

The Board Of Water Commissioners Denver Water

Engineering Standards Chapter 12 – Integrated Water System

12.01 **GENERAL:**

An Integrated Water System is defined by state regulation as two or more public water systems, one of which is a supply system, whose distribution systems are physically connected and are being operated using a common set of standards for the purposes of maintaining and protecting drinking water quality. Denver Water's goal is to treat all Distributors and their customers as part of an Integrated Water System. However, in order to be included in Denver Water's Integrated Water System, a Distributor must have a Total Service Contract, or must satisfy Denver Water's Operating Rules and these Engineering Standards. A Distributor who fails to maintain its water distribution system in accordance with these Engineering Standards may be designated as a Consecutive System and will be responsible for meeting water quality testing and reporting requirements.

These Standards apply inside the City and County of Denver and throughout the areas served under Total Service contracts. These Standards also apply to those Master Meter and Read and Bill Distributors that are classified as part of the Integrated Water System by the Sales Administration Section.

These Standards emphasize planned/preventive maintenance to avoid water quality problems, but by themselves do not guarantee compliance with State of Colorado and Federal regulations.

12.02 **MAINTENANCE PROGRAMS:**

Denver Water's Operations and Maintenance Division has established a Standard Operating Procedure (SOP) for each of the following:

- A. Valve Inspections/Closed Boundary Valves
- B. Flushing and Testing of Dead Ends/Blowoffs
- C. Flushing and Testing of Dead Ends/Hydrants
- D. Valve Inspections/12 inch and Larger
- E. Valve Inspections/12 inch and Smaller
- F. Valve Inspections/Pressure Regulating Valves
- G. Hydrant Inspection and Maintenance
- H. Treated Water Storage Tank Operation
- I. Treated Water Storage Tank Maintenance
- J. Clear Water Storage Basins/Emergency Maintenance
- K. Bacteriological Analysis/Total Coliform Sample Collection

- L. Conduit Chlorination Procedure
- M. Conduit Dechlorination Procedure
- N. Sprayer Application Method

Each SOP includes the purpose, policy, equipment and procedures developed by Denver Water for the operation, maintenance and quality assurance required for the Integrated Water System.

The Standard Operating Procedures can be obtained by those demonstrating a valid need by contacting the Superintendent of Water Control, Denver Water.

12.03 **DISTRIBUTION SYSTEM SAMPLING:**

Denver Water will be responsible for all monitoring within the Integrated Water System necessary to comply with the Safe Drinking Water Act (SDWA). Quality data will be reported by Denver Water for the Integrated Water System under one PWSID.

12.04 **ON-LINE WATER QUALITY MONITORING:**

In critical areas of the Integrated Water System, Denver Water will require on-line monitors capable of transmitting data regarding pH, specific conductance, chlorine residual and turbidity. The sites may include reservoirs, pump stations or other appropriate locations. Denver Water will be responsible for the ownership, operation and maintenance of the monitors. Data will be telemetered to Denver Water's Load Control Operations Center, compiled and made available through the Internet. Internet data will be updated every 24 hours.

12.05 **WATER QUALITY COMPLAINTS AND COMMUNICATION:**

A. Denver and Total Service Areas:

Denver Water and the Total Service Distributor have equal concern for water quality to the customer. Complaints received by either should be communicated immediately to the other including clarification as to the entity responsible for initial response.

Water quality issues and complaints during business hours will be directed to Denver's Water Quality Lab. Water Quality personnel will respond within Denver and Total Service areas. They will identify the problem and, along with Water Control personnel, correct the problem as promptly as possible.

After business hours, water quality issues and complaints will be directed to Water Control's Emergency Services Dispatcher. Depending on the severity of the matter, Water Control's Dispatcher may notify the Water Quality employee on duty. Designated personnel will respond, identify the problem, and correct the problem as promptly as possible.

Data management and compliance reporting are the responsibility of the Water Quality Section.

B. Master Meter and Read and Bill Areas:

Those Master Meter and Read and Bill areas classified as part of the Integrated Water System will have responsibility for initial response, investigation and remediation of all water quality issues and complaints. The Distributor must advise Denver Water of findings and response actions.

Should the Distributor's initial response fail to achieve the necessary results, Denver Water may be called in to assist.

Any water quality complaints in the Integrated Water System service area reported to the State shall be directed to Denver Water, and Denver Water, as appropriate, will pass them on to the Distributor. Denver Water will report findings back to CDPHE. In all cases, Denver will act as the clearinghouse for water quality information.

12.06 FACILITY OPERATION AND STATUS:

Using GIS, SCADA and appropriate methods, Denver Water will maintain a current status of all distribution system facilities and related operations. Denver Water will make the information available to the Distributors on the Internet.

Each Read and Bill and Master Meter Distributor will be responsible for maintaining a database of operation and maintenance information specific to their individual areas. Distributors will make the information available to Denver Water on an as needed basis.

12.07 REPORTING COMPLIANCE:

Denver Water will be responsible for reporting compliance within the Integrated Water System. For State and Federal reporting purposes, violations within the Integrated Water System will be assigned to Denver's PSWID Number 116001.

Distributors classified as Consecutive Systems either have or will be assigned their own PWSID number. For State and Federal reporting purposes, violations will be assigned to the Consecutive Distributor's PSWID number.

The Standard Operating Procedures can be obtained, by those demonstrating a valid need, from the Superintendent of Water Control, Denver Water.

NOTE: DISTRIBUTION SYSTEM DISCHARGES

Water discharge activities require a permit prior to flushing from the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD). The permit application can be obtained through the Division at <http://www.cdphe.state.co.us/permits.html> or by calling (303) 692-3500. The permit will require dechlorination, consumptive use or land application prior to discharge. Care shall be taken in flushing the pipeline to prevent property damage and danger to the public. All discharges of water from blowoff assemblies, or other appurtenances shall either be contained or discharged in a manner approved by Denver Water and CDPHE.

12.08 DISTRIBUTION SYSTEM DISCHARGES:

Activities involving the discharge of potable water to the environment are regulated by the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD). These activities which include reservoir draining, reservoir cleaning and system flushing require a Treated Water Distribution System Discharge permit from the WQCD. The permit application can be obtained through the Divisions at <http://www.cdphe.state.co.us/permits.html> or by calling (303) 692-3500.