

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

United States of America, COLORADO

Date: Wednesday, October 03, 2018

### **NR 323-3 Production**

Terra NR 323-3 Production

Job Date: Wednesday, October 03, 2018

Sincerely,

**Grand Junction Cement Engineering**

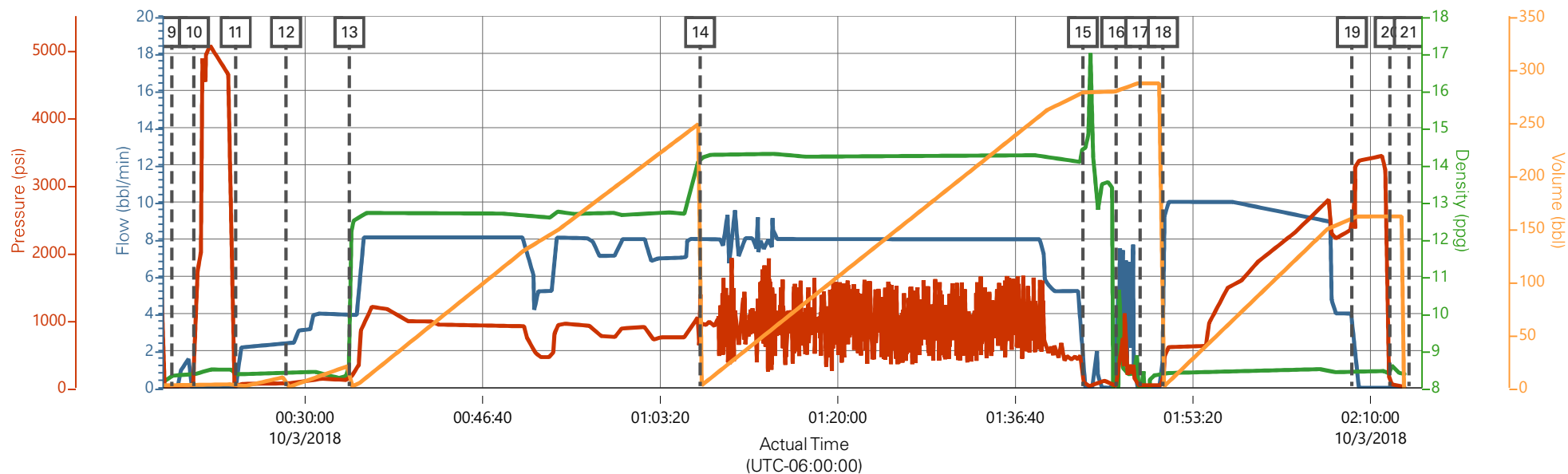
## 1.0 Real-Time Job Summary

## 1.1 Job Event Log

Type	Seq. No.	Activity	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	10/2/2018	13:30:00	USER					REQUESTED ON LOCATION 10/2/18 @ 20:00
Event	2	Depart Yard Safety Meeting	10/2/2018	15:55:00	USER					JSA COMPLETED
Event	3	Crew Leave Shop	10/2/2018	16:00:00	USER					
Event	4	Arrive At Loc	10/2/2018	18:00:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	10/2/2018	18:05:00	USER					JSA COMPLETED
Event	6	Pre-Rig Up Safety Meeting	10/2/2018	18:25:00	USER					JSA COMPLETED
Event	7	Rig-Up Equipment	10/2/2018	18:30:00	USER					
Event	8	Pre-Job Safety Meeting	10/2/2018	23:30:00	USER					JSA COMPLETED, PRESSURIZED MUD SCALES CALIBRATED TO FRESH WATER
Event	9	Start Job	10/3/2018	00:17:30	COM4					4 1/2"-11.6# CASING IN 8 3/4" OH, TD 9951', TP 9941', ST 33.3', MUD 11.2 PPG, WATER TEMP 60, PH 7 CHLORIDES 0
Event	10	Test Lines	10/3/2018	00:19:34	COM4			5000.00		TEST LINES TO 5000 PSI
Event	11	Pump Spacer 1	10/3/2018	00:23:29	COM4	4.00	8.33	65.00	10.00	10 BBLS FRESH WATER
Event	12	Pump Spacer 2	10/3/2018	00:28:13	COM4	4.00	8.40	140.00	20.00	20 BBLS MUDFLUSH
Event	13	Pump Lead Cement	10/3/2018	00:34:09	COM4	8.00	12.70	950.00	215.80	215.8 BBLS LEAD CEMENT, 655 SKS @ 12.7 PPG / 1.85 YLD / 8.94 GAL/SK

Event	14	Pump Tail Cement	10/3/2018	01:07:05	COM4	8.00	14.20	1000.00	224.10	224.1 BBLS TAIL CEMENT, 740 SKS @ 14.2 PPG / 1.7 YLD / 7.53 GAL/SK
Event	15	Shutdown	10/3/2018	01:43:00	COM4					
Event	16	Clean Lines	10/3/2018	01:46:07	COM4					
Event	17	Drop Top Plug	10/3/2018	01:48:23	COM4					PLUG AWAY
Event	18	Pump Displacement	10/3/2018	01:50:31	COM4	10.00	8.40	2780.00	153.70	153.7 BBL KCL WATER DISPLACEMENT WITH 3# BE-6 AND 1 GALLON MMCR
Event	19	Bump Plug	10/3/2018	02:08:15	COM4	4.00	8.40	2400.00	153.70	PLUG BUMPED AT CALCULATED, FINAL CIRCULATING PRESSURE 2400 PSI, BROUGHT TO 3400 PSI
Event	20	Other	10/3/2018	02:11:48	COM4					FLOATS HELD, 2 BBL BACK TO PUMP
Event	21	End Job	10/3/2018	02:13:36	COM4					PIPE LEFT STATIC, GOOD RETURNS THROUGH LEAD, INTERMITTENT RETURNS THROUGH TAIL AND DISPLACEMENT, NO SUGAR USED, 80# MUDFLUSH, 3# BE-6, 1 GALLON MMCR AND 1 - 4 1/2" TOP PLUG USED, NO ADD HOURS CHARGED
Event	22	Pre-Rig Down Safety Meeting	10/3/2018	02:45:00	USER					JSA COMPLETED
Event	23	Rig-Down Equipment	10/3/2018	02:50:00	USER					
Event	24	Pre-Convoy Safety Meeting	10/3/2018	03:25:00	USER					JSA COMPLETED
Event	25	Crew Leave Location	10/3/2018	03:30:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND JUNCTION, CO - RYAN MARTIN AND CREW

# TERRA - CLOUGH NR 323-3 - 4 1/2" PRODUCTION CASING



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

Description	Actual Time (UTC-06:00:00)	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stg Tot (bbl)
9 Start Job	00:17:30	0.00	8.35	11.00	2.00
10 Test Lines	00:19:34	0.00	8.36	959.00	3.20
11 Pump Spacer 1	00:23:29	0.00	8.36	19.00	3.20
12 Pump Spacer 2	00:28:13	2.40	8.36	66.00	0.20
13 Pump Lead Cement	00:34:09	4.00	8.99	125.00	0.30
14 Pump Tail Cement	01:07:05	8.00	14.15	1101.00	1.30
15 Shutdown	01:43:00	0.00	14.56	106.00	278.30
16 Clean Lines	01:46:07	1.60	0.52	17.00	278.90
17 Drop Top Plug	01:48:23	0.00	6.59	29.00	286.70
18 Pump Displacement	01:50:31	2.30	8.35	68.00	0.20
19 Bump Plug	02:08:15	4.00	8.42	2343.00	160.30
20 CHECK FLOATS	02:11:48	0.00	8.36	105.00	161.40
21 End Job	02:13:36	n/a	n/a	n/a	n/a

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Created: 2018-10-02 19:25:34, (UTC-06:00), Version: 4.5.139

Edit

Customer : TERRA ENERGY PARTNERS

Job Date : 10/3/2018

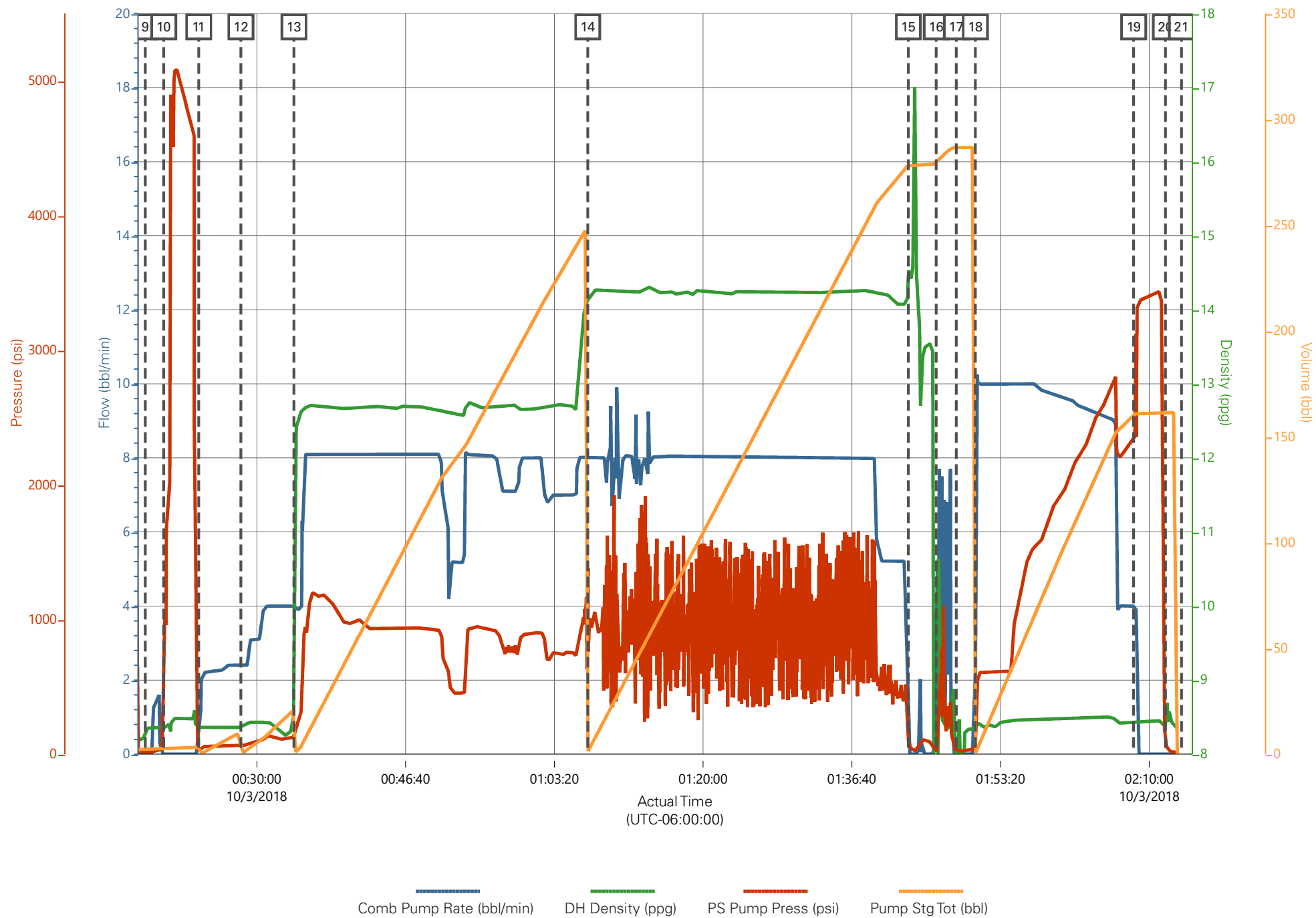
Well : CLOUGH NR 323-3

Representative : NATHAN BURR

Sales Order # : 905160280

ELITE #4 : KIEL CHRIST / RYAN MARTIN

# TERRA - CLOUGH NR 323-3 - 4 1/2" PRODUCTION CASING



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

**Job Information**

Request/Slurry	2503774/1	Rig Name	H&P 318	Date	22/SEP/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	NR 323-3

**Well Information**

Casing/Liner Size	4.5 in	Depth MD	9993 ft	BHST	121°C / 249°F
Hole Size	8.75 in	Depth TVD	9964 ft	BHCT	82°C / 179°F
Pressure	6275 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 2503774/1

## Thickening Time - ON-OFF-ON

30/SEP/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)
179	6275	50	4:09	4:14	4:25	4:31	14	60	15	23

Total sks = 655

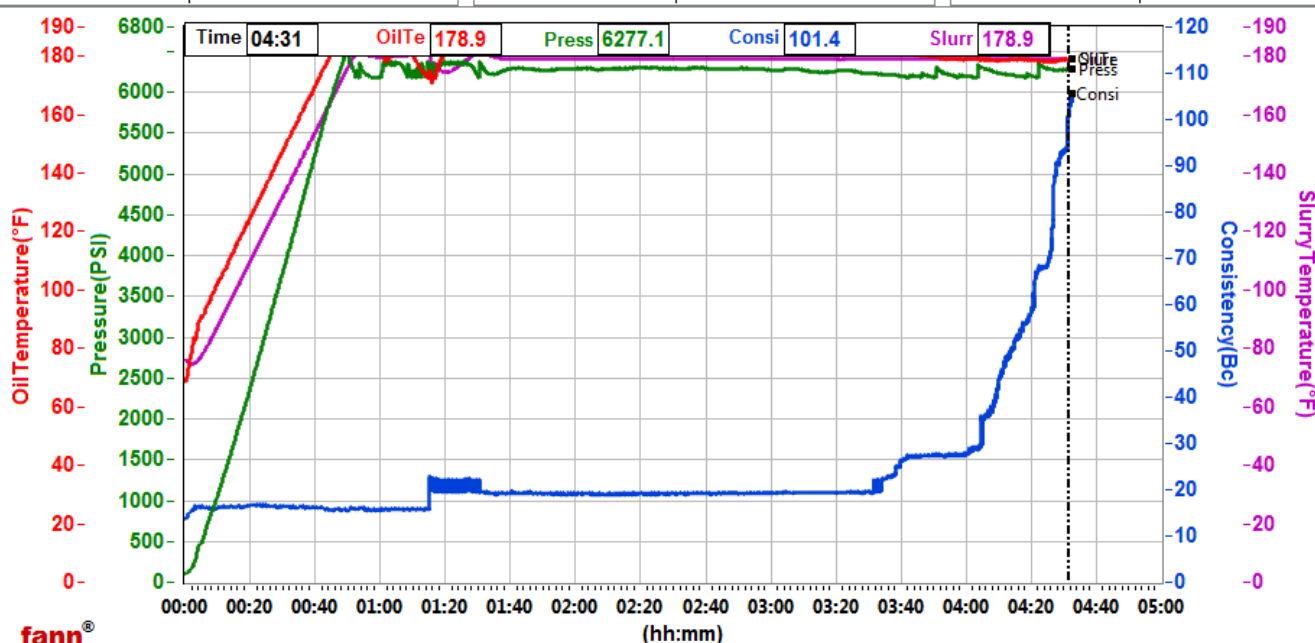
CS2171, Trailer 8476, 400 sks

CS2175, Trailer 7094, 255 sks

Deflected from 15Bc--- > 23Bc

## Grand Junction

Fields	Values	Fields	Values	Events	Results
Project Name	TempTest	Rig	323-3		
SW Version	1.0	Casing/Liner Size	4.5 INCH		
Test ID	35842747 - TT	Job Type	PRODUCTION CASING		
Request ID	2503774-1	Cement Weight	GCC TYPE I-II		
Tested by	CT	Comments	Standard		
Customer	TERRA ENERGY PARTN	Date Time	9/29/2018 10:19:08.400		
Well No	NR	Temp. Units	degF		



Data File C:\Users\hx25273\Desktop\new Graph M290\GJ2503774-1 TERRA BULK PRODUCTION LEAD.tdms

Comments Standard

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2503775/1	Rig Name	H&P 318	Date	22/SEP/2018
Submitted By	Connor Matthews	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	NR 323-3

### Well Information

Casing/Liner Size	4.5 in	Depth MD	9993 ft	BHST	121°C / 249°F
Hole Size	8.75 in	Depth TVD	9964 ft	BHCT	82°C / 179°F
Pressure	6275 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>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<u>Cement Properties</u>		
		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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# Operation Test Results Request ID 2503775/1

## Thickening Time - ON-OFF-ON

29/SEP/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)
179	6275	50	2:38	2:38	2:40	2:44	19	60	15	16

740 sks

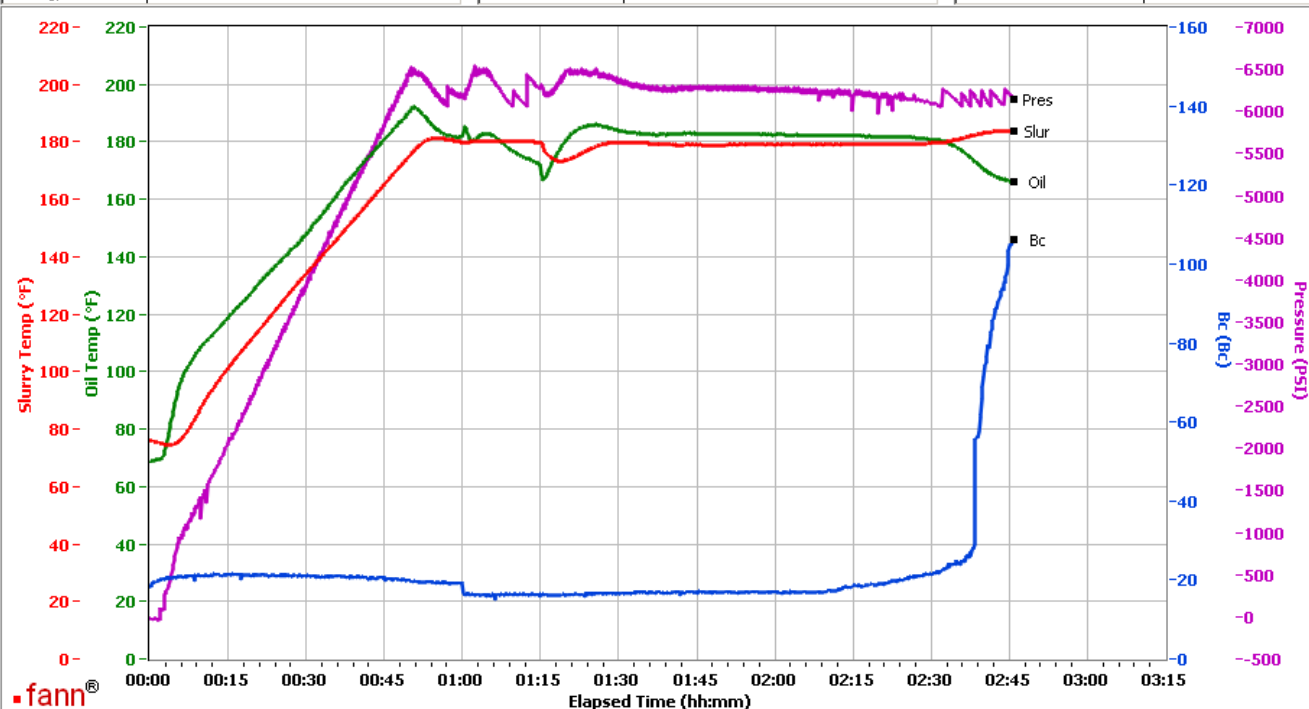
CS2174, Trailer 8678, 370 sks

CS2173, Trailer 2878, 370 sks

Deflection: 20 – 16

## Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	GJ2503775-1 TERRA BULK PRODUCTION TA	Job Type	PRODUCTION CASING	30.00 Bc	02h:38m
Test ID	35842749 - TT	Cement Type	MOUNTAIN G	40.00 Bc	02h:38m
Request ID	2503775-1	Cement Weight	Standard	50.00 Bc	02h:38m
Tested by	CT	Test Date	09/29/18	70.00 Bc	02h:40m
Customer	TERRA ENERGY PARTNERS	Test Time	01:16 PM	100.00 Bc	02h:44m
Well No	NR 323-3	Temp. Units	degF	00h:30m	20.96
Rig	H&P 318	Pressure Units	PSI	01h:00m	19.20
Casing/Liner Size	4.5 INCH	SW Version	2.1.0.507	01h:30m	16.81



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\4TIJ89YN\GJ2503775-1 TERRA BULK PRODUCTION TAIL[1].tdms

Comments CS2174, TRAILER 8678, 370 SKS - CS2173, TRAILER 2878, 370 SKS

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