

# Guide for Developing and Updating of Sewer System Management Plans (SSMPs)



**BACWA**  
BAY AREA  
CLEAN WATER  
AGENCIES

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Please note: This document has been formatted for screen reader accessibility, and as such, acronyms commonly used in the industry are not used in this document.

However, in keeping with the common use of acronyms in conversations and discussions, a list of acronyms is included in **Appendix 7**.

INSIDE COVER PAGE

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## Acknowledgements

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## Endorsed By The Following Organizations



## Introduction

### What are the differences with 2006 and 2022 Waste Discharge Requirements?

- Although both WDRs require all publicly-owned sewer agencies with >1 mile of sewer pipes to [enroll for regulatory coverage \(due date was June 5, 2023\)](#), the 2022 WDR (referred to throughout this manual as the “Reissued” WDR) has significant additions, changes and new requirements.
- This manual focuses on the key Reissued WDR requirements for facilitating agencies with developing and updating their Sewer System Management plans.
- A summary of the key differences between the 2006 and 2022 WDRs is provided in Appendix 1. In addition, official regulatory guidance published by the State Water Board is provided in Appendix 3.

### What Do Agencies Need to Do to Help Stay in Compliance?

- Visit the [State Water Board’s Spill Reduction website and Spill Reduction Library](#) to stay current and review the all the latest regulatory compliance information.
- Attend and document completion of available industry trainings.
- Complete a Sewer System Management Plan Change Log for documenting all agency Sewer System Management Plan modifications for the Reissued WDR (see Appendix 2).
- Complete a checklist of compliance deadlines for the Reissued WDR (see Appendix 2).

### Why Was This Manual Developed?

- To provide compliance assistance to small/medium-sized collection system owners and operators charged with complying the State Water Resources Control Board (SWRCB) General Reissued Waste Discharge Requirements (WDR) for Sanitary Sewer Systems (“Reissued WDR”, Order No. 2022-0103-DWQ).
- The Reissued WDR replaced the 2006 WDR (Order No. 2006-003-DWQ and its Monitoring and Reporting Program, Order No. 2013-0058-EXEC), which became effective on June 5, 2023.

### What Size Sewer Agency Is This Manual Intended For?

- Although the manual will be useful to any size agency, it was carefully designed to match the size, scale, and complexity of small/medium-sized sewer systems to help facilitate practical use by all levels of agency personnel responsible for developing, updating, and implementing a Sewer System Management Plan.
- Suggested strategies for compliance with the WDR appear in the document but due to the various sizes or complexities of sanitary sewer systems, compliance strategies will vary greatly.

### Why Do Collection System Managers And Operators Need This Manual?

- It replaces the previous versions of the guidance manual prepared in 2015.

However, a [2015 version](#) of this manual is available for reference in the State Water Resources Control Board Spill Reduction Library. Many recommendations from the [2015 version](#) have been incorporated into this manual including a summary of recommendations distilled from the document (see Appendix 4).

- The manual offers a practical approach to developing a Sewer System Management Plan in a step-by-step fashion.
- Full compliance with the 2022 Reissued WDR can help operators demonstrate proactive management to enforcement regulators in the event of a spill.

## How Was This Manual Developed?

- A point-by-point technical review of the Reissued WDR was completed by subject matter experts with over 150 years of combined experience to distill content in this manual for helping agencies expedite compliance, implementation, and improve effectiveness of their Sewer System Management Plans.
- Over 300 individual collection system agency managers/operators were surveyed to ascertain opinions about the [2015 version](#) and solicit additional input and guidance for development of this manual.

## What Does This Manual Do?

- Provides guidance aimed at small/medium sized collection system agencies charged with conforming to all the requirements of the Reissued WDR.
- Refines, updates, and provides additional tools for helping Legally Responsible Officials, managers, supervisors, and field operators overcome challenges with the increased depth and complexity of the Reissued WDR (compared to original WDR, Order 2006-003-DWQ which has been rescinded).

## What Doesn't This Manual Do?

- Replace legal review/assurances or shielding of an agency against potential enforcement.
- Substitute responsibility of an agency to complete/adopt a fully compliant Sewer System Management Plan.
- Provide a “One Size Fits All” document or checklist substitute.

## Strategies and Where to Start

Key strategies for making the best use of this manual include:

- Have a clear understanding of the overall concepts/changes to the Revised WDR. The Revised WDR is significantly longer than the previous version (88 pages vs. 23 pages) and contains new requirements and expectations of agencies. Therefore, agencies cannot keep the old way of doing things and need to incorporate the new aspects.

- The manual's style has a step-by-step "How To Do It" approach, different than the [2015 version](#), which provided general guidance in narrative form.
- Put together a Sewer System Management Plan team made up of your agency's Operations and Engineering staff to get the best input into the document. Both Operations and Engineering have WDR requirements to fulfill and defend that cross over disciplines.



Photo Credits: Rosamond Community Services District, City of Roseville, West Bay Sanitary District



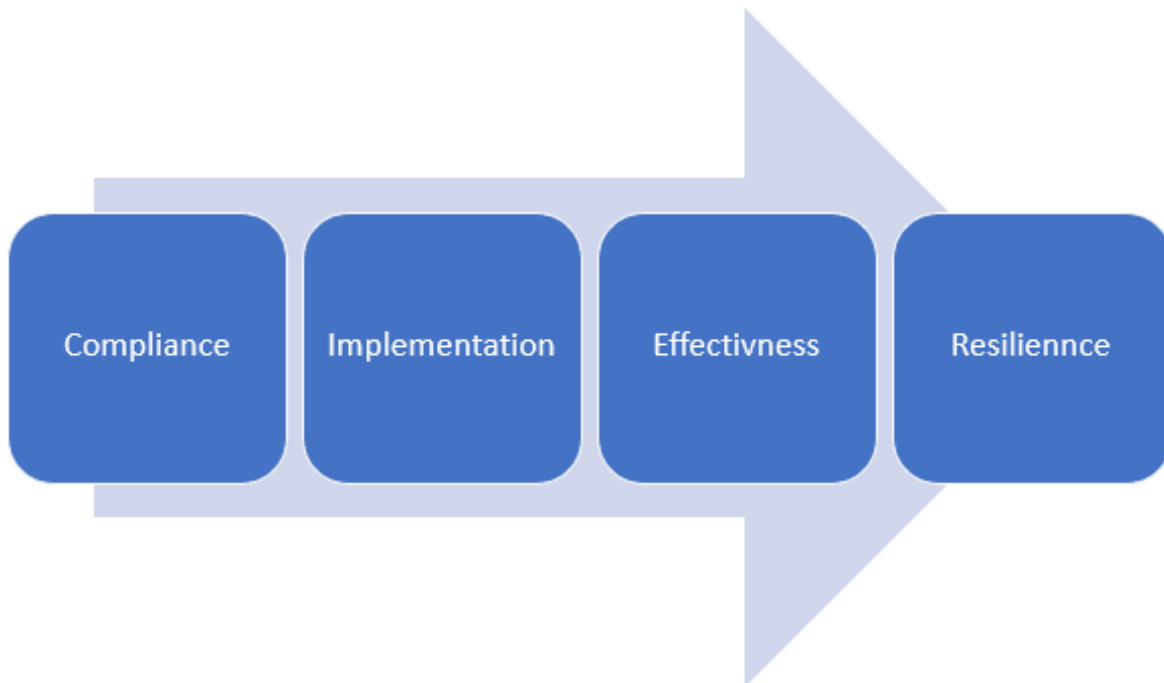
## Document Structure

The information in this User manual is divided into multiple sections that correspond to the SSS WDR mandatory requirements, which are called “Elements” in the WDR.

Each Element discussed in this manual is broken into the following sections:

- Requirements – concise description summarizing applicable WDR requirements.
- Compliance – guidance for helping agency demonstrate compliance.
- Implementation – guidance for supporting further development of main/sub-elements.
- Effectiveness – guidance for utilizing Key Performance Indicators for measuring targets, showing how agency plans and processes are working and how effective they are for achieving desired results.
- Resilience – guidance to further bolstering programs to avoid violations, reduce spills, and sustain scrutiny by outside regulators.
- Common Violations – typical noncompliance issues identified during Sewer System Management Plan audits.

*Figure 1 – Visualization for Sewer System Management Plan Compliance, Implementation, Effectiveness, and Resilience*



## Regulatory Background

- The Reissued WDR requires local public sewer collection system agencies, referred to as “Enrollees,” to develop a Sewer System Management Plan (Sewer System Management Plan) (see Figure 1 below).
- Sewer System Management Plans must be audited (by agency staff or outside consultants) at least every three (3) years and updated every five (6) years according to the Water Board’s regulatory schedule.
- The original Sewer System Management Plan must have been approved and adopted by a local governing board at a public meeting.

### 2006 WDR

- To provide a consistent, statewide regulatory approach to address sewage spills, the State Water Resources Control Board (State Water Board) adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Order No. 2006-0003 (SSS WDRs), on May 2, 2006.
- All public agencies that own or operate a sanitary sewer system that is comprised of more than one mile of pipes or sewer lines that convey wastewater to a publicly owned treatment facility were required to apply for coverage under the Order.

### 2022 WDR

- The 2006 WDR was rescinded and replaced with a “Reissued WDR” (Order No. 2022-0103-DWQ), adopted on December 5, 2023 which became effective on 6/5/2023.
- The Reissued WDR updates many aspects of the 16-year-old Order and includes a number of new requirements for Sewer System Management Plans. For more detailed information about the Reissued WDR including changes (see Appendix 1 and Appendix 3).
- A list of the key Sewer System Management Plan requirements (inclusive of related WDR “Attachments” and “Specifications”) is shown below.



Photo Credits: City of Antioch, City of Morgan Hill

***ELEMENT 1: Goal & Intro***

- Attachment D-1 (Goal/Intro), Specifications 5.2 (Develop/Implement Sewer System Management Plan)

***ELEMENT 2: Organization***

- Attachment D-2 (Org.), Specifications. 5.1 (Designation of LRO)

***ELEMENT 3: Legal Authority***

- Attachment D-3 (Legal Authority )

***ELEMENT 4: Operations and Maintenance Program***

- Attachment D-4 (O/M), Specifications: 5.7 (Necessary Resources), 5.19 (Proper O/M)

***ELEMENT 5: Design and Performance Provisions***

- Attachment D-5 (Design/Performance)

***ELEMENT 6: Spill Emergency Response Plan***

- Attachment D-6 (Spill Emergency Response Plan), Specifications 5.12 (SERP/Remedial Actions)
- Attachment E-1 (Notification, Monitoring, Reporting, Recordkeeping)

***ELEMENT 7: Sewer Pipe Blockage Control Program***

- Attachment D-7 (Pipe Blockage Control Program)

***ELEMENT 8: System Evaluation, Capacity Assurance, Capital Improvements***

- Attachment D-8 (System Evaluation, Capacity Assurance, Capital Improvements)
- Specifications 5.6 (System Resilience)
- Specifications 5.10 (System Capacity)

***ELEMENT 9: Monitoring, Measurement, Program Modifications***

- Attachment: D-9 (Monitoring, Measurement, Program Modifications)
- Specifications: 5.11 (System Performance Analysis)

***ELEMENT 10: Internal Audits***

- Attachment D-10 (Internal Audits)

***ELEMENT 11: Communication***

- Attachment D-11 (Communication Program)

## Background

A Sewer System Management Plan is developed specifically for an agency and the size and complexity of its sewer system. The Sewer System Management Plan is, in essence, a declaration of how the agency will operate their collection system.

The Water Board requires that the Sewer System Management Plan be evaluated for compliance, implementation and effectiveness while addressing system resilience. To properly manage the Sewer System Management Plan, these concepts must be considered when developing each element. Set yourself up for success.

**Compliance** is the act of meeting regulations. This is the starting point for Sewer System Management Plan development, as all required items and elements must be incorporated and addressed. The description should include how this will be accomplished. As agencies begin to develop their new Sewer System Management Plan, there will be cases where new procedures, work plans, and ordinances will need to be developed or updated to meet the requirements. Compliance is the most fundamental aspect in the development of the Sewer System Management Plan.

**Implementation** is the actions or steps taken to accomplish tasks, goals, and objectives. There needs to be a plan and schedule to carry actions out these actions. A plan without a goal is just a wish and a plan that is not implemented is just an idea. To implement a plan, a goal, level of effort, resources, and timeline need to be determined.

**Effectiveness** is the degree to which something is successful in producing a desired result. There must be a procedure or method to measure effectiveness so the degree to which something is effective can be determined. A requirement of an internal audit is to measure the effectiveness of each element.

**A Key Performance Indicator (KPI)** is a measurable target that indicates how plans and processes are working in terms of obtaining desired results. KPIs provide focus for strategic and operational improvements, create an analytical basis for decision making, and help place attention on what matters most.

### Key Performance Indicator example:

Goal: Develop a hydraulic model that determines pipe capacity requirements for current system and future (30 year) buildout.

Key Performance Indicators:

- Number of capacity-related spills or surcharge condition during the period?
- Has the system responded to rain events as indicated by the hydraulic model?
- Have there been any changes to zoning designations (residential, commercial, industrial)?
- Rain event trends: Have there been changes in rain event occurrences, intensity, and duration?

These Key Performance Indicators will help to determine the extent to which the hydraulic model is effective.

**Resilience** is the ability to recover from or adjust to adversity or change and grow from disruptions. It is also quickly recovering from system failures. Resilience can be built through planning, preparing for, mitigating, and adapting to changing conditions. Examples of Resilience include:

- **Bypass ports on force mains.** If a pump station fails completely, a portable pump can bypass the station using the force main for discharge.
- **Emergency generators for pump stations.** Backup generators ensure continuous operations during power failure events.
- **Training.** A competent workforce will get the job done better, reducing the chance for failures. Training helps to ensure more staff are available for emergencies.
- **Safety Program.** A robust safety program helps ensure staff are available when needed.
- **Public Outreach.** Providing information on kitchen best practices and what not to flush reduces the likelihood of pipe blocking items are discharged to the sewer system.
- **Mutual Aid Assistance.** Agreements and coordination with neighboring agencies for assistance during spill events.
- **Conduct a vulnerability assessment.** Performing a vulnerability assessment helps to identify and prioritize work and put the proper resources where they are needed and when they are needed.

Examples of Resilience Indicators:

- The number of occasions an eminent spill was discovered through routine maintenance activities.
- The number of occasions containment was implemented prior to a sewage discharge to surface waters.
- The number of occasions overflow storage capacity was utilized that prevented a spill.
- The number of occasions when an alarm was received, and staff were able to act and prevent a spill.
- The number of occasions staff found a better way of doing and made improvements to procedures.

Identifying resilience that is built into your agency's system, programs and procedures will help to improve upon what you have and to develop a robust system and reduce the likelihood of a spill.

As your agency develops its Sewer System Management Plan in accordance with the current General Order requirements, compliance, implementation, effectiveness, and resilience need to be considered as each element is addressed.

**The Connection between Compliance, Implementation, Effectiveness, and Resilience.**

When developing the Sewer System Management Plan, an agency must describe how their plan will address each element. This is the agency's statement of what they will do to comply with each element. When this plan is carried out as described, it is implemented. If the desired results are realized, then the plan is effective. If safeguards are put in place to prevent or mitigate failures, omissions, and oversights, then there is some level of resilience built in.

Compliance-Implementation-Effectiveness-Resilience Example:

**Sewer System Management Plan, Attachment D, 4.4 – Equipment Inventory**, *An inventory of sewer system equipment, including the identification of critical replacement and spare parts.*

Compliance: Agency maintains a list of all equipment utilized for operation and maintenance of the collection system and has identified critical replacement and spare parts.

Implementation: Agency has a procedure that requires equipment to be routinely inspected and maintained in good working order and spare parts, including critical spare parts are replaced when used. Agency reviews the equipment and replacement/spare parts inventory semi-annually to ensure all necessary equipment is available and replacement and critical spare parts spare parts are in stock. Implementation Plan/Schedule:

- Review by June 1 of each year.
- Review by December 2 of each year
- Annually evaluate Element Compliance plan against actual actions taken.

Effectiveness: (Key Performance Indicators)

- Has agency experienced occasions when a part was needed, but not available?
- Has agency experienced occasions when a needed part was not included in the inventory.
- Has agency experienced occasions when equipment failed and could not be used when needed?



Photo Credit: Irvine Ranch Water District

Resilience:

- Does agency have a QA/QC process for ensuring semi-annual reviews to ensure inventory is accurate?
- Does agency have Standard Operating Procedures (SOP) for maintaining equipment and critical/spare parts Inventory?
- Does agency have more than one staff member capable of performing the reviews?

Each of the four concepts above should be addressed for each element and related sub-element of the Sewer System Management Plan.

## Enforcement Considerations

Agency Legally Responsible Officials, managers, governing boards should review and be aware of potential liabilities for noncompliance with the Reissued WDR. An excellent practice is to review enforcement language outlined in **Specifications 5.17 and 5.18** (page 27) and Provisions 6 (pages 27-31) of the Reissued WDR. In addition, agencies should keep abreast of the latest Water Board enforcement penalty actions within their respective service areas ([see CIWQS Administrative Civil Liability ACL Report](#)) and also review example enforcement for improving understanding about the enforcement process and potential ramifications for noncompliance (see examples below).

- Region 1: North Coast Regional Water Board [example enforcement](#)
- Region 2: San Francisco Bay Regional Water Board [example enforcement](#)
- Region 3: Central Coast Regional Water Board [example enforcement](#)
- Region 4: Los Angeles Regional Water Board [example enforcement](#)
- Region 5: Central Valley Regional Water Board [example enforcement](#)
- Region 6: Lahontan Regional Water Board [example enforcement](#)
- Region 7: Colorado River Regional Water Board [example enforcement](#)
- Region 8: Santa Ana Regional Water Board [example enforcement](#)
- Region 9 San Diego Regional Water Board [example enforcement](#)

In addition, agencies should also review the [Water Board Enforcement Policy](#) for improving understanding about the specific factors considered by State/Regional Water Boards in assessing civil liabilities with [formal enforcement Orders](#).

## Element 1 – Goal And Introduction

### REQUIREMENTS<sup>1</sup>

The goal of the Sewer System Management Plan (Plan) is to provide a plan and schedule to:

- Properly manage, operate, and maintain all parts of the Enrollee’s sanitary sewer system(s),
- Reduce and prevent spills,
- Contain and mitigate spills that do occur.

The Plan must include a narrative Introduction section that discusses the following:

### 1.1. Regulatory Context

### REQUIREMENTS<sup>1</sup>

*“The Plan Introduction section must provide a general description of the local sewer system management program and discuss Plan implementation and updates.”*

### COMPLIANCE

Guidance 1.1.1: To comply with this requirement, develop a plan and schedule that includes the following:

- Provide a general description of the agency sewer system management program.
- Provide a general description of how the agency will implement the sewer system management program.
- Provide a general description of how the agency will update the sewer system management program.

### IMPLEMENTATION

Guidance 1.1.2: For implementing this Sewer System Management Plan sub-element, an agency should:

- Identify the team members that developed the Sewer System Management Plan. List positions and roles/responsibilities for its review, development, implementation, and updating.
- Addresses all 11 required elements required for full compliance with the Reissued WDR. If your agency has decided certain elements are not applicable, then provide a justification for any element not completed.
- Include a statement confirming the agency has a process in place for ensuring its Sewer System Management Plan will be fully implemented as written.

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<sup>1</sup> See Attachment D and D-1 of [Reissued WDR](#) (pageD-2).



- Include a statement confirming that the agency will conduct periodic review(s) of its entire Sewer System Management Plan for ensuring continuous compliance, implementation, and striving to improve effectiveness of all elements.
- Develop a plan/schedule:
  - Annually review previous Sewer System Management Plan audit findings.
  - Check next Sewer System Management Plan audit due date and Sewer System Management Plan update [available on the State Water Board's Look Up tool](#).
  - Review Key Performance Indicators for each element; adjust element content and update the Sewer System Management Plan Change Log as necessary prior to completion of next audit<sup>2</sup>.
  - Update this element whenever:
    - Significant work/program or organizational changes are made.
    - After Sewer System Management Plan audits are completed<sup>3</sup>
  - When Sewer System Management Plan audits are completed and significant changes are identified, a plan and schedule should be developed and implemented for each Sewer System Management Plan element (see examples throughout this document provided in each Element).
  - When audit deficiencies are discovered through the audit process.

## EFFECTIVENESS

Guidance 1.1.4: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Has the schedule for conducting audits been adhered to?
  - Has the schedule for updating the Sewer System Management Plan been adhered to?
  - Are established milestones being monitored?
  - Is the sewer system management program description up to date?
-

## 1.2. Sewer System Management Plan Update Schedule

### REQUIREMENTS<sup>4</sup>

*“The Plan Introduction section must include a schedule for the Enrollee to update the Plan, including the schedule for conducting internal audits. The schedule must include milestones for incorporation of activities addressing prevention of sewer spills.”*

### COMPLIANCE

Guidance 1.2.1: To comply with this requirement, the Agency should:

- List the legal due date for your current Sewer System Management Plan (the one being updated).
- List the legal due date for your next Sewer System Management Plan Update.
- List when your agency plans to conduct your next Sewer System Management Plan audit, including start and finish dates.
- List the due date for submitting your next Sewer System Management Plan audit to CIWQS.
- List significant milestones of spill prevention activities.
- List milestones addressing prevention of sewer spills, such as:
  - Date flow monitoring will be conducted.
  - Date CCTV inspection cycle will be completed.
  - Date lift station will be rehabilitated.
  - Date capital improvement project will commence.
  - Date new equipment will be purchased.

### IMPLEMENTATION

Guidance 1.2.2: For implementing this Sewer System Management Plan sub-element, an agency should:

- Review and update its Sewer System Management Plan whenever:
  - Significant work/program or organizational changes are made.
  - Sewer System Management Plan audits are completed<sup>5</sup>
  - Sewer System Management Plan audits are completed and significant changes and/or deficiencies are identified, a plan and schedule should be developed and implemented.

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<sup>5</sup> See Attachment D-1.2 of [Reissued WDR](#) (page D-3).

- Milestones or significant changes or events are triggered; they must be identified and included for addressing ongoing spill prevention measures.

## EFFECTIVENESS

Guidance 1.2.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Have audits been performed on schedule? Measured by review of completion for audits against required timelines.
- Has the Sewer System Management Plan been approved by the governing board on schedule (every six years)? Measured by review of historic local board adoption dates against required timelines.
- Are established milestones being monitored?

## 1.3. Sewer System Asset Overview

### REQUIREMENTS<sup>6</sup>

*“The Agency Sewer System Management Plan must have an Introduction section to provide a description of the Agency-owned assets and service area including but not limited to.*

- *Location, including county(ies).*
- *Service area boundary.*
- *Population and community served;*
- *System size, including total length in miles, length of gravity mainlines, length of pressurized (force) mains, and number of pump stations and siphons.*
- *Structures diverting stormwater to the sewer system.*
- *Data management systems.*
- *Sewer system ownership and operation responsibilities between Enrollee and private entities for upper and lower sewer laterals.*
- *Estimated number or percent of residential, commercial, and industrial service connections.*
- *Unique service boundary conditions and challenge(s).*
- *Reference to the Enrollee’s up to-date map of its sanitary sewer system, as required in section 4.1 (Updated Map of Sanitary Sewer System) of this Attachment.”*

### COMPLIANCE

Guidance 1.3.1: To comply with this requirement, the Agency should list and/or describe:

- System assets (included in Attachment D1, 1.2 of the Reissued WDR)

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<sup>6</sup> See Attachment D-1.3 of [Reissued WDR](#) (page D-3)

- Service area including terrain and any unique geological features or other characteristics that are challenging like mountainous, desert, etc. and other conditions that present challenges.
- Statement confirming system maps are up to date.

## IMPLEMENTATION

Guidance 1.3.2: For implementing this Sewer System Management Plan sub-element, an agency should:

- Develop a standardized method for collecting data to ensure consistency from year-to-year.
- Establish a schedule for data review.
- Assign review tasks to a responsible person(s) for ensuring completion.

## EFFECTIVENESS

Guidance 1.3.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Are the system maps up to date?
- Is asset data kept in the computerized maintenance management system, GIS, etc., programs up to date?
- Are updates to the maps performed in a timely manner?

## Supplemental Guidance – Element 1

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

- Standard operating procedure to provide guidance when collecting and management asset data.
- QA/QC process to ensure information is correct, calendar dates/deadlines for reminders to avoid missing deadlines or producing WDR violation(s)
- Training to ensure more than one staff member can collect and manage data.

#### ADDITIONAL RELATED SSMP REQUIREMENTS

In addition to the above guidance, an agency should also consider addressing the following related “Specifications” requirements in the Reissued WDR:

- **Specifications 5.2 (pages 18-19): “Sewer System Management Plan Development and Implementation”**
- **Specifications 5.7 (page 22): “Allocation of Resources”**
- **Provisions 6.1 (pages 27-35): “Enforcement Provisions”**
- **Provisions 6.3 (page 31): “Sewer System Management Plan Availability”**

#### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

#### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to identify appropriate goals.
- ✓ Failure to establish necessary funding, staffing, capital resources for sewer program.
- ✓ Failure to update Sewer System Management Plan sub-elements.
- ✓ Failure to establish process to ensure public has access/input to Sewer System Management Plan
- ✓ Failure to complete appropriate Sewer System Management Plan audits
- ✓ Failure to measure effectiveness and progress.
- ✓ Failure to develop and implement procedures for updating sewer maps.
- ✓ Failure to provide appropriate narrative descriptions describing procedures for prioritization of system repairs and maintenance to prevent spills.
- ✓ Failure to describe technologies and practices to reduce spills.

## Element 2 – Organization

### REQUIREMENTS<sup>7</sup>

*“The Plan must identify organizational staffing responsible and integral for implementing the local Sewer System Management Plan through an organizational chart or other similar narrative documentation that includes:*

- *The name of the Legally Responsible Official as required in section 5.1 (Designation of a Legally Responsible Official) of this General Order;*
- *The position titles, telephone numbers, and email addresses for management, administrative, and maintenance positions responsible for implementing specific Sewer System Management Plan elements;*
- *Organizational lines of authority.*
- *Chain of communication for reporting spills from receipt of complaint or other information, including the person responsible for reporting spills to the State and Regional Water Boards and other agencies, as applicable. (For example, county health officer, county environmental health agency, and State Office of Emergency Services).”*

### COMPLIANCE

Guidance 2.1: To comply with this requirement, an agency should list and/or describe:

- Name(s) of Legally Responsible Official(s) (LRO). The LRO must have the authority to ensure compliance with the provisions of the General Order and make managerial decisions regarding the operation of the sanitary sewer system. The LRO must have the necessary qualifications, such as a recognized degree or certificate in sanitary sewer system operations and maintenance or professional training and experience in sewer system management. In addition, the LRO must be authorized to make major capital improvement recommendations and have responsibility over the management of the entire sanitary sewer system owned and/or operated by the Enrollee.
- Position Titles/Contacts. The agency should list all titles that have the authority and responsibility for implementation. The contacts should include current names and telephone numbers for management, administrative, and maintenance positions.
- Organizational lines of authority. The element should identify lines of authority through an organization chart or similar document with a narrative explanation.
- Chain of communication for reporting spills from receipt of complaint or other information, including the person responsible for reporting spills to the State and Regional Water Boards and other agencies, as applicable. (For example, county health officer, county environmental health agency, and State Office of Emergency Services.)

### IMPLEMENTATION

Guidance 2.2: To facilitate implementation, an agency should consider:

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<sup>7</sup> See Attachment D-2 of [Reissued WDR](#) (page D-3)

- Provide name(s) of Legally Responsible Official(s)
  - Providing position title(s) having authority and responsibility for implementation of the various Sewer System Management Plan elements.
  - Organizational lines of authority (can be demonstrated via an organizational chart or by narrative description)
  - Description of LRO(s) possession of professional training and/or collection system experience (to satisfy minimum requirements contained in see Specifications 5.1).
- Describe the chain of communication for spills including:
  - Methods used for the public to notify the agency about a spill or sewer problem.
  - Dispatch process for deploying response personnel and documenting calls.
  - Description of progression of data collection from spill event to Data Submitter/LRO
  - Identification of data submitters and LROs responsible for chain of communication for agencies that may be involved or affected by a spill event, including but not limited to:
    - i. Local Health Department,
    - ii. Regional Water Board, Cal-OES,
    - iii. Storm drain management agencies/owner(s), and
    - iv. Water utilities or other potentially affected agencies.
  - All the above information could be represented on a flow chart or described with narrative descriptions.

## EFFECTIVENESS

Guidance 2.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Have there been instances when a service call for a spill was not properly routed to response personnel?
- Was all spill response activity documented and forwarded to the LRO?
- Have there been any changes in assigned responsibilities for implementing the Sewer System Management Plan?
- Is there a process in place to ensure all contact information remains up to date?
- Is there a process in place to ensure the organizational chart up to date?

## Supplemental Guidance – Element 2

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

- Ensuring more than one person is capable and responsible for specific duties for Sewer System Management Plan implementation, e.g. back-up personnel.
- Designation of more than one LRO to help ensure full and continuous coverage of duties.
- Ensuring more than one staff member can implement and be responsible for specific Sewer System Management Plan elements.
- Periodically review contact information to ensure it is up to date.

### ADDITIONAL RELATED SSMP REQUIREMENTS

In addition to the above guidance, an agency should also consider addressing the following related “Specifications” requirements in the Reissued WDR:

- **Specifications 5.1 (“Designation of a Legally Responsible Official)**

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to establish proper Legally Responsible Official with appropriate training and experience.
- ✓ Failure to establish and update all related necessary responsible staff and lines of authority.
- ✓ Failure to establish and update agency chain of communication for reporting spills.



## Element 3 – Legal Authority

### REQUIREMENTS<sup>8</sup>

*“The Agency Sewer System Management Plan must include copies or an electronic link to the Enrollee’s current sewer system use ordinances, service agreements and/or other legally binding procedures to demonstrate the Enrollee possesses the necessary legal authority.”*

- *“Prevent illicit discharges into its sanitary sewer system from inflow and infiltration (I&I); unauthorized stormwater; chemical dumping; unauthorized debris; roots; fats, oils, and grease; and trash, including rags and other debris that may cause blockages.”*
- *“Collaborate with storm sewer agencies to coordinate emergency spill responses, ensure access to storm sewer systems during spill events, and prevent unintentional cross connections of sanitary sewer infrastructure to storm sewer infrastructure.”*
- *“Require that sewer system components and connections be properly designed and constructed.”*
- *“Ensure access for maintenance, inspection, and/or repairs for portions of the service lateral owned and/or operated by the Enrollee.”*
- *“Enforce violation(s) of ordinances, service agreements, or other legally binding procedures.”*
- *“Obtain easement accessibility agreements for locations requiring sewer system operations and maintenance, as applicable.”*

### COMPLIANCE

Guidance 3.1: To comply with this requirement, an agency should:

- Confirm and reference ordinances, codes, service agreements, and procedures for meeting each legal authority requirement.

### IMPLEMENTATION

Guidance 3.2: To facilitate implementation, an agency should consider:

- Monitor for occasions when the ordinance/code failed to address issues as intended.
- Ensure any agreements are up to date.
- Ensure ordinance/codes/service agreements are available to staff for reference when needed.

### EFFECTIVENESS

Guidance 3.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

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<sup>8</sup> See Attachment D-3 of [Reissued WDR](#) (page D-4)

- Are the District codes and ordinances adequate for fulfilling the Sewer System Management Plan legal requirements?
- Have there been instances when the code or ordinance did not address a need or circumstance?

## Supplemental Guidance – Element 3

### RESILIENCE

- To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:
  - Monitor performance of ordinances, codes, and agreements for deficiencies and omissions.
  - Perform periodic review of ordinances, codes, and service agreements.
  - Stay abreast of industry trends and local ordinances that may affect operations.
  - Are codes and ordinances periodically reviewed?

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to establish proper codes, standards, legal agreements, and procedures to ensure conformance to requirements.
- ✓ Failure to periodically review codes, standards, legal agreements, and procedures to ensure conformance to requirements.

## Element 4 – Operations and Maintenance Program

### 4.1 Updated Map of Sewer System

#### REQUIREMENTS<sup>9</sup>

*“The Plan must include the items listed below that are appropriate and applicable to the Enrollee’s system.*

*An up-to-date map(s) of the sanitary sewer system, and procedures for maintaining and providing State and Regional Water Board staff access to the map(s). The map(s) must show gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities within the sewer system service area boundaries.”*

#### COMPLIANCE

Guidance 4.1.1: To comply with this requirement, an agency should consider ensuring:

- Up-to-date maps that include:
  - All current infrastructure assets owned and operated by the agency (gravity mains, manholes, pump stations, pressure pipes (a.k.a. force mains), valves, and stormwater conveyance systems, etc.
  - Details for pipes, diameter and direction of flow should be included.
  - A legend should be provided for map symbol clarity.
  - If your agency is not the owner of the stormwater conveyance system, make every effort to obtain the maps, preferably in a format that is compatible with yours.
    - Any format will do.
    - If you are not able to obtain stormwater conveyance system maps, document your efforts to demonstrate your diligence.

#### IMPLEMENTATION

Guidance 4.1.2: To facilitate implementation, an agency should consider:

- Establishing routine process for ensuring all maps are up to date.
- Monitoring occasions where maps were inaccurate.
- Establishing formal procedure for:
  - Maintaining and keeping maps current including:
    - A written Standard Operating Procedure (SOP) that details the steps to update the maps,
  - Procedures for field personnel who often are the ones discovering the error or omission, a timeline for completing updates (e.g., map updates will be completed 20 days after submittal of proposed changes.),

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<sup>9</sup> See Attachment D-4.1 of [Reissued WDR](#) (page D-4)

- A QA/QC process to verify changes are complete and accurate, and
- Identification of all responsible person(s) for ensuring maps are current.
- Establish procedure for providing access to the maps for the Water Board.
  - Post maps on agency website.
  - Maintain maps in digital format that can be e-mailed or delivered electronically via remote link (e.g., Dropbox)
  - Provide paper copies via mail or parcel service if requested.

#### EFFECTIVENESS

Guidance 4.1.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Were all map updates completed in a timely manner?
- Are all staff trained in the procedure for providing map update information.
- Are newly installed sewer assets incorporated into the system maps?

## 4.2 Preventive Operation and Maintenance Activities

### REQUIREMENTS<sup>10</sup>

*“A scheduling system and a data collection system for preventive operation and maintenance activities conducted by staff and contractors.*

*The scheduling system must include:*

- *inspection and maintenance activities*
- *Higher-frequency inspections*
- *Maintenance of known problem areas including areas with tree root problems*
- *Regular visual and closed-circuit television (CCTV) inspections of manholes and sewer pipes.*

*The data collection system must document the data from system inspection and maintenance activities, including system areas/components prone to root-intrusion potentially resulting in system backup and/or failure.”*

### COMPLIANCE

Guidance 4.2.1: To comply with this requirement, an agency should consider the following:

- Preventive operation and maintenance activities will vary from agency to agency. It is up to the agency to determine which activities are appropriate for the size and complexity of their system.
- Data collection systems are methods or tools that gather and store data. Examples include, but not limited to:
  - Computerized Maintenance Management System (CMMS) which allows detailed information to be collected, reported, and analyzed in a systematic manner,
  - Inspection Management software (such as software used for CCTV inspection defect coding, allows for data collection and manipulation),
  - Computer spreadsheets that can capture, display, and manipulate data,
  - Paper records, such as forms and logs, allow for detailed data collection.
  - Note: Paper data collected can certainly be analyzed but it can be a labor-intensive endeavor when there is a large amount of data.

Data needs to be collected in a manner that it can be used to plan, inform, improve decision-making, and monitor and predict trends.

### IMPLEMENTATION

Guidance 4.2.2: To facilitate implementation, an agency should consider:

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<sup>10</sup> See Attachment D-4.2 of [Reissued WDR](#) (page D-4)

- Development of a Plan and Schedule. A plan is a detailed proposal for doing or achieving something. A Schedule is a timeline, to complete tasks. The WDR requires agencies to have a plan and schedule for completing inspection and maintenance activities, including high-frequency inspections and maintenance activities of known problem areas.
  - EXAMPLE: **Plan:** [Agency] owns one CCTV van and dedicates two field staff to pipe inspection operations. The inspection process begins at the top of the collection system and progresses downstream, in a systematic manner through established maintenance zones, until the cycle is complete.
  - EXAMPLE: **Schedule:** The goal is to complete the entire cycle in a 4-year period.

A plan and schedule should be established for each of the agency’s core maintenance and inspection activities, and they should be periodically evaluated for effectiveness and adjusted, if needed.

## EFFECTIVENESS

Guidance 4.2.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Are the agency maintenance, operations, engineering work orders periodically reviewed for accuracy and completeness?
- Does the agency monitor “open” or “overdue” work orders to ensure completion of tasks?
- Are inspection and maintenance activities reducing the number and volume of spills?
- Is maintenance work being completed as scheduled?
- Are inspections of pipes, manholes, and lift stations being completed as scheduled?
- Does the agency have a proactive root control program?

A list of suggested O/M information including work program descriptions/guidance for supporting development/updating of this element is included in Appendix 5.

## 4.3 Training

### REQUIREMENTS<sup>11</sup>

*“In-house and external training provided on a regular basis for sanitary sewer system operations and maintenance staff and contractors.*

*The training must cover the requirements of this General Order; the Enrollee’s Spill Emergency Response Plan procedures and practice drills, skilled estimation of spill volume for field operators, and electronic CIWQS reporting procedures for staff submitting data.”*

### COMPLIANCE

Guidance 4.3.1: To comply with this requirement, an agency should consider ensuring:

- Training program that meets all above requirements.

### IMPLEMENTATION

Guidance 4.3.2: To facilitate implementation, an agency should consider:

- The amount and type of training provided may vary depending on job classification or responsibility. Each agency needs to decide the level of training for their personnel.
- Emergency response personnel can get rusty performing spill response tasks because they are seldom used. As a rule, training should be provided more frequently for procedures and tasks that are done infrequently and have a high consequence of failure. The more often employees participate in training, drills, and exercises, the more likely it will be that everyone remembers what to do in case of an emergency.
- An effective training program includes a demonstrated ability and/or knowledge component.
- Suggested training program outlines:
  - Spill Response Personnel:
    - General Reissued WDR overview
    - Spill Emergency Response Plan, including:
      - Methods and strategies for estimating spill volume and volume recovered.
      - Methods and strategies for estimating spill start time and end time.
      - Drills, to simulate spill response activities.
      - Pertinent definitions (Attachment A1)
      - Spill categories.
      - Notification requirements (Cal-OES).
      - Monitoring requirements for spill location and spread and receiving water.

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<sup>11</sup> See Attachment D-4.3 of [Reissued WDR](#) (page D-5)

- Spill response documentation, including photo documentation.
- Data Submitters:
  - General Reissued WDR overview.
  - Attachment E1 – Notification, Monitoring, Reporting and Recordkeeping.
  - Reporting timelines
  - Data Entry for California Integrated Water Quality System (CIWQS)
- Legally Responsible Officials (LROs)
  - General Reissued WDR, with focus on:
    - Prohibitions
    - Specifications
    - Attachment A1 – Definitions
    - Attachment D1 – Sewer System Management Plan (Sewer System Management Plan)
      - With attention on Spill Emergency Response Plan
  - Attachment E1 – Notification, Monitoring, Reporting and Recordkeeping.
  - Data Entry for California Integrated Water Quality System (CIWQS)

***NOTE:*** Staff should also be trained on all core competencies they perform, such as CCTV inspections, Hydro-Cleaning, lift station maintenance, etc.

## EFFECTIVENESS

Guidance 4.3.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Has all training been completed as scheduled?
- Have consistent records of training and attendance been maintained?
- Have all staff demonstrated ability and knowledge after each training event?
- Have contractors received, at a minimum, direction for:
  - Reporting spills
  - Implementing containment
  - Securing the site



## 4.4 Equipment Inventory

### REQUIREMENTS<sup>12</sup>

- “An inventory of sewer system equipment, including the identification of critical replacement and spare parts.”

### COMPLIANCE

Guidance 4.4.1: To comply with this requirement, an agency should consider ensuring:

- Maintaining an Inventory log that includes:
  - All equipment used in the maintenance and operation of the collection system.
  - All spare parts needed for repair of assets.
  - Identify and include critical spare parts.
    - Items that *would cause the system or activities to shutdown if they failed.*

### IMPLEMENTATION

Guidance 4.4.2: To facilitate implementation, an agency should consider implementing the following:

- Develop an equipment inventory including all equipment used for maintenance, inspections, and emergency response procedures. This can be done utilizing a database, spreadsheet, or paper form.
- Periodic auditing of the agency’s inventory to ensure it is up to date.
  - Always document these efforts and include:
    - The name of the person (or outside consultant) performing/assisting with the inventory audit,
    - The date the audit was performed,
    - Any changes made to the spare/critical parts list.
- A critical spare part can be defined as anything that will shut down equipment or processes if it fails. Critical spare parts are a key component to an inventory that will reduce the impact of a failure.
  - EXAMPLES: transducers, floats or other control switches for lift stations, radio or power supplies for SCADA systems, fuses and relays, pipe and fittings for quick responses to gravity and force main failure, spare pump(s), including any specialty tool that equipment or process relies on.
- When developing this list, consider any emergency response equipment that is relied upon, such as:
  - Emergency response (e.g., bypass pump, portable generator, etc.).

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<sup>12</sup> See Attachment D-4.4 of [Reissued WDR](#) (page D-5)

- Critical spare parts should be clearly labeled, and personnel should be aware of their location to facilitate a timely response.

#### EFFECTIVENESS

Guidance 4.4.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Has the inventory list been audited as scheduled?
- Have any inventory deficiencies or omissions been discovered?
- Has the agency experienced any equipment failure that inhibited a spill response?

## Supplemental Information – Element 4

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

- Develop an SOP for updating maps when errors are discovered.
- Develop and use forms (paper or electronic) for data collection to help ensure all pertinent information is consistently collected.
- Periodically evaluate inspection cycle intervals to help ensure they are optimized.
- Require staff to demonstrate ability and/or knowledge for all training activities.
- Monitor equipment and critical spare parts usage for and trends.

### ADDITIONAL RELATED SSMP REQUIREMENTS

In addition to the above guidance, an agency should also consider addressing the following related “Specifications” requirements in the Reissued WDR:

- **Specifications 5.19 (“Proper Operations and Maintenance”)**

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### OPERATIONS/MAINTENANCE SUPPLEMENT

- See Appendix 5

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to establish process to ensure sewer maps are up to date.
- ✓ Failure to establish and review required maintenance program activities (CCTV, inspections, etc.)
- ✓ Failure to establish adequate training program for staff and contractors.
- ✓ Failure to establish equipment inventory including identification of critical spare part.

## Element 5 – Design and Performance Provisions

### 5.1 Updated Design Criteria and Construction Standards

#### REQUIREMENTS<sup>13</sup>

*“The Plan must include the following items as appropriate and applicable to the Enrollee’s system”.*

*“Updated design criteria, and construction standards and specifications, for the construction, installation, repair, and rehabilitation of existing and proposed system infrastructure components, including but not limited to pipelines, pump stations, and other system appurtenances. If existing design criteria and construction standards are deficient to address the necessary component-specific hydraulic capacity as specified in section 8 (System Evaluation, Capacity Assurance and Capital Improvements) of this Attachment, the procedures must include component-specific evaluation of the design criteria.”*

#### COMPLIANCE

Guidance 5.1.1: To comply with this requirement, an agency should consider ensuring:

- Confirm the agency has design standards and specifications.
- Reviewing existing agency design criteria, and construction standards and specifications to ensure industry best practices are included.
- Confirm design standards address hydraulic capacity for both pipes and pump stations.

#### IMPLEMENTATION

Guidance 5.1.2: To facilitate implementation, an agency should consider:

- Monitoring methods: Establishing a red-lined copy of the agency’s standards with input from suggestions made by end-users (e.g., staff, contractors, engineers, and planners). Take note of any instances where the standards did not produce the best result.
- Requiring and reviewing warranty inspections to ensure outcomes were as intended.
- Staying abreast of industry best practices.
- Review plan: A good practice is to establish a review plan for the routine/periodic review which includes staff responsible for utilizing standards, specifications, and inspections. This is the time to address changes that have been suggested since the last update. Note: if an egregious error or omission is discovered, it should be addressed in a timely manner without delay.
- Updating: Updates should be documented, and a revision number and date should be maintained on the document. The prior version(s) should be collected, and the updated version should be distributed.
- If portions of the collection system are experiencing surcharging during rain events, they should be evaluated and compared to what is expected.

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<sup>13</sup> See Attachment D-5.1 of [Reissued WDR](#) (page D-5)

## EFFECTIVENESS

Guidance 5.1-3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- **EXAMPLE:** Does the agency implement its current design and construction standards, specifications, and inspection procedures? Measured by annual review of design and construction standards, specifications, and inspection procedures to ensure conformance to requirements.

## 5.2 Procedures and Standards

### REQUIREMENTS<sup>14</sup>

- “Procedures, and standards for the inspection and testing of newly constructed, newly installed, repaired, and rehabilitated system pipelines, pumps, and other equipment and appurtenances.”

### COMPLIANCE

Guidance 5.2.1: To comply with this requirement, an agency should consider ensuring:

- Ensure agency has procedures and standards for inspection and testing of newly constructed facilities and repaired and rehabilitated facilities.
- It is recommended that inspectors be trained in the standards and inspection procedures and be qualified by a person with the requisite experience.

## EFFECTIVENESS

Guidance 5.2.2: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Does the agency have a review process for its standards and procedures.
- Were any design or installation deficiencies found during warranty inspections?
- Are hydraulic model findings included in the design process?
- Does the agency stay abreast of industry design standards?

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<sup>14</sup> See Attachment D-5.2 of [Reissued WDR](#) (page D-5)

## Supplemental Information – Element 5

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

- Staying abreast of industry trends and standards.
- Performing warranty inspections of newly installed or repaired assets to evaluate design and installation practices.
- Evaluating as-built changes for trends and areas for design and performance improvements.

### ADDITIONAL RELATED SSMP REQUIREMENTS

In addition to the above guidance, an agency should also consider addressing the following related “Specifications” requirements in the Reissued WDR:

- **Specifications 5.19 (“Proper Operations and Maintenance”)**

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to establish, implement, and maintain appropriate sewer standards and procedures for inspections, and testing.
- ✓ Failure to enforce instances of noncompliance.

## Element 6 – Spill Emergency Response Plan

### REQUIREMENTS<sup>15</sup>

*The Plan must include an up-to-date Spill Emergency Response Plan to ensure prompt detection and response to spills to reduce spill volumes and collect information for prevention of future spills. The Spill Emergency Response Plan must include procedures to meet all the following.*

- *“Notify primary responders, appropriate local officials, and appropriate regulatory agencies of a spill in a timely manner.*
- *Notify other potentially affected entities (for example, health agencies, water suppliers, etc.) of spills that potentially affect public health or reach waters of the State.*
- *Comply with the notification, monitoring and reporting requirements of this General Order, State law and regulations, and applicable Regional Water Board Orders.*
- *Ensure that appropriate staff and contractors implement the Spill Emergency Response Plan and are appropriately trained.*
- *Address emergency system operations, traffic control and other necessary response activities.*
- *Contain a spill and prevent/minimize discharge to waters of the State or any drainage conveyance system.*
- *Minimize and remediate public health impacts and adverse impacts on beneficial uses of waters of the State.*
- *Remove sewage from the drainage conveyance system.*
- *Clean the spill area and drainage conveyance system in a manner that does not inadvertently impact beneficial uses in the receiving waters.*
- *Implement technologies, practices, equipment, and interagency coordination to expedite spill containment and recovery.*
- *Implement pre-planned coordination and collaboration with storm drain agencies and other utility agencies/departments prior, during, and after a spill event.*
- *Conduct post-spill assessments of spill response activities.*
- *Document and report spill events as required in this General Order.*
- *Annually, review and assess effectiveness of the Spill Emergency Response Plan, and update the Plan as needed.”*

### COMPLIANCE

Guidance 6.1: To comply with this requirement, an agency should consider ensuring:

- The Spill Emergency Response Plan includes, at a minimum, procedures to address the requirements above,

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<sup>15</sup> See Attachment D-6 of [Reissued WDR](#) (page D-6)

## IMPLEMENTATION

Guidance 6.2: To facilitate implementation, an agency should:

- Notify primary responders, appropriate local officials, and appropriate regulatory agencies of a spill in a timely manner. Establish realistic response time goals and monitor emergency response performance. Develop a call-list for all appropriate contacts and ensure it is readily available to response staff.
- Notify other potentially affected entities (for example, health agencies, water suppliers, etc.) of spills that potentially affect public health or reach waters of the State. Identify affected entities and their respective contact information. Periodically review contact information to ensure it is up to date.
- Comply with the notification, monitoring and reporting requirements of this General Order, State law and regulations, and applicable Regional Water Board Orders. Ensure staff are familiar with Attachment E1 of the General Order. Identify applicable laws and regulations and ensure staff are familiar with applicable content.
- Ensure that appropriate staff and contractors implement the Spill Emergency Response Plan and are appropriately trained. Provide training of the Spill Emergency Response Plan at least annually. Develop a training program for contractors that (at minimum) includes requiring immediate notification to agency, providing direction for containment, for securing the spill site and protecting the public, and requiring contractors stay on site until agency response personnel arrive.
- Address emergency system operations, traffic control and other necessary response activities. Develop a plan to coordinate spill event activities with other agencies and support services. Hold periodic meetings to ensure continuity of operations.
- Contain a spill and prevent/minimize discharge to waters of the State or any drainage conveyance system. Ensure first response vehicles have some containment devices readily available for use upon arrival at the spill site. Ensure additional containment devices can be transported to the spill site in a timely manner. Train on containment and perform drills to ensure staff is competent.
- Minimize and remediate public health impacts and adverse impacts on beneficial uses of waters of the State. Make efforts to keep the spill footprint as small as possible. Cordon off the spill site to prevent people from getting into the area.
- Coordinate with law enforcement and/or fire department for assistance in large volume traffic areas or areas where there in risk to public health.
- Remove sewage from the drainage conveyance system. Upon discovery of sewage discharge to a drainage conveyance system, locate an access point downstream of the entry point and block it to prevent discharge to surface waters. This may not be feasible during rain events. Use a hydro-vac to clean and retrieve sewage from the drainage conveyance system. For agencies that do not own a hydro-vac, consider using on-call emergency service agreements to support response efforts. As an alternate to the method described above, plug the first dry drainage conveyance system access point, or the last access point prior to discharge to the environment, flush with fresh water from the spill entry point, and pump the flush water from the plugged manhole back



to the sewer system. Coordinate/communicate with drainage conveyance system owner for cleaning operations direction.

- Clean the spill area and drainage conveyance system in a manner that does not inadvertently impact beneficial uses in the receiving waters. For hard surfaces, broom, power wash or flush with fresh water, vacuum retrieve and return the water to the sewer system or dispose of it at a treatment plant or other appropriate facility. For soil or landscaped surfaces, clean and retrieve as much as practical, dilute the area with fresh water, and treat with disinfectant (ensure disinfectant is approved by local governing authority including local regional water quality control board).
- Implement technologies, practices, equipment, and interagency coordination to expedite spill containment and recovery. Use on-call services to assist with containment. Use mutual aid agreements with neighboring agencies. Use vacuum retrieval equipment, if available.
- Consider using level sensing technology to monitor flow conditions and receive advanced warning of surcharging conditions, preventing the spill and related containment efforts.
- Implement pre-planned coordination and collaboration with storm drain agencies and other utility agencies/departments prior, during, and after a spill event.
  - Before spills – Meet with drainage conveyance system owner to develop a plan for cleaning and sewage retrieval.
  - During spills – Implement the plan. Contact drainage conveyance system owner if circumstances are not addressed in the plan.
  - After spills – Perform periodic post-incident debriefs to evaluate effectiveness and make changes to the plan if necessary.
- Conduct post-spill assessments of spill response activities. Involve (at the least) all staff that played a role in the response. Evaluate each spill event for adherence to the Spill Emergency Response Plan and for effectiveness.
- Document and report spill events as required in this General Order. Develop data collection forms that include not only the fields in the CIWQS database, but also data that supports assumptions and estimations. Ensure appropriate staff are familiar with reporting timelines and trained in data submitting.
- Annually, review and assess effectiveness of the Spill Emergency Response Plan, and update the Plan as needed. Review all Post-spill evaluations for trends and instances when the procedures did not produce the desired results. Ensure all contacts and contact information is up to date. Ensure any changes made are implemented. Update Sewer System Management Plan Change Log

## EFFECTIVENESS

Guidance 6.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- **EXAMPLE:** Does the agency implement an effective Spill Emergency Response Plan? Measured by quarterly review, training/practice drills, and completion of field data collection forms for conforming with Attachment E1 requirements.

## Supplemental Information - Element 6

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

- Provide training on a regular basis for all spill response staff. Training should include:
  - Determining Spill Start Time
  - Determining spill volume and volume recovered.
  - Data Collection (forms)
  - Containment and clean up.
  - CIWQS Data Submitting
- Develop a training plan for contracted services.
- Periodically review post-spill assessments for trends and areas for improvement.

### ADDITIONAL RELATED SSMP REQUIREMENTS

In addition to the above guidance, an agency should also consider addressing the following related “Specifications” requirements in the Reissued WDR:

- **Specifications 5.13 (“Notification, Monitoring, Reporting, Record Keeping Requirements”)**

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to develop and implement a Spill Emergency Response Plan that meets all requirements.
- ✓ Failure to test/evaluate emergency procedures during including deploying contracted services where necessary.
- ✓ Failure to ensure supply of adequate critical/identified spare parts/equipment prior to spills.
- ✓ Failure to properly notify appropriate outside agencies/officials.

## Element 7 – Sewer Pipe Blockage Control Program

### REQUIREMENTS<sup>16</sup>

*“The Sewer System Management Plan must include procedures for the evaluation of the Enrollee’s service area to determine whether a sewer pipe blockage control program is needed to control fats, oils, grease, rags, and debris. If the Enrollee determines that a program is not needed, the Enrollee shall provide justification in its Plan for why a program is not needed. The procedures must include, at minimum:*

- An implementation plan and schedule for a public education and outreach program that promotes proper disposal of pipe-blocking substances.*
- A plan and schedule for the disposal of pipe-blocking substances generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of substances generated within a sanitary sewer system service area.*
- The legal authority prohibits discharges to the system and identifies measures to prevent spills and blockages.*
- Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, best management practices requirements, recordkeeping and reporting requirements.*
- Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the fats, oils, and grease ordinance.*
- An identification of sanitary sewer system sections subject to fats, oils, and grease blockages and establishment of a cleaning schedule for each section; and*
- Implementation of source control measures for all sources of fats, oils, and grease reaching the sanitary sewer system for each section identified above.”*

### COMPLIANCE

Guidance 7.1: To comply with this requirement, an agency should consider ensuring:

- The agency has a pipe blockage control program that addresses the system’s most common blockage-causing defects, such as roots, grease, wipes, etc.
- Schedules are kept for maintenance activities, such as gravity main cleaning, lateral cleaning/rodding, pump station maintenance, etc.
- Schedules are kept for inspection activities, such as grease interceptors, kitchens, CCTV of gravity pipes, manholes, pump stations, etc.
- Monitor findings from cleaning operations.

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<sup>16</sup> See Attachment D-7 of [Reissued WDR](#) (page D-7)

## IMPLEMENTATION

Guidance 7.2: To comply with this requirement, an agency should consider ensuring:

- An implementation plan and schedule for a public education and outreach program that promotes proper disposal of pipe-blocking substances:
  - Include door hangers, flyers, bill stuffers, newsletters, etc. with agency message.
  - Place agency message on its website.
  - Have a presence at community events to convey agency message.
  - Establish a schedule that lists the events, actions, and timelines.
- A plan and schedule for the disposal of pipe-blocking substances generated within the sanitary sewer system service area. This may include:
  - A list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of substances generated within a sanitary sewer system service area.
  - Utilize hydro-vac vacuum retrieval to return water to the sewer system; dispose of debris at a treatment plant or appropriate facility. For agencies that do not own a hydro-vac, consider contracted services.
- A plan for handling grease
  - Refreshing the agency’s legal authority that:
    - Prohibits discharges to the system and identifies measures to prevent spills and blockages.
    - Prohibits illicit discharges; ensure agency ordinance or code address illicit discharges.
    - Ensures requirements in place for grease handling:
      - Installation of grease removal devices (such as traps or interceptors).
      - Design standards for the removal devices.
      - Maintenance requirements along with best management practices requirements.
      - Recordkeeping and reporting requirements.
      - If source control is performed by another agency or company, ensure all requirements are met.
  - Inspection of grease producing facilities:
    - Enforcement authority.
    - Establishing whether the Enrollee has sufficient staff to inspect and enforce the fats, oils, and grease ordinance.
    - Review agency code or ordinance to ensure all requirements are met.
  - The identification of sanitary sewer system sections subject to fats, oils, and grease blockages and establishment of a cleaning schedule for each section.

- Implementation of source control measures for all sources of fats, oils, and grease reaching the sanitary sewer system for each section identified above.
- Review gravity pipe inspection records to identify portions of the collection system experiencing grease build up or other pipe blocking defects.
- Estimate appropriate maintenance interval. Once the interval is established, when the line segment comes due for cleaning, CCTV inspects to determine if it needs to be cleaned.
- Adjust the interval, if necessary, until the optimal interval is determined. Manhole monitoring devices can be used to monitor the flow through the upstream manhole of a problem line segment, which will help establish the optimal interval.

If the problem is related to a discharge from the food service establishment or other grease-discharging business, follow agency source control procedures to rectify the problem.

- Identify measures to prevent spills and blockages:
  - Identify problem areas in agency collection system, generally accomplished by CCTV inspection.
  - Establish appropriate maintenance and inspections maintenance intervals than allows for identification of problems and implementation of preventive measures. This is a challenging endeavor, and you can use your agency spill record to drive the maintenance interval.  
Generally, a downward trending spill rate would indicate an appropriate maintenance interval. Focus should be on portions of the collection system where the consequence of failure is high (e.g., high volume gravity mains and lift stations).
  - Ensure the agency public outreach programs address pipe blocking items.

## EFFECTIVENESS

Guidance 7.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Have there been any blockages/spills from any identified problem area?
- Is the agency receiving feedback on public outreach efforts?
- Is the debris and other sewage solids collected during cleaning activities being disposed of appropriately?
- Does the agency have a plan and schedule for inspection of grease producing facilities? Was the schedule adhered to?
- Have there been spills due to excessive fats, oil, or grease in the system?
- Are Source Control staff included in the plan check process?

## Supplemental Information – Element 7

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

- Inspect assets directly downstream of grease producing businesses to ensure source control is effective.
- Develop outreach doorhangers or flyers to perform targeted outreach when discoveries are made in the field.
- Perform regular assessments of system assets to monitor performance.
- Establish a QA/QA process for evaluating pipe cleaning effectiveness.

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to identify appropriate needs for pipe blockage program.
- ✓ Failure to ensure adequate pipe blockage control enforcement authority.
- ✓ Failure to enforce requirements for instances of noncompliance.

## Element 8 – System Evaluation, Capacity Assurance, Capital Improvements

### REQUIREMENTS

*“The Plan must include procedures and activities for*

- *Routine evaluation and assessment of system conditions,*
- *Capacity assessment and design criteria.*
- *Prioritization of corrective actions.*
- *Capital improvement plan.”*

### 8.1. System Evaluation and Condition Assessment

#### REQUIREMENTS<sup>17</sup>

*“The Plan must include procedures to:*

- *Evaluate the sanitary sewer system assets utilizing the best practices and technologies available.*
- *Identify and justify the amount (percentage) of its system for its condition to be assessed each year.*
- *Prioritize the condition assessment of system areas that:*
  - *Hold a high level of environmental consequences if vulnerable to collapse, failure, blockage, capacity issues, or other system deficiencies.*
  - *Are in or within the vicinity of surface waters, steep terrain, high groundwater elevations, and environmentally sensitive areas.*
  - *Are within the vicinity of a receiving water with a bacterial-related impairment on the most current Clean Water Act section 303(d) List.*
- *Assess the system conditions using visual observations, video surveillance and/or other comparable system inspection methods.*
- *Utilize observations/evidence of system conditions that may contribute to exiting of sewage from the system which can reasonably be expected to discharge into a water of the State.*
- *Maintain documents and recordkeeping of system evaluation and condition assessment inspections and activities,*
- *Identify system assets vulnerable to direct and indirect impacts of climate change, including but not limited to sea level rise; flooding and/or erosion due to increased storm volumes, frequency, and/or intensity; wildfires; and increased power disruptions.”*

#### COMPLIANCE

Guidance 8.1.1: To comply with this requirement, an agency should:

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<sup>17</sup> See Attachment D-8.1 of [Reissued WDR](#) (pages D-7 and D-8)

- Evaluate the sanitary sewer system assets utilizing the best practices and technologies available.
  - Perform and document systematic inspections on all gravity pipe, manhole and lift stations, including force mains inspections.
  - Include historic inspection records when performing the evaluation.
- Identify and justify the amount (percentage) of its system for its condition to be assessed each year.
  - Evaluate past performance.  
Spill trends (trending up may indicate the inspection cycle is too long; trending down may indicate the appropriate interval).
  - Evaluate maintenance and repair efforts.  
Maintenance and repair trends (trending up may indicate pipe performance is declining; trending down may indicate pipe performance is stable or improving).
  - Evaluate the age of the system. Older assets tend to need more attention. Newly constructed or rehabilitated assets tend to need less attention. Use information detailed above (and more, if available) to provide an answer to the question “How do you know the return cycle is appropriate for your system?”
- Prioritize the condition assessment of system areas that hold a high level of environmental consequences if vulnerable to collapse, failure, blockage, capacity issues, or other system deficiencies, are in or within the vicinity of surface waters, steep terrain, high groundwater elevations, and environmentally sensitive areas, are within the vicinity of a receiving water with a bacterial-related impairment on the most current Clean Water Act section 303(d) List.
- Assess the system conditions using visual observations, video surveillance and/or other comparable system inspection methods.
- Perform a system-wide vulnerability assessment to determine risk (the likelihood of failure and the consequence of failure)
- Prioritize condition assessment based on risk.
  - Identify high-risk assets, such as high flow volumes; locations near surface water or environmentally sensitive areas
  - Locations in areas with restricted or seasonal access
  - Locations with history of failure(s).
  - Rank and prioritize projects based on assigned risk value.
  - Develop a likelihood/consequence matrix for the agency’s system.

## IMPLEMENTATION

Guidance 8.1.2: To implement this requirement, an agency should:

- Utilize observations/evidence of system conditions that may contribute to exiting of sewage from the system that can reasonably be expected to discharge into a water of the State.



- Identify the portions of the collection system with evidence of infiltration. If ground water is infiltrating the pipe, when the water table recedes, it is possible for sewage to exfiltrate.
- Identify the portions of the collection system with evidence of breaks, cracks, and failing joints. Identify the portions of the collection system near surface water or environmentally sensitive areas. If the pipe is in good condition, without any of the above listed defects, the likelihood of exfiltration is very low.

## EFFECTIVENESS

Guidance 8.1.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- **EXAMPLE:** Has the agency assessed the collection system capacity-related problems? Measured by annual review of all inspection data (CCTV) including spill events where there was evidence of capacity issues, including periodic reviews of visual manhole inspection and flow/level sensor data during wet weather events.

## 8.2. Capacity Assessment and Design Criteria

### REQUIREMENTS<sup>18</sup>

*“The Plan must include procedures to identify system components that are experiencing or contributing to spills caused by hydraulic deficiency and/or limited capacity, including procedures to identify the appropriate hydraulic capacity of key system elements for:*

- Dry-weather peak flow conditions that cause or contribute to spill events.
- The appropriate design storm(s) or wet weather events that causes or contributes to spill events.
- The capacity of key system components.
- Identify the major sources that contribute to the peak flows associated with sewer spills.

*The capacity assessment must consider:*

- *Data from existing system condition assessments, system inspections, system audits, spill history, and other available information.*
- *Capacity of flood-prone systems subject to increased infiltration and inflow, under normal local and regional storm conditions.*
- *Capacity of systems subject to increased infiltration and inflow due to larger and/or higher-intensity storm events as a result of climate change.*
- *Increases of erosive forces in canyons and streams near underground and aboveground system components due to larger and/or higher-intensity storm events.*
- *Capacity of major system elements to accommodate dry weather peak flow conditions, and updated design storm and wet weather events; and*
- *Necessary redundancy in pumping and storage capacities.”*

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<sup>18</sup> See Attachment D-8.2 of [Reissued WDR](#) (pages D-8 and D-9)

## COMPLIANCE

Guidance 8.2.1: To comply with this requirement, an agency should:

- Identify the major sources that contribute to the peak flows associated with sewer spills. This may include inflow and infiltration (I&I) and illicit connections and discharges (e.g., storm drain connected to the system).

Guidance 8.2.2: To comply with this requirement, an agency should:

- Identify system assets vulnerable to direct and indirect impacts of climate change, including but not limited to sea level rise; flooding and/or erosion due to increased storm volumes, frequency, and/or intensity; wildfires; and increased power disruptions.
- Identify the climate challenges in your service area, such as areas with excessive rainfall and flooding; drought; rise in sea level, and other potential impacts deemed appropriate to agency. Develop a plan to address the challenges. It is important to be forward thinking on this topic.
- Look at the changes that have occurred and evaluate the collection system assuming the trends will continue. Consider how these potential issues will impact your collection system. This includes evaluating areas experiencing increased erosive forces and include potential mitigation strategies.
- Evaluate available technologies and strategies including redundancy with pumping, backup power generation, storage and other equipment deemed necessary by the agency.
- Establish a timeline for completion of asset analysis.
  - Some endeavors may be challenging and costly. Timelines need to be established to address issues before they become problems.
  - A funding program will have to be formulated/developed and implemented.

Guidance 8.2.3: To comply with this requirement, an agency should consider the following:

- Pipes are sized to convey sewer flows today and into the future, based on factors such as historic and current flow rates zoning designations and anticipated buildout of development projects. In addition to these known and projected flows, the sewer system will receive storm water and ground water via inflow and infiltration (I&I).
- The pipe needs to allow for the additional flows. Below are considerations to determine the appropriate capacity.
  - Dry-weather peak flow conditions that cause or contribute to spill events. Is the system experiencing hydraulic deficiencies during dry weather peak flows?
  - The appropriate design storm(s) or wet weather events that causes or contributes to spill events. The design storm is a computerized event that is used to determine how the pipes will perform when storm flows are added to model. If the model suggests the pipes are appropriately sized and system surcharging occurs during storm events, then the selected design storm should be evaluated.
  - The capacity of key system components. Key system component components include such things as large volume trunk or interceptor lines, large volume pump stations, facilities near surface waters.

## IMPLEMENTATION

Guidance 8.2.4: To implement this requirement, an agency should:

- Develop and implement a system evaluation procedure to address all the above requirements.

## EFFECTIVENESS

Guidance 8.2.5: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- **EXAMPLE:** Develop a hydraulic model that determines pipe capacity requirements for current system and future (30 year) buildout.
  - Number of capacity-related spills or surcharge condition during the audit period?
  - Has the system responded to rain events as indicated by the hydraulic model?
  - Has there been any changes to zoning designations (residential, commercial, industrial)?
  - Rain event trends: Has there been changes in rain event occurrences, intensity, and duration?

## 8.3. Prioritization of Corrective Actions

### REQUIREMENTS<sup>19</sup>

*“The findings of the condition assessments and capacity assessments must be used to prioritize corrective actions. Prioritization must consider the severity of the consequences of potential spills.”*

### COMPLIANCE

Guidance 8.3.1: To comply with this requirement, an agency should:

- Develop and implement a system corrective action procedure to address all the above requirements.

## IMPLEMENTATION

Guidance 8.3.2: To implement this requirement, an agency should:

- Maintain documents and recordkeeping of system evaluation and condition assessment inspections and activities. Documentation may include CCTV records, manhole inspection records, lift station inspection records, hydraulic model updates.
- Utilize all available data for prioritizing corrective actions considering severity/consequences of potential spills relying on data obtained in sub-element 8.1-8.2 above.

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<sup>19</sup> See Attachment D-8.3 of [Reissued WDR](#) (page D-9)

## EFFECTIVENESS

Guidance 8.3.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- EXAMPLE: Has the agency adhered to its system evaluation/condition assessment efforts? Measured by annual review and update of system inspections/evaluations procedures.
- EXAMPLE: Has the agency adhered to its prioritization/corrective actions for sewer repair and capacity improvement projects? Measured by annual review and agency prioritization/corrective actions procedures.

## 8.4 Capital Improvement Plan

### REQUIREMENTS<sup>20</sup>

*“The capital improvement plan must include the following items:*

- Project schedules including completion dates for all portions of the capital improvement program.
- Internal and external project funding sources for each project.
- Joint coordination between operation and maintenance staff, and engineering staff/consultants during planning, design, and construction of capital improvement projects; and Interagency coordination with other impacted utility agencies.”

### COMPLIANCE

Guidance 8.4.1: To comply with this requirement, an agency should:

- Develop and implement a system capital improvement plan to address all the above requirements.

### IMPLEMENTATION

Guidance 8.4.2: To implement this requirement, an agency should:

- A capital improvement plan that lays-out the financing and timing for projects included in the plan (both short 5 (within the next 2-3 years) and long-term (5-10 years)).
- Joint coordination between operation and maintenance staff should be ensured depending on the agency, including coordination between engineering staff, consultants, and operations staff during planning, design, and construction for all capital improvement projects; Interagency coordination with other impacted utility agencies may also be an option.
- For portions of the system with some or all the defects and/or capacity issues identified in sections 8.1-8.3 above, develop a capital improvement plan (CIP) and/or a repair and replace (R&R) plan to address all defects and/or capacity issues.

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<sup>20</sup> See Attachment D8.4 of [Reissued WDR](#) (page D-9)

- Project schedules should be included including completion dates for all portions of the capital improvement program. It is required to establish a schedule for completion; timelines can be adjusted, based on changing priorities.
- Internal and external project funding sources should be identified for each project. Funding for large, unexpected projects can be a burden on budgets and reserves. Having foresight and resourcing money today for tomorrow's project is key to the timely completion of the project. Hold regular coordination meetings, including all parties, helps to keep the project on track and resolve issues that may arise in a timely manner.

## EFFECTIVENESS

Guidance 8.4.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- EXAMPLE: Has the agency's capital improvement plan been adhered to?
- Is there an annual review of the Capital Improvement Plan by all necessary individuals?

## Supplemental Information – Element 8

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

### ADDITIONAL RELATED SSMP REQUIREMENTS

In addition to the above guidance, an agency should also consider addressing the following related “Specifications” requirements in the Reissued WDR:

- **Specifications 5.6 (“System Resilience”)**
- **Specifications 5.10 (“System Capacity”)**

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to develop and implement system evaluation, capacity assurance, and capital improvement programs.
- ✓ Failure to identify sections holding high degree of environmental consequences if vulnerable to collapse, failure, blockage, capacity issues, or other system deficiencies.
- ✓ Failure to identify sections located in or within the vicinity of surface waters, steep terrain, high groundwater elevations, and environmentally sensitive areas.
- ✓ Failure to identify assets within the vicinity of receiving water with a bacterial-related impairment on the most current Clean Water Act section 303(d) List.
- ✓ Failure to develop and implement capital improvement plan (CIP) for necessary sewer system repairs and improvements (short term and long-term).

## Element 9 – Monitoring, Measurement, Program Modifications

### REQUIREMENTS<sup>21</sup>

*“The Plan must include an Adaptive Management section that addresses Plan-implementation effectiveness and the steps for necessary Plan improvement, including:*

- *Maintaining relevant information, including audit findings, to establish and prioritize appropriate Plan activities.*
- *Monitoring the implementation and measuring the effectiveness of each Plan Element.*
- *Assessing the success of the preventive operation and maintenance activities.*
- *Updating Plan procedures and activities, as appropriate, based on results of monitoring and performance evaluations; and*
- *Identifying and illustrating spill trends, including spill frequency, locations, and estimated volumes.”*

### COMPLIANCE

Guidance 9.1: To comply with this requirement, an agency should:

- Develop an adaptive management program to address implementation and assess effectiveness of system operations and performance.
- Address findings from most recent audit.
- Implement an Adaptive Management process that facilitates decision making in the face of uncertainty.
- Maintain relevant information in a way it can be evaluated.
- Monitor spill and system performance trends.
- Monitor work program effectiveness and update or adjust as necessary.
- The Agency must incorporate the findings from its most recent audit. This includes specific actions, steps, projects, and schedules for addressing necessary improvements needed, including planned commitments before the next agency audits and Sewer System Management Plan updates are due.

### IMPLEMENTATION

Guidance 9.2: To implement this requirement, an agency should consider the following:

- Maintaining relevant information, including audit findings, to establish and prioritize activities.
  - Systematic collection of data and storage of data in a manner that it is readily available for analysis is paramount. Storing data in a database is optimal for reporting and data

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<sup>21</sup> See Attachment D-9 of [Reissued WDR](#) (page D-9)

manipulation. Storing the data on paper in large volume is cumbersome and difficult to analyze.

- Monitoring the implementation and measuring the effectiveness of each plan element.
- This can be accomplished by:
  - Developing Key Performance Indicators for all Plan elements to help measure effectiveness.
  - Periodic Sewer System Management Plan review meetings to ensure that the plan is being carried out.
- Assessing the success of the preventive operation and maintenance activities.

Measuring actual outcomes against intended outcomes can be facilitated by annual review of the Sewer System Management Plan goals and objectives. (Caution – An agency’s goal could be to reduce spills, and one of the objectives to accomplish the goal is to inspect (CCTV) 20% of the system each year. Hitting the mark inspecting 20% of the system may not be the right measure if the objective of inspecting (CCTV) 20% of the system is not appropriate.)

- Updating Plan procedures and activities, as appropriate, based on results of monitoring and performance evaluations.

The Sewer System Management Plan is a living document, which means it is continually edited and updated. Periodic review is the key. Periodic Sewer System Management Plan review meetings are recommended for ensuring the Plan is being implemented and carried out.
- Identifying and illustrating spill trends, including spill frequency, locations, and estimated volumes. As previously stated, maintaining data in a manner that can be reviewed and evaluated makes the data more valuable.
- If an Enrollee has jurisdiction over any portion of sewer laterals, tables, or graphs can separate the lateral spills from mainline spills to normalize data for allow for more accurate comparisons with other Enrollees Common Violations (from the 2015 Guidance Manual)

## EFFECTIVENESS

Guidance 9.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Are trends being monitored and corrective action taken as necessary?
- Have Key Performance Indicators been developed to measure the effectiveness of each Sewer System Management Plan element?
- Has a plan and schedule been established to address audit findings/deficiencies?
- Have changes been made to work programs and procedures because of monitoring efforts?



## Supplemental Information – Element 9

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

- Develop key performance indicators to measure effectiveness of the Sewer System Management Plan.
- Perform periodic reviews of the Sewer System Management Plan to help ensure the plan is being properly implemented.
- Develop and adhere to a timeline to correct deficiencies found during the audit process.
- Periodically evaluate work programs to help ensure effectiveness.

### ADDITIONAL RELATED SSMP REQUIREMENTS

In addition to the above guidance, an agency should also consider addressing the following related “Specifications” requirements in the Reissued WDR:

- **Specifications 5.11 (“System Performance Analysis”)**

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to collect/maintain and evaluate relevant data for monitoring, measuring, and assessing preventive maintenance program effectiveness.
- ✓ Failure to update/modify agency Sewer System Management Plan based on results from audits and evaluation of data required for this element.

## Element 10 – Internal Audits

### REQUIREMENTS<sup>22</sup>

*“The Plan shall include internal audit procedures, appropriate to the size and performance of the system, for the Enrollee to comply with section 5.4 (Sewer System Management Plan Audits) of this General Order.”*

- Specifications 5.4 (Sewer System Management Plan Audits”)

*“The Enrollee shall conduct an internal audit of its Sewer System Management Plan, and implementation of its Plan, at a minimum frequency of once every three years. The audit must be conducted for the period after the end of the Enrollee’s last required audit period. Within six months after the end of the required 3-year audit period, the Legally Responsible Official shall submit an audit report into the online CIWQS Sanitary Sewer System Database per the requirements in section 3.10 (Sewer System Management Plan Audit Reporting Requirements) of Attachment E1 of this General Order. Audit reports submitted to the CIWQS Sanitary Sewer System Database will be viewable only to Water Boards staff. The internal audit shall be appropriately scaled to the size of the system(s) and the number of spills. The Enrollee’s sewer system operators must be involved in completing the audit. At minimum, the audit must:*

- *Evaluate the implementation and effectiveness of the Enrollee’s Sewer System Management Plan in preventing spills.*
- *Evaluate the Enrollee’s compliance with this General Order.*
- *Identify Sewer System Management Plan deficiencies in addressing ongoing spills and discharges to waters of the State; and*
- *Identify necessary modifications to the Sewer System Management Plan to correct deficiencies.*
- *The Enrollee shall submit a complete audit report that includes:*
  - *Audit findings and recommended corrective actions.*
  - *A statement that sewer system operators’ input on the audit findings has been considered; and*
  - *A proposed schedule for the Enrollee to address the identified deficiencies.”*

### COMPLIANCE

Guidance 10.1: To comply with this requirement, an agency should:

- Perform audits appropriate to the size and complexity of the agency and on the prescribed schedule.
  - Audits can be performed by agency staff or by utilizing consultants.
    - If performed in-house, consider utilizing staff from different departments to help ensure objectivity.

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<sup>22</sup> See Attachment D-10 of [Reissued WDR](#) (page D-10)

- Ensure the audit address compliance, implementation, and effectiveness of all elements of the Sewer System Management Plan.
  - Compliance: (The act of meeting regulations) This Ensure all elements and sub-elements are addressed. Full compliance is the goal.
  - Implementation: (Putting the Plan into effect): To properly implement the plan, the agency should be performing as described in the plan. In other words, the agency must “do what they say they would do.”
  - Effectiveness: (The degree to which the desired result was achieved). Each element, and in some cases the sub elements in the Sewer System Management Plan needs to be evaluated for effectiveness. Key Performance Indicators (KPIs) should be utilized to address effectiveness.

## IMPLEMENTATION

Guidance 10.2: To implement this requirement, an agency should consider:

- At minimum, an audit that must evaluate the agency’s compliance, implementation, and effectiveness of the Enrollee’s Sewer System Management Plan in preventing spills.
- Identify Sewer System Management Plan deficiencies in addressing ongoing spills and discharges to waters of the State. If established goals are not being met and outcomes are not as intended, then the Sewer System Management Plan is deficient, at least in part.
- Once the audit findings have been determined, distribute to operators for and allow ample time for review. Hold a meeting to discuss and document the outcome of the discussion.
- Include findings, recommended corrective actions, input from collection system operations staff, and a proposed schedule to address identified deficiencies.

Identify necessary modifications to the Sewer System Management Plan to correct deficiencies.

- The Enrollee shall submit a complete audit report that includes:
  - Agency Sewer System Management Plan audit findings and recommended corrective actions. Findings and recommended corrective actions should be formalized in a table or report.
  - A statement that sewer system operators’ input on the audit findings has been considered.

## EFFECTIVENESS

Guidance 10.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Have audits been performed as required?
- Have the audits assessed compliance, implementation, and effectiveness?
- Have deficiencies been identified?
- Has a plan and schedule to rectify the deficiencies been established?

- Were all past Sewer System Management Plan internal audit findings and schedule met and incorporated into Sewer System Management Plan update?
- Was the Sewer System Management Plan Change Log updated, as necessary?

## Supplemental Information – Element 10

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

- Periodically evaluate key performance indicators to assess effectiveness of each Sewer System Management Plan element.
- Evaluate previous audit to ensure deficiencies have been rectified.
- Calendar the audit due dates and complete the audit on time.
- Prepare for announced/unannounced compliance inspections by regulators and by proactive with preparing required Audits by completing the State Water Board Pre-Inspection Questionnaire (see Appendix 6).

### ADDITIONAL RELATED SSMP REQUIREMENTS

In addition to the above guidance, an agency should also consider addressing the following related “Specifications” requirements in the Reissued WDR:

- **Specifications 5.4 (“Sewer System Management Plan Audits”)**

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to conduct routine Sewer System Management Plan audits.
- ✓ Failure to measure Sewer System Management Plan element effectiveness (a simple checklist will not fulfill this obligation).
- ✓ Failure to implement identified deficiencies/recommendations and commit to new enhancements via a plan/schedule (short and long-term).

## Element 11 – Communication Program

### REQUIREMENTS<sup>23</sup>

*“The Plan must include procedures for the Enrollee to communicate with:*

- *The public for spills and discharges resulting in closures of public areas, or that enter a source of drinking water, and the development, implementation, update of its Plan, including opportunities for public input to Plan implementation and updates.*
- *Owners/operators of systems that connect into the Enrollee’s system, including satellite systems, for system operation, maintenance, and capital improvement-related activities.”*

### COMPLIANCE

Guidance 11.1: To comply with this requirement, an agency should consider:

- Developing communication procedures to ensure adequate public communication for sewage spills and during the Plan development, implementation, and updates.
- Developing communication procedures to ensure adequate communication with system owners/operators connecting to the agency’s collection system for related operations, maintenance, and capital improvement activities.

### IMPLEMENTATION

Guidance 11.2: To implement this requirement, an agency should consider:

- Communicating with the public for spills and discharges resulting in closures of public areas or that enter a drinking water source.
  - Post signs informing people to remain out of the affected, agency name and contact information should be included.
  - Cordon off the affected area to the extent is feasible.
  - If the risk to public health is high, station personnel to ensure nobody enters the affected area.
  - Communicate with the public if need be.
- There are various ways to communicate with the public. All agencies provide notice for board or council meetings. When the Sewer System Management Plan is updated and approved by the governing entity there will be opportunity for public comment.
- Public outreach is an opportunity to communicate with the public about consumer items that contribute to pipe blocking and the importance of immediate notification to agency for sewer problems. Include information on such things as: kitchen best practices, what not to flush, sewer problem notification procedures (“Call Us First”.)
- Post the Sewer System Management Plan on the agency website and invite comment. Issue newsletters or mailers informing the public anytime an action is taken, it is a public record.

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<sup>23</sup> See Attachment D-11 of [Reissued WDR](#) (page D-10)

- Satellite agencies and privately-owned systems that discharge to your system must be aware of your agency sewer use requirements. The agency sewer use code or ordinance should be distributed to satellite and private discharges. Agencies should hold periodic meetings (e.g., annually) to discuss any issues and ensure compliance as a discharger, including review of necessary emergency response procedures for responding to and mitigating spills.
- There are times when the service charge rates must be increased, which can cause adverse reactions from the agency’s customers and can sometimes result in poorly received publicity. The Sewer System Management Plan can be a tool to explain and demonstrate what is involved in operating a sewage collection system.

#### EFFECTIVENESS

Guidance 11.3: To facilitate measuring effectiveness, an agency should develop Key Performance Indicators, such as:

- Does the agency place all Sewer System Management Plan action items on the agenda for regular counsel/board meetings?
- Does the agency have signage, or other means, readily available to notify the public of environmental or public risk factors related to a sewage spill?
- Does the agency regularly communicate with other systems connected to the system?
- Was the public afforded the opportunity to provide input as the program was being implemented?
- Does the agency perform outreach to residential customers?

## Supplemental Information – Element 11

### RESILIENCE

To provide resilience for this element, an agency should consider identifying or developing resilience indicators, such as:

- Use the Sewer System Management Plan as a tool to communicate to the public how the agency is managing the system.
- Maintain a consistent presence in the service area by attending community events or issuing periodic newsletters or other communications to the public.
- Make it clear and easy for the public to contact the agency.

### ADDITIONAL GUIDANCE (FROM 2015 MANUAL)

- See Appendix 4

### COMMON WDR VIOLATIONS

To help reduce potential violations for noncompliance, an agency should avoid the following common violations:

- ✓ Failure to develop and implement a public communication program, especially during emergencies.
- ✓ Failure to solicit input on Sewer System Management Plan content.
- ✓ Failure to communicate with owners/operators of sewer system(s) connected to the agency's sewer system.

## LIST OF APPENDICIES

- APPENDIX 1 – Key Regulatory Changes for Sewer System Management Plan Development
- APPENDIX 2 – Change Log/Annual Compliance Checklist
- APPENDIX 3 – State Water Board Reissued WDR Guidance
- APPENDIX 4 – 2015 Sewer System Management Plan Manual Summary
- APPENDIX 5 – Operations and Maintenance Program Supplement
- APPENDIX 6 – State Water Board Pre-Inspection Questionnaire (version 4)
- APPENDIX 7 – References and Common Industry Acronyms