

1.1 INTRODUCTION

This section describes HWW's water loss prevention program and includes policies and procedures for conducting an annual water audit, obtaining annual leak detection survey services, repairing leaks, and replacing distribution system meters. The purpose of the water loss prevention program is to reduce unaccounted-for water in the HWW system.

1.2 BACKGROUND

In calendar year 2003, unaccounted-for-water in the HWW system was approximately 27.6% of the total water supplied, which equates to approximately 620 million gallons (MG). In an effort to reduce unaccounted-for-water, HWW began to monitor and estimate known losses in the system, including:

- Discovered (and repaired) leaks
- Storage tank overflows
- Water used for firefighting
- Water lost through tank draining

In 2004, quantification of these known losses totaled approximately 200 MG. However, unaccounted-for-water remained high at 24.7%.

New Water Management Act guidelines, developed in 2004, recommend that systems located in high or medium-stressed river basins maintain unaccounted for water below 10% and systems located in low-stressed or unassessed river basins keep unaccounted for water below 15%. The portion of the Connecticut River Basin in which Holyoke is located is classified as low stress, and the portion of the Westfield River Basin that contains the southwest portion of Holyoke is classified as unassessed.

The objective of the water loss prevention program is to identify and quantify sources of lost water in the distribution system and ultimately reduce unaccounted-for-water to below 15%.

1.3 WATER AUDIT

The water audit worksheet located in Appendix H was adapted specifically for HWW use from AWWA Manual M36 *Water Audits and Leak Detection*. HWW will utilize this worksheet to conduct water audits at a minimum of every 5 years. A memorandum that provides detailed explanations of the items in the audit worksheet is also included in Appendix H.

1.4 LEAK DETECTION

HWW will include in its annual operating budget a line item specifically geared toward leak detection efforts. HWW will hire a qualified leak detection consultant to survey a select percentage of the distribution system each year. At the conclusion of the survey, a

report summarizing the leaks encountered as well as rough estimates of lost water will be prepared. HWW will promptly repair any leaks encountered.

Appendix H includes a contact list of companies that perform leak detection surveys.

1.5 METER REPLACEMENT PROGRAM

The HWW water system is 100% metered with the exception of 5 cemeteries and hydrant usage (firefighting, street cleaning, etc.). HWW has a total of 7,832 meters in the system and is in the midst of a system-wide automated meter replacement program. In September 2003, the HWW began converting its direct-read meters to radio-read type meters. To date, approximately 1,800 radio-read meters have been installed. The HWW intends to replace 800 to 1,000 meters per year, and the expected changeover to a 100% radio-read system is expected to be completed by 2012. New meters are either Sensus or Badger meters with a radio-read transmitter and are factory tested in accordance with AWWA specifications prior to installation. Old meters are disposed of and no testing is performed on the old meters. HWW tests customer meters upon request.

Source water master meters are to be tested and calibrated every year or as deemed necessary by the HWW.

1.6 ADDITIONAL WATER QUANTIFICATION

In an effort to quantify more accurately usage in the system, HWW will continue its efforts to estimate known losses in the system. In addition to its existing efforts, HWW will also implement the following actions:

- Storage Tank Level Monitoring (compare levels at beginning and end of year to account for storage differences in water audit)
- Quantification/estimation of hydrant usage for all activities:
 - Flushing
 - DPW usage
 - Firefighting
 - Street cleaning
 - Other
- Cemetery metering
- Temporary meter usage by contractors
- Meter testing to determine under- or over-registration
 - Source master meters
 - Large customer meters (greater than 4-inch)
 - Random residential meter testing
- Review billing procedures

1.7 FUNDING

1.7.1 Operating Budget

HWW has added a line item to its annual operating budget specifically designated toward leak detection efforts in order to demonstrate an ongoing commitment to reducing system water losses.

1.7.2 Grant Opportunities

HWW has applied for a grant under the 2005 Water Loss Prevention Grant Program, and is awaiting award determination. HWW will continue to apply for available grant funding that may help defray the costs of leak detection efforts.