

# HALLIBURTON

iCem<sup>®</sup> Service

## **TERRA ENERGY PARTNERS**

**For: Terra**

Date: Sunday, June 11, 2017

**CHEVRON TR 323-23-597 Production**

**API#05-045-23466-00**

Sincerely,

**Grand Junction Cement Engineering**

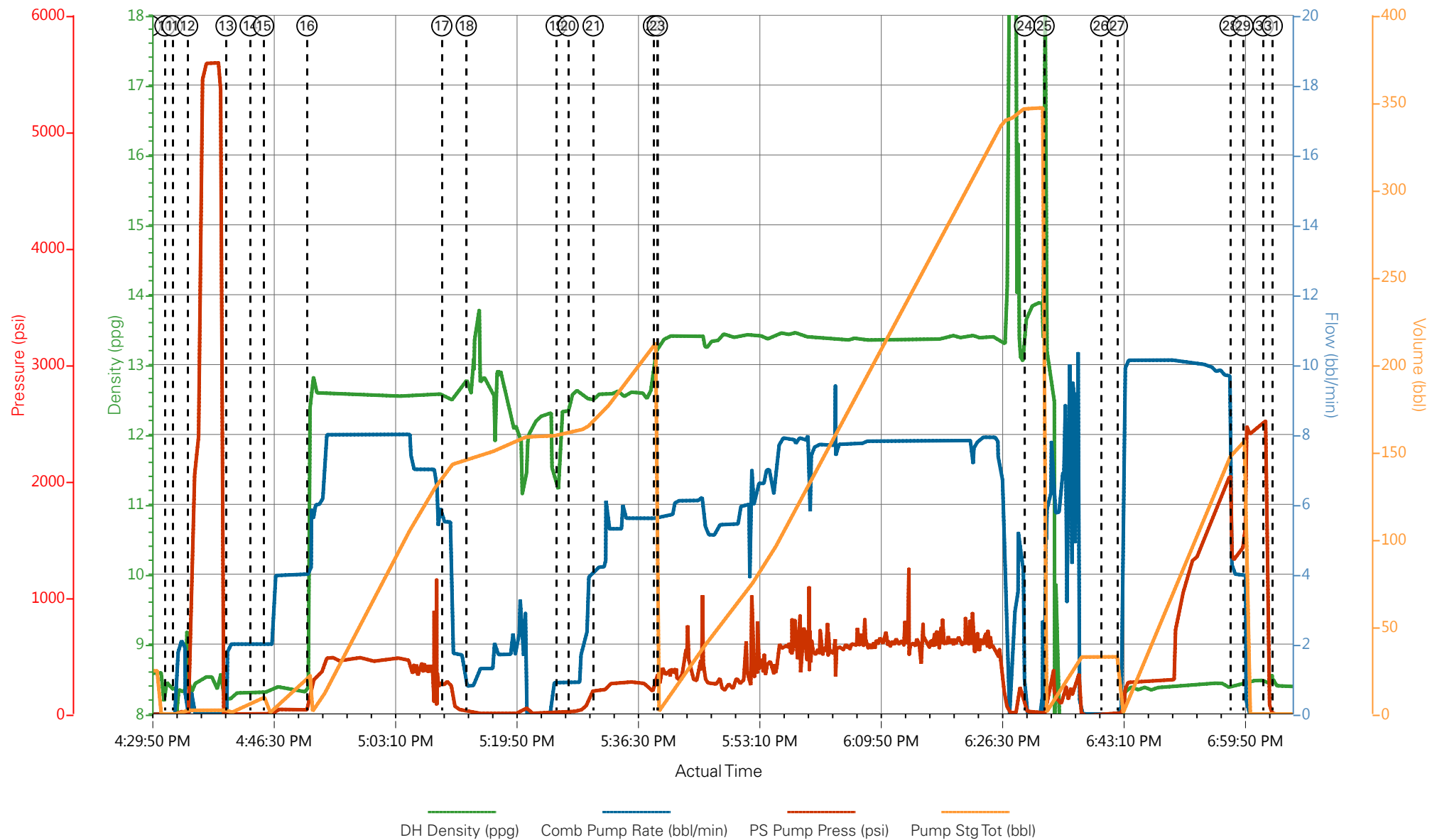
## 2.0 Real-Time Job Summary

### 2.1 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	6/11/2017	06:00:00	USER					CREW NOTIFIED AT 00:01 AM ON LOCATION TIME 12:00
Event	2	Pre-Convoy Safety Meeting	6/11/2017	07:00:00	USER					PUMP TRACTOR BROKE DOWN, COMPANY REP NOTIFIED
Event	3	Arrive At Loc	6/11/2017	11:30:00	USER					SUPERVISOR ON LOCATION, RIG RUNNING CASING
Event	4	Assessment Of Location Safety Meeting	6/11/2017	12:00:00	USER					MET WITH COMPANY REP DISCUSSED JOB PROCEDURE AND OFFERED SDS
Event	5	Pre-Rig Up Safety Meeting	6/11/2017	13:30:00	USER					ALL HES PRESENT
Event	6	Pump Truck Arrival	6/11/2017	14:20:00	USER					
Event	7	Rig-Up Completed	6/11/2017	16:00:00	USER					1-ELITE, 1-660 BULK TRAILER, 2-FIELD SILO, 2" PUMP IRON, 4.5" QUICK LATCH PLUG CONTAINER, 4" SUCTION HOSE
Event	8	Pre-Job Safety Meeting	6/11/2017	16:15:00	USER					ALL HES AND RIG CREW PRESENT
Event	9	Other	6/11/2017	16:30:00	USER					RIG CIRCULATED 40 MINS, PLUG CONTAINER RIGGED UP AFTER AND RIG DID NOT CIRCULATE WHILE HES JOB RIG UP. WATER: TEMP-60, CL-0, PH-7
Event	10	Start Job	6/11/2017	16:32:00	USER	8.35	0.00	5.00	0.0	TD-10339', TP-10336', SJ-42.05', CSG-4.5" 11.6# P110, OH-8.75", SCSG-9.625" 36# SHOE @ 3000', MUD-8.8PPG,
Event	11	Prime Pumps	6/11/2017	16:33:00	USER	8.37	2.00	6.00	2.0	FRESH WATER
Event	12	Test Lines	6/11/2017	16:35:06	COM5	8.37	0.00	5591.00	2.1	ALL PRESSURE HELD ON LINES
Event	13	Pump Water	6/11/2017	16:40:23	COM5	8.33	2.00	8.00	10.0	FRESH WATER
Event	14	Check weight	6/11/2017	16:43:41	COM5					WEIGHT VERIFIED BY PRESSURIZED MUD SCALES
Event	15	Pump Mud Flush III	6/11/2017	16:45:32	COM5	8.41	4.00	44.00	20.0	80LBS MUD FLUSH III, MIXED IN 20 BBL SPACER

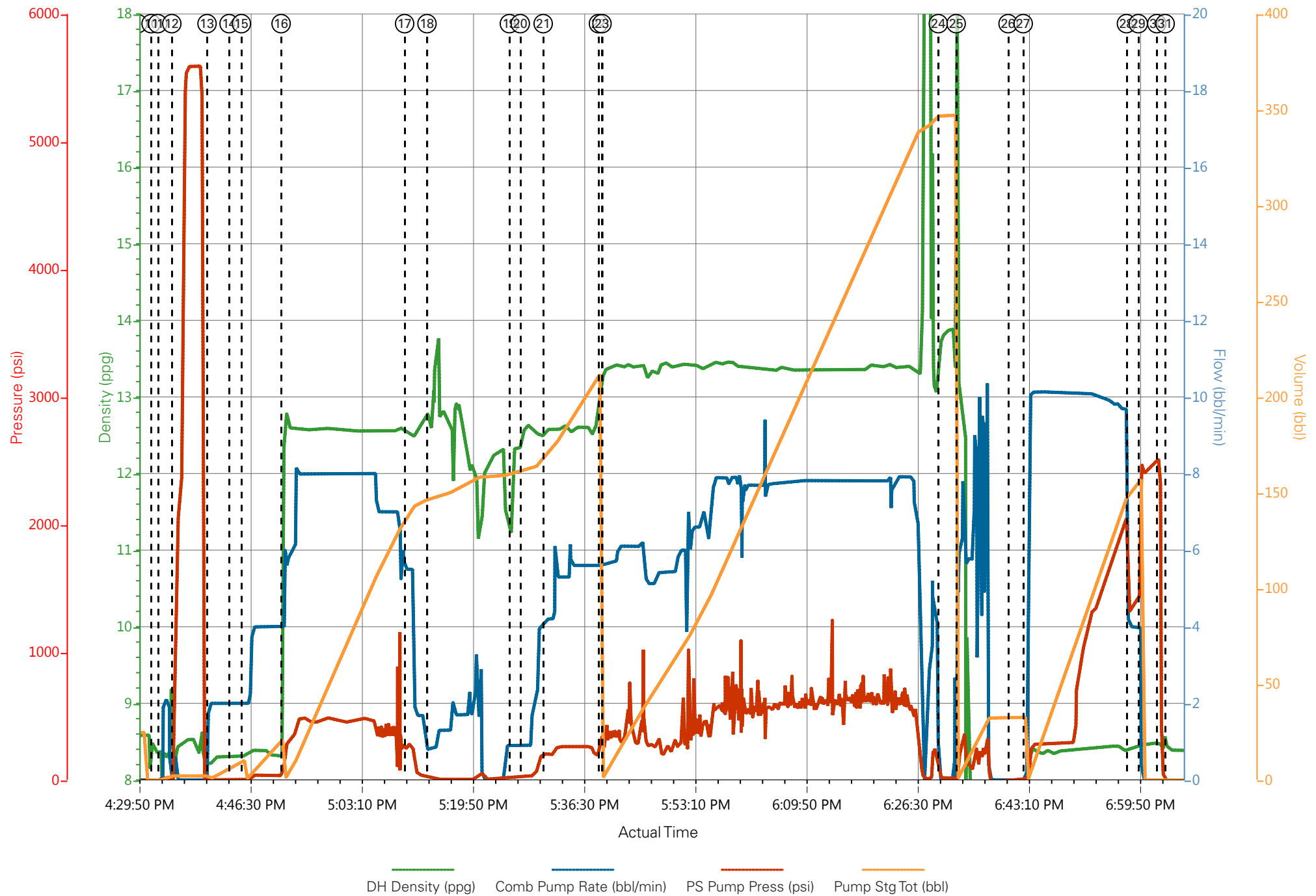
Event	16	Pump Lead Cement	6/11/2017	16:51:29	COM5	12.50	8.00	480.00	198.7	NEOCER-575SKS, 12.5PPG, 1.94CF/SK, 9.58GAL/SK 60LBS TUFF FIBER ADDED
Event	17	Slow Rate Fixing Compressor	6/11/2017	17:10:00	USER	12.56	5.50	285.00	137.7	SLOW RATE DUE TO AIR LINE ON COMPRESSOR BLOWING APART.
Event	18	Check weight	6/11/2017	17:13:21	COM5				146.6	CHECKING WEIGHT TO VERIFY THROUGH SLOWDOWN
Event	19	Check weight	6/11/2017	17:25:42	COM5				159.9	CHECKING WEIGHT TO VERIFY THROUGH SLOWDOWN
Event	20	Check weight	6/11/2017	17:27:20	COM5				161.3	CHECKING WEIGHT TO VERIFY THROUGH SLOWDOWN
Event	21	Check weight	6/11/2017	17:30:46	COM5				169.3	CHECKING WEIGHT TO VERIFY THROUGH SLOWDOWN
Event	22	Pump Tail Cement	6/11/2017	17:39:03	COM5	13.30	8.00	720.00	328.1	NEOCER 890SKS, 13.3PPG, 2.07CF/SK, 9.42GAL/SK
Event	23	Check weight	6/11/2017	17:39:35	COM5					WEIGHT VERIFIED BY PRESSURIZED MUD SCALES
Event	24	Shutdown	6/11/2017	18:30:00	USER					END OF CEMENT
Event	25	Clean Lines	6/11/2017	18:32:40	USER					CLEAN LINES TO EARTH PIT
Event	26	Drop Plug	6/11/2017	18:40:27	USER					PLUG DROP VERIFIED BY COMPANY REP
Event	27	Pump Displacement	6/11/2017	18:42:43	COM5	8.35	10.00	2030.00	150.0	KCL WATER, WITH 3# BE6, 1-GAL MMCR. NO RETURNS UNTIL 90 BBLS AWAY.
Event	28	Slow Rate	6/11/2017	18:58:12	USER	8.40	4.00	1330.00	150.1	SLOW RATE LAST 10 BBLS
Event	29	Bump Plug	6/11/2017	18:59:58	COM5	8.40	4.00	1430.00	159.6	PLUG BUMPED 1450 PSI
Event	30	Check Floats	6/11/2017	19:02:44	USER	8.40	0.00	2527.00	0.0	FLOATS HELD 1.5 BBLS BACK TO DISPLACEMENT TANK
Event	31	End Job	6/11/2017	19:04:00	USER					RETURNS THROUGH OUT JOB
Event	32	Pre-Rig Down Safety Meeting	6/11/2017	19:10:00	USER					ALL HES PRESENT
Event	33	Rig-Down Completed	6/11/2017	20:30:00	USER					RIG DOWN COMPLETED SAFELY
Event	34	Pre-Convoy Safety Meeting	6/11/2017	20:45:00	USER					ALL HES PRESENT
Event	35	Crew Leave Location	6/11/2017	21:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON, ANDREW BRENNECKE AND CREW

# TEP - CHEVRON TR 323-23-597 - 4.5" PRODUCTION



- |   |   |                            |                                  |                                   |
|---|---|----------------------------|----------------------------------|-----------------------------------|
| ① Call Out n/a;n/a;n/a;n/a                              | ⑤ Pre-Rig Up Safety Meeting n/a;n/a;n/a;n/a | ⑨ Other 8.58;0;-3;24.7     | ⑬ Pump Water 8.23;2;8;0          | ⑰ Slow Rate Fixing Compressor     |
| ② Pre-Convoy Safety Meeting n/a;n/a;n/a;n/a             | ⑥ Pump Truck Arrival n/a;n/a;n/a;n/a        | ⑩ Start Job 8.35;0;-5;0    | ⑭ Check weight 8.31;2;3;6.6      | ⑱ Check weight 12.6;0.8;26;146.6  |
| ③ Arrive At Loc n/a;n/a;n/a;n/a                         | ⑦ Rig-Up Completed 0;0.3;-7;24.7            | ⑪ Prime Pumps 8.37;0;-6;0  | ⑮ Pump Mud Flush III 8.31;2;2;0  | ⑲ Check weight 12.3;0.9;27;159.9  |
| ④ Assessment Of Location Safety Meeting n/a;n/a;n/a;n/a | ⑧ Pre-Job Safety Meeting 8.57;0;-3;24.7     | ⑫ Test Lines 8.37;0;19;2.1 | ⑯ Pump Lead Cement 12.59;4;130;0 | ⑳ Check weight 12.55;0.9;21;161.3 |

# TEP - CHEVRON TR 323-23-597 - 4.5" PRODUCTION



## Job Information

Request/Slurry	2393002/2	Rig Name	H&P 271	Date	08/JUN/2017
Submitted By	Philip Readle	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	TR 323-23-597

## Well Information

Casing/Liner Size	4.5 in	Depth MD	10355 ft	BHST	123°C / 253°F
Hole Size	8.75 in	Depth TVD	10203 ft	BHCT	89°C / 192°F
Pressure	6440 psi				

## Drilling Fluid Information

Mud Supplier Name	Baroid	Mud Trade Name	BARADRIL-N	Density	10.4 lbm/gal
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## Cement Information - Lead Design



Conc	UOM	Cement/Additive	Sample Type	Sample Date	Lot No.	Cement Properties		
						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 2393002/2

## Thickening Time - ON-OFF-ON

09/JUN/2017

Test Temp (°F)	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)
192	6440	51	3:42	4:21	4:28	4:43	10	61	15	10

Total sks = 575

CS1405, Trailer 4053 - Front Pod, 150 sks

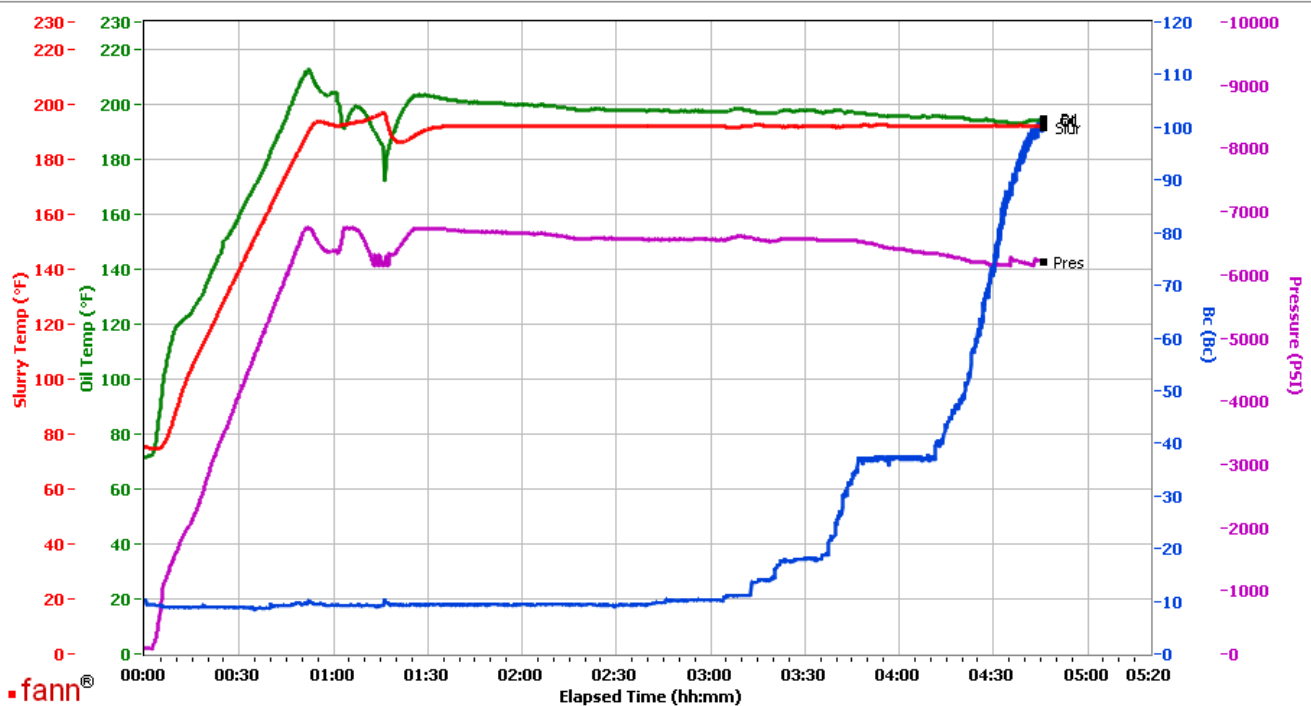
Deflection: 9 - 10

## Grand Junction Colorado

Fields	Values
Project Name	2393002-2 TERRA ENERGY 12.5 PPG BULK F
Test ID	2393002-2 TT
Request ID	2393002-2
Tested by	CT
Customer	TERRA ENERGY
Well No	TR 323-23-597
Rig	H&P 271
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	TYPE I-II
Cement Weight	Standard
Test Date	06/09/17
Test Time	08:29 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:42m
40.00 Bc	04h:11m
50.00 Bc	04h:21m
70.00 Bc	04h:28m
100.00 Bc	04h:43m
00h:30m	8.81
01h:00m	9.21
01h:30m	9.32



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\CDER4HUV\GJ2393002-2 TERRA ENERGY BULK PRODUCTION LEAD TT[1].tdms

Comments OPERATION TT - CS1405, TRAILER 4053 - FRONT POD, 150 SKS

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## Operation Test Results Request ID 2393002/1

### Thickening Time - ON-OFF-ON

09/JUN/2017

Test Temp (°F)	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)
192	6440	51	3:43	4:22	4:31	4:42	8	61	15	10

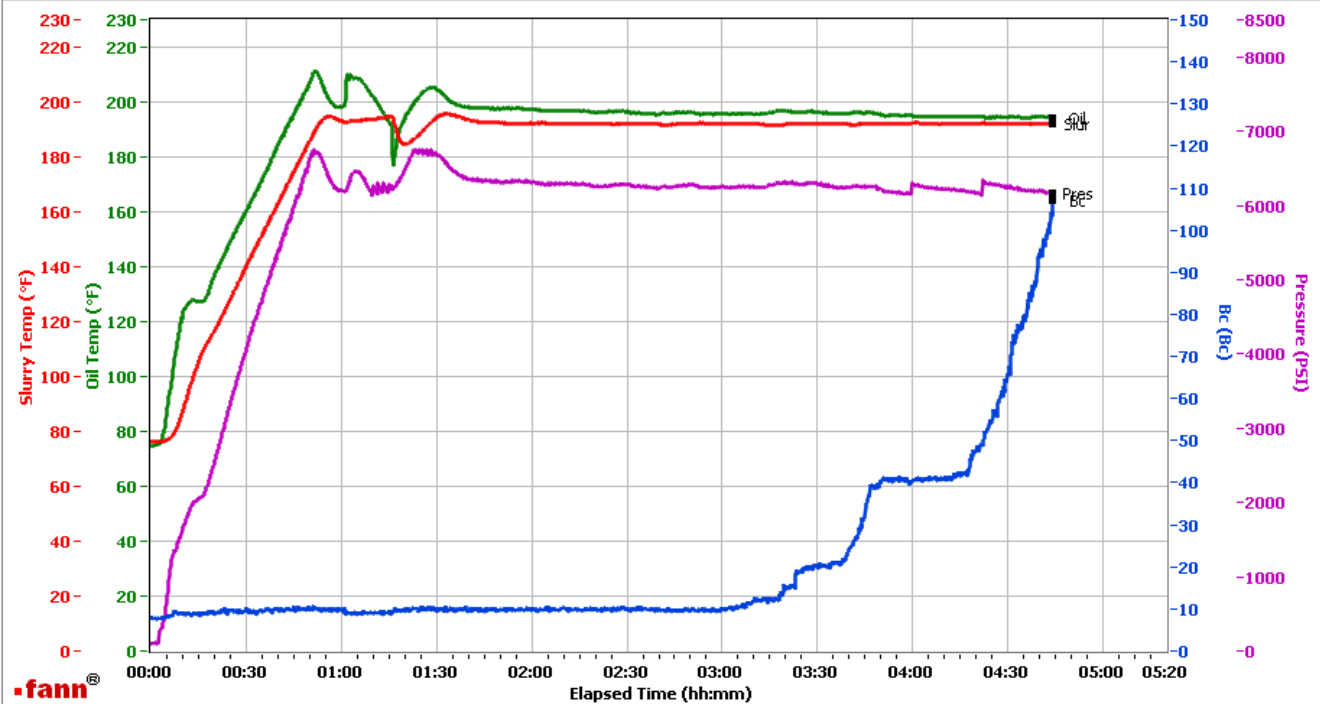
Total sks = 575

CS1401, Trailer 0812, 425 sks

Deflected 9-- > 10

### Grand Junction Colorado

Fields	Values	Fields	Values	Events	Results
Project Name	2393002-1 TERRA ENERGY 12.5 PPG BULK F	Job Type	PRODUCTION CASING	30.00 Bc	03h:43m
Test ID	2393002-1 TT	Cement Type	TYPE I-II	40.00 Bc	03h:49m
Request ID	2393002-1	Cement Weight	Standard	50.00 Bc	04h:22m
Tested by	CT	Test Date	06/09/17	70.00 Bc	04h:31m
Customer	TERRA ENERGY	Test Time	04:28 AM	100.00 Bc	04h:42m
Well No	TR 323-23-597	Temp. Units	degF	00h:30m	9.44
Rig	H&P 271	Pressure Units	PSI	01h:00m	9.91
Casing/Liner Size	4.5 INCH	SW Version	2.1.0.507	01h:30m	9.37



Data File C:\Documents and Settings\Administrator\Desktop\Test Data\GJ2393002-1 TERRA ENERGY BULK PRODUCTION LEAD TT.tdms

Comments OPERATION TT - CS1401, TRAILER 0812, 425 SKS

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# HALLIBURTON

## Rockies, Grand Junction

## Lab Results- Tail

### Job Information

Request/Slurry	2393003/2	Rig Name	H&P 271	Date	08/JUN/2017
Submitted By	Philip Readle	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	TR 323-23-597

### Well Information

Casing/Liner Size	4.5 in	Depth MD	10355 ft	BHST	123°C / 253°F
Hole Size	8.75 in	Depth TVD	10203 ft	BHCT	89°C / 192°F
Pressure	6440 psi				

### Drilling Fluid Information

Mud Supplier Name	Baroid	Mud Trade Name	BARADRIL-N	Density	10.4 lbm/gal
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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>	
						Slurry Density	13 lbm/gal
						Slurry Yield	2.065 ft3/sack
						Water Requirement	9.424 gal/sack
						Total Mix Fluid	9.424 gal/sack
						Water Source	Fresh Water
						Water Chloride	

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## Operation Test Results Request ID 2393003/2

### Thickening Time - ON-OFF-ON

09/JUN/2017

Test Temp (°F)	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)
192	6440	51	3:04	3:04	3:04	3:04	14	61	15	20

Total sks = 890

CS1404, Trailer 4053 - Rear Pod, 140 sks

Deflection: 11 20 settling at 16 after one minute

## Operation Test Results Request ID 2393003/1

### Thickening Time - ON-OFF-ON

09/JUN/2017

Test Temp (°F)	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)
192	6440	51	3:40	3:51	3:54	4:56	12	61	15	12

Total sks = 890

Composite:

CS1403, Trailer MT199, 375 sks

CS1402, Trailer MT613, 375 sks

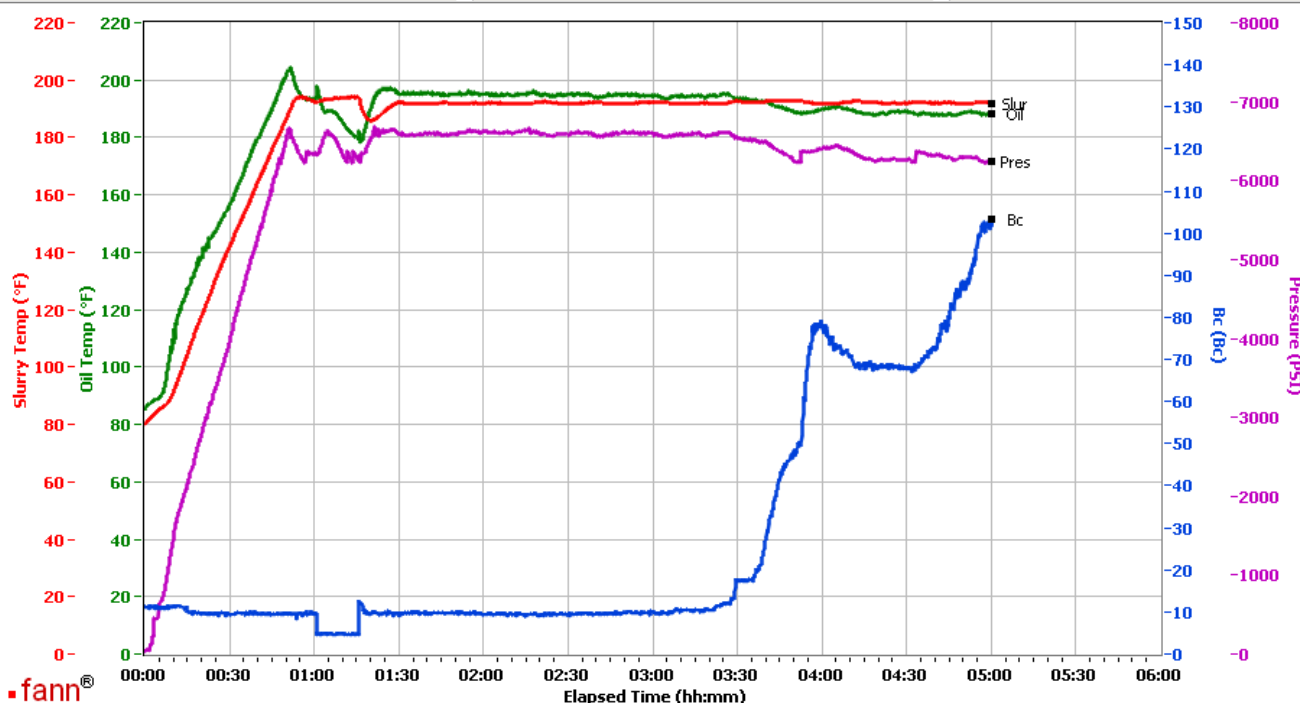
Deflected 5-- > 12

### Grand Junction, Colorado

Fields	Values
Project Name	2393003-1 TERRA ENERGY 13.0 PPG BULK F
Test ID	2393003-1 TT
Request ID	2393003-1
Tested by	CT
Customer	TERRA ENERGY
Well No	TR 323-23-597
Rig	H&P 271
Casing/Liner Size	4.5 INCH

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	TYPE I-II
Cement Weight	Standard
Test Date	06/09/17
Test Time	03:38 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:40m
40.00 Bc	03h:44m
50.00 Bc	03h:51m
70.00 Bc	03h:54m
100.00 Bc	04h:56m
00h:30m	9.33
01h:00m	10.07
01h:30m	9.06



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2393003-1 TERRA ENERGY BULK PRODUCTION TAIL TT.tdms

Comments OPERATION COMPOSITE TT - CS1403, TRAILER MT199, 375 SKS - CS1402, TRAILER MT613, 375 SKS

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