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December 28, 2023

**Via electronic mail only**
Daniel Goldner, Chair
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 03301-2429

RE: Docket No. DE 18-162
Public Service Company of New Hampshire d/b/a Eversource Energy
2023 Annual Meter Testing Report – waiver of Puc 305.03

Chair Goldner:

On December 5, 2018, the Commission approved a request of Public Service Company of New Hampshire d/b/a Eversource Energy ("Eversource") for a waiver of Puc 305.03 pertaining to the periodic testing of its meters. More specifically, the Commission authorized Eversource to shift to a calendar year testing period and to use the sampling criteria methodology and volumes as outlined within ANSI/ASQ Z1.9-2003 for testing all self-contained single and polyphase meters within its sample testing program. Eversource was also permitted to include meters removed through the course of normal business as part of the sample testing lots outlined within ANSI/ASQ Z1.9-2003.

In granting the waiver, the Commission also directed Eversource to file annual reports of the results of its meter testing program. Enclosed with this letter is the annual report of the results of Eversource's meter testing program for calendar year 2023. This report is formatted consistent with Attachment A that accompanied Eversource's petition in the instant docket, which was then approved by Secretarial letter on December 5, 2018.

If you have any questions, please do not hesitate to contact me. Thank you for your assistance with this matter.

Regards,

Jessica A. Chiavara
Senior Counsel, Eversource Energy

CC: DE 18-162 Service List

# Sample Testing Program Summary – 2023

12/18/2023

This summary report shows the results of Eversource NH's statistical analysis following ANSI/ASQ Z1.3-2003 for the 2023 sample testing program. Eversource selected and tested slightly more meters than were required for some sample lots to ensure the minimum test quantities were met.

As indicated by the ANSI analysis reports, all sample lots were found to be within acceptable tolerance limits. Only one sample lot (Lot # 6) showed a standard deviation value greater than 0.1 (0.5867) for the 12 meters tested). These results are still well within established tolerances, but they do highlight the accuracy performance differences between the older electromechanical meters included within Lot #6 versus the solid-state meters within the other lot groupings.

The test results confirm Eversource's expectation that the general population of in-service meters, most of which are relatively new solid-state meters, have a weighted accuracy performance that is well within the tolerances defined in Rule 305.03 (d) (1).

This analysis follows the example shown in ANSI Z1.9-2003, Example B-3, page 40, for determining pass/fail status of a lot using a double specification limit, variability unknown, standard deviation method, using one AQL value for both upper and lower specification limits combined.

Updated 12/07/23

| Parameter | Eversource NH 2023 Sample Testing Plan<br>**Total Sample Tested Meters** | | | | | |
|---|---|---|---|---|---|---|
| AQL (%) | 1 | 1 | 1 | 1 | 1 | 1 |
| Upper Spec. Limit | 101 | 101 | 101 | 101 | 101 | 102 |
| Lower Spec. Limit | 98 | 98 | 98 | 98 | 98 | 98 |
| | | | | | | |
| Lot Number | 1 | 2 | 3 | 4 | 5 | 6 |
| Lot Size | 475722 | 61066 | 15561 | 21063 | 832 | 103 |
| Sample Size Code | P | N | M | M | J | F |
| Sample Size (n) | 200 | 150 | 100 | 100 | 35 | 10 |
| Sample Size NHPUC required | 200 | 150 | 100 | 100 | 35 | 10 |
| Actual qty. tested (total) | 217 | 168 | 118 | 119 | 37 | 12 |
| Sum of Measurements | 21697.13 | 16812.46 | 11803.89 | 11890.82 | 3699.83 | 1203.58 |
| Sum of Measurements ^2 | 2169428.05 | 1682493.91 | 1180778.39 | 1188165.60 | 369966.06 | 120720.85 |
| Correction Factor (CF) | 2169426.04 | 1682492.92 | 1180778.13 | 1188164.71 | 369966.00 | 120717.07 |
| Corrected Sum of Squares (SS) | 2.0123 | 0.9871 | 0.2609 | 0.8946 | 0.0631 | 3.7864 |
| Variance (V) | 0.0093 | 0.0059 | 0.0022 | 0.0076 | 0.0018 | 0.3442 |
| Estimate of Lot Std. Dev. (s) | 0.0965 | 0.0769 | 0.0472 | 0.0871 | 0.0419 | 0.5867 |
| Sample Mean (Xbar) | 99.987 | 100.074 | 100.033 | 99.923 | 99.995 | 100.298 |
| Upper Spec. Limit (U) | 101 | 101 | 101 | 101 | 101 | 102 |
| Lower Spec. Limit (L) | 98 | 98 | 98 | 98 | 98 | 98 |
| Quality Index ($Q_U$) | 10.50 | 12.04 | 20.48 | 12.37 | 23.99 | 2.90 |
| Quality Index ($Q_L$) | 20.58 | 26.98 | 43.05 | 22.08 | 47.65 | 3.92 |
| Est. of Lot Percent Ncf. above U ($P_U$) | 0 | 0 | 0 | 0 | 0 | 0 |
| Est. of Lot Percent Ncf. above U ($P_L$) | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Est. Percent Ncf. In Lot (P) | 0 | 0 | 0 | 0 | 0 | 0 |
| Max. Allowable Percent Ncf. (M) | 2.04 | 2.05 | 2.18 | 2.18 | 2.66 | 3.27 |
| Acceptablility Criterion (Pass or Fail) | Pass | Pass | Pass | Pass | Pass | Pass |

The Lot sizes are based on the installed meter count for each Lot as of 2023, when the samples lots were selected.

| | Summary Statistics for Weighted Average Accuracy | | | | | |
|---|---|---|---|---|---|---|
| Lot # | 1 | 2 | 3 | 4 | 5 | 6 |
| Lot Description | Centron | Centron Bridge (1P) | Centron Bridge (3P) | GE I-210(+C) | Other Solid State | Electro-Mechanical |
| Minimum | 99.7 | 99.75 | 99.92 | 99.69 | 99.89 | 99.44 |
| Maximum | 100.36 | 100.35 | 100.13 | 100.15 | 100.13 | 101.72 |
| Average | 99.99 | 100.07 | 100.03 | 99.92 | 100.00 | 100.30 |
| Standard Deviation | 0.0965 | 0.0769 | 0.0472 | 0.0871 | 0.0419 | 0.5867 |
| 3 Sigma | 0.29 | 0.23 | 0.14 | 0.26 | 0.13 | 1.76 |