



# Great Western Operating Company, LLC

Schneider HD 11-022HN

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API # 05-123-46416

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## Surface

August 31, 2019

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Quote #: QUO-35928-T4N1T8

Execution #: EXC-20857-Z0V4F502



# Great Western Operating Company, LLC

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

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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 I | (307) 256-0306 | 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

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# BJ Cementing Treatment Report

<b>SERVICE SUPERVISOR</b>	Hector Montoya	<b>RIG</b>	Ikon 12
<b>DISTRICT</b>	Cheyenne, WY	<b>COUNTY</b>	WELD
<b>SERVICE</b>	Cementing	<b>STATE / PROVINCE</b>	CO

## WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)	GRADE	THREAD
Casing	8.92	9.63	36.00	1,612.00	1,610.00		J-55	LTC
Open Hole	13.50	0.00	0.00	1,612.00	1,610.00	30.00		

## HARDWARE

<b>Bottom Plug Used?</b>	No	<b>Landing Collar Depth (ft)</b>	1,565.10
<b>Top Plug Used?</b>	Yes	<b>Max Casing Pressure - Rated (psi)</b>	3520.00
<b>Top Plug Provided By</b>	Non BJ	<b>Max Casing Pressure - Operated (psi)</b>	2860.00
<b>Top Plug Size</b>	9.625	<b>Job Pumped Through</b>	Manifold
<b>Centralizers Used</b>	Yes	<b>Top Connection Thread</b>	LTC
<b>Centralizers Quantity</b>	15.00	<b>Top Connection Size</b>	9.625
<b>Centralizers Type</b>	Bow		

## CIRCULATION PRIOR TO JOB

<b>Well Circulated By</b>	Rig	<b>PV Mud Out</b>	1
<b>Circulation Prior to Job</b>	Yes	<b>YP Mud In</b>	1
<b>Circulation Time (min)</b>	30.00	<b>YP Mud Out</b>	1
<b>Circulation Rate (bpm)</b>	6.00	<b>Solids Present at End of Circulation</b>	No
<b>Circulation Volume (bbls)</b>	180.00	<b>10 sec SGS</b>	1
<b>Lost Circulation Prior to Cement Job</b>	No	<b>10 min SGS</b>	1
<b>Mud Density In (ppg)</b>	8.50	<b>30 min SGS</b>	1
<b>Mud Density Out (ppg)</b>	8.50	<b>Flare Prior to / during the Cement Job</b>	No
<b>PV Mud In</b>	1	<b>Gas Present</b>	No

Client: Great Western  
Operating Company, LLC

Well: SCHNEIDER HD 11-022HN Well API: 05-123-46416

Start Date: 8/31/2019

End Date: 8/31/2019



## TEMPERATURE

Ambient Temperature (°F)	80.00	Slurry Cement Temperature (°F)	68.00
Mix Water Temperature (°F)	65.00	Flow Line Temperature (°F)	90.00

## FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H <sub>2</sub> O REQ (gals/sk)	LENGTH (ft)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	Water	8.3300						20.0000
Tail Slurry	BJCem S100.3.XC	14.5000	1.3902	6.81	1,550.00	720	1001.0000	178.3000
Displacement 1	Water	8.3300					0.0000	117.0000

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Tail Slurry	BJCem S100.3.XC	CEMENT, ASTM TYPE III	100.0000	PCT

## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	38.00
Calculated Displacement Vol (bbls)	119.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	119.00	Amt of Spacer to Surface	20.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	0.50
Bump Plug Pressure (psi)	1320.00	Total Volume Pumped (bbls)	317.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement Returns During Job	Yes	Lost Circulation During Cement Job	No

Client: Great Western  
Operating Company, LLC

Well: SCHNEIDER HD 11-022HN Well API: 05-123-46416

Start Date: 8/31/2019

End Date: 8/31/2019



# BJ Cementing Event Log

Surface - Cheyenne, WY - Hector Montoya

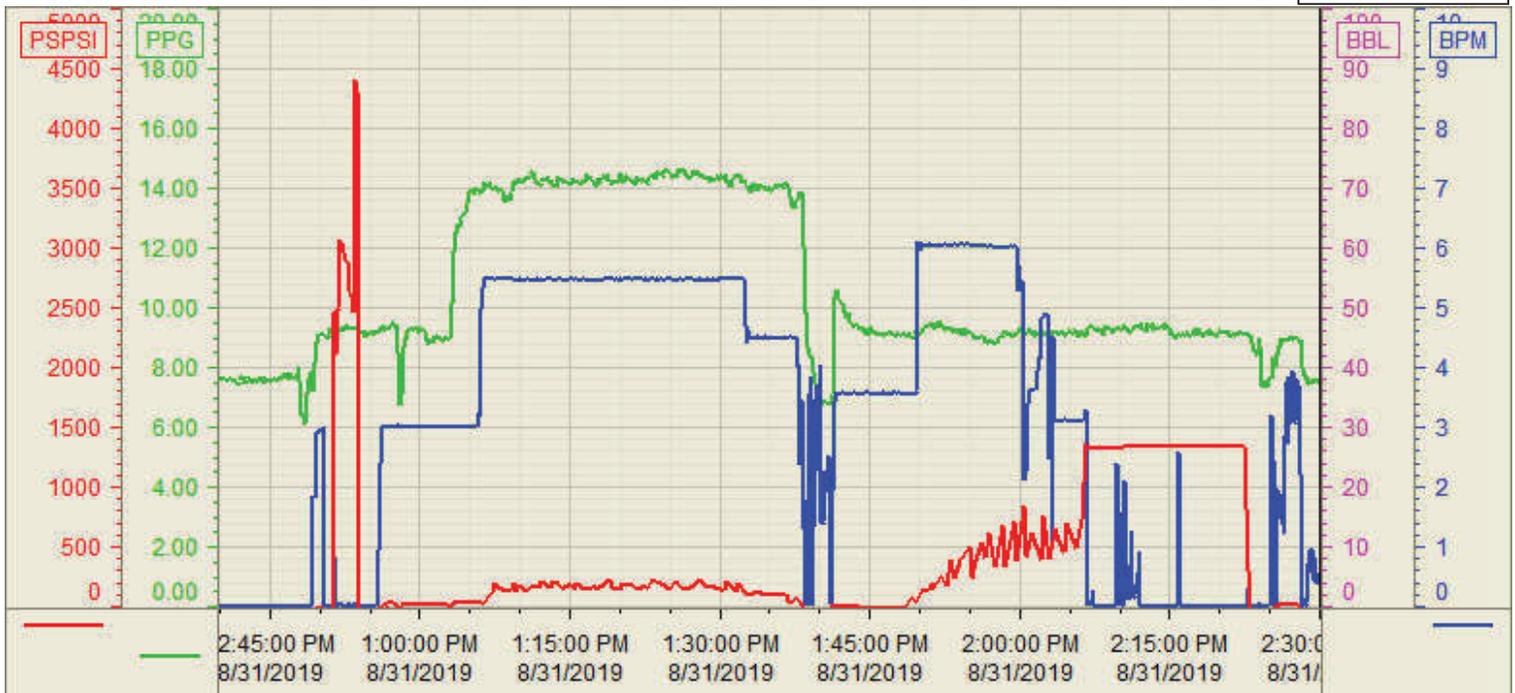
SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	08/31/2019 02:00	Callout					BJ Crew gets called out
2	08/31/2019 04:00	Other (See comment)					Load Up for job
3	08/31/2019 06:00	STEACS Briefing					BJ Crew discusses hazards of driving to location
4	08/31/2019 06:30	Arrive on Location					Arrive safely on location
5	08/31/2019 08:30	STEACS Briefing					BJ Crew Discuss hazards of rigging up
6	08/31/2019 09:00	Rig Up					Rig Up
7	08/31/2019 10:00	Other (See comment)					Wait on Casing to be ran
8	08/31/2019 12:30	STEACS Briefing					BJ Crew and Rig Crew discuss job hazards
9	08/31/2019 12:48	Prime Up					Fill Lines
10	08/31/2019 12:51	Pressure Test					Pressure test 3500psi
11	08/31/2019 12:53	Pump Spacer	8.3300	4.00	20.00	150.00	Pump 20bbl red dye
12	08/31/2019 13:01	Pump Tail Cement	14.5000	5.50	178.00	300.00	Primary 178bbl (720 sx) at 14.5ppg, y-1.39, gps-6.81, mix water-116bbl
13	08/31/2019 13:37	Drop Top Plug					Customer Witnesses Top Plug leave
14	08/31/2019 13:41	Pump Displacement	8.3300	6.00	99.00	800.00	Total displacement 119.38bbl cement to surface
15	08/31/2019 14:01	Pump Displacement	8.3300	3.00	20.00	1330.00	Slow rate last 20bbl to 3bpm
16	08/31/2019 14:05	Other (See comment)				1320.00	Bump plug at 900 psi. Test csg for 15 min, start 1320 psi, end 1345 psi.
17	08/31/2019 14:20	Check Floats					Floats held, .5bbl back
18	08/31/2019 14:25	Rig Down					Rig Down
19	08/31/2019 16:00	Leave Location					Leave location

Customer: GREAT WESTERN  
 Well Number: 11-022HN  
 Lease Info: SCHNEIDER HD



Print Date/Time

8/31/2019 2:55:50 PM



	Name	Y value	X value/time stamp	Tag name Y
1	PPSI	-30.4 l.	8/31/2019 2:30:00 PM l.	CementerPS_DISCHARGE_PRESS_DIAL
2	BPM	0.56	8/31/2019 2:30:00 PM	CementerFlow_Combined
3	Den2 - Discharge Density (F	7.50	8/31/2019 2:30:00 PM	CementerDENSITY2_ACTUAL_RATE
4				
5				

Source: Control1 2:54:52 PM