

Standard Operating Guideline –Maintenance Management System

Standard Operating Guideline – (SOG)

Title: **MAINTENANCE MANAGEMENT SYSTEM**

District Name: _____

Date Prepared: _____ Date Revised: _____

OBJECTIVE:

A Maintenance Management System is an organized method of collecting documentation as it pertains to repair and rehabilitation work. The objective of this standard operating guideline is to give your organization ideas on how to develop and/or enhance your organization's maintenance management system.

RATIONALE / PURPOSE:

The purpose of this standard operating guideline is to promote the implementation of a comprehensive maintenance management system. Utilities usually keep some sort of record of repairs and rehabilitation work. A maintenance management system is a systematic method of recording these events so analysis can be performed on these records. This management system can be as simple as documenting maintenance on 5x8 cards, or as elaborate as a computerized maintenance management system interfaced with geographic information systems (GIS). The important part is that all maintenance activities (routine and non-routine), are documented in a system that can be analyzed at a later date. A maintenance management system along with a preventive and predictive maintenance program is essential to reducing overall operating costs, liability, and property losses.

An effective maintenance management system is essential to:

- Improving customer service
- Ensure mission capability
- Ensure firefighting capability
- Reduce liability and property losses
- Determine capital replacement budgeting
- Development of agency master plans
- Development of material standards
- Development of preventive and predictive maintenance programs
- Development of loss trend analysis
- Reduce revenue loss

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METHODS / PROCEDURES:

Documentation is essential, and a system needs to be in place to ensure maintenance information is collected in a consistent manner. The following methods and procedures are recommendations, and illustrate the methods used by other member agencies to collect and document system maintenance.

Best practices include:

1. Identify all of your organization's maintenance information systems that collect maintenance information such as maintenance records, SCADA, GIS and departmental system databases.
2. Identify how the information is collected. For example: 5x8 card, work order paper document or is it directly input into a computerized maintenance management system.
3. Identify the information that needs to be collected:
 - Type of discrepancy or failure
 - Action taken
 - Cause of Failure
 - Date reported
 - Date completed
4. Identify the assets that are going to be maintained:
 - Treatment Facilities/Pump Stations
 - Distribution System
 - Reservoir/Tank Sites
 - Vehicle/Mobile Equipment
5. Work as an organization and across departmental lines to prevent duplication of work.
6. Established work flow procedures:
 - Who needs the work order?
 - Generates
 - Completes
 - Records
 - Files
 - Reviews
 - Analyzes
 - Where is it turned in and who needs a copy?
 - Maintenance
 - Customer Service
 - Engineering
 - Information Systems
 - Accounting

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- Risk Manager
- What other action is required?
 - Asset data base
 - Map posting
 - Material review committee
 - Budget list
- Development of maintenance programs
 - Treatment facilities / pump stations:
 - Electrical systems
 - Emergency Generators
 - Pump and pump motors
 - Chemical systems
 - Filters
 - Valves
 - Piping and manifolds
 - Site security
 - Laboratory equipment
 - Instrumentation
 - Telemetry and SCDA systems
 - Computer hardware/software
- Distribution system:
 - Main and conveyance systems
 - Valve exercise/ maintenance
 - Fire hydrant maintenance/ flush
 - Air valve inspection/ maintenance
- Reservoir/ tank sites:
 - Inspection
 - Tank maintenance
 - Fencing/ no trespassing signs
 - Cathodic protection
 - Telemetry and SCDA systems
- Vehicles and mobile equipment
 - Obsolete Planning
 - Computer upgrades
 - Software upgrades

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SAFETY CONSIDERATIONS:

An effective Maintenance Management System can help prevent damage to property, environment, and injury to public and employees by:

- Protect the public
- Precluding system and equipment damage
- Precluding property and environmental damage
- Facilitating operations and maintenance personnel safety
 - o Identify safe work practices
 - Identify hazards
 - Switching Lockout/Tag out
 - Asbestos Concrete Pipe (ACP) Procedures
 - Traffic control
 - Trenching & shoring

COST BENEFIT:

- Enhance system reliability
- Prolong facility life
- Reduce revenue losses
- Preventive maintenance and loss trend data would reduce facility, equipment, system failures
- Avoid costly liability, property, and injury/illness losses
- Optimize investments
- Create a manageable capital replacement budget

REFERENCES:

Sample computer forms Sweetwater Authority

- o Computerized Maintenance Management System
 - Start Center
 - Asset List
 - Work Oder
 - Individually Assigned Work Orders
 - Technician's Field Computer Assigned Work Orders

Maintenance Management System should comply with the latest revisions from the American Water Works Association, (AWWA Standards)

AWWA G100 Water Treatment Plant Operations and Management
AWWA G200 Distribution Systems Operation and Management
AWWA G400 Utility Management System
AWWA G410 Business Practices for Operation and Management

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TESTIMONIALS:

The following benefits were experienced when a detailed Maintenance Management System Program had been established:

We have just recently upgraded our Maintenance Management System from an in-house developed dBase program, to a simple automated program distributed by Quantum Software Solutions. Our older program did not allow trending, scheduling, or tracking of repairs. The new program is more robust and was relatively inexpensive. It allows us to schedule maintenance and track repair costs to plants, infrastructure, vehicles, equipment, and facilities and appears to be sufficient for our needs at this time. To date, we only have our motor vehicles and trailered equipment in the system.

Stephen L. Dunn, Wheeler Ridge-Maricopa Water Storage District