

Appendix C

CUWCC BMP 1.2

1.2 WATER LOSS CONTROL

The goals of modern water loss control methods include both an increase in water use efficiency in the utility operations and proper economic valuation of water losses to support water loss control activities. In May 2009 the American Water Works Association (AWWA) published the 3rd Edition M36 Manual *Water Audits and Loss Control Programs*. BMP 1.2 will incorporate these new water loss management procedures and apply them in California. Agencies are expected to use the AWWA Free Water Audit Software (“AWWA Software”) to complete their standard water audit and water balance.

A. Implementation

Implementation shall consist of at least the following actions:

- 1) Standard Water Audit and Water Balance. All agencies shall quantify their current volume of apparent and real water loss. Agencies shall complete the standard water audit and balance using the AWWA Water Loss software to determine their current volume of apparent and real water loss and the cost impact of these losses on utility operations at no less than annual intervals.
- 2) Validation. Agencies may use up to four years to develop a validated data set for all entries of their water audit and balance. Data validation shall follow the methods suggested by the AWWA Software to improve the accuracy of the quantities for real and apparent losses.
- 3) Economic Values. For purposes of this BMP, the economic value of real loss recovery is based upon the agency’s avoided cost of water as calculated by the Council’s adopted Avoided Cost Model or other agency model consistent with the Council’s Avoided Cost Model.
- 4) Component Analysis. A component analysis is required at least once every four years and is defined as a means to analyze apparent and real losses and their causes by quantity and type. The goal is to identify volumes of water loss, the cause of the water loss and the value of the water loss for each component. The component analysis model then provides information needed to support the economic analysis and selection of intervention tools. An example is the Breaks and Background Estimates Model (BABE) which segregates leakage into three components: background losses, reported leaks and unreported leaks.
- 5) Interventions. Agencies shall reduce real losses to the extent cost-effective. Agencies are encouraged to refer to the AWWA’s 3rd Edition M36 Publication, *Water Audits and Loss Control Programs* (2009) for specific methods to reduce system losses.
- 6) Customer Leaks. Agencies shall advise customers whenever it appears possible that leaks exist on the customer’s side of the meter.

B. Implementation Schedule

1) For agencies signing the MOU prior to December 31, 2008, implementation shall commence no later than July 1, 2009.

a) July 1, 2009 through June 30, 2010 will be the first year of implementation;

b) Agencies shall provide its first full BMP 1.2 report by December 1, 2010 for years 2008-2009 and 2009-2010;

2) Agencies signing the MOU after December 31, 2008, implementation shall commence no later than July 1 of the year following the year the agency signed the MOU.

a) Agencies shall provide a full BMP 1.2 report for the first reporting period after implementation and for each reporting year thereafter.

3) A benchmark for the performance indicator in terms of water loss standards will be determined after the first 4 years data collected based upon the data reported by agencies. The performance indicator and benchmark; will be voted upon by the Council by year 6 of this revision. Ongoing data collection and data reporting requirements will be established as part of this process.

C. Coverage Requirements

1), Agencies to compile the standard water audit and balance annually using the AWWA Software. Beginning in the 2nd year of implementation agencies to test source, import, and production meters annually.

2) Agencies shall improve the data accuracy and data completeness of the standard water balance during the first four years of implementation. Agencies shall achieve a Water Audit Data Validity score of 66 or higher using the AWWA software no later than the end of the first four year period; and shall achieve data validity Level IV no later than the end of the 5th year of implementation. Estimations for data that are not directly measured should be improved using the methods outlined by the AWWA.

3) Agencies shall seek training in the AWWA water audit method and component analysis process (offered by CUWCC or AWWA) during the first four years of BMP implementation. They shall complete a component analysis of real losses by the end of the fourth year, and update this analysis no less frequently than every four years.

4) Beginning in the fifth year of implementation, through the tenth year of implementation, agencies shall demonstrate progress in water loss control performance as measured by the AWWA software real loss performance indicator "gallons per service connection per day;" "gallons per mile of mains per day;" or other appropriate indicator by one of the following:

a) Achieving a performance indicator score less than the agency's score the previous year;

- b) Achieving a performance indicator score less than the average of the agency's scores for the previous three years; or
 - c) Achieving a performance indicator score in the top quintile (20%) of all signatory agencies reporting such performance indicator with a Data Validity Level IV; or ;
 - d) In year 6 and beyond reducing real losses to or below the benchmark value determined in the Council's process referenced in section B3.
- 5) Agencies shall repair all reported leaks and breaks to the extent cost effective. By the end of the second year, agencies shall establish and maintain a record-keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair. By the end of the fourth year, agencies shall include estimated leakage volume from report to repair, and cost of repair (including pavement restoration costs and paid-out damage claims, if any).
- 6) Agencies shall locate and repair unreported leaks to the extent cost effective.

D. Requirements for Documenting BMP Implementation

- 1) Agency shall submit the completed AWWA Standard Water Audit and Water Balance worksheets in the BMP 1.2 report form every reporting period.
- 2) For each reporting period, agency shall keep and make available validation for any data reported.
- 3) Agency shall maintain in-house records of audit results, methodologies, and worksheets for each completed audit period.
- 4) Agency keeps records of each component analysis performed, and incorporates results into future annual standard water balances.
- 5) Agency, for the purpose of setting the Benchmark:
 - a) keeps records of intervention(s) performed, including standardized reports on leak repairs, the economic value assigned to apparent losses and to real losses, miles of system surveyed for leaks, pressure reduction undertaken for loss reduction, infrastructure rehabilitation and renewal, volumes of water saved, and costs of intervention(s); and
 - b) prepares a yearly summary of this information for submission to the Council, during years two through five of implementation, unless extended by the Council.

E. Water Savings Assumptions

To Be Determined