MONTANA-DAKOTA
UTILITIES CO.
A Division of MDU Resources Group, Inc.

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

August 1, 2017

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), a Division of MDU Resources Group, Inc., herewith submits the results of its gas meter testing program for the period April 1, 2015 through March 31, 2016. The test results included herein reflect gas meter testing performed in accordance with the Company's previously authorized testing program and includes the test results of North Dakota gas meters only. On February 24, 2016, in Case No. PU-13-585, the North Dakota Public Service Commission approved a revised Gas Meter Testing Program which is now outlined in the Company's Gas Meter Testing Program Rate 105 Tariff. A summary of the Company's former program and the now authorized program is included as Exhibit 1. In accordance with Rate 105, the first report under the now authorized program will be filed by December 1, 2017 and reflect the period of July 1, 2016 to June 30, 2017.

Montana-Dakota's previous 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 517 meters during the period April 1, 2015 through March 31, 2016 resulting in an average accuracy of 99.8% at an open test (100% of meter rating) and 99.9% accuracy at a check test (20% of meter rating).

2. Periodic Test – Meters with ratings of 630 cubic feet per hour or greater are tested at a periodic interval of at least once in eight years.

3. Random Test - All other active meters, with ratings of 630 cubic feet per hour or less, are assigned to lots and are randomly computer selected for test each year.

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. These damaged meters are either retired or given a complete overhaul and re-tested before being placed back in service.

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. As demonstrated, all lots were below the maximum allowable percentage defective for April 1, 2015 through March 31, 2016. The two groups that failed in the last test cycle were resampled in this test cycle and the test results summarized below.

- Meter Lot S400A with install dates of 2000 through 2004: this group did not fail for a second time. The group will continue to be sample tested.
- Meter Lost S400A with install dates of 2005 through 2009: this group did not fail for a second time. The group will continue to be sample tested.

The Periodic test results are provided in Attachment B. As shown, 364 meters were tested during this review period resulting in an average accuracy of 99.1% at an open test (100% of meter rating) and 100.1% 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

Montana-Dakota Utilities Co.
Authorized Gas Meter Testing Program
Former Gas Meter Testing Program
Comparison

	Former Program 1/	Authorized 2/
New Meters Test:		
No changes proposed		
Random Meter Test:		
Maximum Size of Meter Tested	< 630 CFH	<= 650 CFH
Meter Test Pool	State Specific	Company-wide
Time between Testing	8 years	10 years
Test Selection	All randomly computer generated	Combination of randomly computer generated and service tech on-site
Lot determination and size	Years since last test installation and type of meter construction	Manufacturer, type, and last install date with 5 years age maximum to a lot
Periodic Meters Test:		
Leather diaphragm meters	Tested as part of periodic meters test program	N/A as no longer have meters with leather diaphragms
Minimum Size of Meter Tested	>= 630 CFH 2/	> 650 CFH
Time between Testing	8 years	10 years
Other:		
Meter Test Year	April 1 – March 31	July 1 – June 30

1/ Case No. I-5083, May 14, 1973.
2/ Authorized in Case No. PU-13-585 on February 24, 2016.

Montana-Dakota Utilities Co.
North Dakota
April 1, 2015 through March 31, 2016
Random Sample Test Results

Lot Type	Size (in CIS)	Install Year	Count	Minimum Sample*	Defective [%]	Allowable [%]
415	415	05-09	1591	40	18.38	22.86
		10-13	863	35	9.65	22.91
AC-250	AC250	90-94	**			
		95-99	1573	40	1.41	22.86
		00-04	10629	75	2.54	21.11
		05-09	13868	75	0.69	21.11
		10-13	14784	75	0.00	21.11
AL-425	AL425					
		95-99	29	5	0.00	33.99
		00-04	224	20	4.87	24.53
		05-09	202	20	1.71	24.53
		10-13	338	25	0.00	23.97
AS02	AL175, AL225 & AL250					
		85-89	100	10	0.00	27.57
		90-94	935	35	0.45	22.91
		95-99	1276	35	2.54	22.91
		00-04	735	30	0.53	23.58
		05-09	363	25	0.00	23.97
		10-13	258	20	0.00	24.53
ER01	175	95-99	63	7	0.66	30.50
		00-04	148	15	0.61	25.61
		05-09	6	3	0.00	40.47
		10-13	3	3	0.00	40.47
ER02	250	76-79	18	4	11.74	36.90
		85-89	574	30	8.88	23.58
		90-94	3553	50	3.02	22.00
		95-99	5356	50	4.67	22.00
		00-04	2141	40	0.98	22.86
		05-09	204	20	0.01	24.53
		10-13	58	7	10.44	30.50

Montana-Dakota Utilities Co.
North Dakota
April 1, 2015 through March 31, 2016
Random Sample Test Results

Lot Type	Size (in CIS)	Install Year	Count	Minimum Sample*	Defective [%]	Allowable [%]
ER03	R200 & R275	85-89	963	35	11.78	22.91
		90-94	2961	40	7.24	22.86
		95-99	6802	50	14.82	22.00
		00-04	8374	75	1.76	21.11
		05-09	5094	50	2.42	22.00
		10-13	3431	50	0.46	22.00
NL-250	NL-250	90-94	84	10	11.50	27.57
		95-99	60	7	10.67	30.50
		00-04	134	15	2.11	25.61
		05-09	188	20	6.64	24.53
		10-13	288	20	0.86	24.53
S250	S250	85-89	**			
		90-94	798	30	0.02	23.58
		95-99	582	30	0.13	23.58
		00-04	680	30	3.48	23.58
		05-09	531	30	0.04	23.58
		10-13	891	35	0.03	22.91
SL250	SL250	95-99	219	20	0.05	24.53
		00-04	267	20	0.00	24.53
		05-09	244	20	0.05	24.53
		10-13	501	30	0.03	23.58
S400	S400	00-04	**			
		05-09	14	3	12.62	40.47
		10-13	57	7	7.85	30.50
S400A	S400A	00-04	40	5	9.11	33.99
		05-09	28	5	1.56	33.99
		10-13	131	15	10.44	25.61

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

** - Group removed from active service

Montana-Dakota Utilities Co.
North Dakota
April 1, 2015 through March 31, 2016
Periodic Test Results

Accuracy by Size			
Meter Size	Quantity	Open Accuracy %	Check Accuracy %
AC-630	4	100.7%	100.9%
AL-1000	34	100.0%	101.1%
AL-800	74	99.2%	99.8%
R-1000	76	99.1%	100.2%
R-1600	40	98.7%	100.2%
R-750	136	98.8%	99.9%
Total	364	99.1%	100.1%