



UTILITIES CO.

A Subsidiary of MDU Resources Group, Inc.

400 North Fourth Street
Bismarck, ND 58501
(701) 222-7900

March 15, 2019

Executive Secretary
North Dakota Public Service Commission
State Capitol Building
Bismarck, ND 58505-0480

Re: Gas Meter Test Results

Montana-Dakota Utilities Co. (Montana-Dakota) herewith submits the results of its gas meter testing program for the period July 1, 2017 through June 30, 2018. The test results included herein reflect the gas meter testing performed in accordance with the Company's Gas Meter Testing Program Rate 105 tariff, as authorized on February 24, 2016, in Case No. PU-13-585, by the North Dakota Public Service Commission.

Montana-Dakota's meter testing program consists of the following three categories:

1. New Test - New meters purchased were tested and found to be satisfactory prior to release. 100% of new meters were tested at the factory. Montana-Dakota tested 136 meters during the period July 1, 2017 through June 30, 2018 resulting in an average accuracy of 99.9% at an open test (100% of meter rating) and 100.0% accuracy at a check test (20% of meter rating).
2. Periodic Test – Meters with ratings of 650 cubic feet per hour or greater are tested at a periodic interval of at least once in ten years.
3. Random Test - All other active meters, with ratings of 650 cubic feet per hour or less, are assigned to lots and are selected for testing via a computer generated random selection process and meters pulled from customers' premises in correlation with service technicians being on site for other service-related work.

All damaged or non-registering meters are incapable of measuring gas accurately due to damaged indexes, mechanical malfunctions, or break(s) in the meter body and are either retired or given a complete overhaul and re-tested before being placed back in service.

Test calculations of all lots in the Random Sample Program are made in accordance with the program detailed in Department of Defense Bulletin dated June 11, 1957, entitled "Military Standard Sampling Procedure & Tables for Inspections by Variable for

Percent Defective," as approved in Case No. I-5083.

The Random Test results are provided in Attachment A. With the exception of three groups, all lots were below the maximum allowable defective percentage for July 1, 2017 through June 30, 2018. The following three sub groups under Lot Type ER03, installed in North Dakota, South Dakota, and Wyoming, have defective percentages that exceed the allowable limit:

- Meter Lot ER03 with install dates of 1985 through 1989 - 1,191 meters,
- Meter Lot ER03 with install dates of 1995 through 1999 - 10,966 meters, and
- Meter Lot ER03 with install dates of 2005 through 2007 - 4,326 meters.

Further analysis of the meter lot failures indicated a defective sub group of meters with vintages from 1982 to 1985. The Company will retire all 1982 through 1985 vintage meters with install years of 1985 through 1989, 1995 through 1999, and 2005 through 2007 included in the ER03 meter lot in 2019 and 2020, totaling about 4,400 meters. In addition, the Company will retire the remaining ER03 lot meters with an install date of 1980 through 1984. The remaining subgroups within this meter lot will be evaluated as part of the Company's next meter testing program.

The Periodic test results are provided in Attachment B. As shown, 769 meters were tested during this review period resulting in an average accuracy of 99.3% at an open test (100% of meter rating) and 100.2% accuracy at a check test (20% of meter rating).

Please contact me if you have questions regarding the gas meter testing results.

Please acknowledge receipt by stamping or initialing the duplicate copy of this letter attached hereto and returning the same in the enclosed self-addressed, stamped envelope.

Sincerely,



Tamie A. Aberle
Director of Regulatory Affairs

Attachments

| <p style="text-align: center;">Montana-Dakota Utilities Co. North Dakota, South Dakota, and Wyoming July 1, 2017 through June 30, 2018 Random Sample Test Results</p> | | | | | | |
|--|-------------------------------------|-----------------|-------|--------------------|------------------|------------------|
| Lot Type | Size (in CIS) | Install Year | Count | Minimum Sample* | Defective [%] | Allowable [%] |
| AC-250 | AC250 | 90-94 | 346 | 25 | 1.48 | 23.97 |
| | | 95-99 | 8045 | 75 | 3.85 | 21.11 |
| | | 00-04 | 25500 | 100 | 7.02 | 20.66 |
| | | 05-07 | 21606 | 75 | 3.56 | 21.11 |
| | | 85 -89 | 3 | 3 | 0.00 | 40.47 |
| AL-425 | AL425 | 95-99 | 27 | 5 | 25.45 | 33.99 |
| | | 00-04 | 518 | 30 | 6.36 | 23.58 |
| | | 05-07 | 354 | 25 | 15.63 | 23.97 |
| AC-630 | AC630 | 00 - 04 | 38 | 5 | 0.00 | 33.99 |
| | | 05-07 | 185 | 20 | 5.44 | 24.53 |
| AS02 | AL175, AL225 & AI250 | 75-79 | 254 | 20 | 3.03 | 24.53 |
| | | 85-89 | 323 | 25 | 13.39 | 23.97 |
| | | 90-94 | 1138 | 35 | 13.42 | 22.91 |
| | | 95-99 | 1922 | 40 | 19.14 | 22.86 |
| | | 00-04 | 688 | 30 | 5.35 | 23.58 |
| | | 80 - 84 | 116 | 15 | 2.64 | 25.61 |
| | | 05-07 | 340 | 25 | 8.06 | 23.97 |
| ER01 | 175 | 80-84 | 7 | 3 | 13.66 | 40.47 |
| | | 85-89 | 94 | 10 | 13.56 | 27.57 |
| | | 90-94 | 390 | 25 | 20.13 | 23.97 |
| | | 95-99 | 645 | 30 | 9.52 | 23.58 |
| | | 00-04 | 126 | 15 | 5.70 | 23.58 |
| ER02 | 250 | 75-79 | 10 | 3 | 0.00 | 40.47 |
| | | 80-84 | 44 | 7 | 7.83 | 30.50 |
| | | 85-89 | 946 | 35 | 14.70 | 22.91 |
| | | 90-94 | 4570 | 50 | 16.84 | 22.00 |
| | | 95-99 | 7364 | 50 | 11.63 | 22.00 |
| | | 00-04 | 2186 | 40 | 0.86 | 22.86 |
| | | 05-07 | 162 | 15 | 10.22 | 25.61 |

| <p style="text-align: center;">Montana-Dakota Utilities Co. North Dakota, South Dakota, and Wyoming July 1, 2017 through June 30, 2018 Random Sample Test Results</p> | | | | | | |
|--|------------------------|-----------------|-------|--------------------|------------------|------------------|
| Lot Type | Size (in CIS) | Install Year | Count | Minimum Sample* | Defective [%] | Allowable [%] |
| ER03 | R200 & R275 | 80-84 | 18 | 4 | 20.67 | 36.90 |
| | | 85-89 | 1191 | 35 | 27.349 | 22.91 |
| | | 90-94 | 4597 | 50 | 18.70 | 22.00 |
| | | 95-99 | 10966 | 75 | 23.98 | 21.11 |
| | | 00-04 | 9062 | 75 | 10.38 | 21.11 |
| | | 05-07 | 4326 | 50 | 25.71 | 22.00 |
| NL-250 | NL-250 | 90-94 | 61 | 7 | 0.87 | 30.50 |
| | | 95-99 | 51 | 7 | 14.30 | 30.50 |
| | | 00-04 | 110 | 10 | 0.12 | 27.57 |
| | | 05-07 | 244 | 20 | 3.63 | 24.53 |
| S250 | S250 | 90-94 | 1272 | 35 | 0.16 | 22.91 |
| | | 95-99 | 1092 | 35 | 0.30 | 22.91 |
| | | 00-04 | 715 | 30 | 22.34 | 23.58 |
| | | 05-07 | 394 | 25 | 0.00 | 23.97 |
| SL250 | SL250 | 95-99 | 1024 | 35 | 4.46 | 22.91 |
| | | 00-04 | 275 | 20 | 0.00 | 24.53 |
| | | 05-07 | 188 | 20 | 0.23 | 24.53 |
| S400 | S400 | 00-04 | 2 | 2 | 0.00 | 40.47 |
| | | 05-07 | 13 | 3 | 0.00 | 40.47 |
| S400A | S400A | 95-99 | 43 | 7 | 27.98 | 30.50 |
| | | 00-04 | 35 | 5 | 7.25 | 33.99 |
| | | 05-07 | 38 | 5 | 29.05 | 33.99 |

* - Military Standard No. 414, Inspection Level IV with specification limit of $\pm 2\%$

| Montana-Dakota Utilities Co. North Dakota July 1, 2017 through June 30, 2018 Periodic Test Results | | | |
|---|-----------------|------------------------|-------------------------|
| Accuracy by Size | | | |
| Meter Size | Quantity | Open Accuracy % | Check Accuracy % |
| 800 | 7 | 99.3% | 100.4% |
| AL-1000 | 102 | 99.4% | 100.4% |
| AL-800 | 169 | 99.4% | 100.0% |
| R-1000 | 160 | 99.3% | 100.3% |
| R-1600 | 80 | 98.9% | 100.1% |
| R-750 | 251 | 99.3% | 100.3% |
| | | | |
| Total | 769 | 99.3% | 100.2% |