



# Great Western Operating Company, LLC

Tollway LC 24-375HN

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API # 05-001-10439

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Surface Cement

August 11, 2019

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Quote #: QUO-35115

Execution #: EXC-20321



# Great Western Operating Company, LLC

Attention: Mr. Matt Mount | (720) 595-2173 | [mmount@gwogco.com](mailto:mmount@gwogco.com)

Great Western | 1001 17th Street, Suite 2000 | Denver, CO 80202

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Dear Mr. Mount,

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,

Zen Keith  
Field Engineer III | (307) 757-7178 | [Zen.Keith@BJServices.com](mailto:Zen.Keith@BJServices.com)

Field Office 28730 US-6, Rifle, CO 81650  
Phone: (970) 632-2412

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

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# BJ Cementing Treatment Report

|                                    |               |                         |         |
|------------------------------------|---------------|-------------------------|---------|
| <b>SERVICE SUPERVISOR</b>          | Paul Linn III | <b>FORMATION</b>        |         |
| <b>CLIENT FIELD REPRESENTATIVE</b> | Kyle Hibbert  | <b>RIG</b>              | Ikon 12 |
| <b>DISTRICT</b>                    | Rifle, CO     | <b>COUNTY</b>           | ADAMS   |
| <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 |
|-----------|---------|---------|----------------|----------|----------|------------|-------|--------|
| Open Hole | 13.50   | 0.00    | 0.00           | 1,799.00 | 1,799.00 | 30.00      |       |        |
| Casing    | 8.92    | 9.63    | 36.00          | 1,799.00 | 1,799.00 |            | J-55  | LTC    |

## HARDWARE

|                                  |          |                              |              |
|----------------------------------|----------|------------------------------|--------------|
| <b>Bottom Plug Used?</b>         | No       | <b>Tool Type</b>             | Float Collar |
| <b>Top Plug Used?</b>            | Yes      | <b>Tool Depth (ft)</b>       | 1,756.51     |
| <b>Top Plug Provided By</b>      | Non BJ   | <b>Pipe Movement</b>         | None         |
| <b>Top Plug Size</b>             | 9.625    | <b>Job Pumped Through</b>    | Manifold     |
| <b>Centralizers Used</b>         | Yes      | <b>Top Connection Thread</b> | 8 Rnd        |
| <b>Centralizers Quantity</b>     | 18.00    | <b>Top Connection Size</b>   | 9.625        |
| <b>Centralizers Type</b>         | Bow      |                              |              |
| <b>Landing Collar Depth (ft)</b> | 1,756.51 |                              |              |

Client: Great Western Operating Company, LLC

Well: TOLLWAY LC #24-375HN

Well API: 05-001-10439

Start Date: 8/11/2019

End Date: 8/11/2019

Field Ticket #: FT-20321-F3K1Z30202-52729



## 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)               | 4.75   |  |    |
| Circulation Volume (bbls)            | 142.50 |  |    |
| Lost Circulation Prior to Cement Job | No     |  |    |
| Mud Density In (ppg)                 | 8.40   |  |    |
| Mud Density Out (ppg)                | 8.40   |  |    |

## TEMPERATURE

|                            |       |                                |       |
|----------------------------|-------|--------------------------------|-------|
| Ambient Temperature (°F)   | 89.00 | Slurry Cement Temperature (°F) | 78.80 |
| Mix Water Temperature (°F) | 64.30 | Flow Line Temperature (°F)     |       |

## 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       | Water           | 8.3300        |                  |                                | 0.00             |             |          |             | 20.0000    |
| Tail Slurry  | BJCem S100.3.XC | 14.5000       | 1.3902           | 6.81                           | 0.00             | 1,750.00    | 815      | 1134.0000   | 201.8000   |
| Displacement | Water           | 8.3300        |                  |                                | 0.00             |             |          | 0.0000      | 114.7000   |

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

| TIME                 | FLUID           | RATE (bpm) | FLUID VOL (bbls) | PIPE PRESS (psi) |
|----------------------|-----------------|------------|------------------|------------------|
| 8/11/2019 2:44:00 PM | Water           | 4.00       | 20.00            | 133.00           |
| 8/11/2019 2:49:00 PM | BJCem S100.3.XC | 4.00       | 201.80           | 116.00           |
| 8/11/2019 3:37:00 PM | Water           | 9.50       | 135.74           | 377.00           |

## MIN / MAX / AVG PRESSURE AND RATES

|                | MIN   | MAX     | AVG    |
|----------------|-------|---------|--------|
| Pressure (psi) | 38.00 | 1007.00 | 118.00 |
| Rate (bpm)     | 2.00  | 9.50    | 4.00   |

Client: Great Western Operating Company, LLC

Well: TOLLWAY LC #24-375HN

Well API: 05-001-10439

Start Date: 8/11/2019

End Date: 8/11/2019

Field Ticket #: FT-20321-F3K1Z30202-52729



## DISPLACEMENT AND END OF JOB SUMMARY

|                                    |        |                                    |        |
|------------------------------------|--------|------------------------------------|--------|
| Displaced By                       | BJ     | Amt of Cement Returned / Reversed  | 10.00  |
| Calculated Displacement Vol (bbls) | 135.74 | Method Used to Verify Returns      | Visual |
| Actual Displacement Vol (bbls)     | 136.00 | Amt of Spacer to Surface           | 40.00  |
| 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)           | 721.00 | Total Volume Pumped (bbls)         | 356.00 |
| Were Returns Planned at Surface    | Yes    | Top Out Cement Spotted             | No     |
| Cement Returns During Job          | Yes    | Lost Circulation During Cement Job | No     |

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# BJ Cementing Event Log

Surface - Rifle, CO - Paul Linn III

| SEQ | START DATE / TIME | EVENT              | DENSITY (ppg) | PUMP RATE (bpm) | PUMP VOL (bbls) | PIPE PRESSURE (psi) | COMMENTS  |
|-----|-------------------|--------------------|---------------|-----------------|-----------------|---------------------|---|
| 1   | 08/11/2019 06:00  | Callout            |               |                 |                 |                     | Call out on location. On location time of 12:00 8/11/19   |
| 2   | 08/11/2019 07:18  | Arrive on Location |               |                 |                 |                     | Arrive on location, rig was drilling  |
| 3   | 08/11/2019 07:23  | Spot Units         |               |                 |                 |                     | Did a site assessment, conducted a ROC Drill, and spotted in equipment  |
| 4   | 08/11/2019 07:36  | STEACS Briefing    |               |                 |                 |                     | Pre-Rig Up STEACS Briefing with all BJ Services cement crew   |
| 5   | 08/11/2019 07:44  | Rig Up             |               |                 |                 |                     | Rig up all equipment  |
| 6   | 08/11/2019 08:50  | Client             |               |                 |                 |                     | Wait on rig to run casing and circulate   |
| 7   | 08/11/2019 14:08  | STEACS Briefing    |               |                 |                 |                     | Pre-Job STEACS Briefing with rig crew, company man, and all BJ Services cement crew   |
| 8   | 08/11/2019 14:25  | Rig Up             |               |                 |                 |                     | Load plug in plug container, stab plug container, and hook up lines   |
| 9   | 08/11/2019 14:36  | Prime Up           | 8.4000        | 2.00            | 5.00            | 38.00               | Fill lines with 5 bbls of fresh water   |
| 10  | 08/11/2019 14:41  | Pressure Test      |               |                 |                 | 3065.00             | Pressure test to 3065 psi   |
| 11  | 08/11/2019 14:44  | Pump Spacer        | 8.4000        | 4.00            | 20.00           | 133.00              | Pump Fresh water spacer with dye  |
| 12  | 08/11/2019 14:49  | Pump Tail Cement   | 14.5000       | 4.00            | 5.00            | 78.00               | Pump Tail Cement 14.5 ppg 815 sks 1.39 cuft/sk 6.81 gals/sk for a total of 201.76 bbls of Tail cement requiring 132.15 bbls of mix water. Weight verified with mud scales |
| 13  | 08/11/2019 14:58  | Pump Tail Cement   | 14.5000       | 5.00            | 50.00           | 116.00              | Pump Tail Cement  |
| 14  | 08/11/2019 15:09  | Pump Tail Cement   | 14.5000       | 4.00            | 100.00          | 82.00               | Pump Tail Cement  |
| 15  | 08/11/2019 15:19  | Pump Tail Cement   | 14.5000       | 4.00            | 150.00          | 79.00               | Pump Tail Cement  |



| SEQ | START DATE / TIME | EVENT                  | DENSITY (ppg) | PUMP RATE (bpm) | PUMP VOL (bbls) | PIPE PRESSURE (psi) | COMMENTS  |
|-----|-------------------|------------------------|---------------|-----------------|-----------------|---------------------|---|
| 16  | 08/11/2019 15:33  | Pump Tail Cement       | 14.5000       | 4.00            | 200.00          | 66.00               | Finished pumping Tail Cement with 200 bbls away                         |
| 17  | 08/11/2019 15:35  | Drop Top Plug          |               |                 |                 |                     | Drop plug, Verified by company man                                      |
| 18  | 08/11/2019 15:37  | Pump Displacement      | 8.4000        | 9.50            | 20.00           | 377.00              | Pump Fresh water displacement   |
| 19  | 08/11/2019 15:44  | Pump Displacement      | 8.4000        | 9.50            | 50.00           | 592.00              | Pump Fresh water displacement   |
| 20  | 08/11/2019 15:51  | Pump Displacement      | 8.4000        | 9.50            | 115.00          | 1007.00             | Pump Fresh water displacement   |
| 21  | 08/11/2019 15:52  | Cement Back-to-Surface |               |                 |                 |                     | 10 bbls of cement to surface  |
| 22  | 08/11/2019 15:52  | Pump Displacement      | 8.4000        | 3.00            | 136.00          | 721.00              | Pump Fresh water displacement   |
| 23  | 08/11/2019 15:58  | Land Plug              |               |                 |                 | 1215.00             | Landed the plug at 721 psi took to 1215 psi                             |
| 24  | 08/11/2019 15:59  | Other (See comment)    |               |                 |                 | 1175.00             | 15 min csg test: start 1215 psi, end 1212 psi                           |
| 25  | 08/11/2019 16:14  | Check Floats           |               |                 |                 |                     | Check floats, floats held 1/2 bbl back                                  |
| 26  | 08/11/2019 16:16  | Wash Pumps and Lines   |               |                 |                 |                     | Wash pumps and lines into cellar  |
| 27  | 08/11/2019 16:24  | STEACS Briefing        |               |                 |                 |                     | Pre-Rig Down STEACS Briefing with all BJ Services cement crew           |
| 28  | 08/11/2019 16:32  | Rig Down               |               |                 |                 |                     | Rig down all equipment and pull out of the way of the rig               |
| 29  | 08/11/2019 17:08  | Leave Location         |               |                 |                 |                     | Leave location. Thank you for using BJ Services, Andrew Linn, and crew. |

