



# Great Western Operating Company, LLC

Schneider HD 11-019HN

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API # 05-123-46404

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## Surface

August 30, 2019

Quote #: QUO-35927-P5B1S4

Execution #: EXC-20820-Q5Y1W602



# 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          | 1,574.00 | 1,573.00 |            | J-55  | LTC    |
| Open Hole | 13.50   | 0.00    | 0.00           | 1,574.00 | 1,573.00 | 30.00      |       |        |

## HARDWARE

|                              |        |   |          |
|------------------------------|--------|---|----------|
| <b>Bottom Plug Used?</b>     | No     | <b>Landing Collar Depth (ft)</b>            | 1,527.23 |
| <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>               | 60.00  | <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>            | 320.00 | <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>                 | 8.60   | <b>30 min SGS</b>                             | 1  |
| <b>Mud Density Out (ppg)</b>                | 8.60   | <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 11-019HN

**Well** 05-123-46404

**API:**

**Start** 8/30/2019

**End** 8/30/2019

**Field** FT-20820-

**Date:**

**Date:**

**Ticket #:** Q5Y1W60201-2066525115



## TEMPERATURE

|                            |       |                                |       |
|----------------------------|-------|--------------------------------|-------|
| Ambient Temperature (°F)   | 75.00 | Slurry Cement Temperature (°F) | 65.00 |
| Mix Water Temperature (°F) | 60.00 | 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      | 116.0000   |

| 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  | 27.00  |
| Calculated Displacement Vol (bbls) | 116.00  | Method Used to Verify Returns      | Visual |
| Actual Displacement Vol (bbls)     | 116.00  | 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)           | 1160.00 | Total Volume Pumped (bbls)         | 314.00 |
| 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 11-019HN Well 05-123-46404  
API:

Start 8/30/2019  
Date:

End 8/30/2019  
Date:

Field FT-20820-  
Ticket #: Q5Y1W60201-  
2066525115



# BJ Cementing Event Log

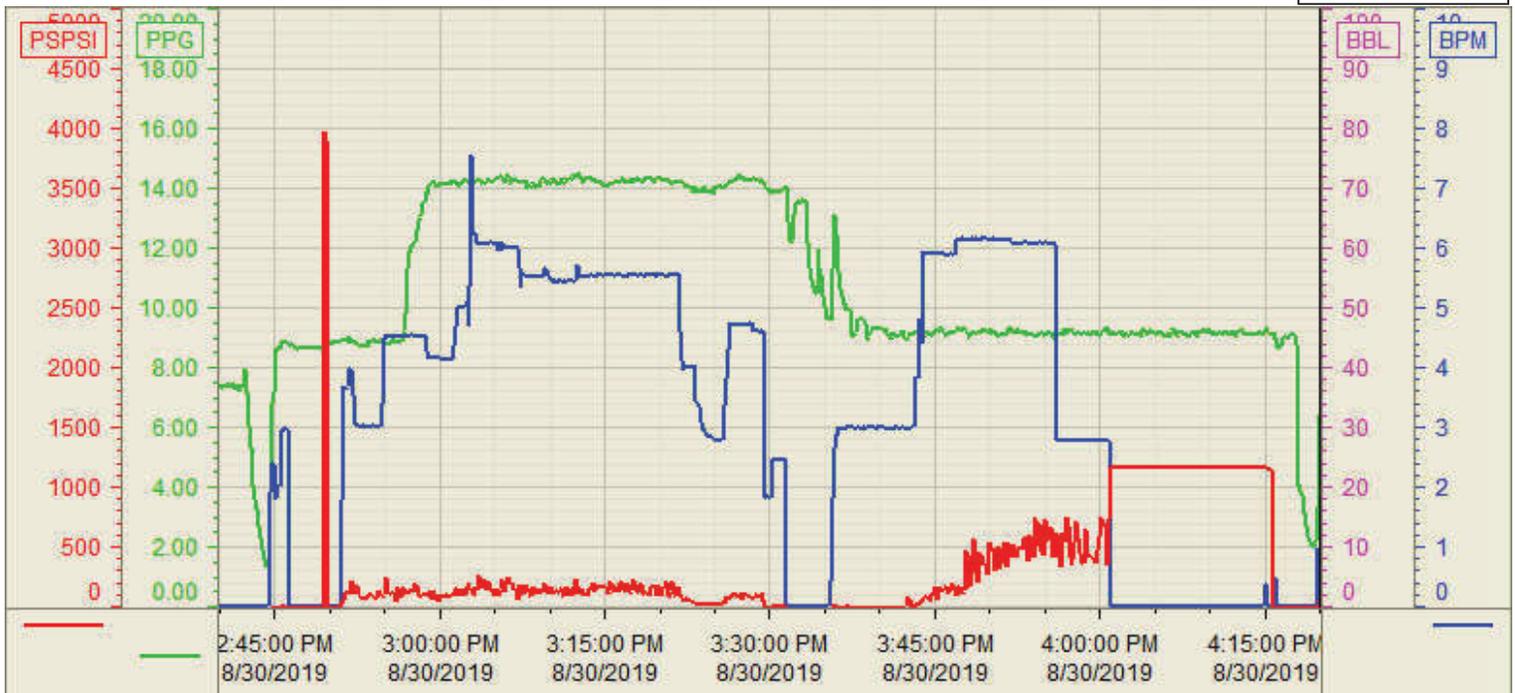
Surface - Cheyenne, WY - Hector Montoya

| SEQ | START DATE / TIME | EVENT               | DENSITY (ppg) | PUMP RATE (bpm) | PUMP VOL (bbls) | PIPE PRESSURE (psi) | COMMENTS  |
|-----|-------------------|---------------------|---------------|-----------------|-----------------|---------------------|---|
| 1   | 08/30/2019 02:00  | Callout             |               |                 |                 |                     | BJ Crew gets called out                                       |
| 2   | 08/30/2019 04:00  | Other (See comment) |               |                 |                 |                     | Load Up for Job   |
| 3   | 08/30/2019 05:00  | STEACS Briefing     |               |                 |                 |                     | BJ Crew talks about hazards of driving to location            |
| 4   | 08/30/2019 05:20  | Arrive on Location  |               |                 |                 |                     | Arrive safely   |
| 5   | 08/30/2019 07:20  | STEACS Briefing     |               |                 |                 |                     | BJ Crew discusses hazards of rigging up                       |
| 6   | 08/30/2019 07:30  | Rig Up              |               |                 |                 |                     | Rig Up  |
| 7   | 08/30/2019 09:00  | Other (See comment) |               |                 |                 |                     | Wait on casing to be ran                                      |
| 8   | 08/30/2019 14:30  | STEACS Briefing     |               |                 |                 |                     | BJ Crew and Rig Crew discuss hazards of pumping the job       |
| 9   | 08/30/2019 14:42  | Prime Up            |               |                 |                 |                     | Fill Lines  |
| 10  | 08/30/2019 14:45  | Pressure Test       |               |                 |                 |                     | Pressure test to 3500psi                                      |
| 11  | 08/30/2019 14:49  | Pump Spacer         | 8.3300        | 3.50            | 20.00           | 110.00              | Pump 20bbl Red Dye spacer                                     |
| 12  | 08/30/2019 15:00  | Pump Tail Cement    | 14.5000       | 5.00            | 178.00          | 320.00              | Primary 178bbl at 14.5ppg, y-1.39, gps-6.81, mix water-116bbl |
| 13  | 08/30/2019 15:36  | Drop Top Plug       |               |                 |                 |                     | Customer witnesses Top Plug leave                             |
| 14  | 08/30/2019 15:43  | Pump Displacement   | 8.3300        | 6.00            | 100.00          | 750.00              | Total Displacement 116bbl. 27bbl cement to surface            |
| 15  | 08/30/2019 15:56  | Pump Displacement   | 8.3300        | 3.00            | 16.00           | 1160.00             | Slow rate last 20bbl to 3bpm                                  |
| 16  | 08/30/2019 16:00  | Other (See comment) |               |                 |                 | 1160.00             | 15min Casing Test: start 1160 psi, end 1167 psi               |
| 17  | 08/30/2019 16:15  | STEACS Briefing     |               |                 |                 |                     | BJ Crew talks about the hazards of rigging down               |
| 18  | 08/30/2019 16:30  | Rig Down            |               |                 |                 |                     | Rig Down  |
| 19  | 08/30/2019 17:30  | Leave Location      |               |                 |                 |                     | Depart location   |

Customer: GREAT WESTERN  
 Well Number: 11-019HN  
 Lease Info: SCHEIDER HD



Print Date/Time  
 8/30/2019 4:28:16 PM



|   | Name                        | Y value | X value/time stamp      | Tag name Y                      |
|---|-----------------------------|---------|-------------------------|---------------------------------|
| 1 | PPSI                        | 36.9 i. | 8/30/2019 4:20:00 PM i. | CementerPS_DISCHARGE_PRESS_DIAL |
| 2 | BPM                         | 0.05 i. | 8/30/2019 4:20:00 PM i. | CementerFlow_Combined           |
| 3 | Den2 - Discharge Density (F | 5.34 i. | 8/30/2019 4:20:00 PM i. | CementerDENSITY2_ACTUAL_RATE    |
| 4 |                             |         |                         |                                 |
| 5 |                             |         |                         |                                 |

Source: Control1 4:27:58 PM