STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DIVISION OF PUBLIC UTILITIES AND CARRIERS
89 JEFFERSON BOULEVARD
WARWICK, RHODE ISLAND 02888

IN RE: Petition Filing by the Narragansett Electric Company Proposing to Amend Section VII, Meter Accuracy and Testing, of the Division's Rules Prescribing Standards for Electric Utilities	:	Docket No. D-04-16

REPORT AND ORDER

On June 3, 2004, the Narragansett Electric Company ("Narragansett") filed a petition with the Rhode Island Division of Public Utilities and Carriers ("Division"), pursuant to R.I.G.L. §42-35-6 and Rule 13(b) of the Division's Rules of Practice and Procedure, requesting the Division to initiate a rulemaking procedure to adopt a proposed amendment to the Division's current *Rules Prescribing Standards for Electric Utilities* ("Rules").[1] Narragansett's proposed amendment to the Rules is identified in a redacted version of the Rules, which is attached herewith as "Appendix 1".[2]

The Division's Rules currently prescribe certain in-service testing plans for single phase, network, and polyphase watt-hour meters under both periodic test schedules and selective test plans. In its petition, Narragansett is requesting to include a third alternative testing plan based on standards developed and prescribed by the American National Standards Institute ("ANSI"). Narragansett is not proposing to eliminate the present testing

[1] Narragansett Exhibit 1.
[2] Appendix 1 is incorporated by reference.

standards as Narragansett recognizes that they may continue to apply to other utilities. According to Narragansett, the ANSI testing plan has several advantages over the current testing requirements, including improved quality and collection of meter performance data, an improved ability to monitor meter performance trends to ensure the accuracy of meter populations, and lower implementation and execution costs for in-service meter testing.

In support of its petition, Narragansett submitted (1) a draft revision of the Division's Rules that incorporates its proposed amendments (a clean version and version marked to show changes were provided); (2) a sample testing of watt-hour meters using inspection by variables for purpose of in-service testing; (3) a proposed in-service testing methodology estimate of savings; and (4) a summary of state-in service electric meter testing programs.[3]

Predicated on the details provided in Narragansett's petition, the Division agreed that initiating a rulemaking procedure regarding this matter would be in the public interest. In keeping with the requirements of R.I.G.L. §42-35-3(a)(4), the Division also concluded that the proposed revisions to the Rules would not, if adopted by the Division, have a significant adverse economic impact on any small business or on any city or town.[4]

Accordingly, the Division issued a "Notice of Rulemaking" on June 18, 2004 that informed the public that "interested persons wishing to offer data, views, or arguments on the proposed amendments to the Rules may do so

[3] Narragansett Exhibit 2.
[4] This determination was reflected in the public notice published in this docket.

either orally on the day of the hearing or by submitting their comments in writing to the...[Division] prior to the date of the [July 26, 2004] hearing". The aforementioned notice was published in compliance with the requirements of R.I.G.L. §42-35-3(a)(1).

The Division subsequently conducted a public hearing on July 26, 2004, in the Division's hearing room, at 89 Jefferson Boulevard in Warwick, Rhode Island. The following counsel entered appearances:

For Narragansett:	Terry L. Schwennesen, Esq.
For the Division's Advocacy Section:	Leo J. Wold, Esq. Spec. Asst. Attorney General

Narragansett proffered two witnesses in support of its petition. The witnesses each filed pre-filed direct testimony. The two witnesses were identified as Mr. Peter D. Yarger, Project Manager, Advent Design Corporation; and Ms. Laurie T. Brown, Director of Lab Testing Services, National Grid Service Company, Inc.

The Division's Advocacy Section ("Advocacy Section") proffered one witness in this docket. The Advocacy Section's witness was identified as Mr. James E. Lanni, the Division's Associate Administrator for Operations and Consumer Affairs. Mr. Lanni, who did not submit pre-filed testimony, offered a recommendation to the Division at the conclusion of Narragansett's case.

Mr. Yarger testified that his company, Advent Design Corporation, is an engineering consulting and custom automation firm that provides a variety of engineering services to manufacturers and utilities in the Mid-Atlantic and Northeast. Mr. Yarger related that his company has been retained by

Narragansett to describe the new in-service meter testing standards and the estimated benefits that the new testing plan will bring to Narragansett and its customers.[5]

Mr. Yarger testified that the statistical testing plan being proposed by Narragansett is a "variables plan" based on the precepts of ANSI/ASQC Z1.9-1993, entitled: "Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming".[6] He explained that a variables testing plan is one where a specific parameter is measured during testing and then used for a statistical analysis. Mr. Yarger related that in Narragansett's plan, this variable will be the weighted average of light load and full load readings as measured during bench testing of sampled electric meters at Narragansett's meter shop.

Mr. Yarger related that ANSI/ASQC Z1.9 was selected for this particular application because it is widely used for electric and gas meter testing applications and because Narragansett already captures the required data on electric meters during testing.[7] He also noted that ANSI/ASQC Z1.9 is one of the two statistical testing plans specifically listed by ANSI C12.1, *Code for Electricity Metering*, which he described as the national guide for matters related to electric metering.[8]

[5] Narragansett Exhibit 3, pp.1-2.
[6] Mr. Yarger noted that ANSI/ASQC Z1.9 is the civilian version of MIL-STD 414, an inspection plan developed by the U.S. military in the 1950s for the testing of ammunition and other ordnance items. Id., p. 3.
[7] Id., pp. 3-4.
[8] Id., p. 4.

Mr. Yarger next described the main elements of Narragansett's proposed ANSI/ASQC Z1.9 testing plan. He offered the following description:

- The meter population will be divided into groups by meter manufacturer and type of meter;
- The minimum required sample size for each meter group will be based solely on each group's population size, which eliminates the risk that any meter group will be under-represented in the annual test sample;
- Test results for each group will be analyzed using the weighted average result to determine the mean and standard deviation of the weighted average for each group;
- These statistical values will be used for each meter group to calculate a numerical estimate of the failing percentage of the meters in each group. This value is known as percent nonconformance;
- The actual (calculated) percent nonconformance for each group will be compared to the allowed percent nonconformance to determine the pass/fail status for the group; and
- Narragansett will take appropriate actions for the remediation or disposition of any failing groups.[9]

Mr. Yarger testified that the key benefit of Narragansett's proposed statistical sampling plan is that it allows for "condition-based" maintenance on

[9] Id., p. 4. Mr. Yarger also referred the Division to "Attachment B" of Narragansett's filing (Narragansett Exhibit 2) for details and sample calculations of how the plan will work.

its meters rather than "time-based" maintenance. He related that in the long-term, "this will improve the overall accuracy of the meter population, especially as the data are incorporated into meter purchasing decisions".[10]

In his concluding comments, Mr. Yarger noted that statistical sampling plans for meter testing have been approved in other states.[11] He also opined that the new testing plan, if approved by the Division, would reduce Narragansett's overall in-service testing expenses.[12]

Ms. Laurie T. Brown was proffered by Narragansett to describe Narragansett's estimated cost savings associated with implementing the new proposed meter-testing plan. She also explained how Narragansett would implement such a testing plan.[13]

Ms. Brown testified that the estimated cost savings associated with the proposed plan are derived from the reduction in meters to be removed from the field and tested. She related that the proposed plan would reduce the number of meters tested each year by approximately 2,900, a cost savings that she calculated at approximately $80,000 per year. She assured the Division that the cost savings would not result in any staff reductions, but would instead allow field and testing staff to perform other assigned work and reduce overall charges to overtime.[14]

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[10] Id., p.6.
[11] Id. Mr. Yarger referred the Division to Narragansett Exhibit 2, "Attachment D" for a summary of the in-service electric meter testing programs approved in other states.
[12] Id.
[13] Narragansett Exhibit 4.
[14] Id., pp. 2-3.

Ms. Brown testified that ratepayers would benefit from these cost savings under the "earning sharing mechanism" currently built into Narragansett's approved rate structure. She explained that any cost savings resulting from the new meter testing plan would contribute to increased earnings for the Company, which would be subject to sharing with customers pursuant to the earnings sharing mechanism.[15] Mindful of the Legislature's concern that rulemakings can have an adverse affect on small businesses of (R.I.G.L. §42-35-3(a)(4), supra), Ms. Brown added that Narragansett's small business customers would not only benefit from the cost savings associated with the new meter testing plan, but they can also expect that the accuracy of Narragansett's meters would also increase in the long run. She reasoned that the new meter-testing plan is expected to reduce the possibility of inaccurate meter readings by identifying poorly performing meter groups that would be removed from service.[16]

Regarding the implementation plan, Ms. Brown testified that Narragansett "could immediately implement the proposed meter testing procedure upon the effective date of the new rules for the calendar year 2004 meter testing requirements".[17] She noted that Narragansett's affiliates; Massachusetts Electric Company, Nantucket Electric Company and Granite State Electric Company have already put the new meter testing procedure in place. Ms. Brown further noted that Narragansett proposes that the new rules

[15] Id., p. 3.
[16] Id., p. 4.
[17] Id.

would apply for purposes of its annual report to the Division that, in accordance with the new rules, would be filed with the Division no later than March 15, 2005.[18]

Mr. Lanni offered the Advocacy Section's position at the conclusion of Narragansett's case. He stated that after reviewing Narragansett's petition, supporting attachments and supporting testimony, the Advocacy Section has concluded that the proposed alternative meter-testing plan is "a valid mathematical approach" to satisfying the Division's meter testing requirements.[19] Mr. Lanni testified that the Advocacy Section "cannot find any reason to deny" the statistical sampling testing method proposed by Narragansett.[20]

PUBLIC COMMENT

The Block Island Power Company ("BIPCO") submitted comments in writing in advance of the hearing. BIPCO's comments were offered through its attorney, Michael R. McElroy, Esq., who sent a letter to the Division on June 18, 2004. In short, BIPCO indicated that it had "no objection to Narragansett's proposed third testing standard provided the Division does not eliminate the present testing standards". [21]

Mr. George P. Fogarty offered comments at the hearing on behalf of Local 310 of the Utility Workers Union of America, AFLCIO. He noted that "Local 310

[18] Id.
[19] Tr. 57-58.
[20] Tr. 59.
[21] Public Comments Exhibit 1.

are the employees that work for Narragansett".[22] Mr. Fogarty appeared at the hearing accompanied by the Vice President of the Union and two members from Narragansett's meter department.

Mr. Fogarty and the members of Local 310 voiced concern that the proposed amendment to the Rules would reduce workload and result in a loss of jobs. In response to these concerns, Narragansett assured the Union that there are no plans to reduce jobs. Ms. Brown explained that to the extent that workload in the meter department is reduced, meter department personnel "will be reallocated to do other work".[23]

FINDINGS

The Division has carefully examined Narragansett's proposed amendment to the current Rules and finds that the proposed third alternative meter-testing plan is reasonable and in the best interest of Narragansett's ratepayers.

Accordingly, it is

(17957) ORDERED:

1. That the Narragansett Electric Company's June 3, 2004 petition, seeking a proposed amendment to the Division's current *Rules Prescribing Standards for Electric Utilities*, is hereby approved as filed.
2. That the Rules, as newly amended through the instant rulemaking process, are attached to this Report and Order as "Appendix 2", and are hereby incorporated by reference.

[22] Tr. 6.
[23] Tr. 37.

3. That the Division's Rules Coordinator is hereby instructed to file a certified copy of the attached amended Rules (Appendix 2) with the Rhode Island Secretary of State as soon as practicable, and also to fully comply with the filing requirements contained in R.I.G.L. §42-35-3.1 and §42-35-4. The Division will endeavor to file the instant amended Rules with the Rhode Island Secretary of State on or before September 1, 2004.
4. That the newly amended Rules shall take effect twenty (20) days after filing with the Rhode Island Secretary of State and shall replace the currently effective Rules thereafter.

DATED AND EFFECTIVE AT WARWICK, RHODE ISLAND ON AUGUST 18, 2004.

_____
John Spirito, Jr., Esq.
Hearing Officer

APPROVED:

_____
Thomas F. Ahern
Administrator

APPENDIX 1

RULES PRESCRIBING STANDARDS FOR ELECTRIC UTILITIES

I. APPLICATION OF RULES

A. These rules shall apply to every public utility as hereinafter defined doing business as such, or authorized to do so, within the State of Rhode Island.

B. These rules shall be amended or repealed, and applications therefore shall be made, in accordance with provisions of Title 42, Chapter 35 of the General Laws of 1956 entitled "Administrative Procedures".

II. DEFINITIONS

A. The term "Division" means the Rhode Island Division of Public Utilities and Carriers.

B. The term "Administrator" means Public Utility Administrator of the Division of Public Utilities and Carriers.

C. The term "public utility" shall mean and apply to every corporation, company, person, association of persons, their lessees, trustees, or receivers appointed to any court whatsoever, that now or hereafter may own, lease, operate, manage or control any electric plant or equipment or any part of any electric plant or equipment, within this State, for the production, transmission, delivery or furnishing of electricity, light, heat or power, either directly or indirectly, to or for the public.

D. The term "electric plant" shall mean all real estate, fixtures, equipment and personal property owned, controlled, operated or managed in connection with or to facilitate the production, generation, transmission, delivery or furnishing of electric energy.

E. The term "customer" shall mean and apply to every corporation, company, person, association of persons, their lessees, trustees or receivers appointed by any court whatsoever, that now or hereafter may be supplied with electric service by any public utility as herein defined.

F. The term "service" shall mean, in its broadest and most inclusive sense, the furnishing of electricity to a customer by a public utility.

G. The term "meter", without other qualification, shall mean a device or appliance for the measurement of electrical quantities to be used as a basis for determining charges by a public utility for furnishing or rendering electric service to a customer.

H. The term "creep" means the motion of the rotor of a meter with normal operating voltage applied and the load terminals open-circuited.

III. SERVICE PROVISIONS

A. Filing of Rates Schedules.

Schedules showing all rates, tolls and charges by a public utility shall be filed and kept open to public inspection in accordance with the provisions of Title 39, Chapter 3, Section 10 of the General Laws of 1956.

B. Application for Service.

An Applicant desiring service under a public utility's filed rate schedules may be required to make application in writing, in accordance with the forms prescribed by the public utility.

C. Information to Customers - Rate Selection.

1. Each public utility shall, upon request, provide a customer with such information and assistance as is necessary to enable the customer to secure the most advantageous rate or rates. Further, each utility shall inform the applicant of any service connection and/or installation charge to be applied to the bill. Each customer shall be responsible for selecting, and taking service at the most advantageous rate or rates.

2. Each public utility shall, upon request, explain to a customer the method of reading meters and how the billing is calculated.

3. Where special charges for construction, maintenance, replacement costs, expenses or overtime work are not specifically set forth in a utility's tariff, the utility shall, before performing non-emergency work, provide the applicant or customer with an estimate of charges to be levied, in writing if requested.

4. In addition, the utility shall make available free information concerning the utility's programs, services, rights and responsibilities, and complaint procedures for the general public.

D. Deposits.

A public utility, as security for prompt payment of a customer's indebtedness to it, may require a cash deposit or other collateral satisfactory to it before rendering, or as a condition of continuing to render service to such customer. This deposit shall not be more than the estimated bill for two times the normal billing period. Interest shall be paid on deposits held six (6) months or more in accordance with applicable rate schedules or the terms and conditions of the public utility. Deposits, plus accrued interest thereon, less any amount due the public utility, will be refunded upon termination of service. When a deposit is applied against an account which has been terminated, interest shall cease to be accumulated on the balance at the date of termination.

E. Meter Reading and Bill Forms.

1. The metering equipment for each service shall be such as to register the number of kilowatt-hours (kwh) delivered during any period, and to the extent applicable, the number of Kilo-Var Hours (KvarH) and the Kilowatt (Kw) and Kilo-Volt Amperes (Kva) demand.

2. All service meters shall be read at regular intervals and on the corresponding day of each meter reading period insofar as practicable within regularly scheduled work days.

3. Bills shall be rendered at regular intervals and shall show the date of the current meter reading and the amount or quantity of service for the billing period; and shall also show any applicable discount or penalty date.

4. Each public utility shall keep an accurate account of all charges for service billed each customer and shall maintain records showing information from which each bill rendered may be readily computed.

F. Customer Complaints.

1. Each public utility shall make a full and prompt investigation of customer complaints made either directly or through the Division. A record of complaints received, other than those of a minor nature shall be kept for at least two years and shall show the name and address of the complainant, the date and character of the complaint and the disposition thereof.

2. Each public utility shall endeavor to keep its appointments. In the event cancellation of appointment is unavoidable, every reasonable effort should be made to promptly notify the customer.

3. During an abnormal service outage the utility shall make reasonable efforts to inform the general public about the areas affected, the progress of service restoration, and anticipated restoration schedules when available. Information for the general public shall be made through advisories to the news media. Business offices shall make similar information available to callers, using appropriate communications systems.

G. Change in Character of Service.

1. If a change in character of service to a customer is brought about for the convenience or benefit of the public utility, the public utility shall pay such part of the cost of changing the equipment of the customer affected as shall be determined by mutual agreement. An equitable settlement would normally be on the following basis: Payment by the public utility to the customer of:

a) The cost of the customer's electrical utilization and equipment which is made obsolete, less proper allowance for depreciation.

b) The cost of installing the new equipment and removing the old, less the salvage value of such equipment as the customer retains.
c) The cost of making the necessary change in customer's wiring.

H. Discontinuance of Service

1. By Customer: A customer shall be required to give at least twenty four (24) hour notice of its intention to discontinue service in accordance with the provisions of the applicable rate or terms and conditions of service and shall be responsible for all charges until expiration of such notice period.

2. By the Public Utility:

a) Non-Payment of Bills. In accordance with the provisions of the applicable rate or terms and conditions of service, a public utility may require that bills be paid within a specified time after presentation. On and after thirty (30) days from the date of presentation service may be discontinued for non-payment provided written notice to the customer has been deposited in the U.S. mail at least ten (10) days prior to the date of discontinuance. In lieu of the discontinuance, or upon reconnection, the public utility may require payments at less than monthly intervals. If service is discontinued for non-payment, the public utility may make a reasonable charge for reconnection. Service must not be discontinued on a Friday, a Saturday, or the day before a holiday.

b) For Violation of Rules: No public utility shall discontinue service to a customer for violation of any rule unless it shall first have deposited in the U.S. mail written notice to the customer at least ten (10) days prior to the date of discontinuance advising the customer of the particular rule that has been violated, except that

service may be discontinued immediately when continuance of the service would endanger life or property, or when ordered to do so by any governmental agency or official having jurisdiction.

c) For Fraudulent Use of Service: A public utility may discontinue service without notice whenever a fraudulent use of the service by the customer is detected.

IV. QUALITY OF ELECTRIC SERVICE

A. Standard Frequency - The standard frequency for alternating current distribution systems shall be sixty (60) Hertz, with permissible variations not exceeding maximum and minimum values of 60.3 and 59.7 Hertz.

B. Service Voltage - The following service voltage standards shall be maintained at the point where the electrical system of the supplier and the electrical system of the user are connected.

Table I [1 These values are ANSI C84.1 (1989). Values shall change if ANSI adopts new standards.]

Established Standard Service Voltage	Minimum Voltage	Maximum Voltage	Type of Service
120	114	126	Single Phase
120/240	114/228	126/252	Single or Polyphase
208Y/120	197Y/114	218Y/126	Single or Polyphase
240	228	252	Single or Polyphase
480Y/277	456Y/263	504Y/291	Single or Polyphase
480	456	504	Single or Polyphase
600	570	630	Single or Polyphase
2400	2340	2520	Single or Polyphase
4160Y/2400	4050Y/2340	4370Y/2520	Single or Polyphase
12470Y/7200	12160Y/7020	13090Y/7560	Single or Polyphase

For distances exceeding a 2 mile radius from any distribution sub-station serving the customer, the minimum permissible voltage shall not be less than 97% of the minimum values shown in Table I.

C. Momentary Fluctuations - Momentary fluctuations of voltage and/or frequency at the customer's service shall not be construed as non-compliance with this Section IV, Subsection 2 and for the purposes of these Rules a momentary fluctuation of voltage and/or frequency shall be defined as a change in voltage and/or frequency not exceeding a three (3) second time interval of a non-periodic recurring cycle; provided, however, that fluctuations in frequency and/or voltage having continuous and/or recurring periodic time cycles shall not be considered as compliance with this Section IV; and the public utility shall immediately initiate and complete all necessary action to eliminate and/or correct the cause of such fluctuations, if found to originate directly or indirectly within the public utility's system.

D. Abnormal Conditions - These Rules shall not apply to temporary conditions due to acts of God, windstorm, fire, strikes, insurrections, construction and/or maintenance or other disruptions of service beyond the immediate control of the public utility; provided, however, that all public utilities shall initiate immediate action and proceed without delay and perform all necessary work to restore its system and/or customers' services to normal operating conditions.

E. Special Provisions - No public utility shall be required to maintain service voltage according to Table I, at any point beyond the point where the electrical system of the supplier connects to the electrical system of

the user if the wire or cables of the customer are (i) inadequate or undersized (ii) not capable of delivering the customer's normal requirements for electricity, or (iii) not in conformance with the requirements of the National Electric Code or any applicable statute, ordinance, rule or regulation of any authority having jurisdiction.

V. VOLTAGE SURVEYS AND RECORDS

A. Each public utility shall make a sufficient number of voltage tests for the areas (cities, villages and rural areas) served to indicate compliance with voltage requirements contained in Table 1.

B. All voltage test records shall be retained by the public utility for at least two (2) years and shall be available for inspection by the Division.

VI. INTERRUPTIONS OF SERVICE

A. Each public utility shall use all reasonable means to avoid interruption of service but should an interruption occur, service shall be re-established within the shortest time practicable, consistent with safety requirements.

B. Each public utility shall make a record of all interruptions of service of more than five (5) minutes' duration affecting the entire distribution system of a single community or the entire distribution circuit serving a division of a community and shall include in such record the date and time of interruption, approximate number of customers affected, the date and time of service restoration, and, when known, the cause of such interruption. Reports with reference to such service interruption shall be made monthly to the Division on Form E-1.

C. Each utility shall notify the Commission (or a designated member of the staff) by telephonic means of any major interruption of service when the interruption results in 1000 or more customer hours between normal working hours increasing to 3000 or more customer hours after normal business hours. A company having less than 5,000 customers will notify the Commission when outages exceed 100 customer hours during normal working hours and increasing to 200 customer hours after normal business hours.

D. When service is interrupted to perform work on lines or equipment, such work shall be done at a time causing minimum inconvenience to customers consistent with the circumstances. Customers seriously affected by such interruption shall, whenever reasonably possible, be notified of the time and expected duration of the service interruption.

VII. METER ACCURACY AND TESTING

A. Inspection of Meters.

1. Meters removed from service. All meters removed from service which are to be reinstalled shall be inspected and tested for correctness. In addition, worn or damaged parts shall be replaced.

2. Meter installations. All polyphase meters and demand devices shall be tested before installation to ensure accuracy of operation when installed. In connection with installation an electrical check shall be made of all instrument transformer connections.

B. Test and Calibration of Meters.

1. Polyphase Meters. All polyphase meters shall be tested at loads and adjusted to tolerances as follows:

Test Load in Rated Meter Capacity	Power Factor	To Tolerance of
100%	1.0	Plus/Minus 1%
10%	1.0	Plus/Minus 1%
100%	0.5	Plus/Minus 2%

Meters also shall be checked for "creep" at no load and rated voltage.

2. Demand Devices. All indicating and recording demand devices shall be adjusted as follow:

(a) Zero Adjustment

No demand device that fails to reset properly to zero shall be placed in service or allowed to remain in service without adjustment.

(b) Up-Scale Check

Tests to determine the accuracy of a demand device shall be made at a point approximately mid-scale. No demand under test having an error in indication or registration of more than 2% plus or minus (in terms of full scale deflection) shall be placed, or allowed to remain, in service without readjustment.

(c) Time Cycle Devices.

All motors used to maintain a timing cycle where such timing cycle directly affects meter registration, shall be tested to insure operation at the proper speed.

C. Test Schedules for all Watthour Meters and Demand Devices

1. New Meters. The manufacturer's test on all new meters will be accepted as a first test on a meter and so recorded if built to the EEI-AEIC-NEMA or ANSI standard for Polyphase meters.

2. All alternating current watthour meters and demand devices in service shall be tested in accordance with the following requirements.

(a) Meters up to and including 12KVA shall be tested in accordance with either subparagraph (i) or (ii) below. The Schedule initially adopted by the public utility shall not be changed without notifying the Division.

(i) Periodic Test Schedule. Watthour meters may be tested on periodic basis by which every meter shall be tested at least once every twelve (12) years.

(ii) Selective Test Plan. Watthour meters may be tested under a selective plan as follows.

(a) Selective Test Population. This shall include those single phase common or residential type meters of 0-12 KVA capacity. It shall not include those specific meter groups known to be adversely affecting overall meter accuracy, if these meters are placed on a fixed retirement program not exceeding five (5) years. Meters removed due to a fixed retirement program need not be tested by the utility.

(b) Sample Test Group. A Sample Test Group representing a cross-section of the meters in the Selective Test Population on company lines, shall be selected at random and tested each year. The Sample Test Group shall be at least 1% of meters in the Selective Test Population, but not less than 500 meters. For a company having less than five thousand meters, the Sample Test Group shall be at least 2% of meters in the Selective Test Population, but not less than 40 meters.

(c) Cumulative Sample Test Group. The Cumulative Sample Test Group includes the Sample Test Group of the current year plus those of the immediately preceding years to a maximum of five Sample Test Groups.

(d) Number of Meters to be Tested. The percentage of meters in the Cumulative Sample Test Group which displays a weighted average accuracy outside the limits of 98% to 102% shall be used to determine from the test Ratio Curve (Fig. 1.) the minimum number of meters to be tested (Total Meter Test Group) in the ensuing year.

(e) Supplemental Test Group. The Supplemental Test Group is the difference between the Total Meter Test Group and the Sample Test Group.

Supplemental = (Total) - (Sample)

Tests of meters which are part of the Selective Test Population and which are returned to the shop for maintenance may be credited toward completion of the Supplemental Test quota. Additional meters selected to fill the Supplemental Test quota shall be either:

Meters in service without a test, or meters of specific types which are contributing a greater than average percentage of the meters outside the limits of 98% to 102%.

Specific meter groups known to be adversely affecting over-all meter accuracy, if placed on a fixed retirement program not exceeding five years may be excluded from the Selective Test Population. Meters removed due to a fixed retirement program need not be tested by the utility.

Such meters on a retirement program shall be junked at a uniform annual rate to eliminate them from Company lines in five years or less from the start of the program. If the retirement rate is not maintained, all remaining meters in the group must become part of the Selective Test Population and subject to the Selective Test Procedure.

b) Meters in excess of 12KVA and not exceeding 100 KVA shall be tested on a periodic basis by which every meter shall be tested at least once every six (6) years.

c) Meters in excess of 100 KVA shall be tested on a periodic basis by which every meter shall be tested at least once every (5) years.

d) In lieu of the periodic and selective test plans described in subparagraphs C.2(a), C.2(b) and C.2(c) above, a utility may, after notifying the Division, implement a statistical sample testing program based on the provisions of the most current version of ANSI/ASQC Z1.9, American National Standard Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming or on the provisions of a comparable nationally recognized statistical sampling methodology.

e) Integrated demand meters shall be subject to the same periodic tests or sample tests as the meters with which they are associated.

f) For the purpose of subparagraph C.2(b) the KVA rating of a Self-contained AC Watthour Meter is the product of the rated voltage in Kilo-volts, the rated test amperes and the number of stators. The KVA rating of an instrument transformer classed watthour meter, is the product of the primary voltage in Kilo-volts, the name plate rating of the current transformers, and the number of stators.

3. All meters over 12 KVA capacity removed from service and not yet due for testing must be tested and recalibrated before being put back into service. These tests may be included as a part of the periodic or statistical sampling test populations.

4. Request Tests.

a) All request tests must be made with the meter in its service location whenever practicable to do so.

b) Tests by public utility. When requested by a customer, each public utility shall test the accuracy of the customer's meter within fifteen (15) days from the time the request is made. If the meter has been tested during the preceding thirty-six (36) months, a public utility may require the deposit of a fee of Twenty five ($25) for such a test. If on testing the meter is found to be fast by more than 2%, the deposit shall be promptly refunded. If the meter is not found to be fast by more than 2% the public utility shall retain the amount deposited for the test. A customer may be represented in person or by an agent when the public utility conducts the test on the customers meter. A report giving the name of the customer requesting the test, the date of the request, the location, the type, make size, the serial number of the meter, the date tested, and the result of the test shall be supplied to such customer within a reasonable time after the completion of the test.

c) Tests by Division. Upon written application to the Division by a customer, a test will be made of the customer's meter in the presence of the Division's representative as soon as practicable. Each application to the Division for test of a meter shall be accompanied by a fee of Twenty five ($25). If upon testing, the meter is found to be fast by more than 2%, the Division shall return to the customer the amount of fee paid by the customer to the Division. When notified of an application submitted to the Division by a customer for a referee test as herein provided, the public utility shall not knowingly remove, interfere with, or adjust the meter to be tested without the written consent of the customer and approved by the Division.

5. Reporting Requirements.

a) For utilities that test according to the periodic test schedules or selective tests plans described in subparagraphs C.2(a), C.2(b) and C.2(c), reports of periodic and sample tests of meters shall be reported to the Division on Form E-2 and Form E-2A once a year, or on the public utility's Standard Meter Test Report Form.

b) For utilities that implement the statistical sample testing program as described in subparagraph C.2(d), reports of in-service and request tests of watthour meters shall be made each year and filed with the Division not later than the 15th day of March the following year. All reports of in-services tests are to include the number of meters tested, the number of meters found outside of limits, and the size of the population. Where appropriate, the reports should break down the population of meters by type and be accompanied by appropriate performance parameters for that type.

6. A complete record of the latest test made on a meter shall be retained in the public utility's files for three years.

D. Billing Adjustments

1. Calculation of Error. The accuracy of registration of the meter and its performance in service shall be determined by its average error, as follows:

a) The average error shall be the weighted average of its error at light load with a weighting of one and its error at heavy load with a weighting of four.

b) Any adjustment of charges which is made in accordance with this rule shall be based on such average error.

2. Adjustments.

a) Fast Polyphase Meters. Whenever a polyphase meter is found to be fast in excess of 2% of the correct amount, the Company shall refund to the customer an amount equal to the charge for the excess kilowatt hours billed for the twelve (12) month period immediately preceding such test, unless the time when the error first developed, or occurred can be definitely fixed, in which case the amount to be refunded shall be calculated from that time. Under no circumstances will an adjustment of a customer's bill be made if there is evidence that the meter has been tampered with.

b) Slow Polyphase Meters. Whenever a polyphase meter is found to be slow in excess of 2%, the Company may make a charge to the customer for the unbilled kilowatt hours supplied for the previous twelve (12) months or since the last test, whichever is the shorter period. However, where there is evidence that the meter has been tampered with, the Company may charge the customer for all unbilled kilowatt hours supplied since the estimated data of the tampering.

c) Non-Registration. If a meter is found which does not register, the bill for the period of non-registration shall be based upon information recorded prior or subsequent to the period of non-registration and by any other pertinent information supplied by the customer or known to the public utility.

E. Testing Facilities and Equipment:

1. Single Polyphase Standards.

a) Laboratory Standards. Every public utility shall have available one or more laboratory standards for the sole purpose of checking working standards. All standards shall be certified at least once each year in a laboratory acceptable to the Division. Each standard shall be accompanied by calibration tables noting the corrections at various working loads. These calibration tables when superseded shall be kept on file in the office of the public utility for a period of two (2) years.

b) Each public utility shall have an adequate number of working standards for testing customers' meters. These working standards shall be compared to laboratory standards at least once every twelve (12) months. Each working standard shall be accompanied by a calibration table noting the corrections at various working loads. These calibration tables, when superseded shall be retained by the public utility for a period of two (2) years. If comparisons with the laboratory standards show the working standard to be in error by 1% or over, it shall be recalibrated and/or replaced. In case a public utility does not maintain a reference watthour standard, the working standards must be checked every twelve (12) months in a laboratory acceptable to the Division.

VIII. EQUIPMENT AND FACILITIES

A. Standard Practice

In determining standard practice, the Division will be guided by the provisions of the NATIONAL ELECTRICAL SAFETY CODE, the NATIONAL ELECTRIC CODE, and such other relevant codes as shall be approved by the American Standards Association, except as any of the foregoing may in any particular case be modified by statute, ordinance, orders, rules or regulations by governmental bodies or agencies having jurisdiction.

B. Construction and Maintenance

Each public utility shall construct, install, operate and maintain its plant, structures, equipment and lines in accordance with standard practice as defined in paragraph 1 above, and insofar as practical, in such a manner as best to accommodate the public, and to prevent interference with service furnished by other public utilities.

C. Joint Pole Construction

Except as otherwise permitted by the Division for cause shown, all installations making use of poles either for single or joint occupancy shall conform to standard practice, and current joint-owned pole agreement between various utility companies.

D. Safety Instructions

Each public utility shall adopt comprehensive instructions for the safety of employees, and shall supply a copy thereof to each employee before assignment to duty in generating stations, substations, on overhead or underground lines, and shall be satisfied that such employees have been properly informed of safe practices and are cognizant of all hazards involved, as per OSHA standards, 29 CFR Sec. 1910.260, et seq., as the same from time to time are amended.

E. Resuscitation

Each public utility shall instruct its employees engaged in electrical work in the practice and use of accepted rules for resuscitation from electrical shock, as per OSHA standards 29 CFR Sec. 1910.260, et seq., as the same from time to time are amended. Copies of such rules shall be furnished to each such employee. Electrical work as used herein shall be construed to mean work on live electric conductors and equipment energized at potential exceeding 150 volts line to ground.

F. Accidents

Each public utility shall report to the Division as soon as possible after each accident happening in connection with the operation of its property, facilities or service, wherein any person shall have been caused injury requiring hospitalization in excess of 24 hours. The first report may be preliminary, but, if so, shall be followed later by as full a statement as possible of the cause and details of the accident and the precautions taken, if any, to prevent similar accidents. In case of fatal accidents, immediate notice shall be given by telephone to the Division, (Form E-3, Appendix "D").

IX. RECORDS AND REPORTS

A. Station Records

1. Each public utility shall keep sufficient records of the operation of its generating units and distribution supply feeders to show the characteristics and the performance of each.

2. Unless sufficient information is furnished by the public utility supplying the energy, each public utility purchasing electric energy shall maintain adequate instruments and meters to obtain complete information as to such purchases.

B. Preservation of Records

All records required by these rules shall be preserved by the public utility for a period of two (2) years unless otherwise specified herein or other controlling rules or regulations require a longer period of retention. Such records shall be kept within the State of Rhode Island at the office or offices of the public utility and shall be open at all reasonable hours for examination by the Division.

C. Reports to Division

Each public utility shall file periodic reports with the Division on the following forms which will be furnished by the Division upon request:

Form No.	Title	Period	Appendix
E-1	Interruption of Service Report	Monthly	"A"
E-2	Periodic Meter Test Report	Annually	"B"
E-2A	Selective Meter Test Report	Annually	"C"
E-3	Utility Accident Report	As Required	"D"

APPENDIX 2

Rules Prescribing Standards for Electric Utilities

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DIVISION OF PUBLIC UTILITIES AND CARRIERS

RULES PRESCRIBING STANDARDS FOR ELECTRIC UTILITIES

Date of Public Notice: June 18, 2004

Date of Public Hearing: July 26, 2004

Effective Date: September 21, 2004

The following rules and regulations, after due notice and an opportunity for hearing, are hereby adopted and filed with the Secretary of State this 1st day of September, 2004, to become effective twenty (20) days after filing, in accordance with the provisions of R.I.G.L. §42-35-4 and §39-3-33 (1990 Reenactment).

These rules and regulations supersede the Rules Prescribing Standards for Electric Utilities that have been in effect since May 1995.

Date September 1, 2004

Thomas F. Ahern, Administrator

RULES PRESCRIBING STANDARDS FOR ELECTRIC UTILITIES

I. APPLICATION OF RULES

A. These rules shall apply to every public utility as hereinafter defined doing business as such, or authorized to do so, within the State of Rhode Island.

B. These rules shall be amended or repealed, and applications therefore shall be made, in accordance with provisions of Title 42, Chapter 35 of the General Laws of 1956 entitled "Administrative Procedures".

II. DEFINITIONS

A. The term "Division" means the Rhode Island Division of Public Utilities and Carriers.

B. The term "Administrator" means Public Utility Administrator of the Division of Public Utilities and Carriers.

C. The term "public utility" shall mean and apply to every corporation, company, person, association of persons, their lessees, trustees, or receivers appointed to any court whatsoever, that now or hereafter may own, lease, operate, manage or control any electric plant or equipment or any part of any electric plant or equipment, within this State, for the production, transmission, delivery or furnishing of electricity, light, heat or power, either directly or indirectly, to or for the public.

D. The term "electric plant" shall mean all real estate, fixtures, equipment and personal property owned, controlled, operated or managed in connection with or to facilitate the production, generation, transmission, delivery or furnishing of electric energy.

E. The term "customer" shall mean and apply to every corporation, company, person, association of persons, their lessees, trustees or receivers appointed by any court whatsoever, that now or hereafter may be supplied with electric service by any public utility as herein defined.

F. The term "service" shall mean, in its broadest and most inclusive sense, the furnishing of electricity to a customer by a public utility.

G. The term "meter", without other qualification, shall mean a device or appliance for the measurement of electrical quantities to be used as a basis for determining charges by a public utility for furnishing or rendering electric service to a customer.

H. The term "creep" means the motion of the rotor of a meter with normal operating voltage applied and the load terminals open-circuited.

III. SERVICE PROVISIONS

A. Filing of Rates Schedules.

Schedules showing all rates, tolls and charges by a public utility shall be filed and kept open to public inspection in accordance with the provisions of Title 39, Chapter 3, Section 10 of the General Laws of 1956.

B. Application for Service.

An Applicant desiring service under a public utility's filed rate schedules may be required to make application in writing, in accordance with the forms prescribed by the public utility.

C. Information to Customers - Rate Selection.

1. Each public utility shall, upon request, provide a customer with such information and assistance as is necessary to enable the customer to secure the most advantageous rate or rates. Further, each utility shall inform the applicant of any service connection and/or installation charge to be applied to the bill. Each customer shall be responsible for selecting, and taking service at the most advantageous rate or rates.

2. Each public utility shall, upon request, explain to a customer the method of reading meters and how the billing is calculated.

3. Where special charges for construction, maintenance, replacement costs, expenses or overtime work are not specifically set forth in a utility's tariff, the utility shall, before performing non-emergency work, provide the applicant or customer with an estimate of charges to be levied, in writing if requested.

4. In addition, the utility shall make available free information concerning the utility's programs, services, rights and responsibilities, and complaint procedures for the general public.

D. Deposits.

1. A public utility, as security for prompt payment of a customer's indebtedness to it, may require a cash deposit or other collateral satisfactory to it before rendering, or as a condition of continuing to render service to such customer. This deposit shall not be more than the estimated bill for two times the normal billing period. Interest shall be paid on deposits held six (6) months or more in accordance with applicable rate schedules or the terms and conditions of the public utility. Deposits, plus accrued interest thereon, less any amount due the public utility, will be refunded upon termination of service. When a deposit is applied against an account that has been

terminated, interest shall cease to be accumulated on the balance at the date of termination.

E. Meter Reading and Bill Forms.

1. The metering equipment for each service shall be such as to register the number of kilowatt-hours (kwh) delivered during any period, and to the extent applicable, the number of Kilo-Var Hours (KvarH) and the Kilowatt (Kw) and Kilo-Volt Amperes (Kva) demand.

2. All service meters shall be read at regular intervals and on the corresponding day of each meter reading period insofar as practicable within regularly scheduled work days.

3. Bills shall be rendered at regular intervals and shall show the date of the current meter reading and the amount or quantity of service for the billing period; and shall also show any applicable discount or penalty date.

4. Each public utility shall keep an accurate account of all charges for service billed each customer and shall maintain records showing information from which each bill rendered may be readily computed.

F. Customer Complaints.

1. Each public utility shall make a full and prompt investigation of customer complaints made either directly or through the Division. A record of complaints received, other than those of a minor nature shall be kept for at least two years and shall show the name and address of the complainant, the date and character of the complaint and the disposition thereof.

2. Each public utility shall endeavor to keep its appointments. In the event cancellation of appointment is unavoidable, every reasonable effort should be made to promptly notify the customer.

3. During an abnormal service outage the utility shall make reasonable efforts to inform the general public about the areas affected, the progress of service restoration, and anticipated restoration schedules when available. Information for the general public shall be made through advisories to the news media. Business offices shall make similar information available to callers, using appropriate communications systems.

G. Change in Character of Service.

1. If a change in character of service to a customer is brought about for the convenience or benefit of the public utility, the public utility shall pay such part of the cost of changing the equipment of the customer affected as shall be

determined by mutual agreement. An equitable settlement would normally be on the following basis: Payment by the public utility to the customer of:

a) The cost of the customer's electrical utilization and equipment that is made obsolete, less proper allowance for depreciation.

b) The cost of installing the new equipment and removing the old, less the salvage value of such equipment as the customer retains.

c) The cost of making the necessary change in customer's wiring.

H. Discontinuance of Service

1. By Customer: A customer shall be required to give at least twenty four (24) hour notice of its intention to discontinue service in accordance with the provisions of the applicable rate or terms and conditions of service and shall be responsible for all charges until expiration of such notice period.

2. By the Public Utility:

a) Non-Payment of Bills. In accordance with the provisions of the applicable rate or terms and conditions of service, a public utility may require that bills be paid within a specified time after presentation. On and after thirty (30) days from the date of presentation service may be discontinued for non-payment provided written notice to the customer has been deposited in the U.S. mail at least ten (10) days prior to the date of discontinuance. In lieu of the discontinuance, or upon reconnection, the public utility may require payments at less than monthly intervals. If service is discontinued for non-payment, the public utility may make a reasonable charge for reconnection. Service must not be discontinued on a Friday, a Saturday, or the day before a holiday.

b) For Violation of Rules: No public utility shall discontinue service to a customer for violation of any rule unless it shall first have deposited in the U.S. mail written notice to the customer at least ten (10) days prior to the date of discontinuance advising the customer of the particular rule that has been violated, except that service may be discontinued immediately when continuance of the service would endanger life or property, or when ordered to do so by any governmental agency or official having jurisdiction.

c) For Fraudulent Use of Service: A public utility may discontinue service without notice whenever a fraudulent use of the service by the customer is detected.

IV. QUALITY OF ELECTRIC SERVICE

A. Standard Frequency - The standard frequency for alternating current distribution systems shall be sixty (60) Hertz, with permissible variations not exceeding maximum and minimum values of 60.3 and 59.7 Hertz.

B. Service Voltage - The following service voltage standards shall be maintained at the point where the electrical system of the supplier and the electrical system of the user are connected.

Table I [These values are ANSI C84.1 (1989). Values shall change if ANSI adopts new standards.]

Established Standard Service Voltage	Minimum Voltage	Maximum Voltage	Type of Service
120	114	126	Single Phase
120/240	114/228	126/252	Single or Polyphase
208Y/120	197Y/114	218Y/126	Single or Polyphase
240	228	252	Single or Polyphase
480Y/277	456Y/263	504Y/291	Single or Polyphase
480	456	504	Single or Polyphase
600	570	630	Single or Polyphase
2400	2340	2520	Single or Polyphase
4160Y/2400	4050Y/2340	4370Y/2520	Single or Polyphase
12470Y/7200	12160Y/7020	13090Y/7560	Single or Polyphase

For distances exceeding a 2-mile radius from any distribution sub-station serving the customer, the minimum permissible voltage shall not be less than 97% of the minimum values shown in Table I.

C. Momentary Fluctuations - Momentary fluctuations of voltage and/or frequency at the customer's service shall not be construed as non-compliance with this Section IV, Subsection 2 and for the purposes of these Rules a momentary fluctuation of voltage and/or frequency shall be defined as a change in voltage and/or frequency not exceeding a three (3) second time interval of a non-periodic recurring cycle; provided, however, that fluctuations in frequency and/or voltage having continuous and/or recurring periodic time cycles shall not be considered as compliance with this Section IV; and the public utility shall immediately initiate and complete all necessary action to eliminate and/or correct the cause of such fluctuations, if found to originate directly or indirectly within the public utility's system.

D. Abnormal Conditions - These Rules shall not apply to temporary conditions due to acts of God, windstorm, fire, strikes, insurrections, construction and/or maintenance or other disruptions of service beyond the immediate control of the public utility; provided, however, that all public utilities shall initiate immediate action and proceed without delay and perform all necessary work to restore its system and/or customers' services to normal operating conditions.

E. Special Provisions - No public utility shall be required to maintain service voltage according to Table I, at any point beyond the point where the electrical system of the supplier connects to the electrical system of the user if the wire or cables of the customer are (i) inadequate or undersized (ii) not capable of delivering the customer's normal requirements for electricity, or (iii) not in conformance with the requirements of the National Electric Code or any applicable statute, ordinance, rule or regulation of any authority having jurisdiction.

V. VOLTAGE SURVEYS AND RECORDS

A. Each public utility shall make a sufficient number of voltage tests for the areas (cities, villages and rural areas) served to indicate compliance with voltage requirements contained in Table 1.

B. All voltage test records shall be retained by the public utility for at least two (2) years and shall be available for inspection by the Division.

VI. INTERRUPTIONS OF SERVICE

A. Each public utility shall use all reasonable means to avoid interruption of service but should an interruption occur, service shall be re-established within the shortest time practicable, consistent with safety requirements.

B. Each public utility shall make a record of all interruptions of service of more than five (5) minutes' duration affecting the entire distribution system of a single community or the entire distribution circuit serving a division of a community and shall include in such record the date and time of interruption, approximate number of customers affected, the date and time of service restoration, and, when known, the cause of such interruption. Reports with reference to such service interruption shall be made monthly to the Division on Form E-1.

C. Each utility shall notify the Commission (or a designated member of the staff) by telephonic means of any major interruption of service when the interruption results in 1000 or more customer hours between normal working hours increasing to 3000 or more customer hours after normal business hours. A company having less than 5,000 customers will notify the Commission when outages exceed 100 customer hours during normal working hours and increasing to 200 customer hours after normal business hours.

D. When service is interrupted to perform work on lines or equipment, such work shall be done at a time causing minimum inconvenience to customers consistent with the circumstances. Customers seriously affected by such interruption shall, whenever reasonably possible, be notified of the time and expected duration of the service interruption.

VII. METER ACCURACY AND TESTING

A. Inspection of Meters.

1. Meters removed from service. All meters removed from service, which are to be reinstalled, shall be inspected and tested for correctness. In addition, worn or damaged parts shall be replaced.

2. Meter installations. All polyphase meters and demand devices shall be tested before installation to ensure accuracy of operation when installed. In connection with installation an electrical check shall be made of all instrument transformer connections.

B. Test and Calibration of Meters.

1. Polyphase Meters. All polyphase meters shall be tested at loads and adjusted to tolerances as follows:

Test Load in Rated Meter Capacity	Power Factor	To Tolerance of
100%	1.0	Plus/Minus 1%
10%	1.0	Plus/Minus 1%
100%	0.5	Plus/Minus 2%

Meters also shall be checked for "creep" at no load and rated voltage.

2. Demand Devices. All indicating and recording demand devices shall be adjusted as follow:

(a) Zero Adjustment

No demand device that fails to reset properly to zero shall be placed in service or allowed to remain in service without adjustment.

(b) Up-Scale Check

Tests to determine the accuracy of a demand device shall be made at a point approximately mid-scale. No demand under test having an error in indication or registration of more than 2% plus or minus (in terms of full scale deflection) shall be placed, or allowed to remain, in service without readjustment.

(c) Time Cycle Devices.

All motors used to maintain a timing cycle where such timing cycle directly affects meter registration, shall be tested to insure operation at the proper speed.

C. Test Schedules for all Watthour Meters and Demand Devices

1. New Meters. The manufacturer's test on all new meters will be accepted as a first test on a meter and so recorded if built to the EEI-AEIC-NEMA or ANSI standard for Polyphase meters.

2. All alternating current watthour meters and demand devices in service shall be tested in accordance with the following requirements.

(a) Meters up to and including 12KVA shall be tested in accordance with either subparagraph (i) or (ii) below. The Schedule initially adopted by the public utility shall not be changed without notifying the Division.

(i) Periodic Test Schedule. Watthour meters may be tested on periodic basis by which every meter shall be tested at least once every twelve (12) years.

(ii) Selective Test Plan. Watthour meters may be tested under a selective plan as follows.

(a) Selective Test Population. This shall include those single-phase common or residential type meters of 0-12 KVA capacity. It shall not include those specific meter groups known to be adversely affecting overall meter accuracy, if these meters are placed on a fixed retirement program not exceeding five (5) years. Meters removed due to a fixed retirement program need not be tested by the utility.

(b) Sample Test Group. A Sample Test Group representing a cross-section of the meters in the Selective Test Population on company lines shall be selected at random and tested each year. The Sample Test Group shall be at least 1% of meters in the Selective Test Population, but not less than 500 meters. For a company having less than five thousand meters, the Sample Test Group shall be at least 2% of meters in the Selective Test Population, but not less than 40 meters.

(c) Cumulative Sample Test Group. The Cumulative Sample Test Group includes the Sample Test Group of the current year plus those of the immediately preceding years to a maximum of five Sample Test Groups.

(d) Number of Meters to be Tested. The percentage of meters in the Cumulative Sample Test Group which displays a weighted average accuracy outside the limits of 98% to 102% shall be used to determine from the test Ratio Curve (Fig. 1.) the minimum number of meters to be tested (Total Meter Test Group) in the ensuing year.

(e) Supplemental Test Group. The Supplemental Test Group is the difference between the Total Meter Test Group and the Sample Test Group.

Supplemental = (Total) - (Sample)

Tests of meters which are part of the Selective Test Population and which are returned to the shop for maintenance may be credited toward completion of the Supplemental Test quota. Additional meters selected to fill the Supplemental Test quota shall be either:

Meters in service without a test, or meters of specific types which are contributing a greater than average percentage of the meters outside the limits of 98% to 102%.

Specific meter groups known to be adversely affecting over-all meter accuracy, if placed on a fixed retirement program not exceeding five years may be excluded from the Selective Test Population. Meters removed due to a fixed retirement program need not be tested by the utility.

Such meters on a retirement program shall be junked at a uniform annual rate to eliminate them from Company lines in five years or less from the start of the program. If the retirement rate is not maintained, all remaining meters in the group must become part of the Selective Test Population and subject to the Selective Test Procedure.

b) Meters in excess of 12KVA and not exceeding 100 KVA shall be tested on a periodic basis by which every meter shall be tested at least once every six (6) years.

c) Meters in excess of 100 KVA shall be tested on a periodic basis by which every meter shall be tested at least once every (5) years.

d) In lieu of the periodic and selective test plans described in subparagraphs C.2(a), C.2(b) and C.2(c) above, a utility may, after notifying the Division, implement a statistical sample testing program based on the provisions of the most current version of ANSI/ASQC Z1.9, American National Standard Sampling Procedures and Tables for Inspection by Variables for Percent

Nonconforming or on the provisions of a comparable nationally recognized statistical sampling methodology.

e) Integrated demand meters shall be subject to the same periodic tests or sample tests as the meters with which they are associated.

f) For the purpose of subparagraph C.2(b) the KVA rating of a Self-contained AC Watthour Meter is the product of the rated voltage in Kilo-volts, the rated test amperes and the number of stators. The KVA rating of an instrument transformer classed watthour meter is the product of the primary voltage in Kilo-volts, the nameplate rating of the current transformers, and the number of stators.

3. All meters over 12 KVA capacity removed from service and not yet due for testing must be tested and recalibrated before being put back into service. These tests may be included as a part of the periodic or statistical sampling test populations.

4. Request Tests.

a) All request tests must be made with the meter in its service location whenever practicable to do so.

b) Tests by public utility. When requested by a customer, each public utility shall test the accuracy of the customer's meter within fifteen (15) days from the time the request is made. If the meter has been tested during the preceding thirty-six (36) months, a public utility may require the deposit of a fee of Twenty-five dollars ($25) for such a test. If on testing the meter is found to be fast by more than 2%, the deposit shall be promptly refunded. If the meter is not found to be fast by more than 2% the public utility shall retain the amount deposited for the test. A customer may be represented in person or by an agent when the public utility conducts the test on the customer's meter. A report giving the name of the customer requesting the test, the date of the request, the location, the type, make size, the serial number of the meter, the date tested, and the result of the test shall be supplied to such customer within a reasonable time after the completion of the test.

c) Tests by Division. Upon written application to the Division by a customer, a test will be made of the customer's meter in the presence of the Division's representative as soon as practicable. Each application to the Division for test of a meter shall be accompanied by a fee of twenty-five dollars ($25). If upon testing, the meter is found to be fast by more than 2%, the Division shall return to the customer the amount of fee paid by the customer to the Division. When notified of an application submitted to the Division by a customer for a referee test as herein provided, the public utility shall not knowingly remove, interfere with, or adjust the meter to be tested without the written consent of the customer and approved by the Division.

5. Reporting Requirements.

a) For utilities that test according to the periodic test schedules or selective tests plans described in subparagraphs C.2(a), C.2(b) and C.2(c), reports of periodic and sample tests of meters shall be reported to the Division on Form E-2 and Form E-2A once a year, or on the public utility's Standard Meter Test Report Form.

b) For utilities that implement the statistical sample testing program as described in subparagraph C.2(d), reports of in-service and request tests of watthour meters shall be made each year and filed with the Division not later than the 15th day of March the following year. All reports of in-services tests are to include the number of meters tested, the number of meters found outside of limits, and the size of the population. Where appropriate, the reports should break down the population of meters by type and be accompanied by appropriate performance parameters for that type.

6. A complete record of the latest test made on a meter shall be retained in the public utility's files for three years.

D. Billing Adjustments

1. Calculation of Error. The accuracy of registration of the meter and its performance in service shall be determined by its average error, as follows:

a) The average error shall be the weighted average of its error at light load with a weighting of one and its error at heavy load with a weighting of four.

b) Any adjustment of charges that is made in accordance with this rule shall be based on such average error.

2. Adjustments.

a) Fast Polyphase Meters. Whenever a polyphase meter is found to be fast in excess of 2% of the correct amount, the Company shall refund to the customer an amount equal to the charge for the excess kilowatt hours billed for the twelve (12) month period immediately preceding such test, unless the time when the error first developed, or occurred can be definitely fixed, in which case the amount to be refunded shall be calculated from that time. Under no circumstances will an adjustment of a customer's bill be made if there is evidence that the meter has been tampered with.

b) Slow Polyphase Meters. Whenever a polyphase meter is found to be slow in excess of 2%, the Company may make a charge to the customer for the unbilled kilowatt hours supplied for the previous twelve (12) months or since the last test, whichever is the shorter period. However, where there is evidence that the meter has been tampered with, the Company may charge the

customer for all unbilled kilowatt-hours supplied since the estimated data of the tampering.

c) Non-Registration. If a meter is found which does not register, the bill for the period of non-registration shall be based upon information recorded prior or subsequent to the period of non-registration and by any other pertinent information supplied by the customer or known to the public utility.

E. Testing Facilities and Equipment:

1. Single Polyphase Standards.

a) Laboratory Standards. Every public utility shall have available one or more laboratory standards for the sole purpose of checking working standards. All standards shall be certified at least once each year in a laboratory acceptable to the Division. Each standard shall be accompanied by calibration tables noting the corrections at various working loads. These calibration tables when superseded shall be kept on file in the office of the public utility for a period of two (2) years.

b) Each public utility shall have an adequate number of working standards for testing customers' meters. These working standards shall be compared to laboratory standards at least once every twelve (12) months. Each working standard shall be accompanied by a calibration table noting the corrections at various working loads. These calibration tables, when superseded shall be retained by the public utility for a period of two (2) years. If comparisons with the laboratory standards show the working standard to be in error by 1% or over, it shall be recalibrated and/or replaced. In case a public utility does not maintain a reference watthour standard, the working standards must be checked every twelve (12) months in a laboratory acceptable to the Division.

VIII. EQUIPMENT AND FACILITIES

A. Standard Practice

In determining standard practice, the Division will be guided by the provisions of the NATIONAL ELECTRICAL SAFETY CODE, the NATIONAL ELECTRIC CODE, and such other relevant codes as shall be approved by the American Standards Association, except as any of the foregoing may in any particular case be modified by statute, ordinance, orders, rules or regulations by governmental bodies or agencies having jurisdiction.

B. Construction and Maintenance

Each public utility shall construct, install, operate and maintain its plant, structures, equipment and lines in accordance with standard practice as defined in paragraph 1 above, and insofar as practical, in such a manner as

best to accommodate the public, and to prevent interference with service furnished by other public utilities.

C. Joint Pole Construction

Except as otherwise permitted by the Division for cause shown, all installations making use of poles either for single or joint occupancy shall conform to standard practice, and current joint-owned pole agreement between various utility companies.

D. Safety Instructions

Each public utility shall adopt comprehensive instructions for the safety of employees, and shall supply a copy thereof to each employee before assignment to duty in generating stations, substations, on overhead or underground lines, and shall be satisfied that such employees have been properly informed of safe practices and are cognizant of all hazards involved, as per OSHA standards, 29 CFR Sec. 1910.260, et seq., as the same from time to time are amended.

E. Resuscitation

Each public utility shall instruct its employees engaged in electrical work in the practice and use of accepted rules for resuscitation from electrical shock, as per OSHA standards 29 CFR Sec. 1910.260, et seq., as the same from time to time are amended. Copies of such rules shall be furnished to each such employee. Electrical work as used herein shall be construed to mean work on live electric conductors and equipment energized at potential exceeding 150 volts line to ground.

F. Accidents

Each public utility shall report to the Division as soon as possible after each accident happening in connection with the operation of its property, facilities or service, wherein any person shall have been caused an injury requiring hospitalization in excess of 24 hours. The first report may be preliminary, but, if so, shall be followed later by as full a statement as possible of the cause and details of the accident and the precautions taken, if any, to prevent similar accidents. In case of fatal accidents, immediate notice shall be given by telephone to the Division, (Form E-3, Appendix "D").

IX. RECORDS AND REPORTS

A. Station Records

1. Each public utility shall keep sufficient records of the operation of its generating units and distribution supply feeders to show the characteristics and the performance of each.

2. Unless sufficient information is furnished by the public utility supplying the energy, each public utility purchasing electric energy shall maintain adequate instruments and meters to obtain complete information as to such purchases.

B. Preservation of Records

All records required by these rules shall be preserved by the public utility for a period of two (2) years unless otherwise specified herein or other controlling rules or regulations require a longer period of retention. Such records shall be kept within the State of Rhode Island at the office or offices of the public utility and shall be open at all reasonable hours for examination by the Division.

C. Reports to Division

Each public utility shall file periodic reports with the Division on the following forms, which will be furnished by the Division upon request:

Form No.	Title	Period	Appendix
E-1	Interruption of Service Report	Monthly	"A"
E-2	Periodic Meter Test Report	Annually	"B"
E-2A	Selective Meter Test Report	Annually	"C"
E-3	Utility Accident Report	As Required	"D"