Great Western Operating Company LLC
LONG STRING POST JOB REPORT

SELTZER LD 09-379HN 05-001-10189
S:4 T:1S R:67W Adams CO

CallSheet #: 77345
Proposal #: 53485

LONG STRING Post Job Report

Attention: Great Western Operating Company LLC
Great Western Operating Company LLC
1001 17TH STREET, SUITE 2000 | DENVER, CO 80202

Dear Great Western Operating Company LLC,

Thank you for the opportunity to provide cementing services on this well. American Cementing strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact American Cementing at any time.

Sincerely,

Scott Pollard
Sr. Account Manager | (303) 249-6761 | scott.pollard@americancementing.com

Field Office 1716 E Allison Rd, Cheyenne, WY 82007
Phone: (307) 414-0049

Job Details & Summary

Geometry

Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Top (ft)	Bottom (ft)	Excess (%)
Casing	Outer	9.625	8.921	36	0	2039	0
Open Hole	Outer	n/a	8.5	n/a	2039	1635.03	0
Open Hole	Outer	n/a	8.5	n/a	1635.03	18360	5
Casing	Inner	5.5	4.778	20	0	18360	0

Equipment / People

Unit Type	Unit
Field Storage Silo	FSS(CTS)-440
Field Storage Silo	FSS(CTS)-442
Field Storage Silo	FSS(CTS)-436
Field Storage Silo	FSS(CTS)-458
AS Cement Trailer Float	CTF-7145
AS Cement Trailer Float	CTF-9309
AS Cement Trailer Float	CTF(FUF)-308
AS Cement Trailer Float	CTF-9054
Cement Trailer Float	CTF-341
Cement Trailer Float	CTF-408
Cement Trailer Float	CTF-278
Cement Utility Float	CUF(FIF)-163
Cement Trailer Float	CTF-003
Light Duty Vehicles	LDV-051

Timing

Event	Date/Time
Call Out	6/23/2021 18:00
Depart Facility	6/23/2021 21:00
On Location	6/23/2021 23:00
Rig Up Iron	6/23/2021 23:30
Job Started	6/24/2021 06:27
Job Completed	6/24/2021 08:58
Rig Down Iron	6/24/2021 09:00
Depart Location	6/24/2021 12:00

General Job Information

Metrics	Value
Well Fluid Density	11 lb/gal
Well Fluid Type	OBM
Rig Circulation Vol	2800 bbls
Rig Circulation Time	6 hours
Calculated Displacement	407.5 bbls
Actual Displacement	407 bbls
Total Spacer to Surface	47 bbls
Total CMT to Surface	0 bbls

Casing Equipment

Type	Description	Qty	MD	TVD
Centralizers		150		
Landing/Float Collar	5.5”		18,355	7,714
Float Shoe	5.5”		18,360	7,714

- **Casing Equipment-Centralizer Depths**

Production Centralizer Depths:, 2010.62, 2055.89, 2101.11, 2139.32, 2177.23, 2214.11, 2259.36, 2304.63, 2342.45, 2387.68, 2433.14, 2478.39, 2514.18, 2559.41, 2604.64, 2649.87, 2687.69, 2732.95, 2767.46, 2805.66, 2843.87, 2882.08, 2920.29, 2965.53, 3010.77, 3055.98, 3101.19, 3146.42, 3191.65, 3236.87, 3280.18, 3324.68, 3369.92, 3415.13, 3458.31, 3503.51, 3548.75, 3594, 3639.23, 3684.46, 3729.69, 3774.9, 3820.12, 3865.34, 3910.56, 3955.79, 4001.01, 4046.26, 4091.47, 4136.69, 4181.9, 4227.11, 4272.34, 4317.58, 4362.8, 4408.02, 4453.24, 4498.46, 4543.71, 4588.51, 4633.71, 4678.93, 4724.15, 4769.38, 4814.6, 4859.82, 4905.06, 4950.29, 4995.14, 5039.97, 5085.2, 5130.42, 5175.65, 5220.57, 5265.81, 5311.05, 5356.3, 5396.11, 5441.37, 5486.62, 5531.89, 5573.04, 5618.3, 5663.58, 5708.85, 5754.11, 5799.35, 5844.58, 5889.81, 5935.03, 5980.29, 6025.52, 6070.79, 6116.04, 6161.26, 6206.24, 6251.7, 6296.94, 6342.14, 6387.36, 6432.6, 6477.85, 6523.1, 6568.34, 6613.59, 6658.84, 6703.82, 6749.09, 6794.33, 6839.61, 6884.84, 6930.09, 6975.35, 7020.61, 7065.84, 7111.11, 7156.32, 7201.57, 7246.79, 7292.03, 7337.25, 7382.49, 7427.73, 7472.96, 7529.53, 7574.77, 7619.97, 7665.22, 7710.5, 7755.37, 7800.61, 7845.84, 7891.08, 7936.29, 7981.51, 8026.74, 8071.95, 8117.2, 8162.42, 8207.66, 8252.93, 8298.15, 8343.37, 8388.62, 8433.81, 8479.03, 8524.27, 8580.82, 8626.06, 8701.52

Job Details

Metrics	Value
Flare Prior to Job	Yes
Flare Prior to Job	4111 units
Flare During Job	Yes
Flare During Job	800 units
Flare at End of Job	No
Flare at End of Job	0 units
Well Full Prior to Job	Yes
Well Fluid Density Into Well	11 lb/gal
Well Fluid Density Out of Well	11 lb/gal

Job Details (cont.)

Metrics	Value
BHCT	190 °F
BHST	210 °F
Ambient Temperature	70 °F

Circulation

Lost Circulation Experienced	Losses into Spacer	Losses into Cement	Losses into Displacement
No	No	No	Yes

Circulation Details

Never lost complete returns but we had partial returns towards the end of displacement.

Job Execution Information

Fluid	Product	Function	Density (lb/gal)	Yield ($ft^{3/sk}$)	Water Rq. (gal/sk)	Water Rq. (gal/bbl)	Volume (sks)	Volume (bbl)	Volume (cuft)	Designed Top (ft)
1	WBM Spacer	Spacer	12.00			40.00		125.00		0
2	Fresh Water	Spacer	8.34			42.00		40.00		591
3	ACem P50.6.02C	Tail	14.50	1.48	6.66		2600.00	685.82	3848.00	1635
4	Retarded Water	Displacement	8.34			41.90		20.00		17455
5	3% KCL with Chems	DisplacementFinal	8.34			42.00		387.50		0

Job Fluid Details

Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	Flush	WBM Spacer	SS-6	Surfactant	2.00	gal/bbl
3	Tail	ACem P50.6.02C	CLASS G	Cement	50.00	%
3	Tail	ACem P50.6.02C	FLY ASH (ROCKIES)	Extender	50.00	%
3	Tail	ACem P50.6.02C	EC-2	BondEnhancer	3.00	%BWOB
3	Tail	ACem P50.6.02C	FL-24	FluidLoss	0.30	%BWOB
3	Tail	ACem P50.6.02C	FL-66	FluidLoss	0.30	%BWOB
3	Tail	ACem P50.6.02C	FP-24	Defoamer	0.30	%BWOB
3	Tail	ACem P50.6.02C	GW-86	Viscosifier	0.05	%BWOB
3	Tail	ACem P50.6.02C	S-8	StrengthRetrogression	20.00	%BWOB
3	Tail	ACem P50.6.02C	SR-20	Retarder	0.05	%BWOB
3	Tail	ACem P50.6.02C	STATIC FREE	Other	0.01	lb/sk
4	Displacement	Retarded Water	SR-61L	Retarder	0.10	gal/bbl

Job Logs

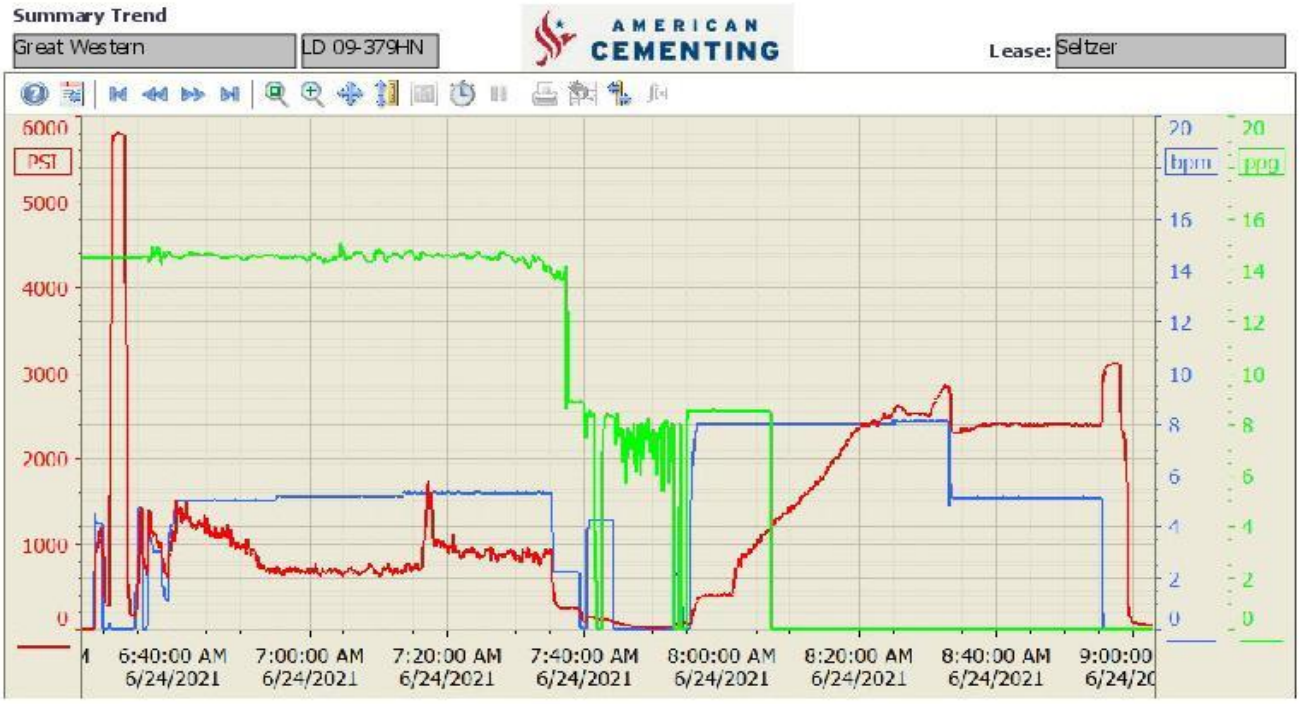
Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Cumulative Pump Volume (bbls)	Pipe Pressure (psi)	Annular Pressure (psi)	Comment
1	Call Out	6/23/2021	18:00						ACC gets called out, requested time on location was 2400 hrs 6/24/21
2	Depart Facility	6/23/2021	21:00						ACC departs facility
3	Arrive To Location	6/23/2021	23:00						ACC arrives to location , rig is currently on bottom rigging down casing crew
4	Rig Up	6/23/2021	23:30						ACC spots in units and rigs up equipment and iron
5	Waiting	6/24/2021	01:30						Waiting on rig to circ well and pump sweep pill due to lost partcial returns and was told that they added LCM to spacer (NOTE : 30lbs/bbl - 10 lbs/bbl Inter lock , 10 lbs/bbl Mica , 10 lbs/bbl Cal Carb) ACC office was notified on the spacer change.
6	Safety Meeting	6/24/2021	05:30						ACC had a pre job safety meeting w/ rig hands and OSR , went over job procedure
7	Rig Pump WBM Spacer	6/24/2021	05:44	12	8	125	1240		Rig starts pumping WBM spacer at 12 ppg at 323 g/min w/ 1240 psi , Rig Pumped total of 125 bbls

Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Cumulative Pump Volume (bbls)	Pipe Pressure (psi)	Annular Pressure (psi)	Comment
8	Rig Pump FW Spacer	6/24/2021	05:59	8.33	8	40	960		Rig starts pumping FW spacer at 8.33 ppg at 346 g/min w/ 960 psi , Pumped total of 40 bbls
9	Shut Down	6/24/2021	06:06						Rig Shuts down
10	Drop Bottom Plug	6/24/2021	06:10						Bottom Plug was dropped
11	Rig Up To CRT	6/24/2021	06:15						ACC rigs up to CRT tool
12	Pressure Test	6/24/2021	06:27	8.33		10	5000		Pressure test pumps and lines to 5000 psi
13	Pump Primary Cmt	6/24/2021	06:32	14.5	10		1200		Started mixing and pumping cement at 10 bpm w/1200 psi , NOTE CPF-184 Silo 436 and CPF-183 Silo 440 , Density was verified by mud scales and W/ OSR visual
14	Pump Primary Cmt	6/24/2021	07:09	14.5	10	285	900		At 285 bbls gone into cmt swapped silos on pumps , CPF-184 to Silo 442 at 140 bbls gone and CPF-183 to silo 458 at 145 bbls gone , Density was verified by mud scales w/ OSR
15	Burst Bottom Plug	6/24/2021	07:16	14.5	10	410	1700		At 410 bbls gone into cmt busrt bo plug at 1700 psi , pressure dropped to 1400 psi and climed back to 1900 psi till 425 bbls pressure was fluctuating between 900 PSI to 1900 PSI for 15 bbls and pressure began to drop to 1000 PSI and leveled out.
16	CPF-184 Shut Down	6/24/2021	07:36	14.5		620			Pump CPF -184 shut at 310 bbls away and swap values on mandifold and wash up while 183 contiune to pump rest of primary cement
17	CPF-183 Shut Down	6/24/2021	07:49			685.82			CPF-183 shut down pump total of 685.82 bbls of 14.5 PPG primary cement 2600 SKS
18	Drop Top Plug	6/24/2021	07:52	8.33					Wash pumps and lines both pumps and preload top plug, wash up both CPF-184 came online and drop top with company man and toolhand to verify plug went downhole
19	Pump Disp	6/24/2021	07:54	8.33	8		400	800	Start pumping displacement at 8 bpm with 400 PSI, first 20 bbls of fresh with SR-61 NOTE: While displacing got intermittent gas units of 800 PSI
20	Diesel To Surface	6/24/2021	08:29	8.33	8	270	2678	800	270 bbls away in KCL displacement got diesel to surface at 8 bpm, 2678 PSI
21	Slow Down Rate	6/24/2021	08:32	8.33	5	290	2235	800	290 bbls into displacement slow rate to 5 bpm, 2235 PSI as per requested by company man due to partial returns

Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Cumulative Pump Volume (bbls)	Pipe Pressure (psi)	Annular Pressure (psi)	Comment
22	Spacer To Surface	6/24/2021	08:46	8.33	5	360	2509		360 bbls away into displacement got spacer to surface for total of 47 bbls of spacer to surface at 5 bpm, 2509 PSI, PACSUN read no more gas units.
23	Land Plug	6/24/2021	08:54		5	407	3100		Land plug at 407 bbls FCP of 2235 PSI, Bump plug to 3100 PSI.
24	Bleed To Pump	6/24/2021	08:56						Bleed back 500 PSI to pump got 1 bbl back.
25	Check Floats	6/24/2021	08:58						Bleed pressure back to trip tank and got 3.1 bbl back and floats held
26	Rig Down	6/24/2021	09:00						ACC start rigging down equiment and iron
27	Depart Location	6/24/2021	12:00						ACC departs location
28	Other	6/24/2021	12:01						Total spacer back to surface - 47 bbls

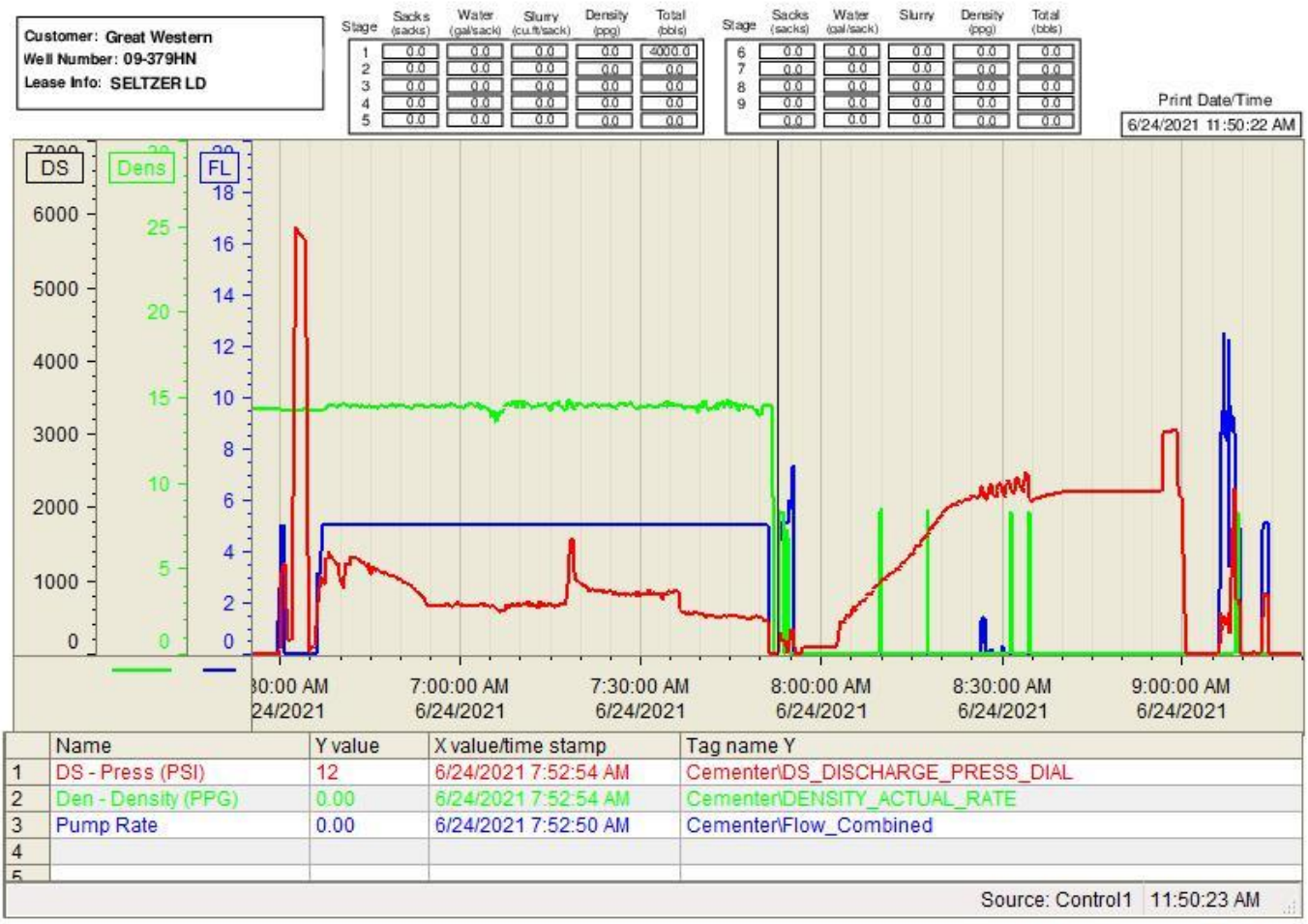
Pump Diagrams

Pump 184



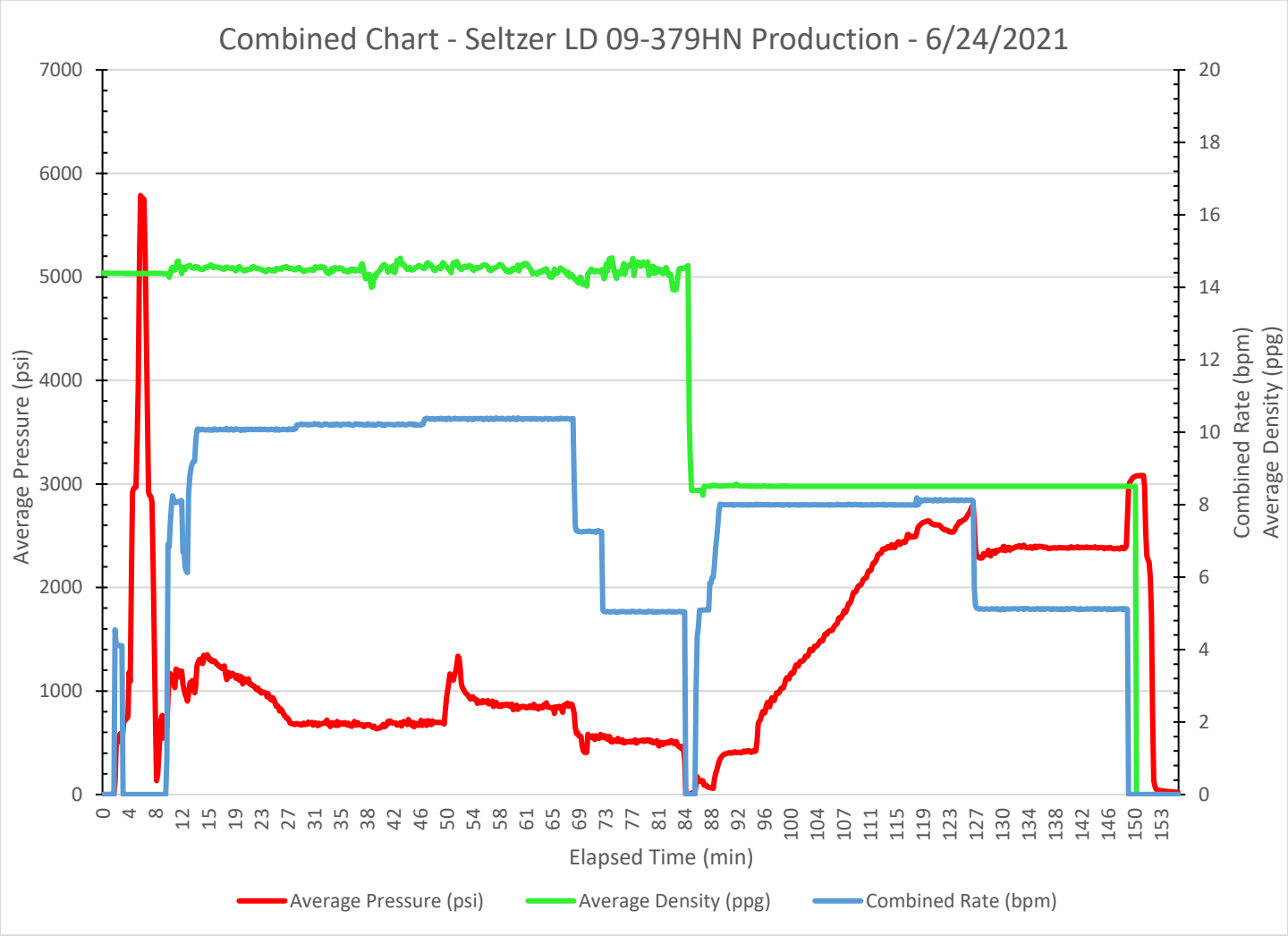
6/24/2021 11:40:10 A

Pump 183



	Name	Y value	X value/time stamp	Tag name Y
1	DS - Press (PSI)	12	6/24/2021 7:52:54 AM	Cementer\DS_DISCHARGE_PRESS_DIAL
2	Den - Density (PPG)	0.00	6/24/2021 7:52:54 AM	Cementer\DENSITY_ACTUAL_RATE
3	Pump Rate	0.00	6/24/2021 7:52:50 AM	Cementer\Flow_Combined
4				
5				

Source: Control1 11:50:23 AM


Combined Chart - Seltzer LD 09-379HN Production - 6/24/2021
Average Pressure (psi)
Combined Rate (bpm)
Average Density (ppg)
Elapsed Time (min)
Average Pressure (psi)
Average Density (ppg)
Combined Rate (bpm)