



# Great Western Operating Company, LLC

## Production Post-Job Report

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Marcus LD 11-380HNX (API: 05-123-45388)

S:34 T:1N R:67W Weld, CO

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# Great Western Operating Company, LLC

[REDACTED]

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

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[REDACTED]

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,  
Karl Griesser  
Field Engineer I | (713) 829-7498 | [karl.griesser@bjsservices.com](mailto:karl.griesser@bjsservices.com)

Field Office 1716 East Allison Rd., Cheyenne WY, 82007  
Phone: (307) 638-5585

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

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# Cementing Treatment



|                           |                                      |                       |                     |
|---------------------------|--------------------------------------|-----------------------|---------------------|
| <b>Start Date</b>         | 10/31/2017                           | <b>Well</b>           | Marcus LD 11-380HNX |
| <b>End Date</b>           | 10/31/2017                           | <b>County</b>         | WELD                |
| <b>Client</b>             | GREAT WESTERN OPERATING COMPANY, LLC | <b>State/Province</b> | CO                  |
| <b>Client Field Rep</b>   | Dusty Weatherford                    | <b>API</b>            | 05-123-45388        |
| <b>Service Supervisor</b> | Andrew Chambers                      | <b>Type of Job</b>    | Long String         |
| <b>Field Ticket No.</b>   | 1578                                 |                       |                     |
| <b>District</b>           | Cheyenne, WY                         |                       |                     |

## WELL GEOMETRY

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| Type            | ID (in) | OD (in) | Wt. (lb/ft) | MD (ft)   | TVD (ft) | Excess(%) |
|-----------------|---------|---------|-------------|-----------|----------|-----------|
| Previous Casing | 8.92    | 9.63    | 36.00       | 1,738.00  | 1,738.00 |           |
| Open Hole       | 8.50    |         |             | 7,000.00  | 7,000.00 | 10.00     |
| Open Hole       | 8.50    |         |             | 17,665.00 | 7,677.00 | 5.00      |
| Casing          | 4.89    | 5.50    | 17.00       | 17,665.00 | 7,677.00 |           |

**Shoe Length (ft):** 42

## HARDWARE

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|                                  |        |
|----------------------------------|--------|
| <b>Bottom Plug Used?</b>         | No     |
| <b>Top Plug Used?</b>            | No     |
| <b>Centralizers Used</b>         | No     |
| <b>Landing Collar Depth (ft)</b> | 17,656 |

## CIRCULATION PRIOR TO JOB

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|   |     |   |    |
|---|-----|---|----|
| <b>Circulation Prior to Job</b>             | YES | <b>Solids Present at End of Circulation</b> | No |
| <b>Circulation Time (min)</b>               | 90  | <b>Flare Prior to/during the Cement Job</b> | No |
| <b>Circulation Rate (bpm)</b>               | 8   | <b>Gas Present</b>                          | No |
| <b>Circulation Volume (bbls)</b>            | 721 |   |    |
| <b>Lost Circulation Prior to Cement Job</b> | No  |   |    |

# Cementing Treatment



## BJ FLUID DETAILS

| Fluid Type                 | Fluid Name   | Density (ppg) | Yield (Cu Ft/sk) | H2O Req. (gals/sk) | Vol (sk) | Vol (Cu Ft) | Vol (bbls) |
|----------------------------|--------------|---------------|------------------|--------------------|----------|-------------|------------|
| Spacer / Pre Flush / Flush | CD Sapcer    | 11.5000       |                  |                    |          |             | 50.0000    |
| Lead Slurry                | P100-X2      | 14.0000       | 1.5272           | 7.74               | 1,175    | 1,794.0000  | 319.4000   |
| Tail Slurry                | P50-X1       | 14.0000       | 1.3344           | 6.42               | 1,942    | 2,592.0000  | 461.5000   |
| Displacement 1             | MMCR Water   | 8.3337        |                  |                    |          | 0.0000      | 20.0000    |
| Displacement 2             | 3% KCL Water | 8.3300        |                  |                    |          | 0.0000      | 260.0000   |
| Displacement Final         | Water        | 8.3300        |                  |                    |          | 0.0000      | 131.7000   |

| Fluid Type                 | Fluid Name | Component                            | Concentration | UOM  |
|----------------------------|------------|--------------------------------------|---------------|------|
| Spacer / Pre Flush / Flush | CD Sapcer  | SAND, S-8, Silica Flour, 200 Mesh    | 213.49        | PPB  |
| Spacer / Pre Flush / Flush | CD Sapcer  | ASF-80                               | 0.50          | GPB  |
| Spacer / Pre Flush / Flush | CD Sapcer  | AVS-10                               | 0.90          | PPB  |
| Spacer / Pre Flush / Flush | CD Sapcer  | AR-31                                | 0.58          | PPB  |
| Spacer / Pre Flush / Flush | CD Sapcer  | ASF-20                               | 0.50          | GPB  |
| Lead Slurry                | P100-X2    | FLUID LOSS, FL-66                    | 0.50          | BWOB |
| Lead Slurry                | P100-X2    | CEMENT, ASTM TYPE III                | 100.00        | PCT  |
| Lead Slurry                | P100-X2    | SPECIAL ADDITIVE, MPA-300            | 0.10          | BWOB |
| Lead Slurry                | P100-X2    | BONDING AGENT, BA-59                 | 0.40          | BWOB |
| Lead Slurry                | P100-X2    | RETARDER, HIGH TEMP, R-31 (BJS Only) | 0.17          | BWOB |
| Lead Slurry                | P100-X2    | FP-25, Dry Foam Preventer (BJS Only) | 0.30          | BWOB |
| Tail Slurry                | P50-X1     | AFA-10                               | 50.00         | PCT  |
| Tail Slurry                | P50-X1     | GELLANT WATER, GW-86                 | 0.10          | BWOB |
| Tail Slurry                | P50-X1     | EXTENDER, BENTONITE                  | 1.00          | BWOB |
| Tail Slurry                | P50-X1     | FP-25, Dry Foam Preventer (BJS Only) | 0.30          | BWOB |
| Tail Slurry                | P50-X1     | CEMENT, CLASS G                      | 50.00         | PCT  |
| Tail Slurry                | P50-X1     | FLUID LOSS, FL-66                    | 0.20          | BWOB |

# Cementing Treatment



|                |            |       |      |      |
|----------------|------------|-------|------|------|
| Tail Slurry    | P50-X1     | AR-20 | 0.12 | BWOB |
| Displacement 1 | MMCR Water | AR-61 | 0.10 | GPB  |

## TREATMENT SUMMARY

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| Fluid        | Rate (bpm) | Fluid Vol. (bbls) |
|--------------|------------|-------------------|
| CD Sapper    | 0.00       | 50.00             |
| P100-X2      | 0.00       | 319.40            |
| P50-X1       | 0.00       | 461.50            |
| MMCR Water   | 0.00       | 20.00             |
| 3% KCL Water | 0.00       | 260.00            |
| Water        | 0.00       | 131.70            |

## DISPLACEMENT AND END OF JOB SUMMARY

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|  |             |   |    |
|--|-------------|---|----|
| <b>Displaced By</b>                          | BJ Services | <b>Top Out Cement Spotted</b>             | No |
| <b>Calculated Displacement Volume (bbls)</b> | 409.9       | <b>Lost Circulation During Cement Job</b> | No |
| <b>Actual Displacement Volume (bbls)</b>     | 419.9       |   |    |
| <b>Did Float Hold?</b>                       | Yes         |   |    |
| <b>Bump Plug</b>                             | No          |   |    |
| <b>Were Returns Planned at Surface</b>       | No          |   |    |
| <b>Cement returns During Job</b>             | 49 BBLs     |   |    |

## CEMENT PLUG

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|                               |    |                          |    |
|-------------------------------|----|--------------------------|----|
| <b>Bottom of Cement Plug?</b> | No | <b>Wiper Balls Used?</b> | No |
| <b>Plug Catcher</b>           | No |                          |    |



Customer Name Great Western  
 Well Name Marcus LD  
 Job Type Long String

District Cheyenne  
 Supervisor Andrew Chambers  
 Engineer \_\_\_\_\_

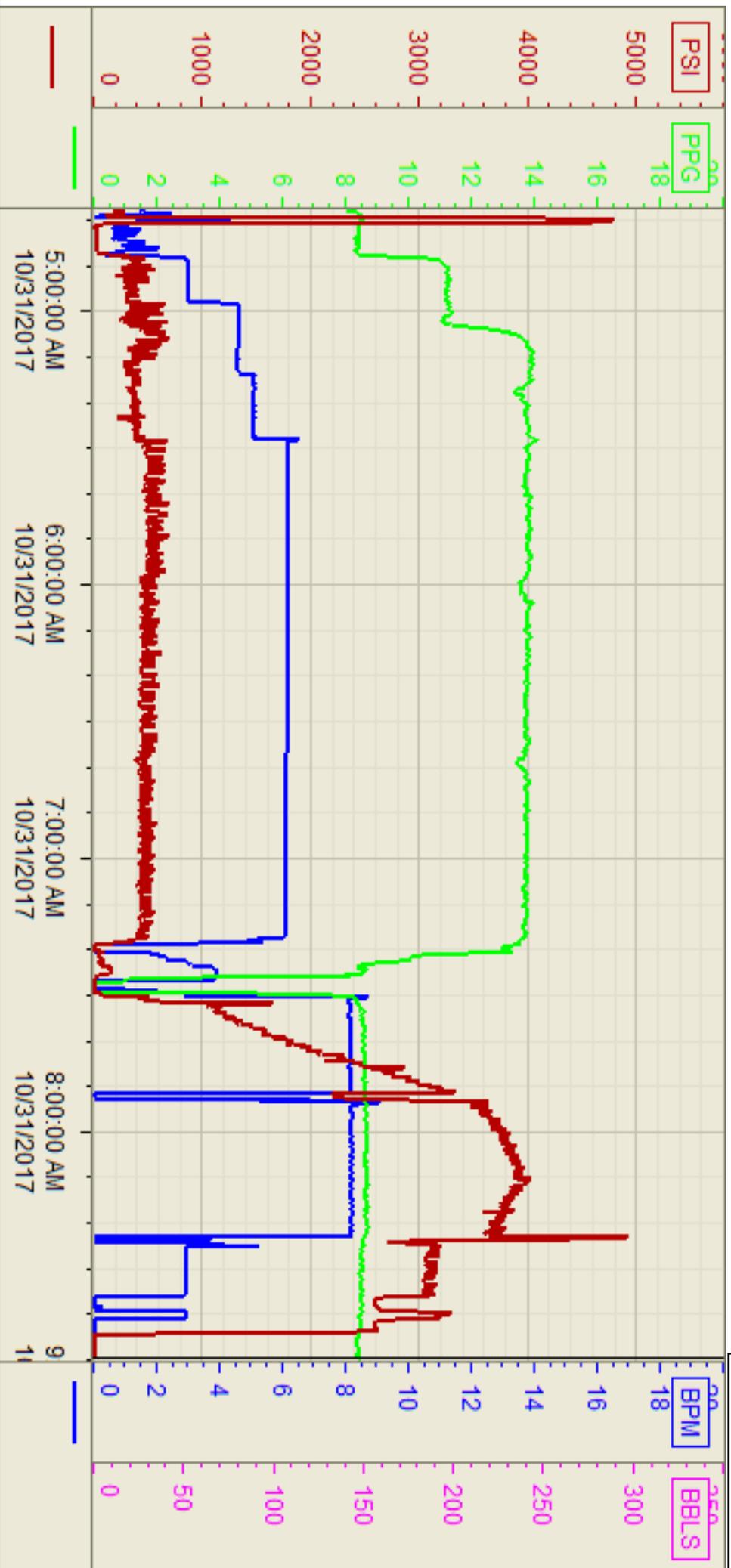
| Start Date/Time    | Category     | Event                  | Event ID | Density (lb/gal) | Pump Rate (bpm) | Pump Vol (bbls) | Pipe Pressure (psi) | Comments   |
|--------------------|--------------|------------------------|----------|------------------|-----------------|-----------------|---------------------|--|
| 10/30/17/20:30     | Mobilization | Callout                | 1        |                  |                 |                 |                     | BJ CREW CALLED OUT ON LOCATION AT 22:30  |
| 10/30/2017,22:15   | Mobilization | Arrive on Location     | 2        |                  |                 |                 |                     | BJ CREW ARRIVES ON LOCATION. MET WITH CUSTOMER REP WENT OVER WHERE TO SPOT EQUIPMENT AND JOB DETAILS |
| 10/30/2017/22:45   | Operational  | Safety Meeting         | 3        |                  |                 |                 |                     | DISCUSSED HAZARDS OF RIGGING UP IRON   |
| 10/341/2017/12:15  | Operational  | Rig Up                 | 4        |                  |                 |                 |                     | BJ CREW RIGS UP LOCATION   |
| 10/31/2017 0:00    | Operational  | Safety Meeting         | 5        |                  |                 |                 |                     | CONDUCTED STEACS with crew and rig crew  |
| 10/31/2017/4:46    | Operational  | Pressure Test          | 6        | 8.33             | 1               | 2               | 5000                | TESTED LINES TO 5000   |
| 10/31/2017 4:54/AM | Operational  | Pump Spacer            | 7        | 11.5             | 5               | 50              | 300                 | PUMPED 50/BBL PACER  |
| 10/31/20'17/5:11   | Operational  | Pump Lead Cement       | 8        | 14               | 6               | 319             | 500                 | PUMPED 1175/SKS,319/BBL OF 14/LB,1.52YLD,7.72GAL/SK OF LEAD CEMENT                                   |
| 10/31/2017 6:06    | Operational  | Pump Tail Cement       | 9        | 14               | 6               | 460.8           | 450                 | PUMPED 1942/SKS,460.8/BBL,14/LB,1.33YLD,6.40GAL/SK OF TAIL CEMENT                                    |
| 10/31/2017 7:25    | Operational  | Clean Pumps and Lines  | 10       |                  |                 |                 |                     | WASHED PUMPS AND LINES   |
| 10/31/2017 7:34    | Operational  | Drop Top Plug          | 11       |                  |                 |                 |                     | TOP PLUG LEFT CEMENTING HEAD   |
| 10/31/2017 7:35    | Operational  | Pump Displacement      | 12       | 8.33             | 8               | 409             |                     | PUMPED 409.9 BBL OF DISPLACEMENT,FIRST 20 WITH AR61 AND REST KCL WATER                               |
| 10/31/2017 8:15    | Operational  | Other (See comments)   | 13       | 8.33             | 3               | 390             | 3100                | SLOW RATE TO 3BBL/MIN TO BUMP  |
| 10/31/2017/8:23    | Operational  | Spacer Back to Surface | 14       | 11.5             | 8               | 290             | 3400                | 50 BBL OF SPACER TO SURFACE  |
| 10/31/2017/8:30    | Operational  | Cement Back to Surface | 15       | 14               | 8               | 340             | 3600                | 49 BBL CEMENT TO SURFACE   |
| 10/31/2017/8:43    | Operational  | Other (See comments)   | 16       | 8.33             |                 | 419             |                     | PLUG DID NOT LAND PUMPED 10 BBL OVER PER CUSTOMER  |
| /8:5010/31/2017    | Operational  | Check Floats           | 17       |                  |                 |                 |                     | FLOATS HELD 2.5 BBL BACK   |
| 10/31/20179:20     | Operational  | Safety Meeting         | 18       |                  |                 |                 |                     | DISCUSSED HAZARDS OF RIGGING DOWN IRON   |
| 10/31/2017 0:00    | Operational  | Rig Down               | 19       |                  |                 |                 |                     | BJ CREW RIGS DOWN LOCATION   |
| 10/31/2017 10:15   | Operational  | Other (See comments)   | 20       |                  |                 |                 |                     | RIG DOWN COMPLETED SAFELY  |
| 10/31/2017/10:45   | Operational  | Safety Meeting         | 21       |                  |                 |                 |                     | DISCUSSED HAZARDS OF DRIVING   |
| 10/31/2017/11:00   | Operational  | Other (See comments)   | 22       |                  |                 |                 |                     | BJ CREW DEPARTS LOCATION   |

Customer: GREAT WESTERN  
 Well Number: 11-380HNX  
 Lease Info: MARCUS LD



Print Date/Time

10/31/2017 9:16:28 AM



| Name                  | Y value | X value/time stamp       | Tag name Y                       |
|-----------------------|---------|--------------------------|----------------------------------|
| 1 PS - Press (PSI)    | -4.31   | 10/31/2017 8:49:45 AM i. | CementenrPS_DISCHARGE_PRESS_DIAL |
| 2 DH - Density (PPG)  | 8.43    | 10/31/2017 8:49:41 AM    | CementenrDENSITY2_ACTUAL_RATE    |
| 3 Combined Rate (BPM) | 0.00 i. | 10/31/2017 8:49:45 AM i. | CementenrFlow_Combined           |
| 4                     |         |                          |                                  |
| 5                     |         |                          |                                  |

Source: Control1 9:16:23 AM