Collection System Management Issues in a Changing World

SWRCB Academy
Collection System Class

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Defining The World of Collection Systems

- Collection systems are the last public utility to be regulated.
- Sewer systems are the only non-pressurized utility.
- Sewer systems collect, they don’t deliver.
- The closest cousin to sewers is the solid waste industry.

Asset Management

- The collection system is the most costly asset in the community – $1.0m to $1.5m/mile
- Financial impact of replacement/rehab costs as sewers reach their end of service life of 75-100 years.
- The inter-relationship between CMOM and GASB 34

Personnel Training & Development

- Certification history and precedent
- Current certification programs: CWEA and ABC
- Impacts of certification:
  - Brings organization and structure to the agency
  - More educated work force
  - Better disciplined workforce
  - Labor costs - improved wages and benefits

Establishing and Evaluating an Operations and Maintenance Program

1. Determine the minimum required preventive maintenance (PM) by examining the SSO records and the agency's "Hot List".
2. Set the minimum PM interval based on the recurrence interval of the known SSO's and Hot List events.

Example: All Hotlist locations that have a history of requiring cleaning every 30 days should be set on a pre-determined preventive maintenance scheduled that cycles every 30 days.

Establishing and Evaluating an Operations and Maintenance Program

Minimum staffing calculation to ensure the execution of the SSMP requirements for each area:

Manhole inspections:

Manhole count x crew hrs per manhole x crew size x cycles per year = total annual labor hours requirement

Example: 5000 manholes x .25 crew hrs/mh x 2 member crew x 1 inspection per year = 2500 labor hours/year

Establishing and Evaluating an Operations and Maintenance Program

Minimum staffing calculation to ensure the execution of the SSMP requirements for each area, continued:

<u>Pipe TV inspection, pipe cleaning, root cutting, root foaming</u>:

(System pipe length in feet/1000) x crew hrs per 1000 feet x crew size x cycles per year = total annual labor hours requirement

Example: (1,500,000 feet/1000 = 1,500 pipe segments) x 2 crew hours per 1000 feet x 2 member crew x 2 cleanings per year = 12,000 total annual labor hours

Establishing and Evaluating an Operations and Maintenance Program

Simplified minimum staffing analysis for a collection system agency:

Does the agency have enough total labor hours (employees and contract resources) available to perform all services each year?

Example, based on two previous slides: 2500 hours for manhole inspections and 12,000 hours for pipe cleaning = 14,500 labor hours required per year

If the true available labor hours = 1760 working hours per year per employee then the agency must have a minimum of 8.2 full time equivalent employees (14,500 labor hours/1760 hours per employee) to perform SSMP-required maintenance.

The Most Common and Defensible Principles For Computerization.

1. To conform to regulatory responsibilities, principally CMOM and its variants.

"…Management of information and use of timely, relevant information to establish and prioritize appropriate CMOM activities..."

(Section 122.42 (e) (2) (iv) (C) [CFR January 2001 proposed CMOM / SSO Rule])

The Most Common and Defensible Principles For Computerization

1, cont. To conform to regulatory responsibilities, principally CMOM and its variants.

"… (To document) routine preventive operation and maintenance activities."

(Section 122.42 (e) (2) (iv) (D) [CFR January 2001 proposed CMOM / SSO Rule])

The Most Common and Defensible Principles For Computerization

2. To perform timely and consistent information searches.

- Customer and media inquiries
- Scheduled reports for the elected boards and commissions
- GASB 34 infrastructure reports
- Liability defense through accurate recordkeeping

The Most Common and Defensible Principles For Computerization

3. To maintain perpetual calendars for preventive maintenance and inspections.

4. To provide justification for operations budgets.

The Most Common and Defensible Principles For Computerization

5. To track prioritized work order and repair schedules.

6. To organize capital rehabilitation and replacement plans based on asset management data.

The Most Common and Defensible Principles For Computerization

7. To preserve the agency's corporate memory

Building an Information System

- Types of Collection System Data
  - System data: Inventory, operations, condition assessment
  - Spatial data: Mapping and GIS
  - Dynamic data: Pump station SCADA and real-time flow monitoring results
  - Modeling data: Capacity analysis
  - Asset value data: System asset worth

Mapping

Dynamic collection system maps - linked to maintenance management systems - form the basis for graphical reporting of:

- Agency boundaries and jurisdictions
- Distribution of SSO’s
- Distribution of preventive maintenance activities
- Distribution of condition assessment ratings

End

Collection System Management Issues