



Montana-Dakota Utilities Co.

A Division of MDU Resources Group, Inc.

400 N 4th Street
Bismarck, ND 58501

State of North Dakota Electric Rate Schedule

NDPSC Volume 4
Original Sheet No. 68

SELECTIVE TESTING PLAN FOR WATTHOUR METERS Rate 131

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A. NEW METERS

A sampling of 5% will be tested at full load and at light load. If any meter is found to be off more than $\pm 1\%$, the entire lot will be tested or rejected.

B. RESIDENTIAL WATTHOUR METERS IN SERVICE

1. A random selection of meters from each vintage class - 1950 to 1959, 1960 to 1969, 1970 to 1979, 1980 to 1989, etc., will be tested annually at full load and light load. The sample size will depend on lot size and will be calculated per Inspection Level V in Military Standards 414 of the Department of Defense.
2. Full load readings will be given a weighting of 4 and light load readings a weighting of 1 to determine the weighted average values of meter accuracies.
3. The criteria for acceptance shall be: at least 96% of the meters shall be not more than plus or minus 2% in error, as determined by the Variability Unknown, Standard Deviation Method described in Military Standards 414 of the Department of Defense.
4. Whenever it is found that less than 96% of the tested meters in a given vintage class fail to meet the requirements of $\pm 2\%$ error limit, the entire vintage class will be tested and adjusted or, if more economic, replaced within a period of four years. In the event the meter type failing the $\pm 2\%$ error limit may be identified, that meter type, regardless of vintage class, will be tested and adjusted or replaced within a period of four years rather than the entire vintage class.

C. COMMERCIAL WATTHOUR METERS

1. A random selection of electro-mechanical meters from each vintage class - 1950 to 1959, 1960 to 1969, 1970 to 1979 and meters manufactured since 1980, will be tested annually at full load and light load. A separate selection of solid state meters from each decade - 1990's, 2000's, etc. will be tested annually at full load and light load. The sample size will depend on lot size and will be calculated per Inspection Level V in Military Standards 414 of the Department of Defense.

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2. Full load readings will be given a weighting of 4 and light load readings a weighting of 1 to determine the weighted average values of meter accuracies.
3. The criteria for acceptance shall be: at least 98% of the meters shall be not more than plus or minus 2% in error, as determined by the Variability Unknown, Standard Deviation Method described in Military Standards 414 of the Department of Defense.
4. Whenever it is found that less than 98% of the tested meters in a given vintage class fail to meet the requirements of $\pm 2\%$ error limit, the entire vintage class will be tested and adjusted or, if more economic, replaced within a period of two years. In the event the meter type failing the $\pm 2\%$ error limit may be identified, that meter type, regardless of vintage class, will be tested and adjusted or replaced within a period of four years rather than the entire vintage class.

D. INDUSTRIAL WATTHOUR METERS

1. A random selection of electro-mechanical meters from each vintage class - 1950 to 1959, 1960 to 1969, 1970 to 1979 and meters manufactured since 1980, will be tested annually at full load and light load. A separate selection of solid state meters from each decade - 1990's, 2000's, etc. will be tested annually at full load and light load. The sample size will depend on lot size and will be calculated per Inspection Level V in Military Standards 414 of the Department of Defense.
2. Full load readings will be given a weighting of 4 and light load readings a weighting of 1 to determine the weighted average values of meter accuracies.
3. The criteria for acceptance shall be: at least 99% of the meters shall be not more than $\pm 2\%$ in error at both light load and full load, as determined by the Variability Unknown, Standard Deviation Method described in Military Standards 414 of the Department of Defense.

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4. Whenever it is found that less than 99% of the tested meters fail to meet these requirements, the entire vintage class will be tested and adjusted or, if more economic, replaced within two years. In the event the meter type failing the $\pm 2\%$ error limit may be identified, that meter type, regardless of vintage class, will be tested and adjusted or replaced within a period of four years rather than the entire vintage class.

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