

# HALLIBURTON

iCem® Service

## Post Job Report

**SOUTHWESTERN ENERGY PROD CO EBUS**

**For: TOMMY HOWARD**

Date: Monday, July 07, 2014

**LINNEBUR FLYING SERVICE 3-61 1-30**

Production Longstring

Sincerely,

**AARON SMITH**

Table of Contents

1.1	Executive Summary	3
2.0	Job Event Log	4
2.1	Job Summary	5
3.0	Custom Graphs	8
3.1	Custom Graph	8
3.2	Custom Graph	9
4.0	Job Design Graph	10
4.1	Recalculation	11

**1.1 Executive Summary**

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Halliburton appreciates the opportunity to perform the cementing services on the **LINNEBUR FLYING SERVICE 3-61** cement **Prodctiion** casing job. A pre-job safety meeting was held before the job where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined.

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Respectfully,

**Halliburton [Fort Lupton, Colorado]**

## 2.0 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Pump Stage Total (bbl)	Comment
Event	1	Call Out	Call Out	7/6/2014	02:00:11	USER					SUPERVISOR CALLED AT 0200, CREW CALLED OUT AT 0630
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	7/6/2014	11:30:00	USER					
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	7/6/2014	11:45:00	USER					
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	7/6/2014	13:00:00	USER					ARRIVED ON LOCATION WITH ALL EQUIPMENT AND MATERIALS, HAD TO DO A TWO HOUR CLASS BEFORE PULLING ON LOCATION
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	7/6/2014	15:20:00	USER					RIG-UP JSA WITH HES CREW
Event	6	Rig-Up Equipment	Rig-Up Equipment	7/6/2014	15:30:00	USER					
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	7/6/2014	18:05:00	USER	0.00	8.28	43.00	13.7	WITH CUSTOMER REP AND RIG CREW.
Event	8	Rig-Up Completed	Rig-Up Completed	7/6/2014	18:20:00	USER	0.00	8.08	43.00	13.7	
Event	9	Start Job	Start Job	7/6/2014	18:33:51	COM4	0.00	8.06	43.00	13.7	
Event	10	Test Lines	Test Lines	7/6/2014	18:37:01	COM4	0.00	8.05	92.00	14.4	@4000 PSI, HAD PROBLEM HOLDING PRESSURE, FOUND LOOSE UNIONS, TIGHTENED THEM U, PRESSURE HELD
Event	11	Drop Bottom Plug	Drop Bottom Plug	7/6/2014	19:30:31	COM4	0.00	7.95	49.00	16.1	PRE-LOADED HWE BOTTOM PLUG IN PLUG CONTAINER, VERIFIED BY CUSOMER REP
Event	12	Pump Spacer 1	Pump Spacer 1	7/6/2014	19:30:35	COM4	0.00	7.97	48.00	0.0	40 BBLS TUNED SPACER @ 11 PPG, 6.21 YIELD, 35.1 GAL/SK
Event	13	Pump Spacer 2	Pump Spacer 2	7/6/2014	19:55:21	COM4	0.00	10.83	50.00	44.6	234 BBLS TERGOVIS, @ 12 PPG, 2.31 YIELD, 12.8 GAL/SK

Event	14	Pump Cement	Pump Cement	7/6/2014	20:50:38	COM4	1.50	13.68	87.00	1.5
Event	15	Shutdown	Shutdown	7/6/2014	22:47:40	COM4	0.00	13.77	61.00	468.4
Event	16	Clean Lines	Clean Lines	7/6/2014	22:51:56	COM4	2.00	9.10	78.00	470.8
Event	17	Drop Bottom Plug	Drop Bottom Plug	7/6/2014	22:55:05	COM4	0.00	9.40	54.00	475.5
Event	18	Drop Top Plug	Drop Top Plug	7/6/2014	22:56:58	COM4	1.10	8.30	65.00	475.9
Event	19	Pump Displacement	Pump Displacement	7/6/2014	22:57:03	COM4				
Event	20	Other	Check Floats	7/7/2014	00:31:25	COM4				
Event	21	End Job	End Job	7/7/2014	00:34:18	USER	0.00	8.40	49.00	238.7

## 2.1 Job Summary

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## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 346471	Ship To #: 3458758	Quote #: 0021871465	Sales Order #: 0901431836							
Customer: SOUTHWESTERN ENERGY PROD CO EBUS		Customer Rep:								
Well Name: LINNEBUR FLYING SERVICE 3-61	Well #: 1-30	API/UWI #: 05-001-09804-00								
Field: WILDCAT	City (SAP): STRASBURG	County/Parish: ADAMS	State: COLORADO							
Legal Description: SW NE-30-3S-61W-2417FNL-2362FEL										
Contractor: PATTERSON JTI ENERGY		Rig/Platform Name/Num: PATTERSON 180								
Job BOM: 7523										
Well Type: VERTICAL OIL										
Sales Person: HALAMERICA/HX41066		Srv Supervisor: Aaron Smith								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type	BHST									
Job depth MD	10775ft	Job Depth TVD	10773							
Water Depth		Wk Ht Above Floor	6							
Perforation Depth (MD)	From	To								
Well Data										
Description	New / Used	Size In	ID In	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Casing		5.025	0.005	40		J-55	0	1100		
Casing		5.5	4.778	20	Casing Drill Collar	HCP110	0	10773		0
Open Hole Section			8.75				1100	10775		0
Tools and Accessories										
Type	Size In	Qty	Make	Depth ft	Type	Size In	Qty	Make		
Guide Shoe	5.5				Top Plug	5.5	1	HES		
Float Shoe	5.5	1	SSII	10773	Bottom Plug	5.5	2	HES		
Float Collar	5.5	1	SSII	10695	SSR plug set	5.5		HES		
Insert Float	5.5				Plug Container	5.5	1	HES		
Stage Tool	5.5				Centralizers	5.5		HES		
Miscellaneous Materials										
Gelling Agt	Conc		Surfactant	Conc	Acid Type		Qty	Conc		
Treatment Fld	Conc		Inhibitor	Conc	Sand Type		Size	Qty		
Fluid Data										
Stage/Plug #: 1										
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	Tuned Spacer III	Tuned Spacer III	40	bbl	11	6.21	35.1			
118.53 lbm/bbl		BARITE, BULK (100003681)								
0.80 gal/bbl		MUSOL(R) A, BULK (100003696)								
0.80 gal/bbl		SEM-7, 55 GAL DRUM (100001626)								
35.10 gal/bbl		FRESH WATER								

last updated on 7/7/2014 2:04:28 AM

Page 1 of 3

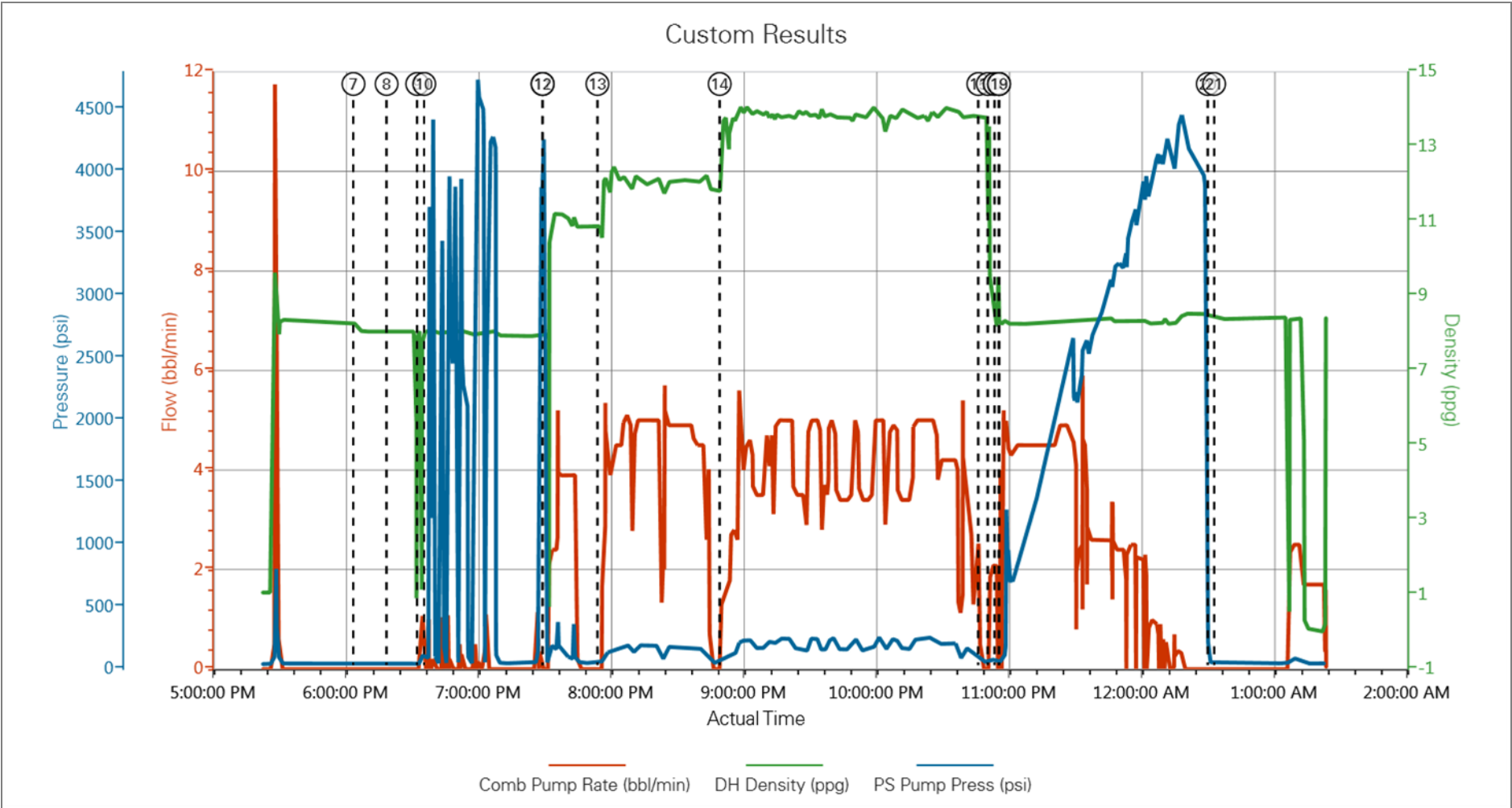
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*Cementing Job Summary*

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	TergoVis I	CMT PKG TERGOVIS I	234	bbl	12	2.31	12.81	5	
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
3	ExpandaCem	EXPANDACEM (TM) SYSTEM	1520	sack	13.8	1.67		6	7.68
7.68 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
4	Displacement	Displacement	237	bbl	8.34				
Cement Left In Pipe		Amount	45 ft	Reason			Shoe Joint		
Comment									

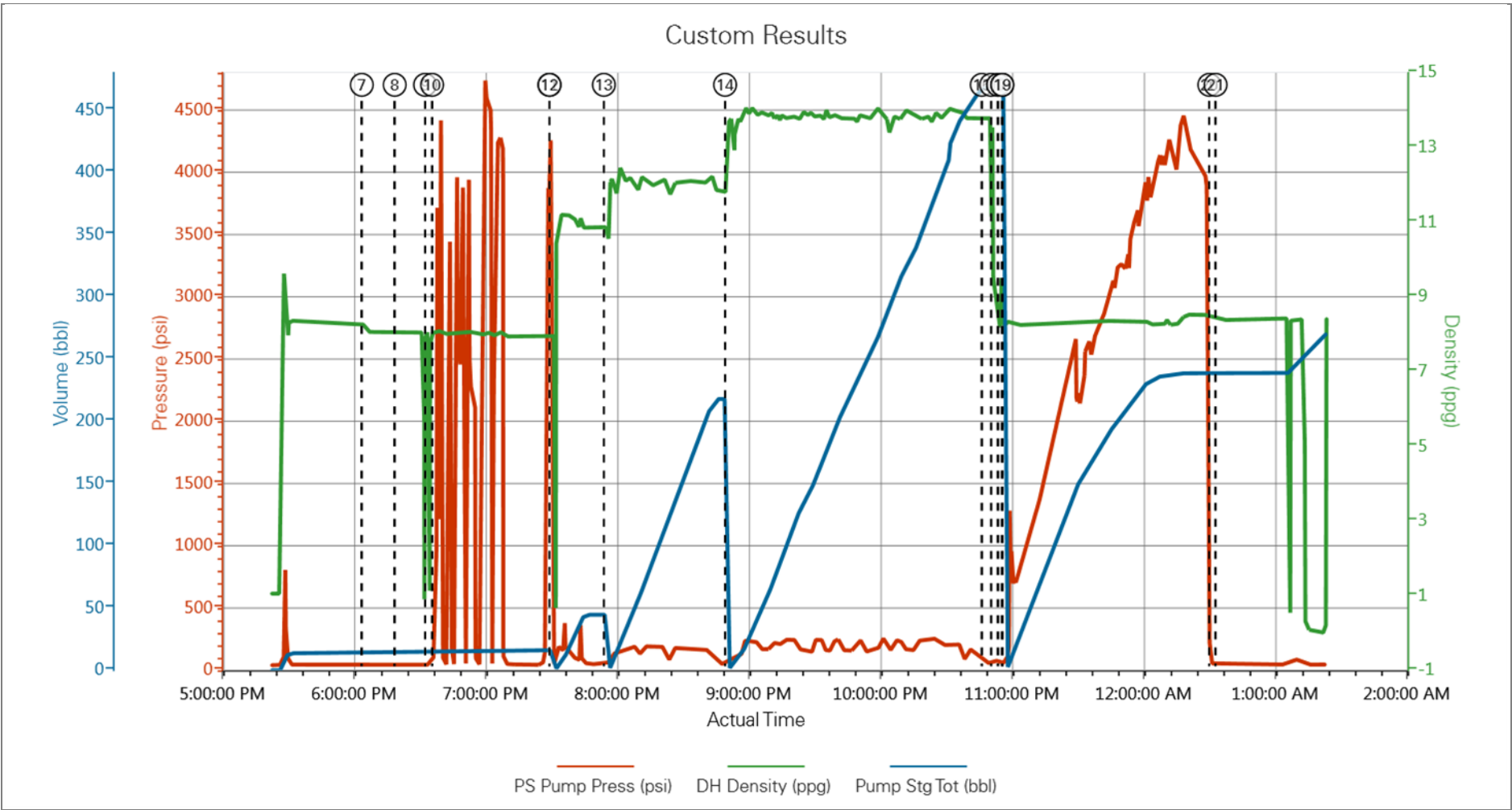
3.0 Custom Graphs

3.1 Custom Graph



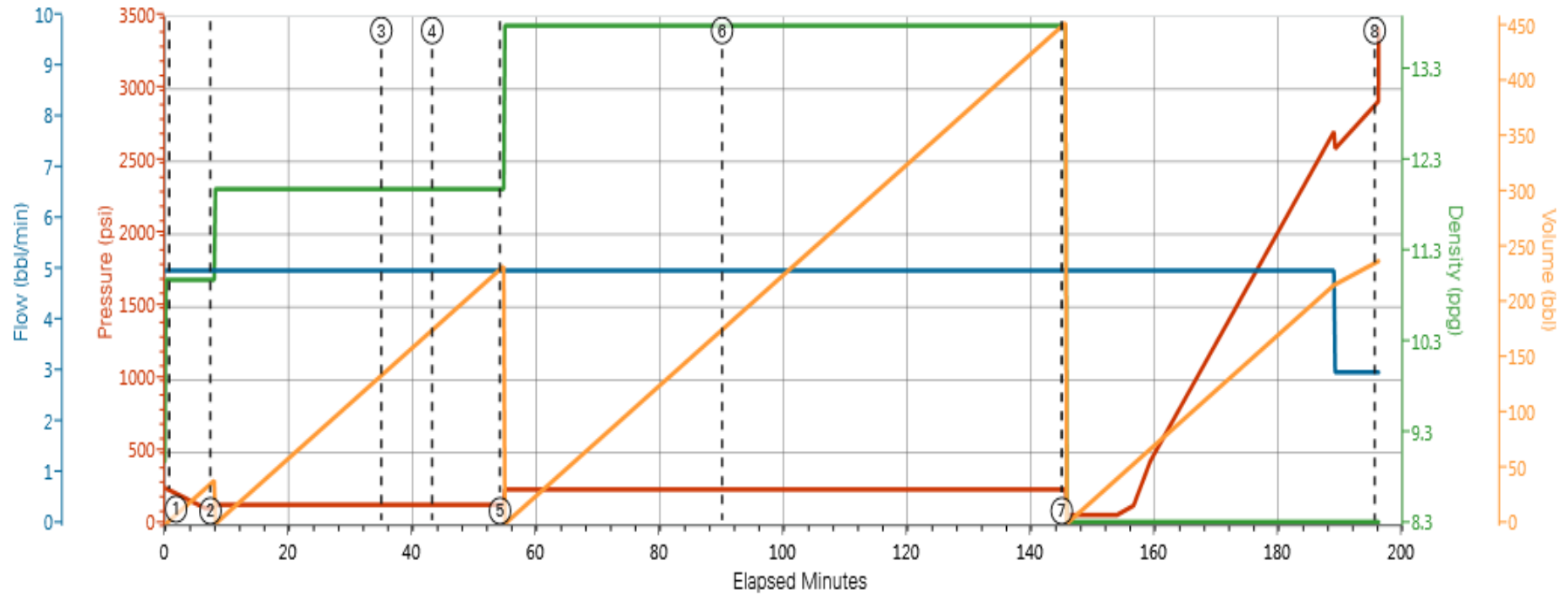


3.2 Custom Graph



4.0 Job Design Graph

Custom Results



Pumping Pressure (psi) Slurry Density (ppg) Slurry Rate (bbl/min) Stage Volume (bbl)

- ① Stage 2 [ Southwestern Prod Spacer - 2144261 ] starts pumping 254.5;9;5;0  
 ② Stage 3 [ Southwestern Production Tergovis - 2149112 ] starts pumping 112.81;11;5;40  
 ③ Stage 2 [ Southwestern Prod Spacer - 2144261 ] enters annulus 138.36;12;5;138.11  
 ④ Stage 3 [ Southwestern Production Tergovis - 2149112 ] enters annulus 138.36;12;5;179.25  
 ⑤ Stage 4 [ Southwestern Pr  
 ⑥ Stage 4 [ Southwestern Pr

4.1 Recalculation

