



# Great Western Operating Company, LLC

OTTESEN LE 06-050HNX

API # 05-123-48289

Surface

January 06, 2020

Quote #: QUO-40837-J1Z4Z8

Execution #: EXC-23671-G6C7Y102



# 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](mailto: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

|                    |              |                  |         |
|--------------------|--------------|------------------|---------|
| SERVICE SUPERVISOR | Eric Dewit   | RIG              | Ikon 12 |
| 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 (%) | GRADE | THREAD |
|-----------|---------|---------|----------------|----------|----------|------------|-------|--------|
| Open Hole | 13.50   | 0.00    | 0.00           | 1,769.00 | 1,748.00 | 30.00      |       |        |
| Casing    | 8.92    | 9.63    | 36.00          | 1,769.00 | 1,748.00 |            | J-55  | LTC    |

## HARDWARE

|                           |          |                                      |              |
|---------------------------|----------|--------------------------------------|--------------|
| Bottom Plug Used?         | No       | Tool Type                            | Float Collar |
| Top Plug Used?            | Yes      | Tool Depth (ft)                      | 1,724.28     |
| Top Plug Provided By      | Non BJ   | Max Casing Pressure - Rated (psi)    | 2720.00      |
| Top Plug Size             | 9.625    | Max Casing Pressure - Operated (psi) | 1500.00      |
| Centralizers Used         | Yes      | Pipe Movement                        | None         |
| Centralizers Quantity     | 17.00    | Job Pumped Through                   | Manifold     |
| Centralizers Type         | Bow      | Top Connection Thread                | LTC          |
| Landing Collar Depth (ft) | 1,724.28 | Top Connection Size                  | 9.625        |

## CIRCULATION PRIOR TO JOB

|                                      |      |  |      |
|--------------------------------------|------|--|------|
| Well Circulated By                   | Rig  | Mud Density Out (ppg)                  | 8.50 |
| Circulation Prior to Job             | Yes  | Solids Present at End of Circulation   | No   |
| Lost Circulation Prior to Cement Job | No   | Flare Prior to / during the Cement Job | No   |
| Mud Density In (ppg)                 | 8.50 | Gas Present                            | No   |

## TEMPERATURE

|                            |       |                                |       |
|----------------------------|-------|--------------------------------|-------|
| Ambient Temperature (°F)   | 41.00 | Slurry Cement Temperature (°F) | 52.00 |
| Mix Water Temperature (°F) | 51.00 |                                |       |

## FLUID DETAILS

| FLUID TYPE                 | FLUID NAME      | DENSITY (ppg) | YIELD (Cu Ft/sk) | H <sub>2</sub> O REQ (gals/sk) | PLN TOP FLD (ft) | LENGTH (ft) | VOL (sk) | VOL (Cu Ft) | VOL (bbls) |
|----------------------------|-----------------|---------------|------------------|--------------------------------|------------------|-------------|----------|-------------|------------|
| Spacer / Pre Flush / Flush | Water           | 8.3300        |                  |                                | 0.00             |             |          |             | 20.0000    |
| Tail Slurry                | BJCem S100.3.XC | 14.5000       | 1.3902           | 6.81                           | 0.00             | 1,725.00    | 800      | 1113.0000   | 198.1000   |
| Displacement Final         | Water           | 8.3300        |                  |                                | 0.00             |             |          | 0.0000      | 130.1000   |

| 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  | 40.00  |
| Calculated Displacement Vol (bbls) | 133.00  | Method Used to Verify Returns      | Visual |
| Actual Displacement Vol (bbls)     | 133.00  | Amt of Spacer to Surface           | 60.00  |
| 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)           | 1577.00 | Total Volume Pumped (bbls)         | 394.00 |
| 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 - Eric Dewit

| SEQ | START DATE / TIME | EVENT                  | DENSITY (ppg) | PUMP RATE (bpm) | PUMP VOL (bbls) | PIPE PRESSURE (psi) | COMMENTS  |
|-----|-------------------|------------------------|---------------|-----------------|-----------------|---------------------|---|
| 1   | 01/06/2020 10:00  | Requested Time         |               |                 |                 |                     | Crew, and equipment are already on location, and everything is rigged up    |
| 2   | 01/06/2020 10:00  | Rig                    |               |                 |                 |                     | Waiting on the rig to run casing  |
| 3   | 01/06/2020 12:25  | STEACS Briefing        |               |                 |                 |                     | Pre-job safety meeting with BJ crew, Rig crew, and company man              |
| 4   | 01/06/2020 12:37  | Other (See comment)    | 8.3400        | 5.00            | 3.00            | 78.00               | Load pumps and lines  |
| 5   | 01/06/2020 12:39  | Pressure Test          | 8.3400        | 0.00            | 0.00            | 3900.00             |   |
| 6   | 01/06/2020 12:42  | Pump Spacer            | 8.3400        | 4.30            | 60.00           | 158.00              | Pump fresh water + Dye ahead, had to pump extra cement head was packed off. |
| 7   | 01/06/2020 13:03  | Pumping Cement         | 14.5000       | 4.00            | 198.00          | 221.00              | Pump 800 sks of cement @145 ppg   |
| 8   | 01/06/2020 14:00  | Drop Top Plug          |               |                 |                 |                     |   |
| 9   | 01/06/2020 14:03  | Pump Displacement      | 8.3400        | 7.00            | 0.00            | 105.00              |   |
| 10  | 01/06/2020 14:10  | Spacer Back-to-Surface | 8.3400        | 7.00            | 30.00           | 265.00              |   |
| 11  | 01/06/2020 14:19  | Cement Back-to-Surface | 8.3400        | 7.00            | 93.00           | 732.00              | 40 bbls of cement to surface  |
| 12  | 01/06/2020 14:21  | Other (See comment)    | 8.3400        | 2.80            | 110.00          | 572.00              | Drop rate to land the plug  |
| 13  | 01/06/2020 14:28  | Land Plug              | 8.3400        | 2.80            | 133.00          | 1577.00             | 30 min csg test: start 1577 psi, end 1568 psi                               |
| 14  | 01/06/2020 14:59  | Check Floats           | 8.4000        | 0.00            | 0.00            | 0.00                | Floats held (.5 bbls back)  |



JobMaster Program Version 4.02C1

Job Number:

Customer: Great Western

Well Name: Ottesen LE 06-050HNX

