

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

For: TEP

Date: Wednesday, February 22, 2017

TR 523-21-597 Production

API# 05-045-23352-00

Sincerely,
Grand Junction Cement Engineering

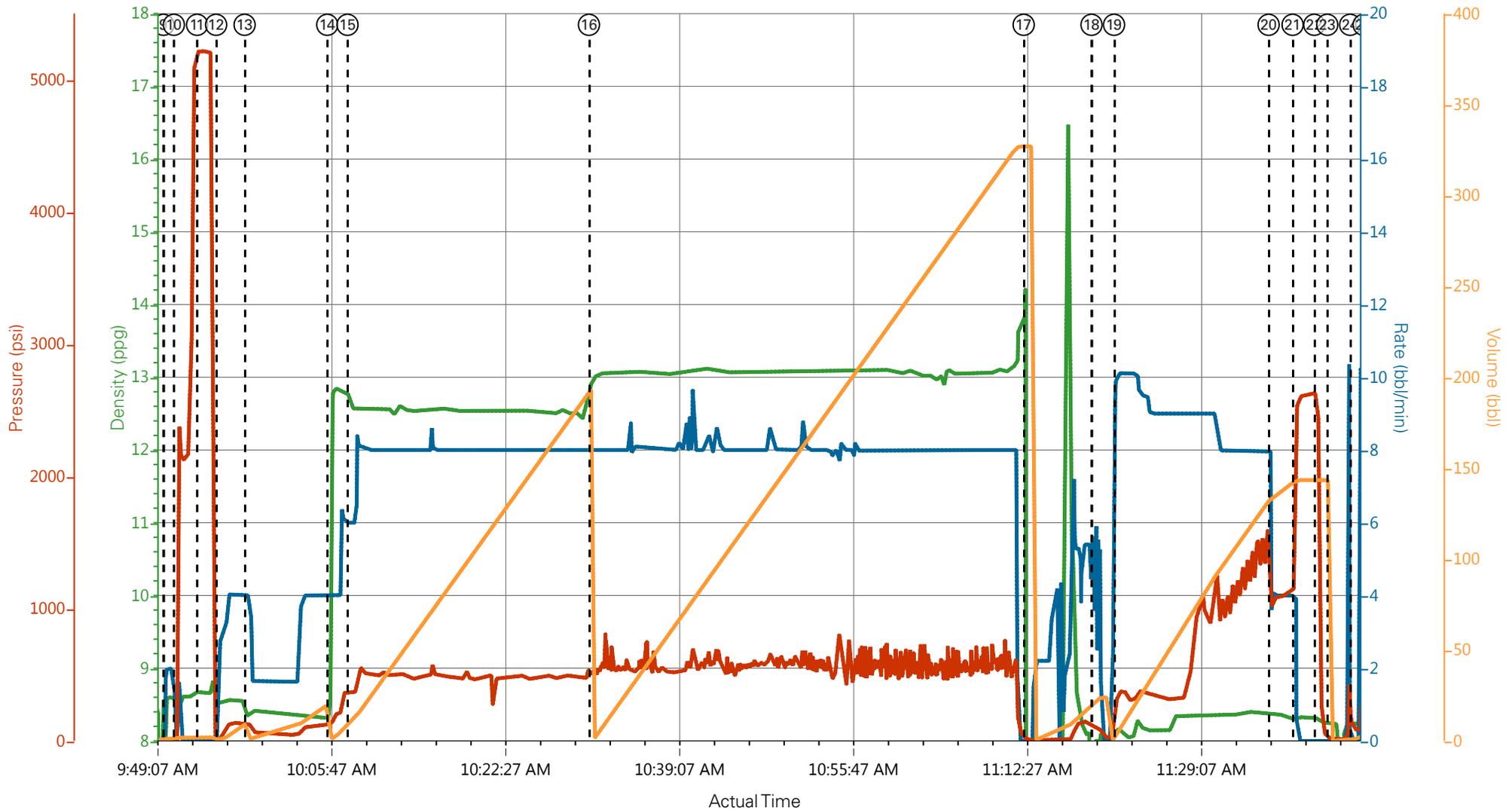
1.0 Real-Time Job Summary

1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	PS Pump Press <i>(psi)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	2/21/2017	13:00:00	USER					O/L 2000
Event	2	Pre-Convoy Safety Meeting	2/21/2017	15:15:00	USER					
Event	3	Crew Leave Yard	2/21/2017	15:30:00	USER					1 Elite, 1 660, 1 pickup
Event	4	Arrive at Location	2/21/2017	21:30:00	USER					Road Boss informed company rep of travel issues on lease roads that caused crew to be late to location - Rig still running casing - O/L time starts 2200
Event	5	Assessment Of Location Safety Meeting	2/21/2017	21:45:00	USER					JSA completed- customer offered/received SDS - water test pH
Event	6	Pre-Rig Up Safety Meeting	2/21/2017	22:45:00	USER					
Event	7	Rig-Up Equipment	2/21/2017	23:00:00	USER					Manifold on ground,hard line to standpipe, hard line to wash up tank, water hoses to uprights, bulk hoses to silos and 660
Event	8	Pre-Job Safety Meeting	2/22/2017	09:20:00	USER					All HES personnel, rig crew, and company rep
Event	9	Start Job	2/22/2017	09:50:00	COM5					TD 9414', TP 9404', SJ 28.85', Mud 8.6 ppg, 8 3/4" OH, 9 5/8" 32# J55 Surf casing @ 2587', 4 1/2" 11.6# P110 casing
Event	10	Prime Lines	2/22/2017	09:51:00	USER	8.33	2.0	26	2.0	Fresh water
Event	11	Test Lines	2/22/2017	09:53:13	COM5			5235		Pressure held well
Event	12	Pump H2O Spacer	2/22/2017	09:55:02	COM5	8.33	4.0	140	10.0	Fresh water
Event	13	Pump Mud Flush Spacer	2/22/2017	09:57:46	COM5	8.33	4.0	140	20.0	Mud Flush III
Event	14	Pump Lead Cement	2/22/2017	10:05:41	COM5	12.5	8.0	545	184.8	535 sks NeoCem, 12.5 ppg, 1.94 yield, 9.57 gal/sk - Add Tuf Fiber on fly - Returns re-established with 100 bbls Lead pumped
Event	15	Check weight	2/22/2017	10:07:38	COM5	12.5				Recirc matched mud scales

Event	16	Pump Tail Cement	2/22/2017	10:30:46	COM5	13.0	8.0	540	304.5	830 sks NeoCem,13.0 ppg, 2.06 yield, 9.44 gal/sk - lost returns shortly into Tail
Event	17	Shutdown	2/22/2017	11:12:25	USER					Wash up to catch tank
Event	18	Drop Top Plug	2/22/2017	11:18:55	COM5					Rig-supplied latch-down plug
Event	19	Pump Displacement	2/22/2017	11:21:05	COM5	8.4	9.0	1450	145.3	3 lbs BE-6, 1 gal MMCR, 2% KCl
Event	20	Slow Rate	2/22/2017	11:35:53	USER	8.4	4.0	1080	@ 135	Returns re-established 90 bbls into displacement –pipe reciprocated periodically
Event	21	Bump Plug	2/22/2017	11:38:11	USER			1180		
Event	22	Check Floats	2/22/2017	11:40:16	USER			2650		Floats held – 1 bbl flowback
Event	23	End Job	2/22/2017	11:41:31	COM5					6 add hours, no plug, no sugar used, no derrick charge
Event	24	Pre-Rig Down Safety Meeting	2/22/2017	11:50:00	USER					
Event	25	Rig-Down Equipment	2/22/2017	12:00:00	USER					
Event	26	Pre-Convoy Safety Meeting	2/22/2017	12:45:00	USER					
Event	27	Crew Leave Location	2/22/2017	13:00:00	USER					Thank you for using Halliburton - Ed Deussen and crew

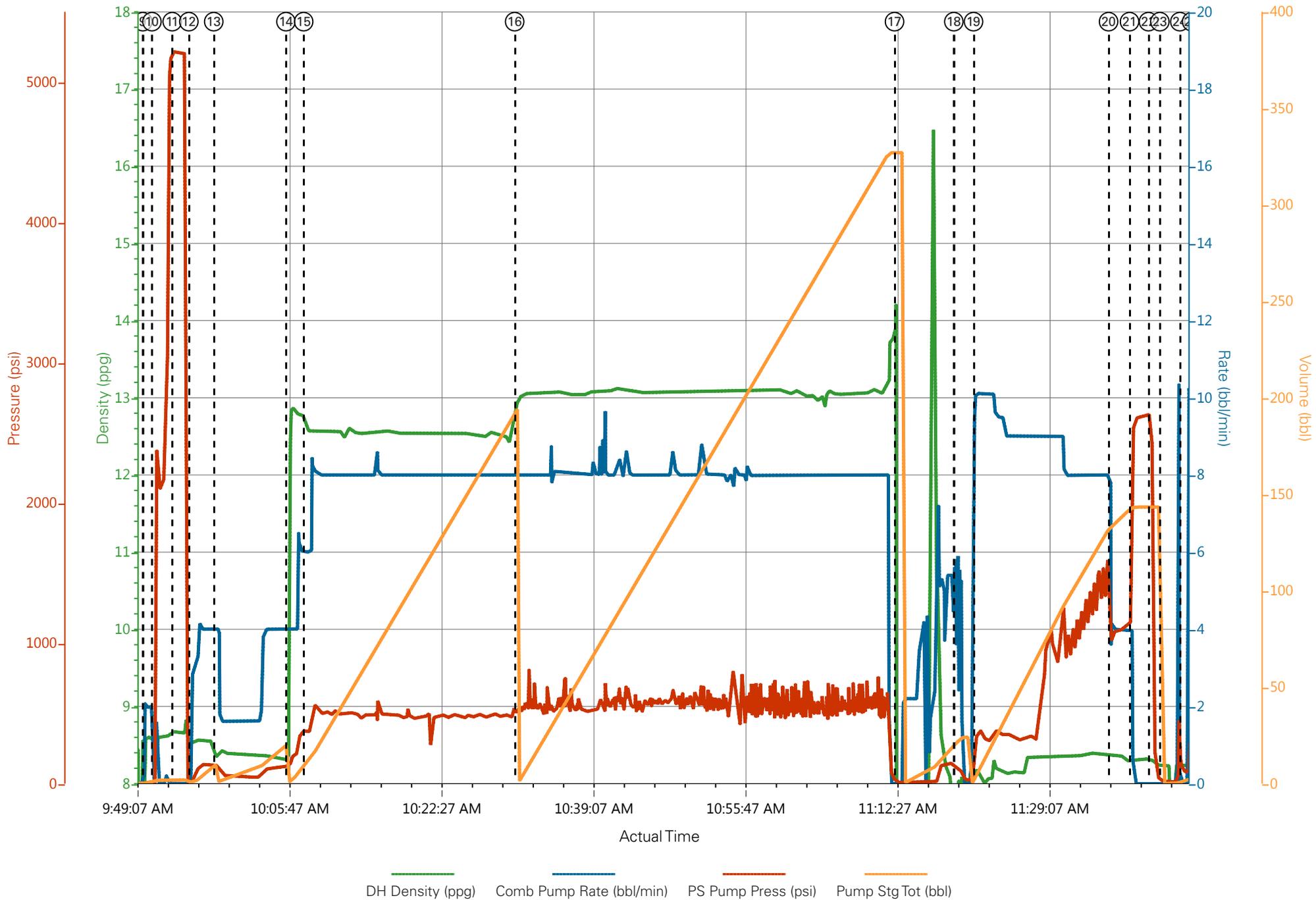
TERRA ENERGY - TR 523-21-597 - 4 1/2" Production



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

- | | | | | | |
|---|-----------------------------|-------------------------|---------------------|--------------------------------|------------------------------|
| ① Call Out | ⑥ Pre-Rig Up Safety Meeting | ⑪ Test Lines | ⑯ Pump Tail Cement | 21 Bump Plug | 26 Pre-Convoy Safety Meeting |
| ② Pre-Convoy Safety Meeting | ⑦ Rig-Up Equipment | ⑫ Pump H2O Spacer | ⑰ Shutdown | 22 Check Floats | 27 Crew Leave Location |
| ③ Crew Leave Yard | ⑧ Pre-Job Safety Meeting | ⑬ Pump Mud Flush Spacer | ⑱ Drop Top Plug | 23 End Job | |
| ④ Arrive at Location | ⑨ Start Job | ⑭ Pump Lead Cement | ⑲ Pump Displacement | 24 Pre-Rig Down Safety Meeting | |
| ⑤ Assessment Of Location Safety Meeting | ⑩ Prime Lines | ⑮ Check weight | 20 Slow Rate | 25 Rig-Down Equipment | |

TERRA ENERGY - TR 523-21-597 - 4 1/2" Production



Job Information

Request/Slurry	2368556/2	Rig Name	H&P 271	Date	15/FEB/2017
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	TR 523-21-597

Well Information

Casing/Liner Size	4.5 in	Depth MD	9410 ft	BHST	115°C / 239°F
Hole Size	8.75 in	Depth TVD	9368 ft	BHCT	76°C / 169°F
Pressure	5860 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

<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	Cement Properties		
		NeoCem				Slurry Density	12.5	lbm/gal
						Slurry Yield	1.941	ft ³ /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 2368556/2

Thickening Time - ON-OFF-ON

17/FEB/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)
169	5860	47	3:15	3:43	4:04	4:39	12	57	15	14

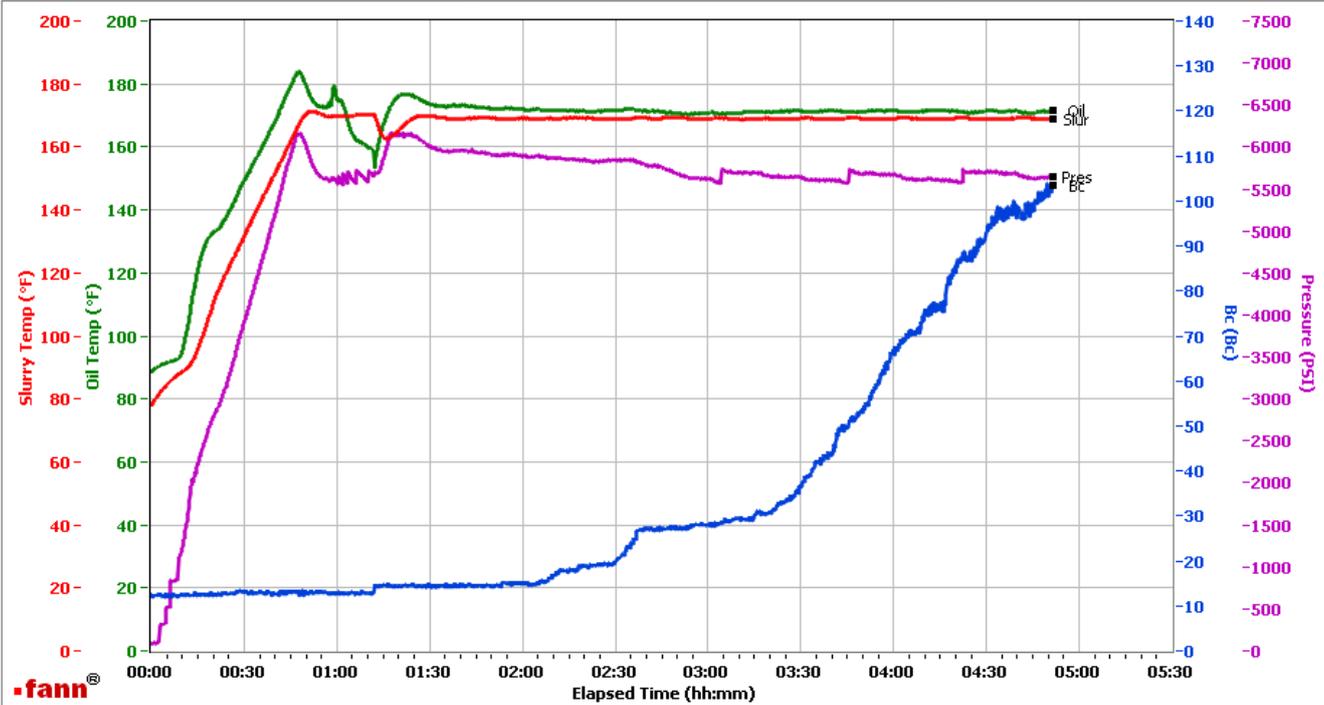
Total Sacks= 535
 CS0303 TR#3212 Front pod 135 SKS
 Deflected 13-- > 14

Grand Junction Colorado

Fields	Values
Project Name	GJ2368556-2 TERRA PRODUCTION BULK LE
Test ID	34331923
Request ID	GJ2368556-2 TERRA PRODUCTION BULK LE
Tested by	JASON
Customer	TERRA ENERGY
Well No	TR 523-21-597
Rig	H&P 271
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	NEOCEM
Cement Weight	Light Weight
Test Date	02/17/17
Test Time	02:47 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:15m
40.00 Bc	03h:33m
50.00 Bc	03h:43m
70.00 Bc	04h:04m
100.00 Bc	04h:39m
00h:30m	13.51
01h:00m	12.90
01h:30m	14.60



Data File C:\Documents and Settings\Administrator\Desktop\Test Data\GJ2368556-2 TERRA PRODUCTION BULK LEAD.tdms
 Comments CS0303 TR 3212 135 SKS

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Operation Test Results Request ID 2368556/1

Thickening Time - ON-OFF-ON

16/FEB/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)
169	5860	48	3:29	4:16	4:46	5:10	22	57	15	19

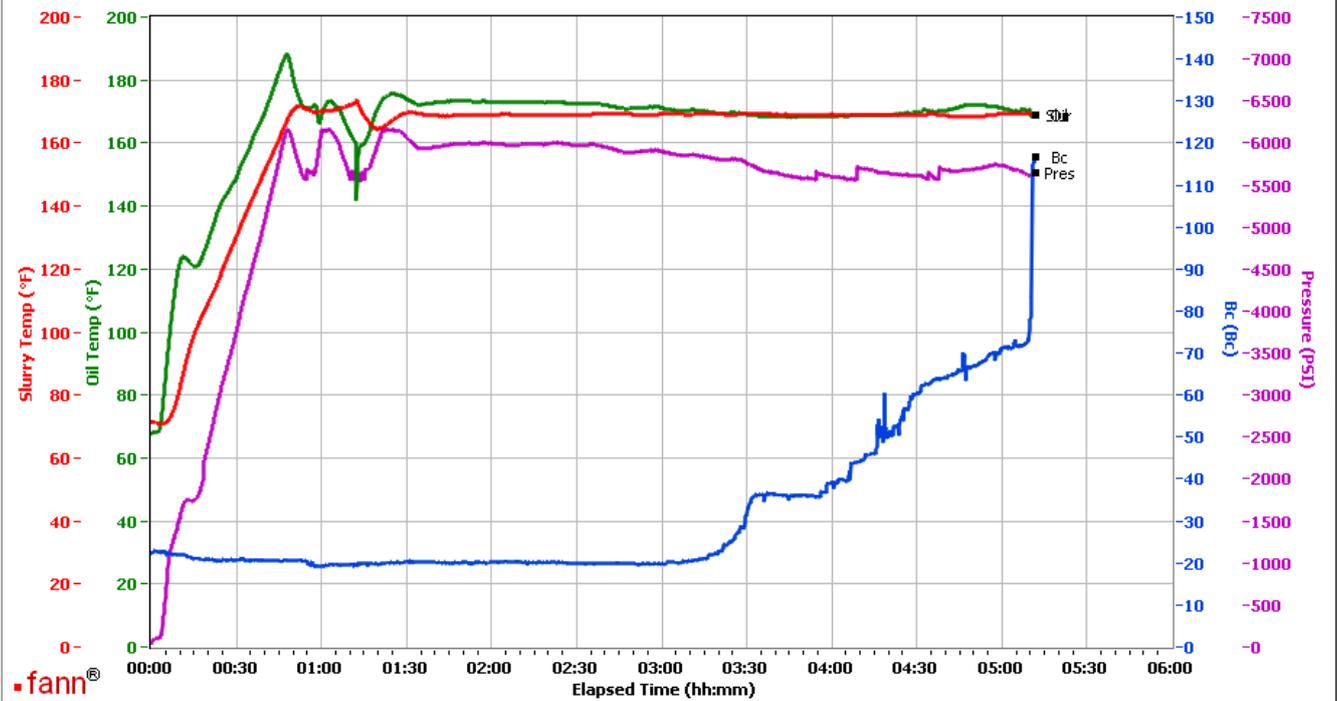
Total Sacks= 535
 CS0302 TR#8658 SKS
 No deflection

Grand Junction Colorado

Fields	Values
Project Name	GJ2368556-1
Test ID	GJ2368556-1 TERRA BULK LEAD
Request ID	
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	TR 523-21-597
Rig	
Casing/Liner Size	

Fields	Values
Job Type	
Cement Type	
Cement Weight	Standard
Test Date	02/16/17
Test Time	07:02 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	03h:29m
40.00 Bc	04h:03m
50.00 Bc	04h:16m
70.00 Bc	04h:46m
100.00 Bc	05h:10m
00h:30m	20.79
01h:00m	19.31
01h:30m	20.16



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\0HU9OBIZ\GJ2368556-1 TERRA BULK LEAD[1].tdms
 Comments CS0302 TR#8658 400 SKS

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Job Information

Request/Slurry	2368557/3	Rig Name	H&P 271	Date	15/FEB/2017
Submitted By	Patrick Ealey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	TR 523-21-597

Well Information

Casing/Liner Size	4.5 in	Depth MD	9410 ft	BHST	115°C / 239°F
Hole Size	8.75 in	Depth TVD	9368 ft	BHCT	76°C / 169°F
Pressure	5860 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>	Cement Properties	
		NeoCem HT				Slurry Density	13 lbm/gal
						Slurry Yield	2.065 ft ³ /sack
						Water Requirement	9.433 gal/sack
						Total Mix Fluid	9.433 gal/sack
						Water Source	Fresh Water
						Water Chloride	

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Operation Test Results Request ID 2368557/3

Thickening Time - ON-OFF-ON

17/FEB/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)
169	5860	47	2:17	2:21	2:29	2:33	11	57	15	10

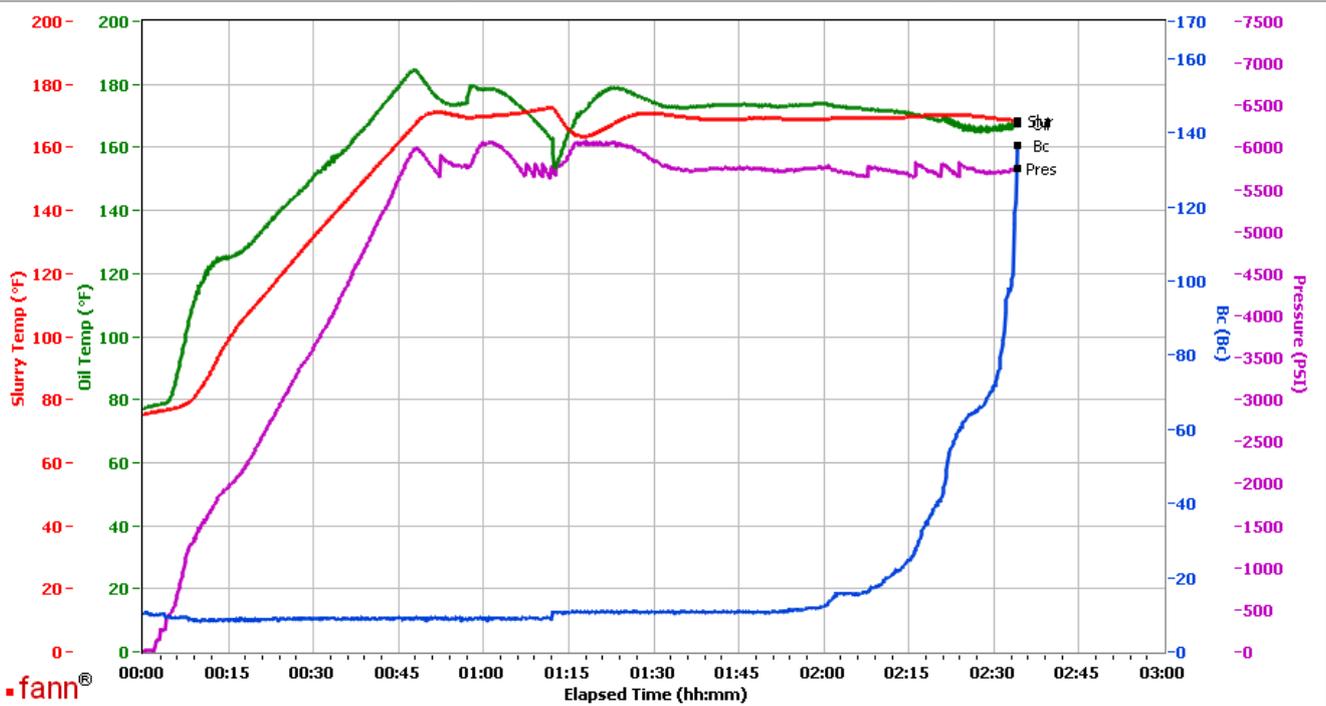
Total sks = 830
 CS0307 TR 8677 350 SKS
 No deflection

Grand Junction Colorado

Fields	Values
Project Name	GJ2368557-3 TERRA PRODUCTION BULK TA
Test ID	343
Request ID	GJ2368557-3 TERRA PRODUCTION BULK TA
Tested by	JASON
Customer	TERRA ENERGY
Well No	TR 523-21-597
Rig	H8P 271
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	NEOCEM
Cement Weight	Light Weight
Test Date	02/16/17
Test Time	06:54 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	02h:17m
40.00 Bc	02h:20m
50.00 Bc	02h:21m
70.00 Bc	02h:29m
100.00 Bc	02h:33m
00h:30m	8.98
01h:00m	8.87
01h:30m	10.52



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2368557-3 TERRA PRODUCTION BULK TAIL.tdms

Comments CS0307 TR 8677 350 SKS

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Operation Test Results Request ID 2368557/2

Thickening Time - ON-OFF-ON

17/FEB/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)
169	5860	47	2:11	2:16	2:24	2:29	19	57	15	27

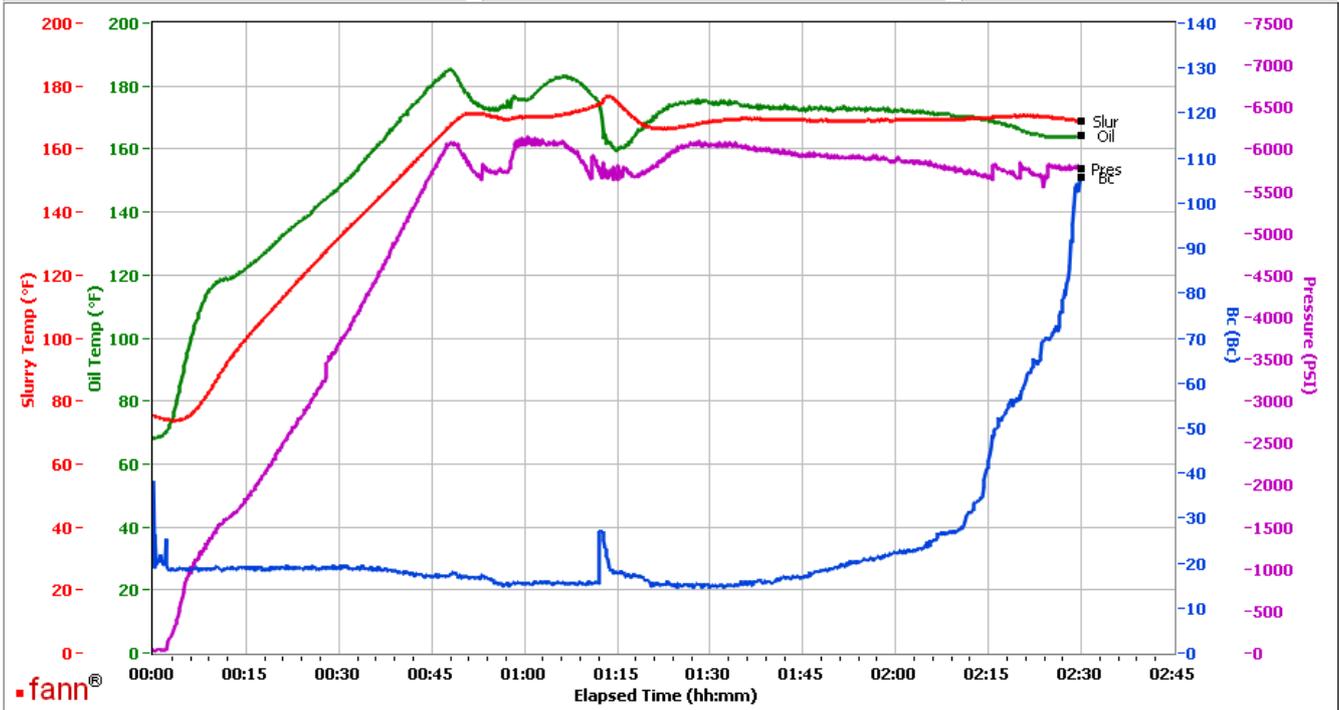
Total sks = 830
 CS0306 TR MT199 350 SKS
 Deflected 15-- > 27

Grand Junction, Colorado

Fields	Values
Project Name	GJ2368557-2 TERRA PRODUCTION BULK TA
Test ID	34332287
Request ID	GJ2368557-2 TERRA PRODUCTION BULK TA
Tested by	JASON
Customer	TERRA ENERGY
Well No	TR 523-21-597
Rig	H&P 271
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	NEOCEM
Cement Weight	Light Weight
Test Date	02/17/17
Test Time	12:06 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	00h:00m
40.00 Bc	02h:14m
50.00 Bc	02h:16m
70.00 Bc	02h:24m
100.00 Bc	02h:29m
00h:30m	18.70
01h:00m	15.31
01h:30m	14.55



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 Comments CS0306 TR MT199 350 SKS

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Operation Test Results Request ID 2368557/1

Thickening Time - ON-OFF-ON

17/FEB/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)
169	5860	47	2:02	2:09	2:16	2:20	18	57	15	21

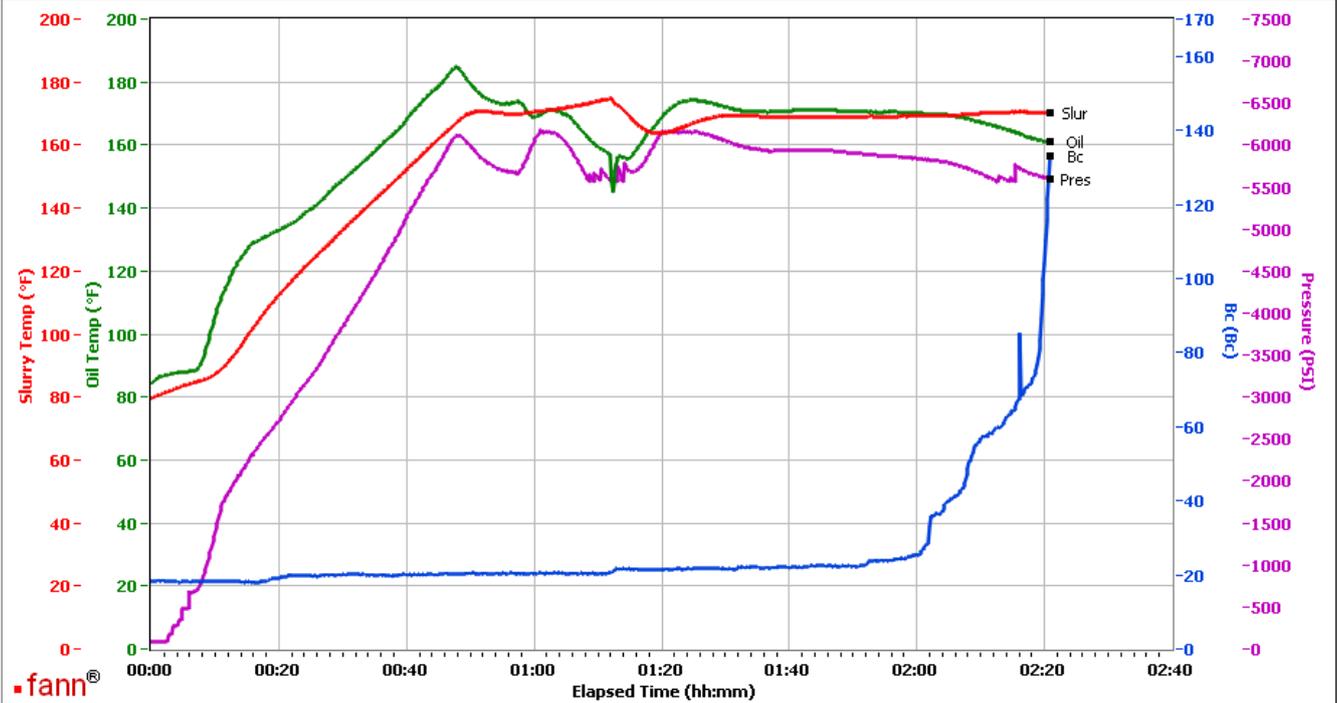
Total sks = 830
 CS0304 TR 3212 130 SKS
 No deflection

Grand Junction Colorado

Fields	Values
Project Name	GJ2368557-1 TERRA PRODUCTION BULK TA
Test ID	34328603
Request ID	GJ2368557-1 TERRA PRODUCTION BULK TA
Tested by	JASON
Customer	TERRA ENERGY
Well No	TR 523-21-597
Rig	H&P 271
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION
Cement Type	NEOCEM
Cement Weight	Light Weight
Test Date	02/17/17
Test Time	01:30 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	02h:02m
40.00 Bc	02h:04m
50.00 Bc	02h:08m
70.00 Bc	02h:16m
100.00 Bc	02h:20m
00h:30m	20.21
01h:00m	20.31
01h:30m	21.58



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2368557-1 TERRA PRODUCTION BULK TAIL.tdms
 Comments CS0304 TR 3212 130 SKS

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