Standard Operating Guideline - SOG

Title: **WATER LOSS MONITORING**

District Name: _____

Date Prepared: _____ Date Revised: _____

OBJECTIVE:

Minimize water system losses from distribution system problems and unaccounted uses by implementing an effective water loss management strategy.

RATIONALE / PURPOSE:

An effective Water Loss Monitoring Program is essential to:

- Ensure more efficient and reliable use of existing supplies
- Increase knowledge of the distribution system
- Reduce leakage levels
- Minimize disruption to customers
- Increase revenues from previously undercharged customers
- Provide savings to customers who pay only for the water received, rather than for water lost in the distribution system.
- Determine capital improvement budgeting
- Develop loss trend analysis
- Reduce liability exposures

METHODS / PROCEDURES:

The following methods and procedures are recommended to minimize water loss. The first step is to conduct a water audit, to identify how much loss is occurring. The subsequent steps are used to identify and quantify unaccountable losses, and reduce overall loss/waste through proactive means.

1) Conduct Water Audits

Quantify and track water losses associated with water distribution system, and identify areas for improved efficiency and cost recovery.
Use AWWA Water Loss Control Committee (WLCC), Free Water Audit Software (MS Excel spreadsheet) available online at www.awwa.org (keyword: water audit software).

2) Identify Unaccountable Losses

Loss can occur through a variety of means including hydrant flushing, fire department operations/training, leakage, and broken and/or oversized meters. Many of these losses can be easily tracked and input into the water audit.

a) Hydrant flushing: Log amount of water released on a "Line Flushing Report" form.
b) Fire department operations: Provide (or obtain from) fire department stations "Water for Fire Fighting and Training" form.
c) Leakage: Calculate water loss using the "Leak Rates from Holes of Known Sizes" chart.
d) Broken and/or oversized meters: While water loss may not be directly accounted for, replacement of older meters with contemporary models which more accurately measure water flows will ensure customers are being accurately charged for their actual water consumption.

3) Reduce Distribution System Loss and Misuse

a) Distribution system preventative maintenance: Implement a systematic program of remotely identifying leaks in underground pipes. This may be performed by video, sound, etc.
b) Replace / upgrade / install water meters: Ensure all end users are on water meters and such meters accurately account for consumption (i.e., minimal water slippage).
c) Implement a water conservation / education program to inform the public of alternative irrigation methods, low –flow water use devices, and other water saving measures.
d) Identify assets and implement a replacement program
e) Track leaks, repairs, and inspections through a geographic information system (GIS) platform to identify potential or actual problem areas.

SAFETY CONSIDERATIONS:

An effective water loss monitoring program can help prevent damage to property and environment, and injury to public and employees by:

- Preventing distribution system damage
- Precluding property and environmental damage
- Facilitating emergency response actions
- Ensuring operations and maintenance personnel safety
    - Identify safe work practices
        - Lockout/Tagout
        - ACP Procedures
        - Traffic control
        - Trenching and shoring

- Personal protective equipment

COST BENEFIT:

- Reduce revenue losses
- System failure prediction would reduce water loss system degradation
- Avoid costly liability and property losses
- Create a manageable capital improvement budget
- Ensure system reliability

INSPECTION FORMS / CHECKLISTS / DOCUMENTATION:

- **AWWA Water Audit Software**
  - www.awwa.org (search term: water audit software)

- **SWEETWATER AUTHORITY WATER MAIN LEAKS (sample trend analysis report)**
  - District: Sweetwater Authority; POC: Mark Molsberry (619) 409-6880

- **WATER RUN TO WASTE LOG**
  - District: Bella Vista Water District; POC: Don Groundwater (530) 241-1085

TESTIMONIALS:

The following benefits were experienced when a detailed Water Loss Monitoring Program had been established: