

# HALLIBURTON

iCem<sup>®</sup> Service

## **TEP ROCKY MOUNTAIN LLC-EBUS**

**For: Terra**

Date: Friday, June 29, 2018

**PA 431-26 Production PJR**

API #: 05-045-23722

Sincerely,

**Grand Junction Cement Engineering**

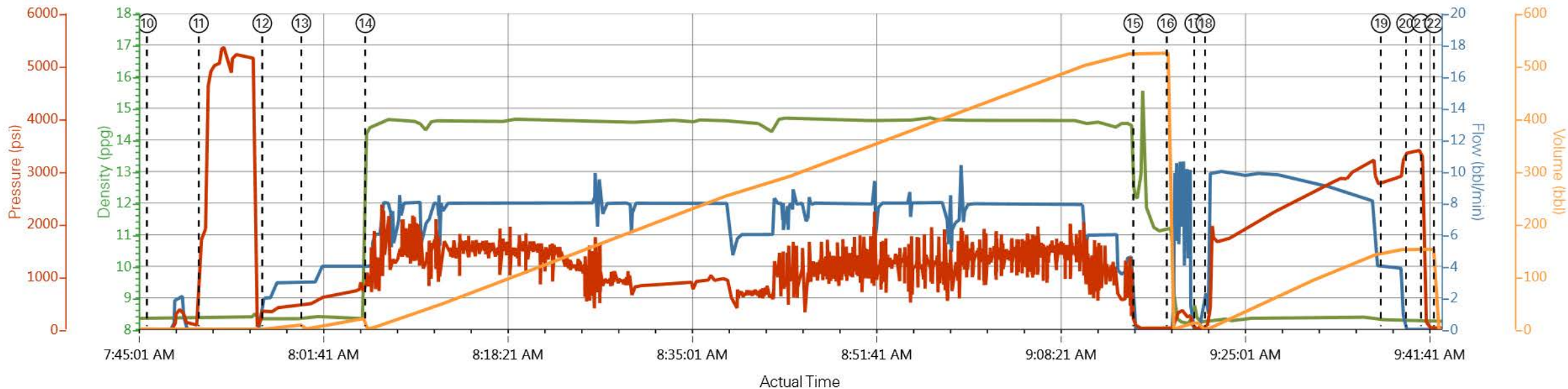
## 2.0 Real-Time Job Summary

### 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	6/28/2018	22:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	6/29/2018	00:15:00	USER					
Event	3	Crew Leave Yard	6/29/2018	00:30:00	USER					
Event	4	Arrive At Loc	6/29/2018	02:00:00	USER					
Event	5	Assessment Of Location Safety Meeting	6/29/2018	02:05:00	USER					
Event	6	Spot Equipment	6/29/2018	02:10:00	USER					
Event	7	Pre-Rig Up Safety Meeting	6/29/2018	02:15:00	USER					
Event	8	Rig-Up Equipment	6/29/2018	02:20:00	USER					
Event	9	Pre-Job Safety Meeting	6/29/2018	07:25:00	USER					
Event	10	Start Job	6/29/2018	07:46:00	COM5					TD: 9237 TP: 9227 SJ: 32.2 MW: 12.8PPG 4 1/2" 11.6#/FT CSG IN 8 3/4" OH WATER TEST: PH: 6.5 POTASSIUM: 450 CHLORIDES: 0 SULFATES: <200 TEMP 72 DEGREES
Event	11	Test Lines	6/29/2018	07:50:41	COM5					5000 PSI TEST SUCCESSFUL
Event	12	Fresh H2O Spacer	6/29/2018	07:56:25	COM5	8.33	3.00	368.00	10.09	10 BBL FRESH H2O SPACER
Event	13	Mudflush Spacer	6/29/2018	07:59:57	COM5	8.40	4.00	474.00	20.0	20 BBL MUDFLUSH SPACER
Event	14	Pump Cement	6/29/2018	08:05:44	COM5	14.50	8.00	1550.00	460.8	1960 SKS @ 14.5 PPG 1.32 YLD 5.85 GAL/SK H2O

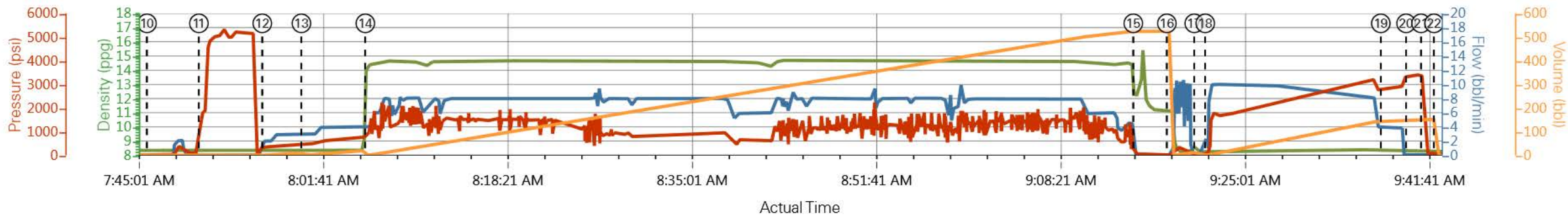
Event	15	Shutdown	6/29/2018	09:15:10	USER					
Event	16	Clean Lines	6/29/2018	09:18:12	COM5					
Event	17	Drop Top Plug	6/29/2018	09:20:40	COM5					PLUG AWAY
Event	18	Pump Displacement	6/29/2018	09:21:40	COM5	8.48	10.00	2805.00	142.5	FRESH H2O DISPLACEMENT W/ KCL, 3# BE-6, 1 GAL MMCR
Event	19	Slow Rate	6/29/2018	09:37:32	USER	8.33	4.00	2910.00	132.0	
Event	20	Bump Plug	6/29/2018	09:39:49	COM5	8.33	4.00	3372.00	142.5	PLUG BUMPED AT CALCULATED DISPLACEMENT. FINAL CIRCULATING PRESSURE WAS 2910PSI PRESSURED UP TO 3370 @ BUMP
Event	21	Check Floats	6/29/2018	09:41:10	USER					FLOATS HELD, GAINED 1.5 BBL BACK TO PUMP
Event	22	End Job	6/29/2018	09:42:21	COM5					
Event	23	Post-Job Safety Meeting (Pre Rig-Down)	6/29/2018	09:50:00	USER					GOOD CIRCULATION THROUGHOUT JOB. PIPE WAS RECIPROCATED THROUGHOUT JOB. NO ADD HOURS CHARGED, 70# SUGAR USED.
Event	24	Rig-Down Equipment	6/29/2018	10:00:00	USER					
Event	25	Pre-Convoy Safety Meeting	6/29/2018	11:25:00	USER					
Event	26	Crew Leave Location	6/29/2018	11:30:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENTING OF GRAND CT, CO ANTHONY ANDREWS AND CREW

# TEP - PA 431-26 - 4 1/2" PRODUCTION



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

# TEP - PA 431-26 - 4 1/2" PRODUCTION



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

- |   |                          |                     |   |
|---|--------------------------|---------------------|---|
| ① Call Out                              | ⑧ Rig-Up Equipment       | ⑮ Shutdown          | 22 End Job                                |
| ② Pre-Convoy Safety Meeting             | ⑨ Pre-Job Safety Meeting | ⑯ Clean Lines       | 23 Post-Job Safety Meeting (Pre Rig-Down) |
| ③ Crew Leave Yard                       | ⑩ Start Job              | ⑰ Drop Top Plug     | 24 Rig-Down Equipment                     |
| ④ Arrive At Loc                         | ⑪ Test Lines             | ⑱ Pump Displacement | 25 Pre-Convoy Safety Meeting              |
| ⑤ Assessment Of Location Safety Meeting | ⑫ Fresh H2O Spacer       | ⑲ Slow Rate         | 26 Crew Leave Location                    |
| ⑥ Spot Equipment                        | ⑬ Mudflush Spacer        | 20 Bump Plug        |   |
| ⑦ Pre-Rig Up Safety Meeting             | ⑭ Pump Cement            | 21 Check Floats     |   |

▼ **HALLIBURTON** | iCem<sup>®</sup> Service

Created: 2018-06-29 05:40:09, Version: 4.2.393

Edit

Customer: TEP ROCKY MOUNTAIN LLC-EBUS

Job Date: 6/29/2018 5:41:39 AM

Well: PA 431-26

Representative: ADAM ABFALL

Sales Order #: 904949141

ELITE 4: TRAVIS BROWN/ ANTHONY ANDREWS

### Job Information

<b>Request/Slurry</b>	2482900/1	<b>Rig Name</b>	H&P 271	<b>Date</b>	21/JUN/2018
<b>Submitted By</b>	Lukas Van Zyl	<b>Job Type</b>	Production Casing	<b>Bulk Plant</b>	Grand Junction
<b>Customer</b>	Terra Energy Partners	<b>Location</b>	Garfield	<b>Well</b>	PA 431-26

### Well Information

<b>Casing/Liner Size</b>	4.5 in	<b>Depth MD</b>	9250 ft	<b>BHST</b>	106°C / 223°F
<b>Hole Size</b>	8.75 in	<b>Depth TVD</b>	8406 ft	<b>BHCT</b>	67°C / 153°F
<b>Pressure</b>	5184 psi				

### Drilling Fluid Information

<b>Mud Supplier Name</b>	AMC	<b>Mud Trade Name</b>		<b>Density</b>	
--------------------------	-----	-----------------------	--	----------------	--

### Cement Information - Primary Design

<u>Conc</u>	<u>UOM</u>	<u>Cement/Additive</u>	<u>Sample Type</u>	<u>Sample Date</u>	<u>Lot No.</u>	<b>Cement Properties</b>		
		Expandacem Primary				Slurry Density	14.5	lbm/gal
						Slurry Yield	1.32	ft3/sack
						Water Requirement	5.849	gal/sack
						Total Mix Fluid	5.849	gal/sack
						Water Source	Fresh Water	
						Water Chloride		

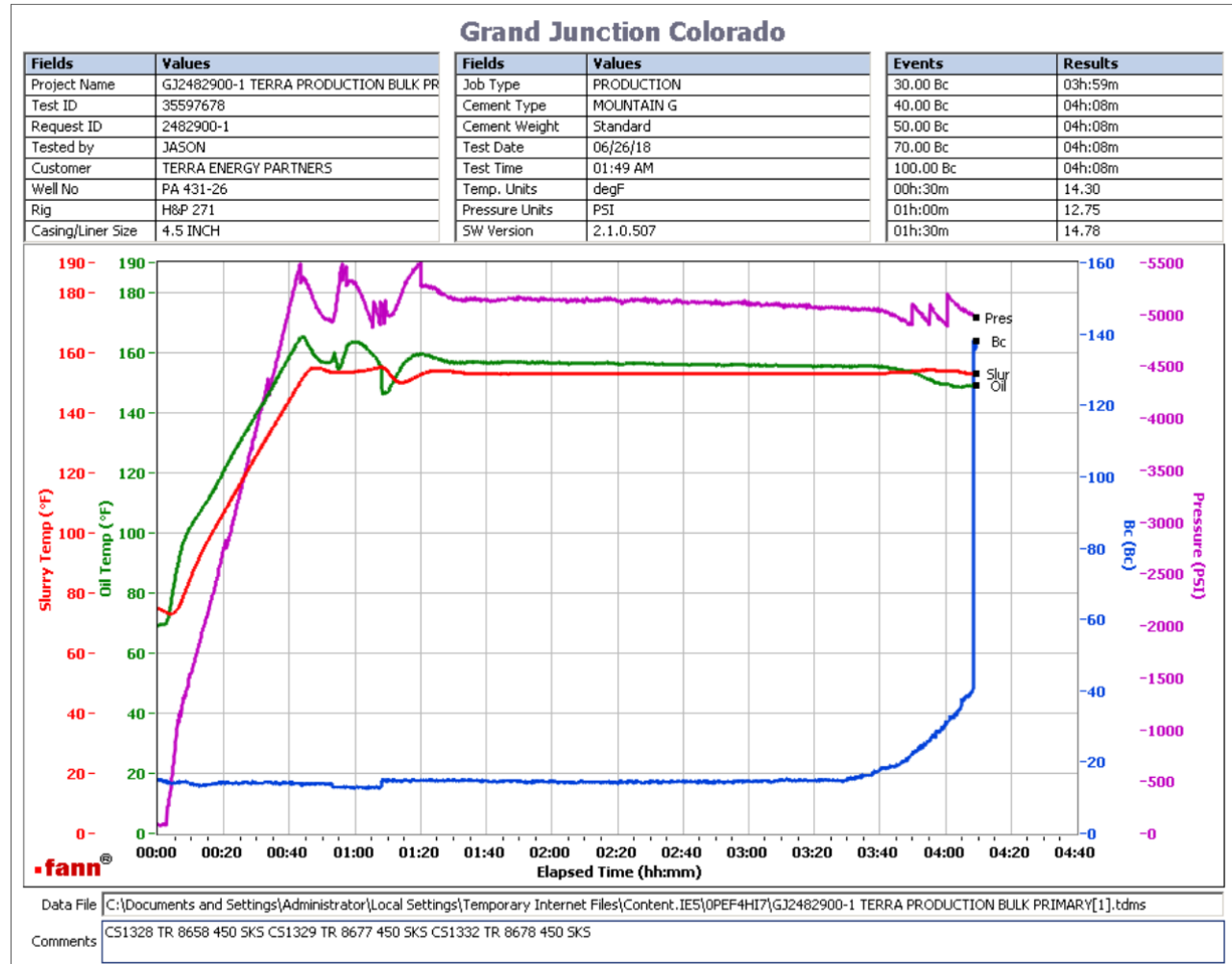
This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

# Operation Test Results Request ID 2482900/1

## Thickening Time - ON-OFF-ON

26/JUN/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)
153	5184	43	3:59	4:08	4:08	4:08	16	53	15	15



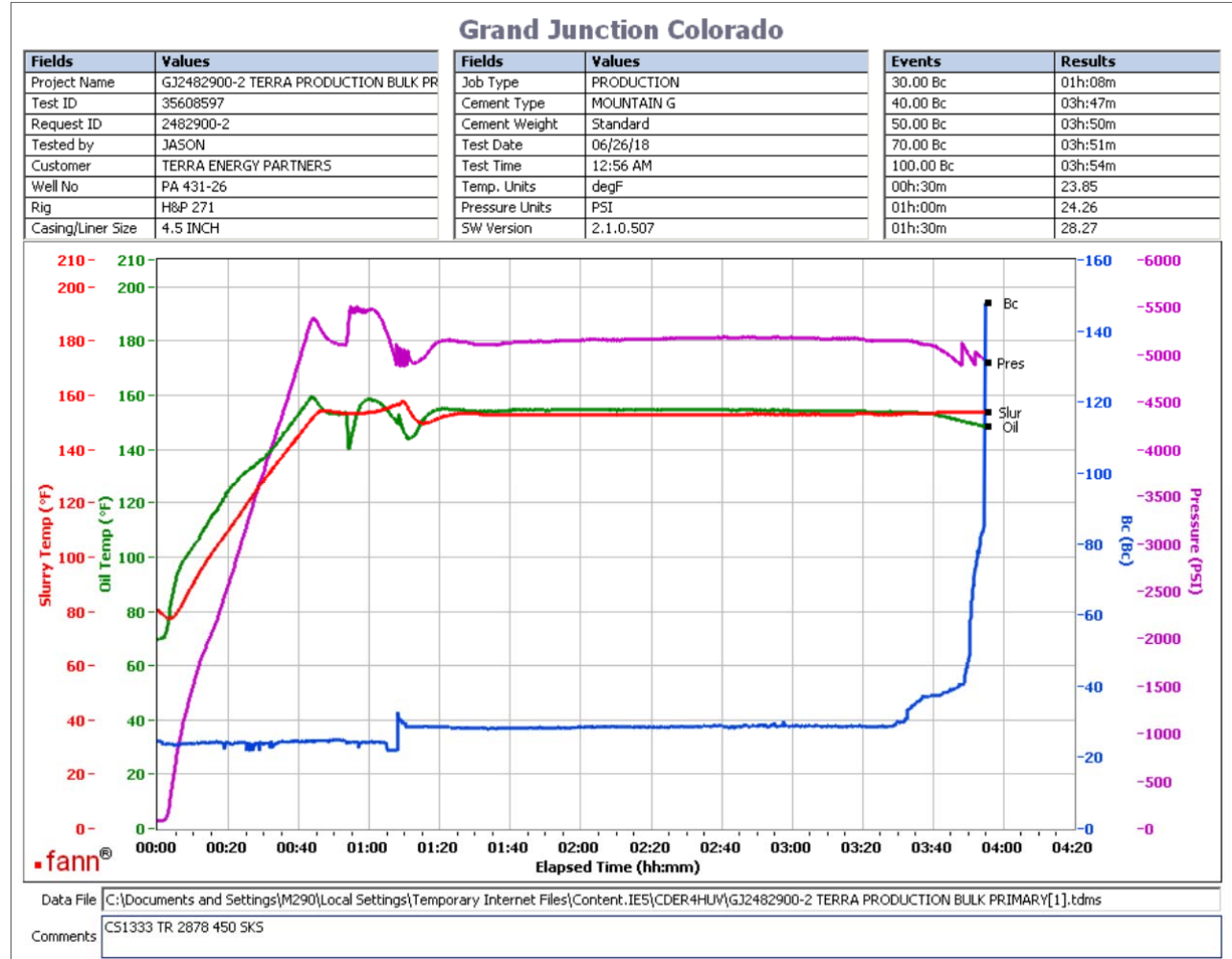
total sks=1960  
 CS1328 TR 8658 450 SKS  
 CS1329 TR 8677 450 SKS  
 CS1332 TR 8678 450 SKS  
 Deflection: 13 – 15

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

**Operation Test Results Request ID 2482900/2**

**Thickening Time - ON-OFF-ON 26/JUN/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)
153	5184	43	1:08	3:50	3:51	3:54	25	53	15	36



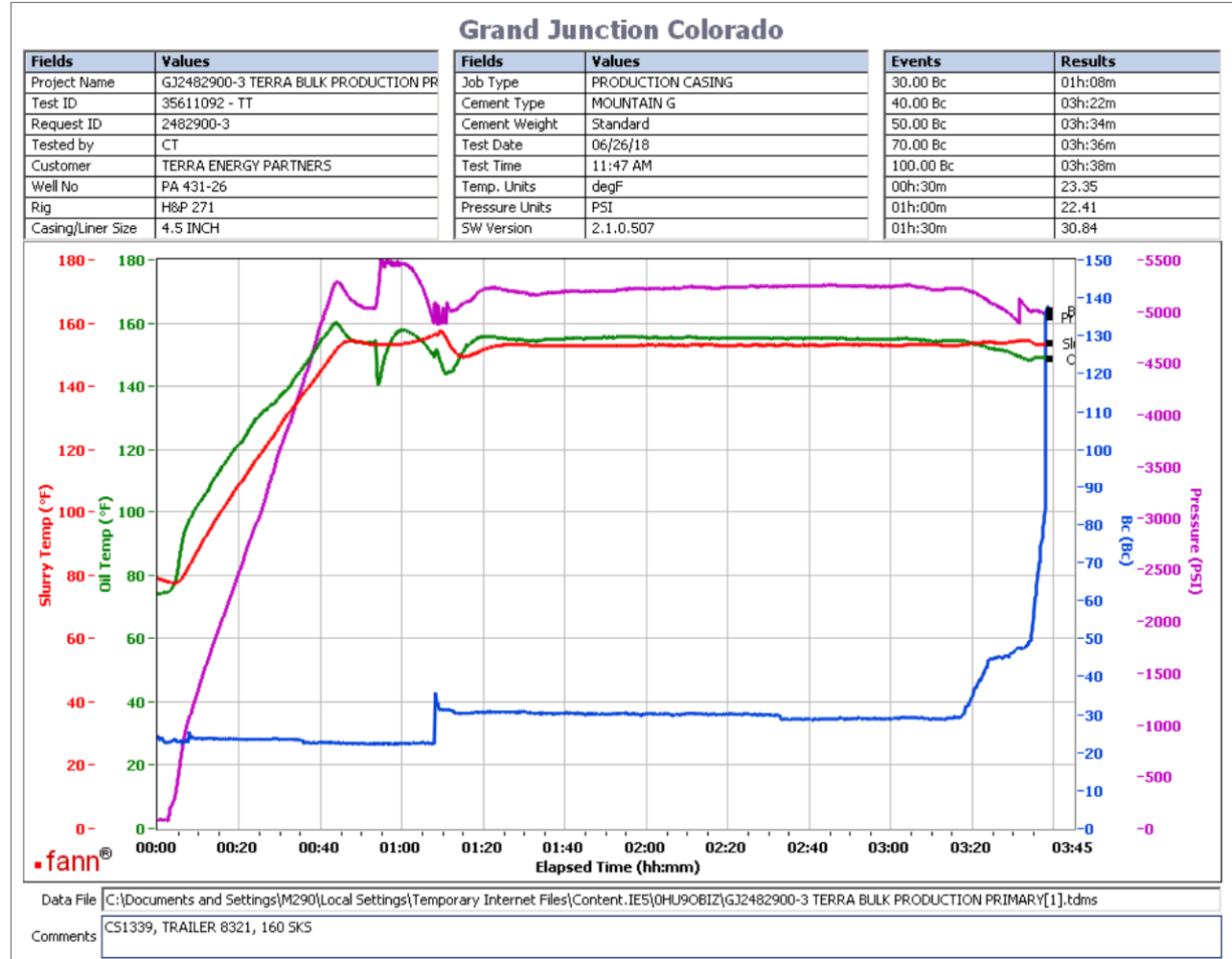
total sks=1960  
 CS1333 TR 2878 450 SKS  
 Deflection: 22 - 36 to 30 after one minute

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

**Operation Test Results Request ID 2482900/3**

**Thickening Time - ON-OFF-ON 26/JUN/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)
153	5184	43	1:08	3:34	3:36	3:38	24	53	15	37



total sks=1960  
 CS1339, Trailer 8321, 160 sks  
 deflected from 22Bc--> 37Bc--> 31Bc

This report is the property of Halliburton Energy Services and neither it nor any part thereof, nor a copy thereof, is to be published or disclosed without first securing the expressed written approval of Halliburton. It may however be used in the course of regular business operations by any person or concern receiving such report from Halliburton. This report is for information purposes only and the content is limited to the sample described. Halliburton makes no warranties, expressed or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.