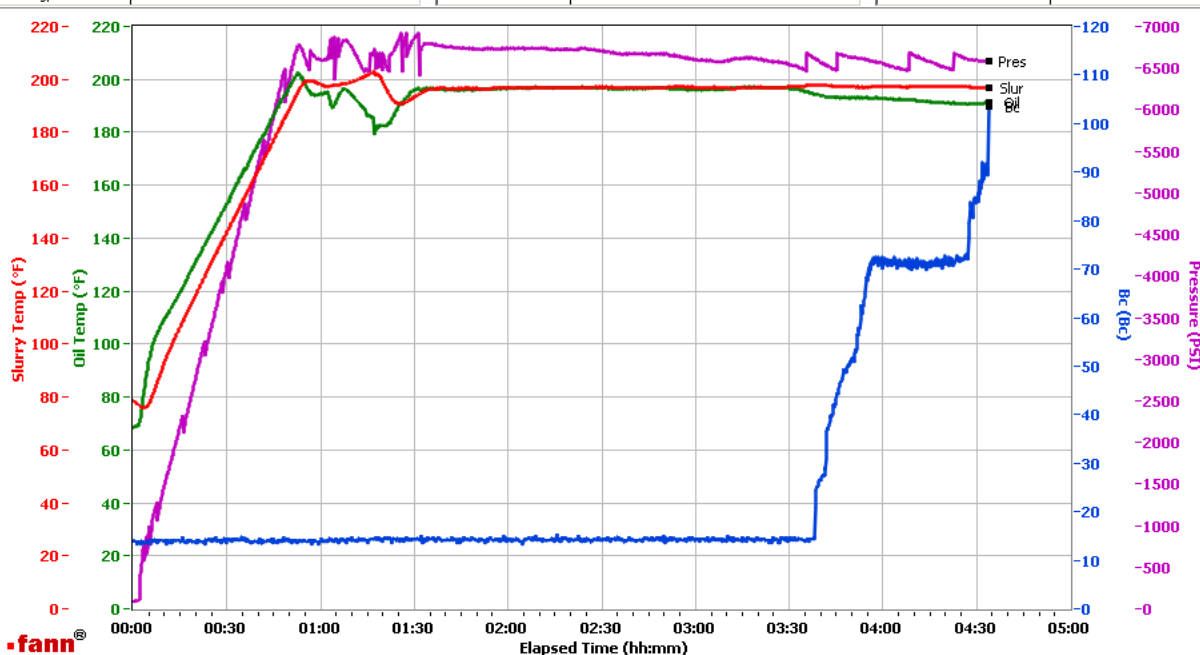
CS1066 tr#7428 SKS

No deflection , 13Bc--- > 13Bc

please note, heat of hydration @3:33

## Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2473989-1 TERRA PRODUCTION BULK TA	Job Type	PRODUCTION CASING	30.00 Bc	03h:41m
Test ID	35490061	Cement Type	MOUNTAIN G	40.00 Bc	03h:43m
Request ID	GJ2473989-1	Cement Weight	Standard	50.00 Bc	03h:48m
Tested by	DEBA	Test Date	05/17/18	70.00 Bc	03h:55m
Customer	TERRA ENERGY PARTNERS	Test Time	02:32 PM	100.00 Bc	04h:33m
Well No	RU 524-17	Temp. Units	degF	00h:30m	14.28
Rig	H8P 318	Pressure Units	PSI	01h:00m	13.86
Casing/Liner Size	4.5"	SW Version	2.1.0.1219	01h:30m	14.17



Data File C:\Documents and Settings\HPHT\Local Settings\Temporary Internet Files\Content.IE5\6J6B21WN\GJ2473989-1 TERRA PRODUCTION BULK TAIL[1].tdms

Comments CS1066 TR#7428 265 SKS

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