



UTILITIES CO.

A Subsidiary of MDU Resources Group, Inc.

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

March 11, 2020

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, 2018 through June 30, 2019. 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 479 meters during the period July 1, 2018 through June 30, 2019 resulting in an average accuracy of 98.9% at an open test (100% of meter rating) and 99.88% 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 those meter lots identified herein, all lots were below the maximum allowable defective percentage for this test period. The three ER03 meter lot groups that failed in the last test cycle were re-sampled in this test cycle, excluding the 4,391 inaccurate meters deemed obsolete and scheduled for removal. The test results are summarized below:

- Meter Lot ER03 – install date of 1985 through 1989: Montana-Dakota removed a sub-group of 1982 to 1985 vintage meters from active service as noted in the last report. The meters remaining in Meter Lot ER03 installed in 1985-1989 were re-sampled and the group is now in compliance,
- Meter Lot ER03 – install date of 1995 through 1999: Montana-Dakota removed a sub-group of 1982 to 1985 vintage meters from active service as noted in the last report. The meters remaining in Meter Lot ER03 installed in 1995-1999 were re-sampled and the group is now in compliance, and
- Meter Lot ER03 – install date of 2005 through 2008: Montana-Dakota removed a sub-group of 1982 to 1985 vintage meters from active service as noted in the last report. The meters remaining in Meter Lot ER03 installed in 2005-2008 were re-sampled and the group is now in compliance.

Two groups experienced first year failure. A description of the groups and the number of meters impacted are identified below:

- Meter Lot S400A with install dates of 2000 through 2004 - 29 meters, and
- Meter Lot 415 with install dates of 2005 through 2008 – 2,054 meters.

Further analysis of the meter lot failures indicated a defective sub-group of meters with vintages from 1982 to 1986 for Meter Lot 415. The Company has identified 390 meters from Meter Lot 415 with vintages from 1982 to 1986 to be removed. In addition, the Company will replace all 29 meters from Meter Lot S400A.

The Periodic test results are provided in Attachment B. As shown, 471 meters were tested during this review period resulting in an average accuracy of 98.8% at an open test (100% of meter rating) and 99.6% 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,

A handwritten signature in black ink that reads "Travis R. Jacobson". The signature is written in a cursive style with a large initial 'T' and 'J'.

Travis R. Jacobson
Director of Regulatory Affairs

Attachments

**MONTANA - DAKOTA UTILITIES CO.
ND, SD, WY - 2019 TEST YEAR
RANDOM SAMPLE TEST RESULTS**

Lot Type	Size	Install Year	Count	Minimum Sample*	Defective [%]	Allowable [%]
AC-250	AC250	90-94	312	25	4.45	23.97
		95-99	7,893	50	6.17	21.11
		00-04	25,179	100	11.68	20.66
		05-08	26,926	100	14.22	21.11
AL-425	AL425	95-99	21	4	28.67	33.99
		00-04	483	25	13.80	23.58
		05-08	473	25	3.08	23.97
AC-630	AC630	00-04	32	5	23.47	33.99
		05-08	297	20	23.49	24.53
AS02	AL175, AL225 & AI250	75-79	208	20	0.44	24.53
		85-89	287	20	14.64	23.97
		90-94	1,074	35	14.81	22.91
		95-99	1,825	40	12.99	22.86
		00-04	642	30	0.39	23.58
		80 - 84	96	10	1.38	25.61
		05-08	339	25	1.28	23.97
ER01	175	80-84	3	3	0.00	40.47
		85-89	82	10	13.26	27.57
		90-94	353	25	15.81	23.97
		95-99	606	30	12.33	23.58
		00-04	108	10	0.00	23.58
ER02	250	75-79	6	3	0.00	40.47
		80-84	35	5	0.00	30.50
		85-89	894	35	13.58	22.91
		90-94	4,468	50	7.00	22.00
		95-99	7,259	50	17.89	22.00
		00-04	2,118	40	0.10	22.86
		05-08	147	15	0.05	25.61

**MONTANA - DAKOTA UTILITIES CO.
ND, SD, WY - 2019 TEST YEAR
RANDOM SAMPLE TEST RESULTS**

Lot Type	Size	Install Year	Count	Minimum Sample*	Defective [%]	Allowable [%]
ER03	R200 & R275	80-84	14	3	0.00	36.90
		85-89	1,093	35	20.21	22.91
		90-94	4,507	50	17.67	22.00
		95-99	8,576	75	16.17	21.11
		00-04	8,924	75	5.61	21.11
		05-08	2,550	50	0.05	22.00
NL-250	NL-250	90-94	52	7	0.52	30.50
		95-99	43	7	29.39	30.50
		00-04	99	10	9.18	27.57
		05-08	235	20	0.01	24.53
S250	S250	90-94	1,224	35	0.48	22.91
		95-99	1,040	35	1.09	22.91
		00-04	676	30	0.56	23.58
		05-08	440	25	0.04	23.97
SL250	SL250	95-99	973	35	1.56	22.91
		00-04	253	20	0.00	24.53
		05-08	215	20	0.00	24.53
S400	S400	05-08	10	3	0.00	40.47
S400A	S400A	95-99	32	5	1.28	33.99
		00-04	29	5	50.00	33.99
		05-08	34	5	11.29	33.99
415	415	05-08	2,054	40	26.30	22.86

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

**Montana-Dakota Utilities Co.
North Dakota, South Dakota, and Wyoming
July 1, 2018 through June 30, 2019
Periodic Test Results**

Accuracy by Size

Meter Size	Quantity Tested	Open Accuracy	Check Accuracy
		[%]	[%]
R-1000	58	98.98	99.8
AL-1000	32	99.34	100.2
1000	86	98.57	99.7
R-1600	26	98.5	100.3
3000	11	98.54	98.8
5000	1	98.41	98.5
R-750	135	98.80	100.0
AL800	122	99.26	99.8
Total	471	98.8	99.6