

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

For: Terra

Date: Thursday, March 15, 2018

RU 23-17 Production

API#05-045-23739

Sincerely,

Grand Junction Cement Engineering

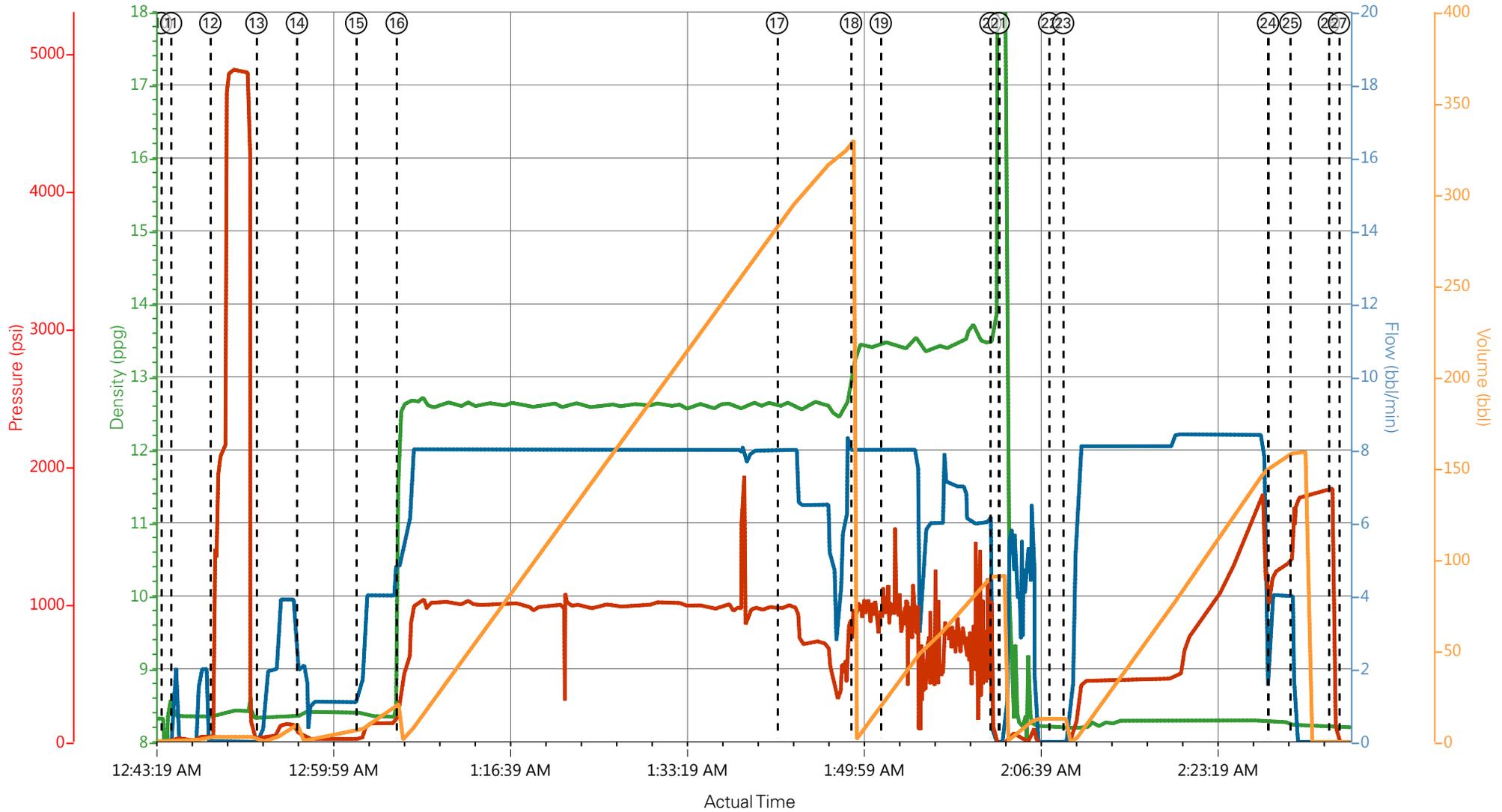
2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	DH Density <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	3/14/2018	09:30:00	USER					ON LOCATION REQUESTED 15:00
Event	2	Pre-Convoy Safety Meeting	3/14/2018	11:30:00	USER					ALL HES PRESENT
Event	3	Crew Leave Yard	3/14/2018	11:45:00	USER					
Event	4	Arrive at Location from Service Center	3/14/2018	15:00:00	USER					RIG RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	3/14/2018	15:10:00	USER					MET WITH COMPANY REP DISCUSSED PROCEDURE SDS OFFERED
Event	6	Pre-Rig Up Safety Meeting	3/14/2018	17:00:00	USER					ALL HES PRESENT
Event	7	Rig-Up Completed	3/14/2018	18:00:00	USER					1-ELITE, 1-660 BULK TRAILER, 1-FIELD SILO, 4.5" QL, 2" PUMP IRON, 4" SUCTION HOSE
Event	8	Pre-Job Safety Meeting	3/14/2018	23:30:00	USER					ALL HES AND RIG CREW PRESENT
Event	9	Other	3/14/2018	23:35:00	USER					RIG PUMPED 1 1/2 BOTTOM UP 400GPM, 375PSI. WATER:TEMP-60, CL-0, PH-7
Event	10	Start Job	3/15/2018	00:44:04	USER	8.30	0.00	0.00	0.0	TD-10425', TP-10418', SJ-31.1', CSG-4.5" 11.6# P110, SCSG-9.625" 32.3# SHOE AT 1102', OH-8.75", MUD-8.8PPG PIPE RECIPROCATED THROUGH JOB
Event	11	Prime Pumps	3/15/2018	00:45:00	USER	8.37	2.00	47.00	3.0	FRESH WATER
Event	12	Test Lines	3/15/2018	00:48:41	COM5	8.35	0.00	4885.00	3.1	ALL PRESSURE HELD ON LINES
Event	13	Pump Water Spacer	3/15/2018	00:53:02	COM5	8.33	4.00	104.00	10.0	FRESH WATER
Event	14	Pump Mud Flush III	3/15/2018	00:56:51	COM5	8.35	4.00	135.00	20.0	MUD FLUSH III
Event	15	Check weight	3/15/2018	01:02:26	COM5					WEIGHT VERIFIED BY PRESSURIZED MUD SCALES

Event	16	Pump Lead Cement	3/15/2018	01:06:15	COM5	12.50	8.00	1060.00	321.3	NEOCEM LEAD 930SKS, 12.5PPG, 1.94CF/SK, 9.6GL/SK
Event	17	Check weight	3/15/2018	01:42:06	COM5					WEIGHT VERIFIED BY PRESSURIZED MUD SCALES
Event	18	Pump Tail Cement	3/15/2018	01:49:04	COM5	13.30	8.00	1000.00	81.6	THERMACEM TAIL 265SKS, 13.3PPG, 1.73CF/SK, 7.81GL/SK
Event	19	Check weight	3/15/2018	01:51:52	COM5					WEIGHT VERIFIED BY PRESSURIZED MUD SCALES
Event	20	Shutdown	3/15/2018	02:02:12	USER					END OF CEMENT
Event	21	Clean Lines	3/15/2018	02:03:00	USER					CLEANED PUMPS AND LINES AND BLOWN BACK TO PIT
Event	22	Drop Plug	3/15/2018	02:07:45	USER					PLUG AWAY
Event	23	Pump Displacement	3/15/2018	02:09:03	COM5	8.40	8.50	1809.00	160.9	KCL WATER, 3# BE6 AND 1 GAL MMCR ADDED
Event	24	Slow Rate	3/15/2018	02:28:22	USER	8.40	4.00	1176.00	150.5	SLOW RATE LAST 10 BBLS
Event	25	Bump Plug	3/15/2018	02:30:28	USER	8.40	4.00	1305.00	160.9	PLUG BUMPED
Event	26	Check Floats	3/15/2018	02:34:06	USER	8.40	0.00	1845.00	0.0	FLOATS HELD 1 BBL BACK
Event	27	End Job	3/15/2018	02:35:03	COM5					RETURNS THROUGH OUT JOB
Event	28	Post-Job Safety Meeting (Pre Rig-Down)	3/15/2018	02:40:00	USER					ALL HES PRESENT
Event	29	Rig-Down Completed	3/15/2018	03:45:00	USER					
Event	30	Pre-Convoy Safety Meeting	3/15/2018	04:00:00	USER					ALL HES PRESENT
Event	31	Crew Leave Location	3/15/2018	04:15:00	USER					THANK YOU FOR CHOOSING HALLIBURTON, ANDREW BRENNECKE AND CREW

TERRA - RU 23-17 - 4.5" PRODUCTION

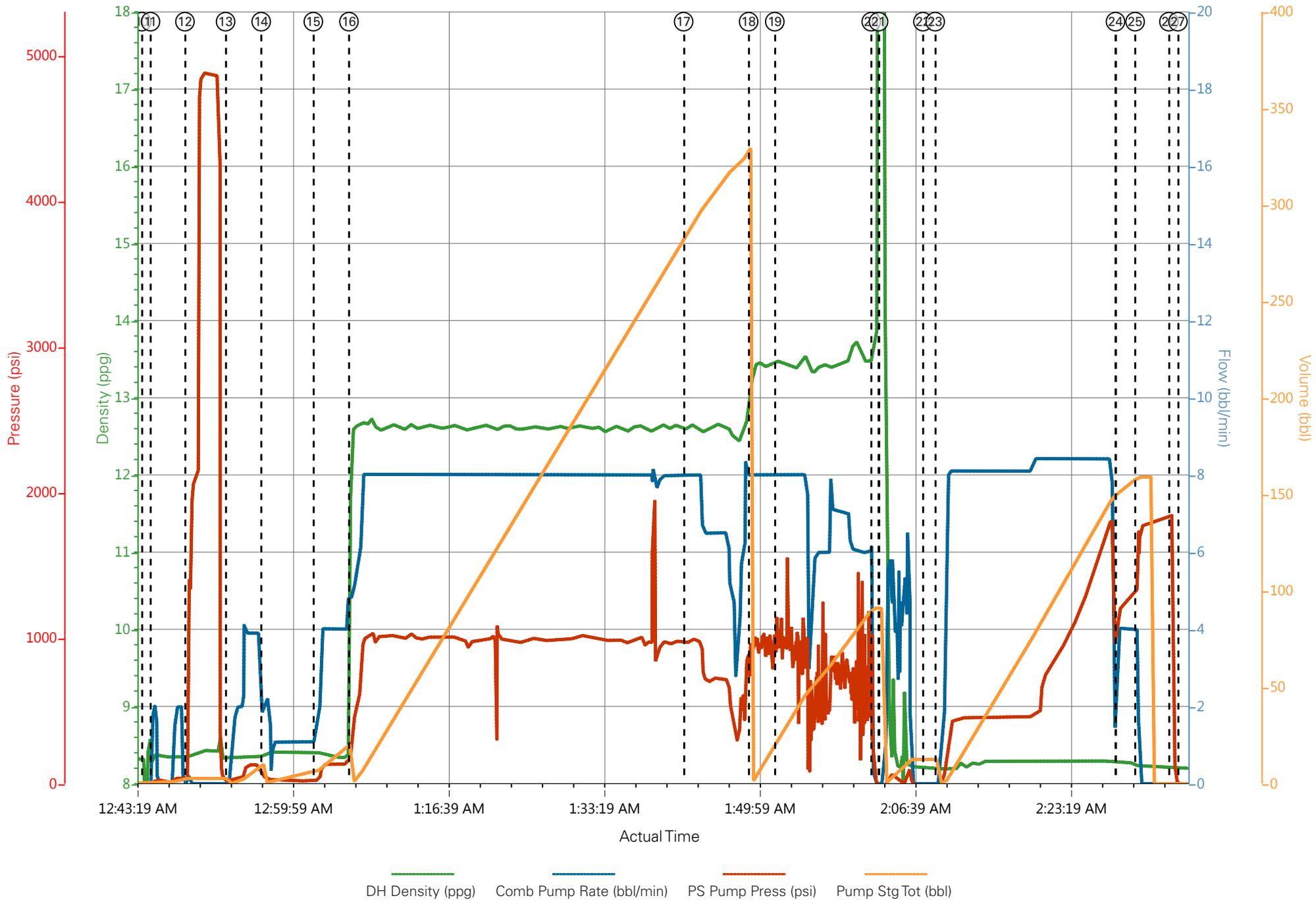


— DH Density (ppg)
 — Comb Pump Rate (bbl/min)
 — PS Pump Press (psi)
 — Pump Stg Tot (bbl)

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|------------------------------------------|-----------------------------------------|---------------|----------------------|--------------------|----------------------|----------------------------|
| ① Call Out | ⑤ Assessment Of Location Safety Meeting | ⑨ Other | ⑬ Pump Water Spacer | ⑰ Check weight | 21 Clean Lines | 25 Bump Plug |
| ② Pre-Convoy Safety Meeting | ⑥ Pre-Rig Up Safety Meeting | ⑩ Start Job | ⑭ Pump Mud Flush III | ⑱ Pump Tail Cement | 22 Drop Plug | 26 Check Floats |
| ③ Crew Leave Yard | ⑦ Rig-Up Completed | ⑪ Prime Pumps | ⑮ Check weight | ⑲ Check weight | 23 Pump Displacement | 27 End Job |
| ④ Arrive at Location from Service Center | ⑧ Pre-Job Safety Meeting | ⑫ Test Lines | ⑯ Pump Lead Cement | 20 Shutdown | 24 Slow Rate | 28 Post-Job Safety Meeting |



TERRA - RU 23-17 - 4.5" PRODUCTION



Job Information

Request/Slurry	2459237/1	Rig Name	H&P 318	Date	08/MAR/2018
Submitted By	Aaron Woolsey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 23-17

Well Information

Casing/Liner Size	4.5 in	Depth MD	10620 ft	BHST	127°C / 260°F
Hole Size	8.75 in	Depth TVD	10586 ft	BHCT	92°C / 198°F
Pressure	6710 psi				

Drilling Fluid Information

Mud Supplier Name	Mud Trade Name	Density
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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 2459237/1

Thickening Time - ON-OFF-ON

12/MAR/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)
198	6710	52	4:03	4:57	5:16	5:16	21	62	15	13

Total sks = 930

Composite:

CS0610 TR#8658 400 SKS

CS0611 TR#8476 400 SKS

CS0612 TR#7304 130 SKS

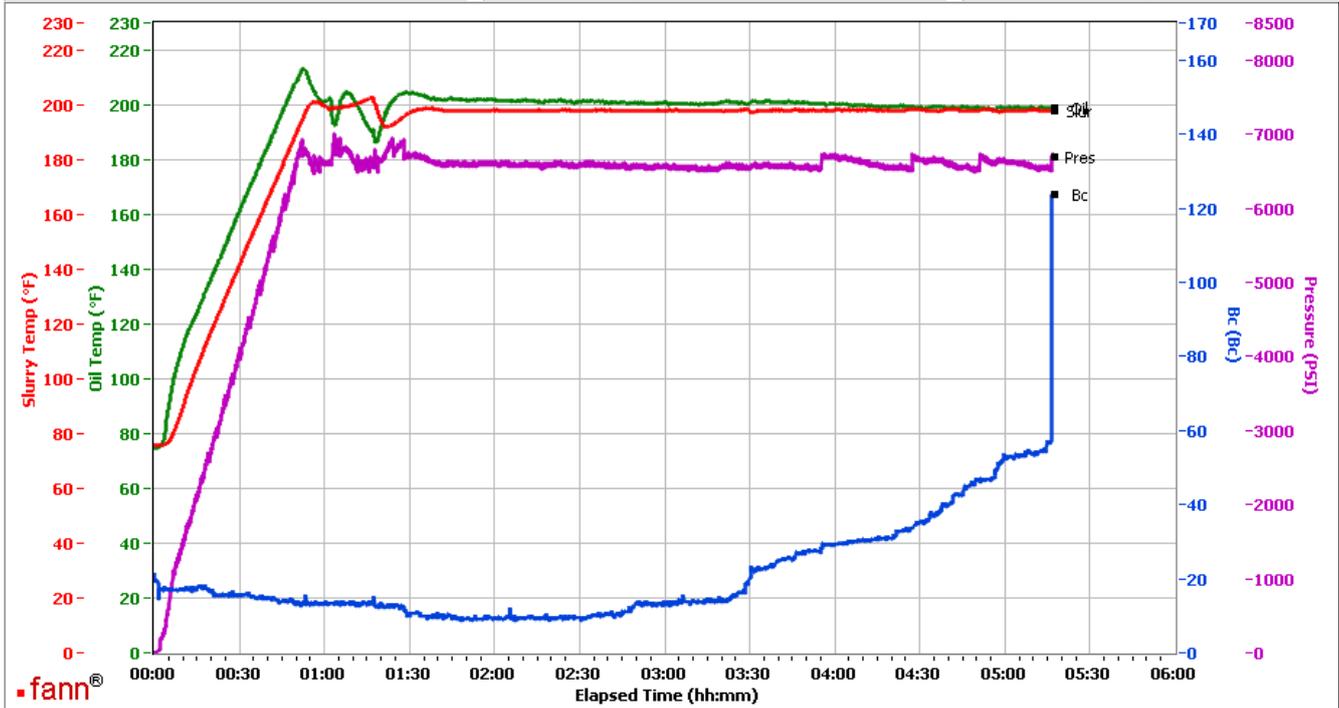
No deflection

Grand Junction, Colorado

Fields	Values
Project Name	GJ2459237-1 TERRA PRODUCTION BULK LE
Test ID	35317673
Request ID	GJ2459237-1
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	RU 23-17
Rig	H&P 318
Casing/Liner Size	4.5"

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	HOLCIM TYPE I-II
Cement Weight	Standard
Test Date	03/12/18
Test Time	02:14 AM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	04h:03m
40.00 Bc	04h:38m
50.00 Bc	04h:57m
70.00 Bc	05h:16m
100.00 Bc	05h:16m
00h:30m	15.05
01h:00m	13.19
01h:30m	10.90



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2459237-1 TERRA PRODUCTION BULK LEAD.tdms
 Comments COMPOSITE: CS0610 TR#8658 400 SKS , CS0611 TR#8476 400 SKS AND CS0612 TR#7304 130 SKS

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Job Information

Request/Slurry	2459238/1	Rig Name	H&P 318	Date	08/MAR/2018
Submitted By	Aaron Woolsey	Job Type	Production Casing	Bulk Plant	Grand Junction
Customer	Terra Energy Partners	Location	Garfield	Well	RU 23-17

Well Information

Casing/Liner Size	4.5 in	Depth MD	10620 ft	BHST	127°C / 260°F
Hole Size	8.75 in	Depth TVD	10586 ft	BHCT	92°C / 198°F
Pressure	6710 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>	Cement Properties	
		ThermaCem				Slurry Density	13.3 lbm/gal
						Slurry Yield	1.733 ft3/sack
						Water Requirement	7.799 gal/sack
						Total Mix Fluid	7.799 gal/sack
						Water Source	Fresh Water
						Water Chloride	

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Operation Test Results Request ID 2459238/1

Thickening Time - ON-OFF-ON

13/MAR/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)
198	6710	52	6:10	6:52	7:02	7:02	23	62	15	18

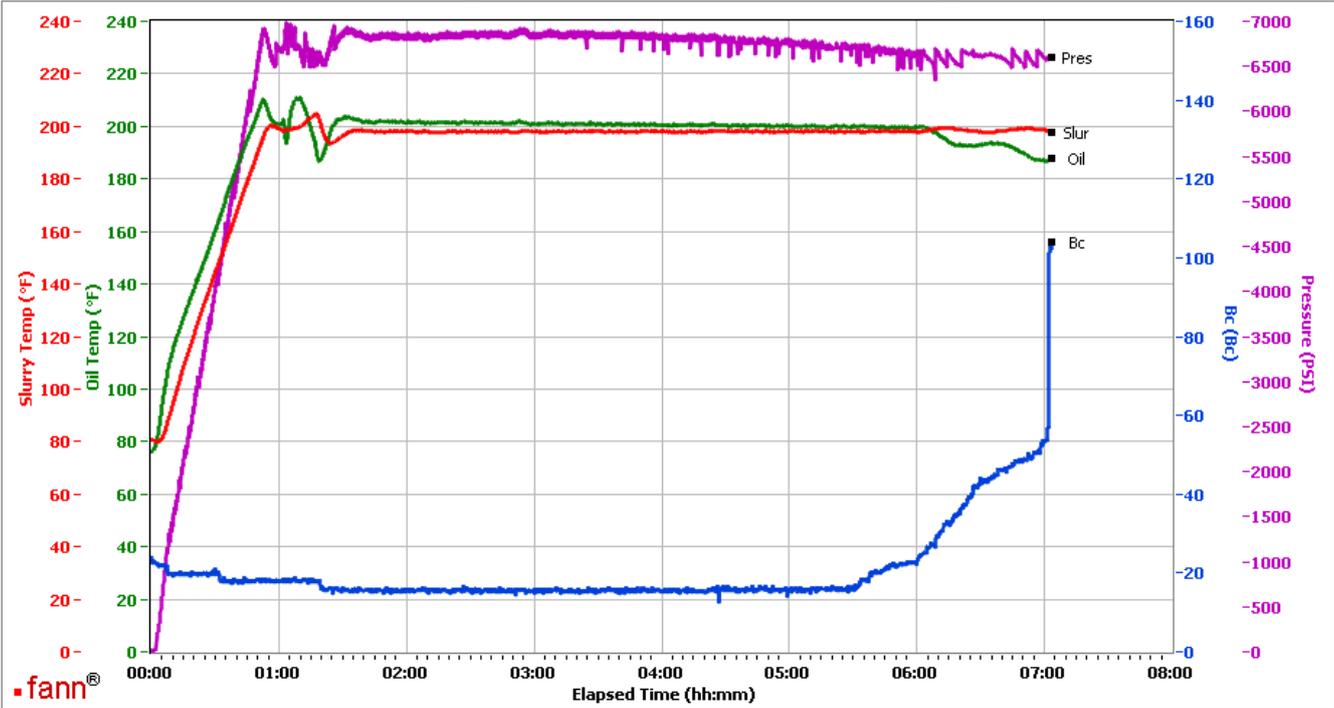
Total sks = 265
 CS0617 tr#4053 265 sks
 Deflection: 18 - 18

Grand Junction, Colorado

Fields	Values
Project Name	GJ2459238-1 TERRA PRODUCTION BULK TA
Test ID	35317675
Request ID	GJ2459238-1
Tested by	DEBA
Customer	TERRA ENERGY PARTNERS
Well No	RU 23-17
Rig	H8P318
Casing/Liner Size	4.5

Fields	Values
Job Type	PRODUCTION CASING
Cement Type	MOUNTAIN G
Cement Weight	Standard
Test Date	03/12/18
Test Time	10:18 PM
Temp. Units	degF
Pressure Units	PSI
SW Version	2.1.0.507

Events	Results
30.00 Bc	06h:10m
40.00 Bc	06h:25m
50.00 Bc	06h:52m
70.00 Bc	07h:02m
100.00 Bc	07h:02m
00h:30m	21.15
01h:00m	17.78
01h:30m	15.73



Data File C:\Documents and Settings\M290\Local Settings\Temporary Internet Files\Content.IE5\CDER4HUV\GJ2459238-1 TERRA PRODUCTION BULK TAIL[1].tdms
 Comments CS0617 TR#4053 265 SKS

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