



Great Western Operating Company, LLC

Wilson IC 03-382HN

API # 05-123-45429

Surface

02/23/2019

Quote #: 27482

Execution #: 15938



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,
Ashraf Hamid
Field Engineer I | (307) 365-9484 | Ashraf.Hamid@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

| | | | |
|-----------------------------|---------------|------------------|---------|
| SERVICE SUPERVISOR | Scott Beal JR | RIG | Ikon 12 |
| CLIENT FIELD REPRESENTATIVE | Great Western | COUNTY | WELD |
| DISTRICT | Cheyenne, WY | STATE / PROVINCE | CO |
| SERVICE | Cementing | | |

WELL GEOMETRY

| TYPE | OD (in) | ID (in) | WEIGHT (lb/ft) | MD (ft) | TVD (ft) | EXCESS (%) | GRADE | THREAD |
|-----------|---------|---------|----------------|----------|----------|------------|-------|--------|
| Open Hole | 0.00 | 13.50 | 0.00 | 1,590.00 | 1,590.00 | 30.00 | | |
| Casing | 9.63 | 8.92 | 36.00 | 1,590.00 | 1,590.00 | | J-55 | LTC |

HARDWARE

| | | | |
|---------------------------|--------|--------------------------------------|--------------|
| Bottom Plug Used? | No | Tool Type | Float Collar |
| Top Plug Used? | Yes | Tool Depth (ft) | 1,543.44 |
| Top Plug Provided By | Non BJ | Max Casing Pressure - Rated (psi) | 3520.00 |
| Top Plug Size | 9.625 | Max Casing Pressure - Operated (psi) | 1550.00 |
| Centralizers Used | Yes | Pipe Movement | None |
| Centralizers Quantity | 15.00 | Job Pumped Through | Manifold |
| Centralizers Type | Bow | Top Connection Thread | 9.625 |
| Landing Collar Depth (ft) | 1,543 | Top Connection Size | 9.625 |

CIRCULATION PRIOR TO JOB

| | | | |
|---------------------------|--------|--|----|
| Well Circulated By | Rig | Solids Present at End of Circulation | No |
| Circulation Prior to Job | Yes | Flare Prior to / during the Cement Job | No |
| Circulation Time (min) | 30.00 | Gas Present | No |
| Circulation Rate (bpm) | 8.00 | Lost Circulation Prior to Cement Job | No |
| Circulation Volume (bbls) | 240.00 | | |

TEMPERATURE

| | | | |
|----------------------------|-------|--------------------------------|-------|
| Ambient Temperature (°F) | 25.00 | Slurry Cement Temperature (°F) | 77.00 |
| Mix Water Temperature (°F) | 75.00 | | |



FLUID DETAILS

| FLUID TYPE | FLUID NAME | DENSITY (ppg) | YIELD (Cu Ft/sk) | H ₂ O REQ (gals/sk) | 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 | 733 | 1020.2500 | 181.7000 |
| Displacement 1 | Water | 8.3300 | | | | 0.0000 | 114.7000 |

| 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 | 33.00 |
| Calculated Displacement Vol (bbls) | 118.00 | Method Used to Verify Returns | Visual |
| Actual Displacement Vol (bbls) | 118.00 | 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) | 1550.00 | Total Volume Pumped (bbls) | 323.00 |
| Were Returns Planned at Surface | Yes | Top Out Cement Spotted | No |
| Cement Returns During Job | Yes | Lost Circulation During Cement Job | No |

BJ Cementing Event Log

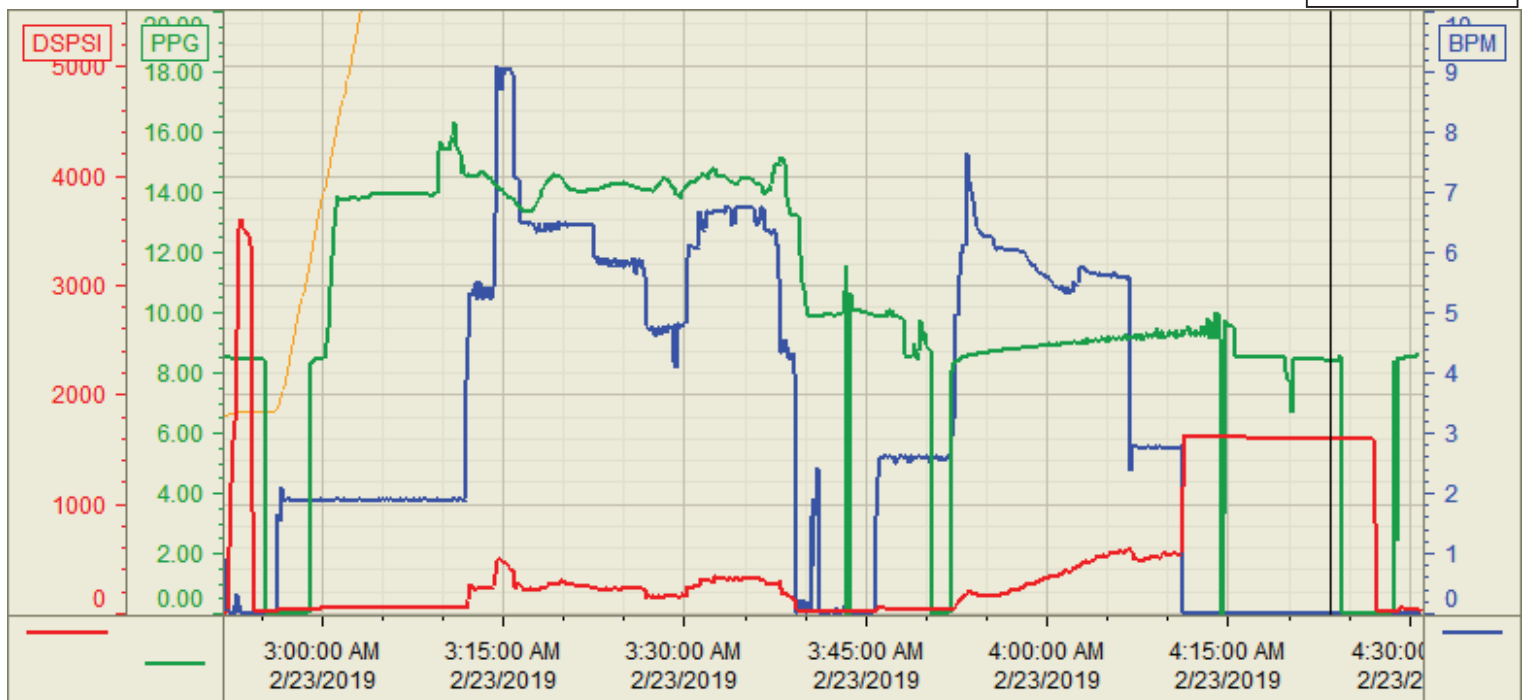
Surface - Cheyenne, WY

| SEQ | START DATE / TIME | EVENT | DENSITY (ppg) | PUMP RATE (bpm) | PUMP VOL (bbls) | PIPE PRESSURE (psi) | COMMENTS |
|-----|-------------------|---------------------|---------------|-----------------|-----------------|---------------------|---|
| 1 | 02/22/2019 19:00 | Callout | | | | | BJ Crew Gets Called Out |
| 2 | 02/22/2019 20:00 | STEACS Briefing | | | | | BJ Crew Talks About Driving to Location |
| 3 | 02/22/2019 20:15 | Depart for Location | | | | | BJ Crew Leaves for Location |
| 4 | 02/22/2019 20:30 | Arrive on Location | | | | | BJ Crew Arrives on location |
| 5 | 02/22/2019 21:30 | STEACS Briefing | | | | | BJ Crew Talks About Rigging in Equipment |
| 6 | 02/22/2019 21:45 | Rig Up | | | | | BJ Crew Rigged up all Equipment |
| 7 | 02/22/2019 22:30 | Client | | | | | waited for rig to run casing and circulate |
| 8 | 02/23/2019 02:30 | STEACS Briefing | | | | | BJ crew and rig crew have safety meeting |
| 9 | 02/23/2019 02:45 | Prime Up | 8.3300 | 3.00 | 3.00 | 50.00 | Filled pumps and lines with 3 bbls of fresh water |
| 10 | 02/23/2019 02:48 | Pressure Test | | | | 3000.00 | Pressure test pumps and lines to 3000 psi |
| 11 | 02/23/2019 02:52 | Pump Spacer | 8.3300 | 5.00 | 20.00 | 50.00 | Pumped 20 bbls of Dye water spacer |
| 12 | 02/23/2019 03:08 | Pump Tail Cement | 14.5000 | 6.00 | 182.00 | 100.00 | Pumped 181.7 bbls of Tail Cement at 14.5ppg (733sks, Y 1.39, wr 6.81gal/sk) |
| 13 | 02/23/2019 03:39 | Drop Top Plug | | | | | Customer Witnessed Plug Leave Head |
| 14 | 02/23/2019 03:46 | Pump Displacement | 8.3300 | 6.00 | 100.00 | 200.00 | Pumped 100 bbls Displacement |
| 15 | 02/23/2019 04:07 | Other (See comment) | 8.3300 | 3.00 | 18.00 | 500.00 | Slowed rate last 18bbls to 3 bpm |
| 16 | 02/23/2019 04:11 | Land Plug | | | | | Land plug final circulating was 700 psi took to 1550 psi, got 20 bbls of spacer back and 33 bbls of cement back |
| 17 | 02/23/2019 04:11 | Other (See comment) | | | | | 15 min csg test: start 1550ps, end 1548psi - good. |
| 18 | 02/23/2019 04:26 | Check Floats | | | | | Checked Floats got 0.5 bbls Back |
| 19 | 02/23/2019 04:27 | Rig Down | | | | | Rigged down All Equipment |
| 20 | 02/23/2019 05:30 | Leave Location | | | | | BJ Crew Left Location |

Customer: GREAT WESTERN
 Well Number: 03-382HN
 Lease Info: WILSON IC



Print Date/Time
 2/23/2019 4:41:18 AM



| Name | Y value | X value/time stamp | Tag name Y |
|--------------------------|-----------|-------------------------|----------------------------------|
| 1 DS - Press(PSI) | 1592.9 i. | 2/23/2019 4:23:27 AM i. | Cementer\DS_DISCHARGE_PRESS_DIAL |
| 2 Recirc - Density (PPG) | 8.39 i. | 2/23/2019 4:23:27 AM i. | Cementer\DENSITY_ACTUAL_RATE |
| 3 Combined rate (BPM) | 0.00 i. | 2/23/2019 4:23:27 AM i. | Cementer\Flow_Combined |
| 4 DS - Flow Total (BBLS) | 215 i. | 2/23/2019 4:23:27 AM i. | Cementer\DS_FLOW_TOTAL |
| 5 | | | |

Source: Control1 4:41:12 AM