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OTTER TAIL
POWER COMPANY

VIA E-FILING AND OVERNIGHT DELIVERY

December 31, 2008

Darrell Nitschke
Public Utilities Division
ND Public Service Commission
600 E Boulevard, Dept. 408
Bismarck, ND 58505

Subject: Otter Tail Power Company's 2008 Sample Meter Test Performance Report

Dear Mr. Nitschke:

Pursuant to North Dakota Rule 69-06-02-28(3), enclosed, as Attachment 1, are the results from the 2008 single-phase kwh sample meter test program for Otter Tail Power Company. There were nine groups of meters selected. Criterion for selecting the groups, as set forth in the rate schedule, was based on the time period the meters were purchased, manufacturer, and model of meters. The meters were grouped as follows:

1. GE and SI meters purchased from 1998 to present.
2. GE, model I70S metes purchased from 1969 to 1997.
3. SI model J4S, J5S meters purchased from 1969 to 1997.
4. LG model MS, MX meters purchased from 1969 to 1997.
5. ABB model D4S meters purchased from 1969 to 1974.
6. ABB model D4S meters purchased from 1975 to 1982.
7. ABB model AB1 meters.
8. ABB model D5S meters purchased from 1990 to 1997.
9. GE model I50S meters.

The results of the Sample test this year indicates that the ABB Model AB1 meters failed the Sample test. There are about 4,800 of these meters left in service. These meters will be removed from service within the next 5 years as part of the rate schedule. The other groups passed the test and are performing satisfactorily. In 2007, a range of ABB meters manufactured from 1983 to 1985 failed the test. These meters are being removed from service over the remaining 4 out of 5 years as outlined in the rate schedule. All other groups of meters that have failed the Sample test in past years have been removed from service.

An electronic copy of this filing was sent to you at dnitschk@nd.gov and the following address: ndpsc@nd.gov.

Should you have any questions, please contact me at 218-739-8395 or jheinen@otpco.com.

Sincerely,

Judy Heinen
Tariff Specialist
Regulatory Services

Enclosures

OTTER TAIL POWER CO.

12/30/2008

SAMPLE METER TEST CALCULATION FORM

METERS IN SERVICE AT OTTER TAIL POWER CO.

REFERENCE - TABLES A-2, B-3, B-4, B-5, AND EXAMPLE B-3 OF MIL-STD-414.

TYPE OF METERS IN THIS SAMPLE: 2008 Sample #1

LOT SIZE _____ SAMPLE SIZE 101 AQL 2.5

FL BAR X	99.861	***FL SIGMA***	0.263
LL BAR X	99.466	***LL SIGMA***	0.533

ESTIMATE OF LOT ABOVE 102.0%

$$FL\ QU = \frac{102 - FL\ BAR\ X}{FL\ SIGMA} = \frac{102 - 99.861}{0.263} = \frac{2.139}{0.263} = 8.13$$

$$LL\ QU = \frac{102 - LL\ BAR\ X}{LL\ SIGMA} = \frac{102 - 99.466}{0.533} = \frac{2.534}{0.533} = 4.75$$

From Table B-5 = 0 % PU FL above 102.0%

0 % PU LL above 102.0 %

ESTIMATE OF LOT BELOW 98.0%

$$FL\ QL = \frac{FL\ BAR\ X - 98}{FL\ SIGMA} = \frac{99.861 - 98}{0.263} = \frac{1.861}{0.263} = 7.08$$

$$LL\ QL = \frac{LL\ BAR\ X - 98}{LL\ SIGMA} = \frac{99.466 - 98}{0.533} = \frac{1.466}{0.533} = 2.75$$

From table B-5 = 0 % PL FL below 98.0 %

0.257 % PL LL below 98.0%

TOTAL PERCENT DEFECTIVE

Full Load P = PU FL + PL FL 0 + 0 = 0.000

Light Load P = PU LL + PL LL 0 + 0.257 = 0.257

ALLOWABLE PERCENT DEFECTIVE: TABLE B-3 4.69

OUTLIERS

UFL = **FL *BAR X*** + (4 x **FL Sigma**)	99.861 + 1.052	UFL =	100.913
LFL = **FL *BAR X*** - (4 x **FL Sigma**)	99.861 - 1.052	LFL =	98.809
ULL = **LL *BAR X*** + (4 x **LL Sigma**)	99.466 + 2.132	ULL =	101.598
LLL = **LL *BAR X*** - (4 x **LL Sigma**)	99.466 - 2.132	LLL =	97.334

Lot is acceptable ✓ Lot is unacceptable _____

Signature: _____

OTTER TAIL POWER CO.
SAMPLE METER TEST CALCULATION FORM
METERS IN SERVICE AT OTTER TAIL POWER CO.

REFERENCE - TABLES A-2, B-3, B-4, B-5, AND EXAMPLE B-3 OF MIL-STD-414.

TYPE OF METERS IN THIS SAMPLE: 2008 Sample #2

LOT SIZE _____ SAMPLE SIZE 93 AQL 2.5

FL BAR X 100.065 ***FL SIGMA*** 0.364
LL BAR X 99.739 ***LL SIGMA*** 0.476

ESTIMATE OF LOT ABOVE 102.0%

FL QU = $\frac{102 - FL\ BAR\ X}{FL\ SIGMA}$ $\frac{102 - 100.065}{0.364}$ = $\frac{1.935}{0.364}$ = 5.32

LL QU = $\frac{102 - LL\ BAR\ X}{LL\ SIGMA}$ $\frac{102 - 99.739}{0.476}$ = $\frac{2.261}{0.476}$ = 4.75

From Table B-5 = 0 % PU FL above 102.0%

0 % PU LL above 102.0 %

ESTIMATE OF LOT BELOW 98.0%

FL QL = $\frac{FL\ BAR\ X - 98}{FL\ SIGMA}$ $\frac{100.065 - 98}{0.364}$ = $\frac{2.065}{0.364}$ = 5.67

LL QL = $\frac{LL\ BAR\ X - 98}{LL\ SIGMA}$ $\frac{99.739 - 98}{0.476}$ = $\frac{1.739}{0.476}$ = 3.65

From table B-5 = 0 % PL FL below 98.0 %

0.008 % PL LL below 98.0%

TOTAL PERCENT DEFECTIVE

Full Load P = PU FL + PL FL 0 + 0 = 0.000

Light Load P = PU LL + PL LL 0 + 0.008 = 0.008

ALLOWABLE PERCENT DEFECTIVE 4.69
TABLE B - 3

Lot is acceptable ✓ Lot is unacceptable _____

Signature: _____

OTTER TAIL POWER CO.
SAMPLE METER TEST CALCULATION FORM
METERS IN SERVICE AT OTTER TAIL POWER CO.

REFERENCE - TABLES A-2, B-3, B-4, B-5, AND EXAMPLE B-3 OF MIL-STD-414.

TYPE OF METERS IN THIS SAMPLE: 2008 Sample #3

LOT SIZE _____ SAMPLE SIZE 80 AQL 2.5

FL BAR X 99.812 ***FL SIGMA*** 0.376
LL BAR X 99.746 ***LL SIGMA*** 0.708

ESTIMATE OF LOT ABOVE 102.0%

FL QU = $\frac{102 - FL\ BAR\ X}{FL\ SIGMA}$ $\frac{102 - 99.812}{0.376}$ = $\frac{2.188}{0.376}$ = 5.82

LL QU = $\frac{102 - LL\ BAR\ X}{LL\ SIGMA}$ $\frac{102 - 99.746}{0.708}$ = $\frac{2.254}{0.708}$ = 3.18

From Table B-5 = 0 % PU FL above 102.0%

0.056 % PU LL above 102.0 %

ESTIMATE OF LOT BELOW 98.0%

FL QL = $\frac{FL\ BAR\ X - 98}{FL\ SIGMA}$ $\frac{99.812 - 98}{0.376}$ = $\frac{1.812}{0.376}$ = 4.82

LL QL = $\frac{LL\ BAR\ X - 98}{LL\ SIGMA}$ $\frac{99.746 - 98}{0.708}$ = $\frac{1.746}{0.708}$ = 2.47

From table B-5 = 0 % PL FL below 98.0 %

0.615 % PL LL below 98.0%

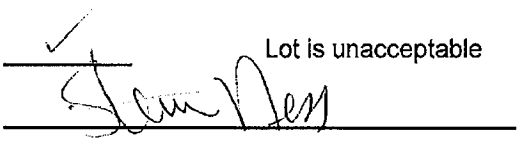
TOTAL PERCENT DEFECTIVE

Full Load P = PU FL + PL FL 0 + 0 = 0.000

Light Load P = PU LL + PL LL 0.056 + 0.615 = 0.671

ALLOWABLE PERCENT DEFECTIVE 4.87
TABLE B - 3

Lot is acceptable ✓ Lot is unacceptable _____

Signature: 

OTTER TAIL POWER CO.

12/30/2008

SAMPLE METER TEST CALCULATION FORM

METERS IN SERVICE AT OTTER TAIL POWER CO.

REFERENCE - TABLES A-2, B-3, B-4, B-5, AND EXAMPLE B-3 OF MIL-STD-414.

TYPE OF METERS IN THIS SAMPLE: 2008 Sample #4

LOT SIZE _____ SAMPLE SIZE 89 AQL 2.5

FL BAR X	99.920	***FL SIGMA***	0.334
LL BAR X	99.461	***LL SIGMA***	0.813

ESTIMATE OF LOT ABOVE 102.0%

$$FL\ QU = \frac{102 - FL\ BAR\ X}{FL\ SIGMA} = \frac{102 - 99.92}{0.334} = \frac{2.080}{0.334} = 6.23$$

$$LL\ QU = \frac{102 - LL\ BAR\ X}{LL\ SIGMA} = \frac{102 - 99.461}{0.813} = \frac{2.539}{0.813} = 3.12$$

From Table B-5 = 0 % PU FL above 102.0%

0.07 % PU LL above 102.0 %

ESTIMATE OF LOT BELOW 98.0%

$$FL\ QL = \frac{FL\ BAR\ X - 98}{FL\ SIGMA} = \frac{99.92 - 98}{0.334} = \frac{1.920}{0.334} = 5.75$$

$$LL\ QL = \frac{LL\ BAR\ X - 98}{LL\ SIGMA} = \frac{99.461 - 98}{0.813} = \frac{1.461}{0.813} = 1.80$$

From table B-5 = 0 % PL FL below 98.0 %

3.51 % PL LL below 98.0%

TOTAL PERCENT DEFECTIVE

Full Load P = PU FL + PL FL	0	+	0	= 0.000
Light Load P = PU LL + PL LL	0.07	+	3.51	= 3.580

ALLOWABLE PERCENT DEFECTIVE: TABLE B-3 4.69

OUTLIERS

UFL = ***BAR X*** + (4 x **FL Sigma**)	99.920 + 1.336	UFL =	101.256
LFL = ***BAR X*** - (4 x **FL Sigma**)	99.920 - 1.336	LFL =	98.584
UFL = ***BAR X*** + (4 x **LL Sigma**)	99.461 + 3.252	ULL =	102.713
LLL = ***BAR X*** - (4 x **LL Sigma**)	99.461 - 3.252	LLL =	96.209

Lot is acceptable ✓ Lot is unacceptable _____

Signature: _____

OTTER TAIL POWER CO.
SAMPLE METER TEST CALCULATION FORM
METERS IN SERVICE AT OTTER TAIL POWER CO.

REFERENCE - TABLES A-2, B-3, B-4, B-5, AND EXAMPLE B-3 OF MIL-STD-414.

TYPE OF METERS IN THIS SAMPLE: 2008 Sample #5

LOT SIZE _____ SAMPLE SIZE 91 AQL 2.5

FL BAR X 99.948 ***FL SIGMA*** 0.595
LL BAR X 99.743 ***LL SIGMA*** 0.776

ESTIMATE OF LOT ABOVE 102.0%

FL QU = $\frac{102 - FL\ BAR\ X}{FL\ SIGMA}$ $\frac{102 - 99.948}{0.595}$ = $\frac{2.052}{0.595}$ = 3.45

LL QU = $\frac{102 - LL\ BAR\ X}{LL\ SIGMA}$ $\frac{102 - 99.743}{0.776}$ = $\frac{2.257}{0.776}$ = 2.91

From Table B-5 = 0.019 % PU FL above 102.0%

0.15 % PU LL above 102.0 %

ESTIMATE OF LOT BELOW 98.0%

FL QL = $\frac{FL\ BAR\ X - 98}{FL\ SIGMA}$ $\frac{99.948 - 98}{0.595}$ = $\frac{1.948}{0.595}$ = 3.27

LL QL = $\frac{LL\ BAR\ X - 98}{LL\ SIGMA}$ $\frac{99.743 - 98}{0.776}$ = $\frac{1.743}{0.776}$ = 2.25

From table B-5 = 0.04 % PL FL below 98.0 %

1.148 % PL LL below 98.0%

TOTAL PERCENT DEFECTIVE

Full Load P = PU FL + PL FL 0.019 + 0.04 = 0.059

Light Load P = PU LL + PL LL 0.15 + 1.148 = 1.298

ALLOWABLE PERCENT DEFECTIVE TABLE B - 3 4.69

Lot is acceptable ✓ Lot is unacceptable _____

Signature: _____

OTTER TAIL POWER CO.
SAMPLE METER TEST CALCULATION FORM
METERS IN SERVICE AT OTTER TAIL POWER CO.

REFERENCE - TABLES A-2, B-3, B-4, B-5, AND EXAMPLE B-3 OF MIL-STD-414.

TYPE OF METERS IN THIS SAMPLE: 2008 Sample #6

LOT SIZE _____ SAMPLE SIZE 89 AQL 2.5

FL BAR X 99.919 ***FL SIGMA*** 0.265
LL BAR X 99.597 ***LL SIGMA*** 0.753

ESTIMATE OF LOT ABOVE 102.0%

FL QU = $\frac{102 - FL\ BAR\ X}{FL\ SIGMA}$ $\frac{102 - 99.919}{0.265}$ = $\frac{2.081}{0.265}$ = 7.85

LL QU = $\frac{102 - LL\ BAR\ X}{LL\ SIGMA}$ $\frac{102 - 99.597}{0.753}$ = $\frac{2.403}{0.753}$ = 3.19

From Table B-5 = 0 % PU FL above 102.0%

0.054 % PU LL above 102.0 %

ESTIMATE OF LOT BELOW 98.0%

FL QL = $\frac{FL\ BAR\ X - 98}{FL\ SIGMA}$ $\frac{99.919 - 98}{0.265}$ = $\frac{1.919}{0.265}$ = 7.24

LL QL = $\frac{LL\ BAR\ X - 98}{LL\ SIGMA}$ $\frac{99.597 - 98}{0.753}$ = $\frac{1.597}{0.753}$ = 2.12

From table B-5 = 0 % PL FL below 98.0 %

1.62 % PL LL below 98.0%

TOTAL PERCENT DEFECTIVE

Full Load P = PU FL + PL FL 0 + 0 = 0.000

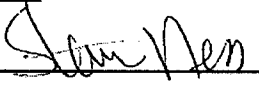
Light Load P = PU LL + PL LL 0.054 + 1.62 = 1.674

ALLOWABLE PERCENT DEFECTIVE: TABLE B-3 4.69

OUTLIERS

UFL = ***BAR X*** + (4 x **FL Sigma**)	99.919 + 1.06	UFL =	100.979
LFL = ***BAR X*** - (4 x **FL Sigma**)	99.919 - 1.06	LFL =	98.859
UFL = ***BAR X*** + (4 x **LL Sigma**)	99.597 + 3.012	ULL =	102.609
LLL = ***BAR X*** - (4 x **LL Sigma**)	99.597 - 3.012	LLL =	96.585

Lot is acceptable ✓ Lot is unacceptable _____

Signature: 

OTTER TAIL POWER CO.

12/30/2008

SAMPLE METER TEST CALCULATION FORM

METERS IN SERVICE AT OTTER TAIL POWER CO.

REFERENCE - TABLES A-2, B-3, B-4, B-5, AND EXAMPLE B-3 OF MIL-STD-414.

TYPE OF METERS IN THIS SAMPLE: 2008 Sample #7

LOT SIZE _____ SAMPLE SIZE 73 AQL 2.5

FL BAR X 99.856 ***FL SIGMA*** 0.258

LL BAR X 99.178 ***LL SIGMA*** 1.143

ESTIMATE OF LOT ABOVE 102.0%

FL QU = $\frac{102 - \textit{FL BAR X}}{\textit{FL SIGMA}}$ $\frac{102 - 99.856}{0.258}$ = $\frac{2.144}{0.258}$ = 8.31

LL QU = $\frac{102 - \textit{LL BAR X}}{\textit{LL SIGMA}}$ $\frac{102 - 99.178}{1.143}$ = $\frac{2.822}{1.143}$ = 2.47

From Table B-5 = 0 % PU FL above 102.0%

0.615 % PU LL above 102.0 %

ESTIMATE OF LOT BELOW 98.0%

FL QL = $\frac{\textit{FL BAR X} - 98}{\textit{FL SIGMA}}$ $\frac{99.856 - 98}{0.258}$ = $\frac{1.856}{0.258}$ = 7.19

LL QL = $\frac{\textit{LL BAR X} - 98}{\textit{LL SIGMA}}$ $\frac{99.178 - 98}{1.143}$ = $\frac{1.178}{1.143}$ = 1.03

From table B-5 = 0 % PL FL below 98.0 %

15.15 % PL LL below 98.0%

TOTAL PERCENT DEFECTIVE

Full Load P = PU FL + PL FL 0 + 0 = 0.000

Light Load P = PU LL + PL LL 0.615 + 15.15 = 15.765

ALLOWABLE PERCENT DEFECTIVE: TABLE B-3 4.87

OUTLIERS

UFL = ***BAR X*** + (4 x **FL Sigma**)	99.856 + 1.032	UFL =	100.888
LFL = ***BAR X*** - (4 x **FL Sigma**)	99.856 - 1.032	LFL =	98.824
UFL = ***BAR X*** + (4 x **LL Sigma**)	99.178 + 4.572	ULL =	103.75
LLL = ***BAR X*** - (4 x **LL Sigma**)	99.178 - 4.572	LLL =	94.606

Lot is acceptable _____ Lot is unacceptable ✓

Signature: _____

OTTER TAIL POWER CO.

12/30/2008

SAMPLE METER TEST CALCULATION FORM

METERS IN SERVICE AT OTTER TAIL POWER CO.

REFERENCE - TABLES A-2, B-3, B-4, B-5, AND EXAMPLE B-3 OF MIL-STD-414.

TYPE OF METERS IN THIS SAMPLE: 2008 Sample #8

LOT SIZE _____ SAMPLE SIZE 83 AQL 2.5

FL BAR X	99.789	***FL SIGMA***	0.234
LL BAR X	99.125	***LL SIGMA***	0.625

ESTIMATE OF LOT ABOVE 102.0%

FL QU = $\frac{102 - FL\ BAR\ X}{FL\ SIGMA}$ $\frac{102 - 99.789}{0.234}$ = $\frac{2.211}{0.234}$ = 9.45

LL QU = $\frac{102 - LL\ BAR\ X}{LL\ SIGMA}$ $\frac{102 - 99.125}{0.625}$ = $\frac{2.875}{0.625}$ = 4.60

From Table B-5 = 0 % PU FL above 102.0%

0 % PU LL above 102.0 %

ESTIMATE OF LOT BELOW 98.0%

FL QL = $\frac{FL\ BAR\ X - 98}{FL\ SIGMA}$ $\frac{99.789 - 98}{0.234}$ = $\frac{1.789}{0.234}$ = 7.65

LL QL = $\frac{LL\ BAR\ X - 98}{LL\ SIGMA}$ $\frac{99.125 - 98}{0.625}$ = $\frac{1.125}{0.625}$ = 1.80

From table B-5 = 0 % PL FL below 98.0 %

3.51 % PL LL below 98.0%

TOTAL PERCENT DEFECTIVE

Full Load P = PU FL + PL FL 0 + 0 = 0.000

Light Load P = PU LL + PL LL 0 + 3.51 = 3.510

ALLOWABLE PERCENT DEFECTIVE: TABLE B-3 4.69

OUTLIERS

UFL = ***BAR X*** + (4 x **FL Sigma**)	99.789 + 0.936	UFL =	100.725
LFL = ***BAR X*** - (4 x **FL Sigma**)	99.789 - 0.936	LFL =	98.853
UFL = ***BAR X*** + (4 x **LL Sigma**)	99.125 + 2.5	ULL =	101.625
LLL = ***BAR X*** - (4 x **LL Sigma**)	99.125 - 2.5	LLL =	96.625

Lot is acceptable ✓ Lot is unacceptable _____

Signature: Steve Nes

OTTER TAIL POWER CO.
SAMPLE METER TEST CALCULATION FORM
METERS IN SERVICE AT OTTER TAIL POWER CO.

REFERENCE - TABLES A-2, B-3, B-4, B-5, AND EXAMPLE B-3 OF MIL-STD-414.

TYPE OF METERS IN THIS SAMPLE: 2008 Sample #9

LOT SIZE _____ SAMPLE SIZE 91 AQL 2.5

FL BAR X 100.065 ***FL SIGMA*** 0.295
LL BAR X 99.996 ***LL SIGMA*** 0.589

ESTIMATE OF LOT ABOVE 102.0%

$$FL\ QU = \frac{102 - FL\ BAR\ X}{FL\ SIGMA} = \frac{102 - 100.065}{0.295} = \frac{1.935}{0.295} = 6.56$$

$$LL\ QU = \frac{102 - LL\ BAR\ X}{LL\ SIGMA} = \frac{102 - 99.996}{0.589} = \frac{2.004}{0.589} = 3.40$$

From Table B-5 = 0 % PU FL above 102.0%

0.023 % PU LL above 102.0 %

ESTIMATE OF LOT BELOW 98.0%

$$FL\ QL = \frac{FL\ BAR\ X - 98}{FL\ SIGMA} = \frac{100.065 - 98}{0.295} = \frac{2.065}{0.295} = 7.00$$

$$LL\ QL = \frac{LL\ BAR\ X - 98}{LL\ SIGMA} = \frac{99.996 - 98}{0.589} = \frac{1.996}{0.589} = 3.39$$

From table B-5 = 0 % PL FL below 98.0 %

0.024 % PL LL below 98.0%

TOTAL PERCENT DEFECTIVE

Full Load P = PU FL + PL FL 0 + 0 = 0.000

Light Load P = PU LL + PL LL 0.023 + 0.024 = 0.047

ALLOWABLE PERCENT DEFECTIVE TABLE B - 3 4.69

Lot is acceptable ✓ Lot is unacceptable _____

Signature: