



Great Western Operating Company, LLC

Postle IC 09-099HN

API # 05-123-47400

Production

June 06, 2020

Quote #: QUO-45411-F5N1S5

Execution #: EXC-26234-W1P6S502



Great Western Operating Company, LLC

Great Western Operating Company, LLC | 1801 Broadway, Suite 500 | Denver, CO 80202

Dear Great Western Operating Company, LLC,

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

Sincerely,
Jason Creel
Field Engineer | (307) 365-9038 | Jason.Creel@BJServices.com

Field Office
1716 East Allison Rd., Cheyenne WY. 82007 | (307) 638-5585

Sales Office
999 18th St. Suite 1200, Denver, CO. 80202 | (281) 408-2361

BJ Cementing Treatment Report

STAGE 1

SERVICE SUPERVISOR	Richard White	FORMATION	Niobrara
CLIENT FIELD REPRESENTATIVE	Great Western	RIG	PD 460
DISTRICT	Cheyenne, WY	COUNTY	WELD
SERVICE	Cementing	STATE / PROVINCE	CO

WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)
Previous Casing	8.92	9.63	36.00	1,549.00	1,549.00	
Casing	4.78	5.50	20.00	18,018.00	7,067.00	
Open Hole	8.50			18,018.00	7,067.00	5.00

HARDWARE

Bottom Plug Used?	No	Max Casing Pressure - Rated (psi)	12640.00
Top Plug Used?	Yes	Max Casing Pressure - Operated (psi)	4100.00
Top Plug Provided By	Non BJ	Pipe Movement	None
Top Plug Size	5.500	Job Pumped Through	Manifold
Landing Collar Depth (ft)	17,956.35	Top Connection Thread	BTC
Tool Type	Float Collar	Top Connection Size	5.5
Tool Depth (ft)	17,956.35		

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Mud Density In (ppg)	11.30
Circulation Prior to Job	Yes	Mud Density Out (ppg)	11.30
Circulation Time (min)	180.00	Solids Present at End of Circulation	No
Circulation Rate (bpm)	10.50	Flare Prior to / during the Cement Job	Yes
Circulation Volume (bbls)	1890.00	Gas Present	Yes
Lost Circulation Prior to Cement Job	No		

TEMPERATURE

Ambient Temperature (°F)	90.00	Slurry Cement Temperature (°F)	65.00
Mix Water Temperature (°F)	60.00		

FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H ₂ O REQ (gals/sk)	PLN TOP FLD (ft)	LENGTH (ft)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	Diesel Flush	6.9400			3,120.00				40.0000
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	12.5000			2,540.00				80.0000
Tail Slurry	BJCem P50.6.02C	14.5000	1.4437	6.45	4,100.00	13,918.00	2325	3356.0000	597.6000
Displacement 1	Retarded Water	8.3337			17,055.00			0.0000	20.0000
Displacement 2	3% KCl	8.3300				0.00	0	0.0000	260.0000
Displacement 2	Retarded Water	8.3337				0.00	0	0.0000	10.0000
Displacement 2	IntegraGuard EZ Spacer	12.5000				0.00	0	0.0000	10.0000
Displacement Final	OBM	11.0000			0.00			0.0000	118.3000

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SPACER SURFACTANT, SS-247	0.7000	GPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SPACER SURFACTANT, SS-267	0.7000	GPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	IntegraGuard GW-86	0.6000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SAND, S-8, Silica Flour, 200 Mesh	282.2900	PPB
Tail Slurry	BJCem P50.6.02C	RETARDER, SR-20	0.4000	BWOB
Tail Slurry	BJCem P50.6.02C	IntegraGuard GW-86	0.0500	BWOB
Tail Slurry	BJCem P50.6.02C	SAND, S-8, Silica Flour, 200 Mesh	20.0000	BWOB
Tail Slurry	BJCem P50.6.02C	FLUID LOSS, FL-24	0.5000	BWOB
Tail Slurry	BJCem P50.6.02C	FOAM PREVENTER, FP-24	0.3000	BWOB
Tail Slurry	BJCem P50.6.02C	CEMENT, CLASS G	50.0000	PCT
Tail Slurry	BJCem P50.6.02C	CEMENT, FLY ASH (ROCKIES)	50.0000	PCT
Displacement 2	Retarded Water	RETARDER, SR-61L	0.1000	GPB
Displacement 2	IntegraGuard EZ Spacer	SAND, S-8, Silica Flour, 200 Mesh	282.2900	PPB
Displacement 2	IntegraGuard EZ Spacer	SPACER SURFACTANT, SS-267	0.7000	GPB
Displacement 2	IntegraGuard EZ Spacer	SPACER SURFACTANT, SS-247	0.7000	GPB
Displacement 2	IntegraGuard EZ Spacer	IntegraGuard GW-86	0.6000	PPB

Client: Great Western Operating Company, LLC

Well: POSTLE IC 09-099HN

Well API: 05-123-47400

Start Date: 6/5/2020

End Date: 6/6/2020

Field Ticket #:



DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	398.60	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	398.60	Amt of Spacer to Surface	0.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	2.70
Bump Plug Pressure (psi)	1750.00	Total Volume Pumped (bbls)	1077.00
Were Returns Planned at Surface	No	Lost Circulation During Cement Job	No

BJ Cementing Event Log

Stage 1 - Cheyenne, WY - Richard White

SEQ	START DATE / TIME	STAGE	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	06/05/2020 05:00	1	Callout					Crew called out checked and verified equipment and materials
2	06/05/2020 07:00	1	Depart for Location					Steacs Briefing and leave for location
3	06/05/2020 09:00	1	Arrive on Location					Arrive on location and test mix water
4	06/05/2020 09:15	1	STEACS Briefing					Pre rig up safety meeting
5	06/05/2020 09:30	1	Rig Up					Rig up all treating equipment
6	06/05/2020 10:30	1	Other (See comment)					wait for rig to finish circulating casing
7	06/05/2020 12:30	1	STEACS Briefing					safety meeting with rig crew and customer
8	06/05/2020 13:06	1	Prime Up	12.5000	3.00	5.00	300.00	Fill lines with 5 bbl spacer @12.5ppg with surfactants
9	06/05/2020 13:07	1	Pressure Test					Pressure test lines to 7600 psi
10	06/05/2020 13:10	1	Pump Spacer	12.5000	4.20	175.00	950.00	Pump 75 bbl spacer @ 12.5ppg From RP of CTF-007 wet and dry samples taken and verified with surfactants
11	06/05/2020 13:29	1	Pumping Cement	14.5000	6.00	155.00	1000.00	Pump 155 bbl cmt @ 14.5ppg 1.4437y 602.5sks 6.45gps From Silo 12 wet and dry samples taken and verified
12	06/05/2020 13:51	1	Pumping Cement	14.5000	6.00	112.50	950.00	Pump 112.5 bbl cmt @ 14.5ppg 1.4437y 437.5sks 6.45gps From Silo 441 wet and dry samples taken and verified
13	06/05/2020 14:13	1	Pumping Cement					Shut down 3 min. to fix leak on iron on the floor
14	06/05/2020 14:20	1	Pumping Cement	14.5000	6.00	164.00	800.00	Pump 164 bbl cmt @ 14.5ppg 1.4437y 637.5sks 6.45gps From Silo 442 wet and dry samples taken and verified

SEQ	START DATE / TIME	STAGE	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
15	06/05/2020 14:47	1	Pumping Cement	14.5000	6.00	155.00	720.00	Pump 155 bbl cmt @ 14.5ppg 1.4437y 602.5sks 6.45gps From Silo 451 wet and dry samples taken and verified
16	06/05/2020 15:13	1	Pumping Cement	14.5000	6.00	11.50	700.00	Pump 11.5 bbl cmt @ 14.5ppg 1.4437y 45sks 6.45gps From FP of CTF-007 wet and dry samples taken and verified
17	06/05/2020 15:40	1	Pumping Cement	14.5000		597.80		Pump a total of 597.8 bbl cmt @14.5ppg 1.4437y 2325 sks 6.45 gps Est. TOC @ 5100 ft
18	06/05/2020 15:44	1	Wash Pumps and Lines					wash pumps and lines to 3 sided tank
19	06/05/2020 15:45	1	Drop Top Plug					Drop dart
20	06/05/2020 15:46	1	Pump Displacement	8.3300	8.00	20.00	100.00	Pump 20 bbl water with SR-61L
21	06/05/2020 15:49	1	Pump Displacement	8.3300	7.00	260.00	2550.00	Pump 260 bbl KCL/ slowed rates to 3 bpm @ 105 bbl into disp to go though DV tool
22	06/05/2020 16:26	1	Pump Displacement	8.3300	7.00	10.00	2600.00	Pump 10 bbl water with SR-61L
23	06/05/2020 16:29	1	Pump Displacement	12.5000	5.00	10.00	1550.00	Pump 10 bbl spacer @ 12.5 ppg with surfactants
24	06/05/2020 16:31	1	Pump Displacement	11.3000	4.00	98.40	220.00	Pump 98.6 bbl OBM mud. Rate varied due to poor mud delivery from rig. Rig kicked on another pump and we were able to pump at 4bpm consistently. Slowed to 3 bpm for the last 20 bbls of displacement at request of company man.
25	06/05/2020 17:02	1	Pump Displacement			398.60		Pump a total disp of 398.6 bbl
26	06/05/2020 17:03	1	Land Plug				2300.00	Land Plug @ 1800 psi to 2200 psi
27	06/05/2020 17:05	1	Check Floats					Check floats/ floats held 0.5 bbl back to the truck 2.7 bbl Back to trip tank
28	06/05/2020 17:08	1	Other (See comment)				4100.00	Open up DV tool @ 4100 psi
29	06/05/2020 17:10	1	Pump Displacement	11.3000	4.00	10.00	900.00	Pump 10 bbl OBM to est. circulation
30	06/05/2020 17:13	1	Other (See comment)					Turn over to rig to circulate well. Got 77 bbl interface, 80 bbl spacer, and 71 bbl cmt from dv

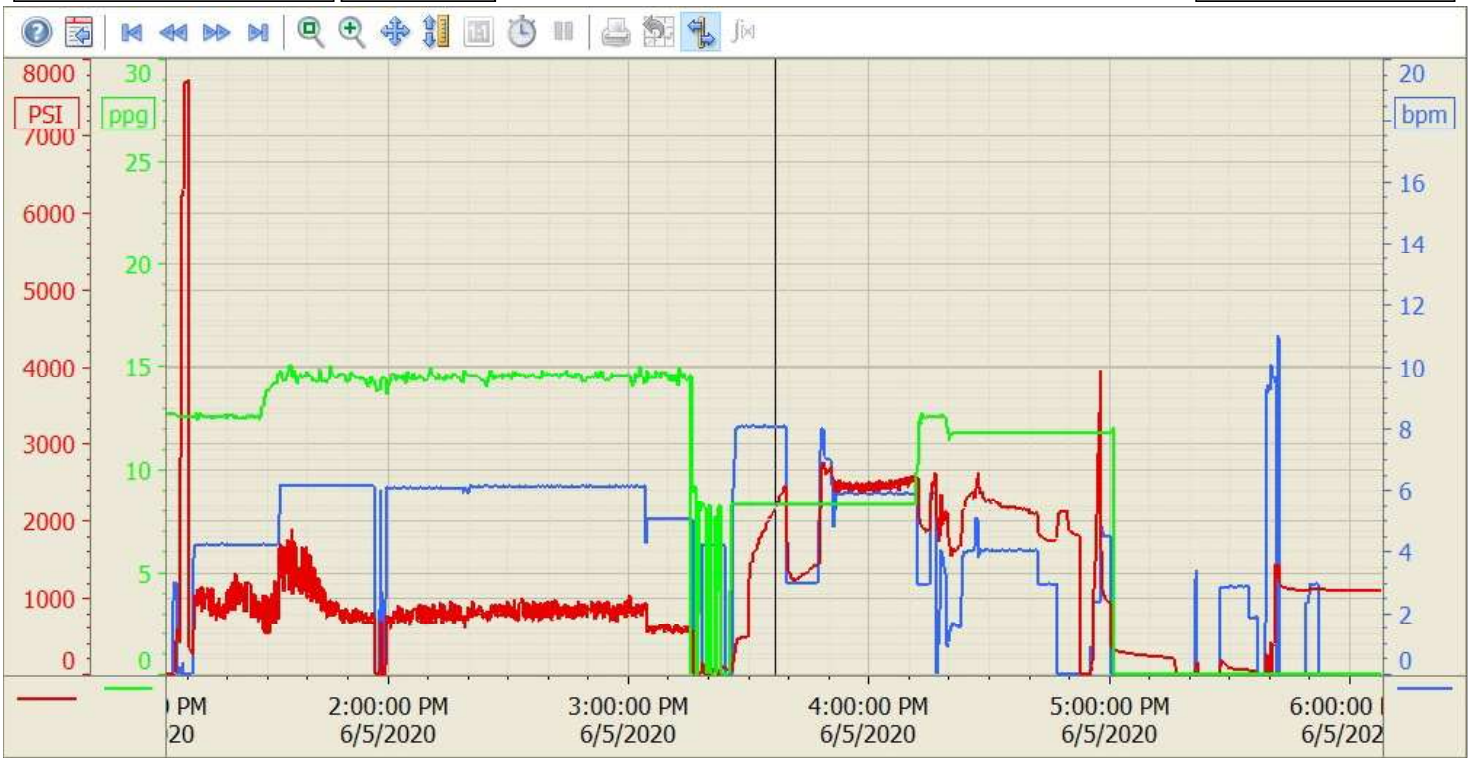
Summary Trend

GREAT WESTRN

09-099HN



Lease: POSTLE IC



6/6/2020 3:20:22 AM

BJ Cementing Treatment Report

STAGE 2

SERVICE SUPERVISOR	Richard White	FORMATION	Niobrara
CLIENT FIELD REPRESENTATIVE	Great Western	RIG	PD 460
DISTRICT	Cheyenne, WY	COUNTY	WELD
SERVICE	Cementing	STATE / PROVINCE	CO

WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)
Previous Casing	8.92	9.63	36.00	1,549.00	1,549.00	
Casing	4.78	5.50	20.00	5,100.00	5,100.00	
Open Hole	8.50			5,100.00	5,100.00	5.00

HARDWARE

Bottom Plug Used?	No	Max Casing Pressure - Rated (psi)	12640.00
Top Plug Used?	Yes	Max Casing Pressure - Operated (psi)	4100.00
Top Plug Provided By	Non BJ	Pipe Movement	None
Top Plug Size	5.500	Job Pumped Through	Manifold
Landing Collar Depth (ft)	5,100	Top Connection Thread	BTC
Tool Type	DV Tool	Top Connection Size	5.5
Tool Depth (ft)	5,100.00		

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Mud Density In (ppg)	11.30
Circulation Prior to Job	Yes	Mud Density Out (ppg)	11.30
Circulation Time (min)	660	Solids Present at End of Circulation	No
Circulation Rate (bpm)	5	Flare Prior to / during the Cement Job	No
Circulation Volume (bbls)	3300	Gas Present	No
Lost Circulation Prior to Cement Job	No		

TEMPERATURE

Ambient Temperature (°F)	75.00	Slurry Cement Temperature (°F)	70.00
Mix Water Temperature (°F)	70.00		

Client: Great Western Operating Company, LLC

Well: POSTLE IC 09-099HN

Well API: 05-123-47400

Start Date: 6/5/2020

End Date: 6/6/2020

Field Ticket #:



FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H ₂ O REQ (gals/sk)	PLN TOP FLD (ft)	LENGTH (ft)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	Diesel Flush	6.9400			1,525.00				40.0000
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	12.5000			2,540.00				120.0000
Tail Slurry	BJCem P50.6.02C	14.5000	1.4415	6.47	2,500.00	2,605.00	435	627.0000	111.6000
Displacement Final	3% KCl	8.3300			0.00	0.00		0.0000	113.2000

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	IntegraGuard GW-86	0.6000	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SAND, S-8, Silica Flour, 200 Mesh	282.2900	PPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SPACER SURFACTANT, SS-247	0.7000	GPB
Spacer / Pre Flush / Flush	IntegraGuard EZ Spacer	SPACER SURFACTANT, SS-267	0.7000	GPB
Tail Slurry	BJCem P50.6.02C	CEMENT, FLY ASH (ROCKIES)	50.0000	PCT
Tail Slurry	BJCem P50.6.02C	CEMENT, CLASS G	50.0000	PCT
Tail Slurry	BJCem P50.6.02C	FOAM PREVENTER, FP-24	0.3000	BWOB
Tail Slurry	BJCem P50.6.02C	IntegraGuard GW-86	0.0500	BWOB
Tail Slurry	BJCem P50.6.02C	FLUID LOSS, FL-24	0.5000	BWOB
Tail Slurry	BJCem P50.6.02C	SAND, S-8, Silica Flour, 200 Mesh	20.0000	BWOB

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	113.60	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	113.60	Amt of Spacer to Surface	13.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	3.00
Bump Plug Pressure (psi)	1600.00	Total Volume Pumped (bbls)	360.00
Were Returns Planned at Surface	No	Lost Circulation During Cement Job	No

BJ Cementing Event Log

Stage 2 - Cheyenne, WY - Richard White

	START DATE / TIME	STAGE	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
	06/06/2020 04:17	2	Prime Up	12.5000	3.00	5.00	600.00	Fill lines with 5 bbl mud @ 12.5 ppg w/ surfactants
2	06/06/2020 04:19	2	Pressure Test					Pressure Test Lines to 5600 psi
3	06/06/2020 04:22	2	Pump Spacer	12.5000	4.50	115.00	700.00	Pump 115 bbl spacer @12.5ppg w/ surfactants from FP & RP of CTF-006
4	06/06/2020 04:48	2	Pumping Cement	14.5000	6.00	37.20	800.00	Pump 37.2 bbl cmt @14.5 ppg 1.4415y 145 sks 6.47gps from FP of CTF-009 wet and dry samples taken and verified
5	06/06/2020 04:52	2	Pumping Cement	14.5000	6.00	37.20	800.00	Pump 37.2 bbl cmt @14.5 ppg 1.4415y 145 sks 6.47gps from RP of CTF-009 wet and dry samples taken and verified
6	06/06/2020 04:59	2	Pumping Cement	14.5000	6.00	37.20	800.00	Pump 37.2 bbl cmt @14.5 ppg 1.4415y 145 sks 6.47gps from FP of CTF-232 wet and dry samples taken and verified
7	06/06/2020 05:03	2	Pumping Cement	14.5000	3.00			Slowed rates to finish cmt from bulk unit
8	06/06/2020 05:09	2	Pumping Cement			111.60		Pumped a total of 111.6 bbl cmt @ 14.5 ppg 1.4415y 435 sks 6.47gps
9	06/06/2020 05:10	2	Drop Closing Plug					Drop closing plug for DV tool
10	06/06/2020 05:12	2	Pump Displacement	8.3300	6.00	113.20	800.00	Pump 113.2 bbl KCL Displacement
11	06/06/2020 05:31	2	Pump Displacement					Slowed rates last 20 bbl to 3 bpm to land plug./ Got 10 bbl interface and 13 bbl spacer to surface
12	06/06/2020 05:37	2	Land Plug					Landed Plug @ 1600 psi then staged up to 4100 psi to close DV tool
13	06/06/2020 05:42	2	Check Floats					Floats held 3 bbl back to truck
14	06/06/2020 05:45	2	STEACS Briefing					
15	06/06/2020 06:00	2	Rig Down					
16	06/06/2020 06:30	2	Depart Location					

Client: Great Western Operating Company, LLC

Well Name / API: POSTLE IC 09-099HN / 05-123-47400



Quote #: QUO-45411-F5N1S5

Plan #: ORD-26234-W1P6S5

Execution #: EXC-26234-W1P6S502

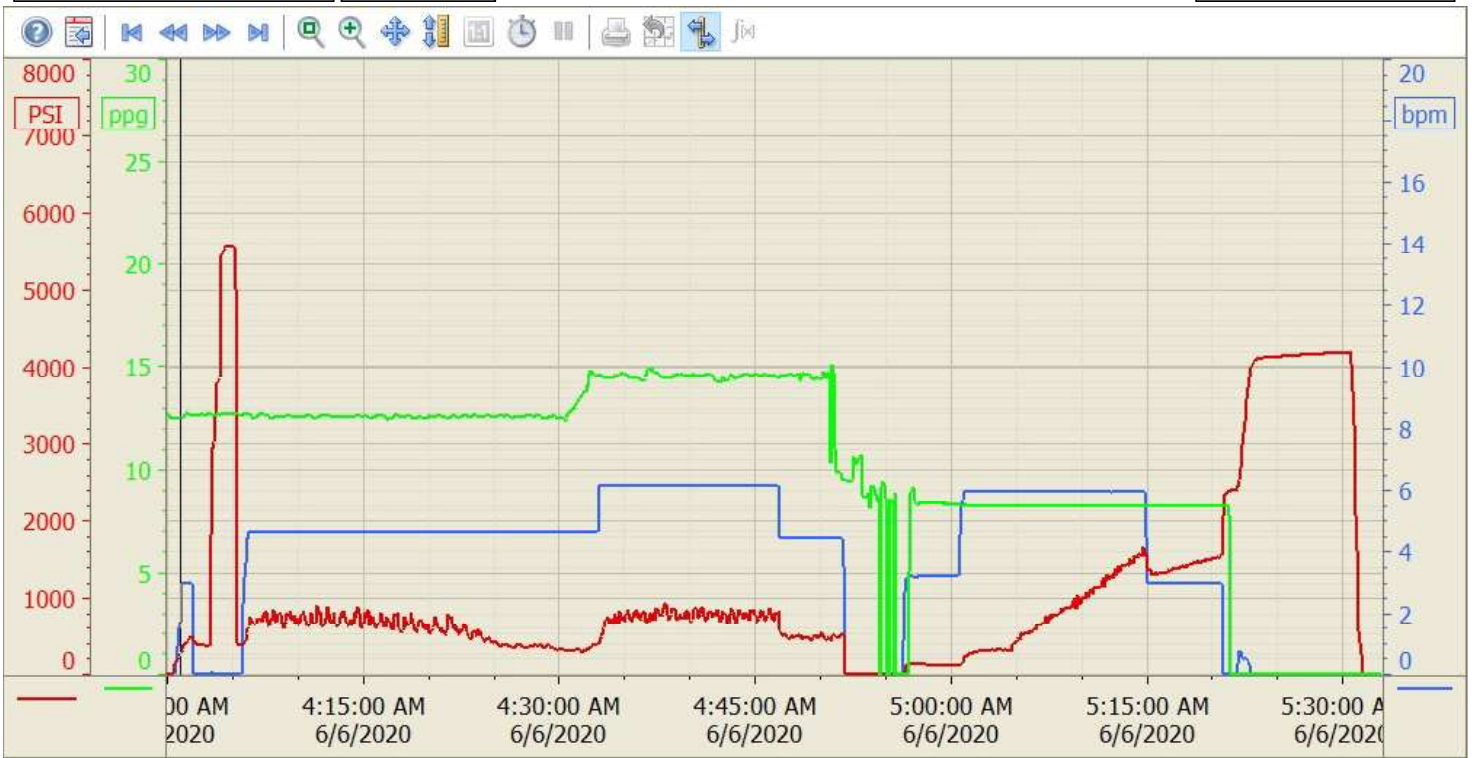
Summary Trend

GREAT WESTRN

09-099HN



Lease: POSTLE IC



6/6/2020 6:42:22 AM