



# Sewer Maintenance Division Environmental Management System Manual



## TABLE OF CONTENTS

<b>Glossary of Terms .....</b>	<b>4</b>
<b>Introduction .....</b>	<b>5</b>
PLANNED ARRANGEMENTS .....	5
SMEMS MANUAL PROCEDURE .....	5
SMEMS SCOPE .....	6
<b>Management Direction.....</b>	<b>7</b>
SMEMS POLICY.....	7
LEADERSHIP AND COMMITMENT .....	7
ORGANIZATIONAL ROLES, RESPONSIBILITIES AND AUTHORITIES .....	7
INTERNAL AND EXTERNAL INFLUENCES .....	8
<b>Planning .....</b>	<b>9</b>
ENVIRONMENTAL ASPECTS AND IMPACTS .....	10
RISKS AND OPPORTUNITIES .....	11
CONTROL OF CONTRACTORS .....	12
COMPLIANCE OBLIGATIONS.....	13
OBJECTIVES AND INITIATIVES.....	13
MANAGEMENT OF CHANGE (MOC) .....	14
<b>Support .....</b>	<b>14</b>
COMPETENCE AND AWARENESS .....	14
COMMUNICATIONS .....	15
DOCUMENTED INFORMATION.....	17
<b>Operational Control .....</b>	<b>19</b>
EMERGENCY PREPAREDNESS.....	19
<b>Performance Evaluation .....</b>	<b>20</b>
MONITORING, MEASUREMENT, ANALYSIS AND EVALUATION.....	20
INTERNAL AUDIT.....	21
CORRECTIVE ACTION.....	21
MANAGEMENT REVIEW .....	23
<b>Appendices List.....</b>	<b>24</b>

## Revision History Log

Date	Revision No.	Change	Reference Section	Edited By
December 2013	0	Initial Version	ALL	Marti Gibson
September 2016	2	<ol style="list-style-type: none"> <li>Updated Cover</li> <li>Revised Risk Assessment Matrix</li> <li>Revised NCDENR to NCDEQ</li> <li>Revised Appendix D / Added and assessed Environmental Impact</li> </ol> Revised Appendix E / Added Significant Aspects/Risks	Manual's Cover Section 3.2.2.2.7 Glossary, p.25 Appendix D Appendix E	C. Perez
May 2017	3	Review and update for conformity to ISO 14001:2015	All	G. Sanders
June 2018	4	Upgrade to ISO 14001:2015	All	SMEMS Team
March 2019	5	Revised Corrective Action Process	Corrective Action	G. Sanders
July 2019	6	Updated internal/external influences Added Key Performance Indicators (KPIs) Updated Environmental Aspects & Risk & Opportunities Procedures	Page 7 Page 17 Pages 9-10	SMEMS Team
September 2019	7	Removed #7 statement under Objectives and initiatives, "include in annual wastewater report"	Page 11	G. Sanders
March 2020	8	Update the corrective action process by changing: <ul style="list-style-type: none"> <li>Incidents and accidents" to just "incidents"</li> <li>"Legitimate public or customer complaint" to "Escalated public or customer complaint"</li> </ul>	Page 19	SMEMS Team
March 2020	9	Updated the documented information process by changing: <ul style="list-style-type: none"> <li><b>Purpose:</b> Change "contractor activities within" to "contractor activities in support of."</li> <li><b>Procedure:</b> Expanded this section to include roles, an example of naming/title of a document, guide for documents that require and don't require control.</li> </ul>	Page 15	SMEMS Team
April 2020	10	<ul style="list-style-type: none"> <li>Updated Compliance Obligation by adding "Federal" to Compliance Obligations #4.</li> <li>Updated Communication section by adding a flow chart for Internal Communication.</li> </ul>	Page 10  Page 15	SMEMS Team
May 2020	11	Updated the Emergency Preparedness section defining HSS and EMC duties noted in #1a, 1b & 1c	Page 17	SMEMS Team
June 2020	12	<ul style="list-style-type: none"> <li>Replaced "CACs" with "Community Outreach"</li> <li>Added "Processes" to the purpose of the Management of Change process</li> <li>Removed chart before planning</li> <li>Replaced Public Utilities with Raleigh Water</li> <li>Add level of effort as a criterion for significance.</li> </ul>	Page 7  Page 13  Page 8 Entire Manual Page 9	SMEMS Team
March 2021	13	<ul style="list-style-type: none"> <li>Added Contractor control Process</li> <li>Updated Documented Information to include record retention schedule</li> <li>Defined risk levels</li> </ul>	Page 10 Page 15  Page 9 #2	SMEMS Team
June 2021	14	<ul style="list-style-type: none"> <li>Updated Intended Outcomes to align with the Department. Note MOC# M.5250.610.2021.011</li> </ul>	Page 3  Page 12	SMEMS Team

Sewer Maintenance Environmental Management System

Approved by: Raleigh Water Director- 01/01/2014

Issue Date: 06/2018 (supersedes 01/01/2014 edition)

Revision Date: July 2025

ALL PRINTED COPIES OF THIS DOCUMENT ARE UNCONTROLLED

		<ul style="list-style-type: none"> <li>Remove the PCP process as this is no longer needed</li> </ul>		
Sept. 2021	15	<ul style="list-style-type: none"> <li>Updated SMEMS Team responsibilities</li> </ul>	Page 6	SMEMS Team
Date	Revision No.	Change	Reference Section	Edited By
November 2021	16	<ul style="list-style-type: none"> <li>3: add “12 is based on a uniform quantitative measurement”</li> <li>4.a: add “capabilities and limitations of available resources”</li> <li>4.e: change “reasonably foreseeable emergency conditions” to “potential emergency conditions (escalated issues, contractor damage, CCTV coding)”</li> <li>4.j: add “the ability to effectively improve or easily mitigate an issue”</li> </ul>	Page 9	SMEMS Team
December 2021	17	<ul style="list-style-type: none"> <li>Changes “Management Policies” to “City/Departmental level policies”</li> <li>Added “(Program Audits, Program Manager Meetings)” to 1d</li> <li>Moved “Glossary of Terms” to page 4</li> <li>Added “Herbicide Application” as a SEA</li> </ul>	Page 12 Page 13 Page 12	SMEMS Team
February 2022	18	<ul style="list-style-type: none"> <li>Replace TJ Lynch with Whit Wheeler</li> <li>Add wording of quality and safety in the purpose.</li> </ul>	Page 9 Page 21	SMEMS Team
August 2022	19	<ul style="list-style-type: none"> <li>Intended Outcomes: Update Product Quality definition</li> </ul>	Page 7	SMEMS Team
November 2022	20	<ul style="list-style-type: none"> <li>Add retention of Gas Monitor Records</li> <li>Updated KPIs</li> </ul>	Page 18 Page 20	SMEMS Team
January 2023	21	<ul style="list-style-type: none"> <li>Remove KPI: SSO mitigation costs, change service request response time to SSO response time</li> </ul>	Page 20	SMEMS Team
July 2023	22	<ul style="list-style-type: none"> <li>Add: environmental impact (2.a)</li> <li>Add: responsible parties (3)</li> <li>Add: consider residual risk (7)</li> </ul>	Page 11	SMEMS Team
August 2023	23	<ul style="list-style-type: none"> <li>Update Policy Statement: To “<b>responsibly</b>” operate and maintain.....</li> </ul>	Page 7	SMEMS Team
July 2025	24	<ul style="list-style-type: none"> <li>Added: Approved date and Author to footer</li> <li>Modified grammar for greater clarity</li> </ul>	All	EMC/SMEMS Team
		<ul style="list-style-type: none"> <li>Removed: Approved date and Author</li> </ul>	Page 7	
		<ul style="list-style-type: none"> <li>Added: Customer Experience &amp; Satisfaction to Intended Outcomes</li> </ul>	Page 5	
		<ul style="list-style-type: none"> <li>Removed: Hydraulic Leaks as SEA</li> </ul>	Page 11	

## Glossary of Terms

- See Appendix G-SMD Glossary of Terms

## Introduction

Environmental management for the Sewer Maintenance Division (SMD) is a strategic priority. The Sewer Maintenance Environmental Management System (SMEMS) is intended to produce continual improvement in the areas of the following intended outcomes, consistent with Raleigh Water's Business Plan:

**a. Customer Experience and Satisfaction**

Actively inform and involve customers and other partners to enhance trust through customer service and promote an appreciation of the value of the Utility's role in the social, economic, and environmental health of the community.

**b. Employee Leadership and Development**

Recruit, develop, and retain a diverse competent, safety-focused workforce and invest in opportunities for professional and leadership development, considering the differing needs and expectations of our workforce.

**c. Enterprise Resiliency**

Actively anticipate and respond to the risks affecting resources, systems, and operations as well as seek ongoing performance improvements to deliver quality services, ensure business continuity, and reduce environmental impacts.

**d. Infrastructure Strategy and Performance**

Maintain and enhance assets over the long-term by planning for equitable and inclusive infrastructure improvements and investments consistent with community needs, anticipated growth, and system reliability.

**e. Product Quality**

Provide reliable, responsive, and professional services and products that meet or exceed regulatory compliance and customer needs.

**f. Stakeholder Understanding and Support**

Actively informs and involves stakeholders to promote an appreciation of the value and life cycle of water and the services provided by the Utility and fosters welfare and sustainability within the community.

The Sewer Maintenance Division is committed to protecting the environment through effective operations, proactive maintenance, and thorough inspections. Certified operators lead our work programs, ensuring compliance with the Grade 4 Sewer Collection System permit. We continuously evaluate new processes to strengthen environmental compliance and promote ongoing environmental excellence.

## Planned Arrangements

The Sewer Maintenance Environmental Management System (SMEMS) is based on the ISO 14001:2015 standards.

## Sewer Maintenance Environmental Management System Manual Procedure

### **Review and Approval**

- Review manual annually or when regulatory, process changes, and/or corrective action dictates.
- Recommend and review any updates or changes prior to the annual review at SMEMS team meetings.

- The Environmental Management Coordinator (EMC) shall summarize changes to the manual in the revision/history log.

## Communications and Revisions

1. Notify the Assistant Public Utilities Director for Wastewater and the SMEEMS team of any significant revisions to the SMEEMS manual.
2. Ensure the most recent version of the SMEEMS manual is posted in the City's designated shared locations.
3. Maintain document control so that revisions may only be made by the EMC or authorized designee.
4. Communicate relevant policies to staff, contractors, and other interested parties.
5. Submit recommended manual revisions to the SMEEMS team through management review via the EMC.

## Sewer Maintenance Environmental Management System Scope

The SMEEMS applies to the sanitary sewer collection system within the Raleigh, North Carolina service area, excluding Pump Stations. The defined boundaries cover the Raleigh service area and merger communities. Activities outside the scope include engineering, design, capital improvements, private property sewer laterals, stormwater management, warehousing, facility maintenance, and wastewater treatment. Pump Stations and their maintenance or repair are also excluded. This scope has been established by the SMEEMS team to clearly define applicable environmental aspects.

## SMEEMS Policy

The SMEEMS's Environmental Policy is: *"To responsibly operate and maintain the sanitary sewer collection system, while meeting our compliance obligations, continually improving environmental performance, and providing environmental protection and pollution prevention."*

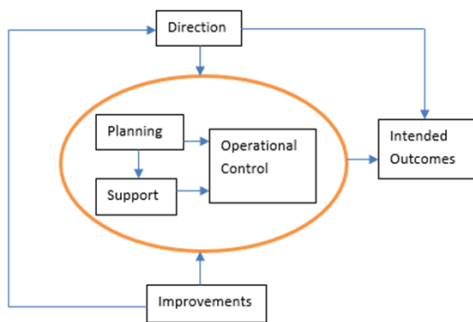
Commitment to upholding this policy is focused on the following areas:

1. **ECONOMIC:** Manage assets and resources by setting goals, objectives and initiatives for continual improvement.
2. **SOCIAL:** Engage and educate stakeholders, interested parties and staff.
3. **ENVIRONMENTAL:** Comply with applicable laws, regulations, and requirements. Improve performance, compliance, and system Operation & Maintenance (O&M) for prevention of pollution to protect the environment.

## Procedure

- Communicate the policy to employees, relevant contractors and interested parties.
- Post policy statement on the City's intranet and website (raleighnc.gov)
- Train employees on the policy.
- Review this policy as required through the Management Review process.

## Management Direction



### Leadership and Commitment

SMEMS top management, consisting of the Department Director, Assistant Director for Wastewater and the Sewer Maintenance Division Manager, are responsible for establishing, implementing, and maintaining the SMEMS, as well as ensuring its integration into the Division's processes. Top management supports the achievement of intended outcomes by setting goals, encouraging employee participation, promoting continuous improvement, and empowering other managers in their leadership roles.

## Organizational Roles, Responsibilities and Authorities

### Purpose

To outline the roles and responsibilities of staff and contractors involved in SMEMS functions. Additional sections and related documents further define roles and responsibilities as they apply to specific procedures.

### Responsibilities

The Environmental Management Coordinator (EMC) holds overall responsibility for overseeing the SMEMS and is sponsored and supported by the Assistant Director for Wastewater and Sewer Maintenance Division Manager, who has the authority to allocate resources to ensure the adequacy, suitability and effectiveness of the management system. The SMEMS manual is approved by the Director of Raleigh Water. Future revisions and updates to the manual are made by the EMC in collaboration with the SMEMS Team which meets regularly to review system performance and drive continual improvement.

### Roles & Responsibilities

- **Assistant Director for Wastewater**  
Oversight of the wastewater system.
- **Contractors, Vendors and Suppliers**  
Provides materials, supplies and services for the effective operation and maintenance of the collection system, and to comply with policies and procedures of the Sewer Maintenance Division as listed in service agreements for contracted activities relevant to sewer maintenance.
- **Director-Raleigh Water**  
Oversight of the Raleigh Water Department.
- **Environmental Management Coordinator (EMC)**  
Responsible for overseeing, facilitating, and coordinating SMEMS activities, and for reporting system performance during management reviews.
- **Health and Safety Specialist (HSS)**



Liaison between the department and SMEMS's safety activities, including emergency preparedness.

- **Raleigh City Council**  
Has authority to approve citywide budget and resources.
- **Raleigh City Manager/Assistant City Manager**  
Oversight of citywide budget and resources.
- **Sewer Maintenance Manager**  
Provides oversight of the sanitary sewer collection system and directs the Sewer Maintenance Division, ensuring effective system operations and compliance with environmental standards.
- **SMEMS Team**  
The Sewer Maintenance Division's Manager, Assistant Managers, EMC, and Program Managers constitute the SMEMS Team, which is responsible for reviewing system performance and promoting continual improvement. The team oversees the evaluation, implementation, and integration of the SMEMS across all programs under their management
- **Top Management Team**  
Department Director, Assistant Director for Wastewater and the Sewer Maintenance Division Manager, is responsible for the establishment, implementation, and maintenance of the SMEMS, while ensuring integration into the Division's processes.

## Procedure

1. The Manager of Sewer Maintenance and the EMC assign and maintain SMEMS-specific roles and responsibilities for all personnel, including contractors, with annual reviews and updates as needed.
2. Following significant operational changes, the Manager and EMC reassess roles to ensure clarity and appropriateness, with the EMC responsible for updating the roles and responsibilities tables.

## Internal and External Influences

Internal and external influences can affect the SMEMS's ability to achieve intended outcomes. Systematically identifying and monitoring these factors enables the team to maintain performance, support continual improvement, and safeguard system integrity. Recognizing how each influence impacts operations ensures that weaknesses in one area do not create cascading effects across the system.

External influences, aligned with Raleigh Water's Business Plan, focus on customer service and include regulatory requirements, customers/end-users, environmental factors, and social, political, and competitive conditions.

Internal influences comprise operational controls monitored by the SMEMS team using system knowledge and industry best practices. Monitoring includes reviewing Cityworks call data, stakeholder engagement through outreach and the City's website, and integrating feedback into objectives,

initiatives, and significant environmental aspects. These inputs are considered during management review to ensure informed decision-making and continuous progress toward world-class utility status.

The SMEMS team identified the following internal and external influences using a variety of resources, including:

1. Call center data (Cityworks)
2. Meetings with interested parties, including community outreach and contractor consultations
3. Electronic contact links on the City's website

A comprehensive list of internal and external influences is documented in a PESTLE analysis and Appendix E. The SMEMS team's top influences, highlighted below, are prioritized based on the team's expertise and day-to-day operational experience.

<b>Internal Influences</b>	<ul style="list-style-type: none"><li>• Communications</li><li>• Effectiveness of call routing within the Division</li><li>• Employee Engagement</li><li>• Retention/Recruitment (inability)</li></ul>
<b>External Influences</b>	<ul style="list-style-type: none"><li>• Customer education (sewer use ordinance)</li><li>• Public perception/practices</li><li>• Technology support</li><li>• Weather/climate change</li><li>• Public health &amp; safety</li></ul>

## **Planning**

The SMEMS Team meets regularly (at least monthly) to review and discuss any changes to the following system components:

- a. Environmental aspects/impacts
- b. Risks and Opportunities
- c. Compliance Obligations
- d. Objectives and Initiatives
- e. Interested Parties
- f. Emergency Plans
- g. Internal/External Influences

Significant environmental aspects are reviewed regularly as determined by the SMEMS team or when changes in processes occur.

Action plans to address risks are developed when establishing objectives and initiatives, and they guide the necessary steps to achieve them. These plans incorporate input from interested parties as well as identify internal and external influences to ensure comprehensive risk management.

Operational controls and significant environmental aspects serve as key influences in defining objectives, initiatives, and associated risks and opportunities for improvement. The SME MS team reviews objectives and initiatives at least monthly to assess progress, ensuring alignment with significant environmental aspects. The effectiveness of these elements is further evaluated during management review to drive continuous improvement.

## Environmental Aspects and Impacts

### Purpose

To systematically identify environmental aspects within the SME MS and assess their potential impacts, whether positive or negative, on the environment.

### Procedure

1. The SME MS team shall identify and document environmental aspects and impacts under its control or influence (see Appendix D), using historical data, staff experience, system knowledge, public input, and compliance obligations by program area.
2. Where feasible, both direct and indirect environmental aspects shall be considered.
3. Once aspects are identified, assign an impact rating from 1 to 5 for environmental, business, severity, and scale factors to determine significance. An overall rating of 12 or above, or the team's reasonable assessment based on knowledge and historical experience, defines significance. Compliance obligations are always deemed significant.
4. Criteria for determining significance are based on regulatory requirements, professional judgment, or consensus of the SME MS team. When evaluating significance, the following factors are considered:
  - a. Level of Sewer Maintenance control or influence, and available resource capabilities
  - b. New or modified developments
  - c. Activities, products, or services
  - d. Normal and abnormal operating conditions
  - e. Potential emergency conditions (e.g., escalated issues, contractor damage, CCTV coding)
  - f. Historical environmental incidents and experience
  - g. Regulatory requirements
  - h. Business impact, severity, or scale (direct and indirect)
  - i. Level of effort required for continual improvement relative to value
  - j. Life cycle stages of products or services within control or influence
  - k. Ability to effectively improve or mitigate issues
5. Document all identified Significant Environmental Aspects (SEAs) and associated action plans (current SEAs include Sewer Sanitary Overflows, Herbicide Application, Fuel Consumption, and Vehicle Idling – see Appendix E).
6. Plans to address SEAs shall incorporate established procedures, objectives and initiatives, internal and external influences, risks and opportunities, and input from interested parties.
7. Environmental aspects and impacts shall be reviewed annually by the SME MS team, or sooner if there are regulatory or process changes.

## Risks and Opportunities

### Purpose

To identify risks to the SMEMS's operations that could impede or hinder the ability to achieve the intended outcomes and continual improvement and identify opportunities for continual improvement. (Appendix E)

### Procedure

The SMEMS Team shall determine risks and opportunities that are relevant to the significant environmental aspects, internal and external influences, and compliance obligations. These areas need to be addressed to achieve intended outcomes, prevent, or reduce undesired effects, and achieve continual improvement.

### Determine Risks and Opportunities

1. The SMEMS team shall consider the level of control or influence, normal and abnormal conditions, reasonably foreseeable emergency conditions, lifecycle, and past incidents when identifying risks and opportunities.
2. Risks are assessed according to the following criteria, based upon the experience and reasonable judgement of the SMEMS Team:
  - a. Environmental Impact (consider both harmful and beneficial environmental impacts)
  - b. Severity – Consequences of the impact (magnitude)
  - c. Scale – Volume, size, or amount of the impact
  - d. Business Effect – Effect upon business operations
  - e. Likelihood – Probability of an incident happening

Risk levels are identified as high (H)-major/large, medium (M)-minor/small, or low (L)-little to no/very small based off this assessment.

3. The SMEMS team shall determine actions plans, to include responsible parties, to address risks and opportunities to avoid and/or mitigate risks.
4. Consider occasions where the Division does not have a degree of management control or influence over the risk for future review.
5. Consider both harmful and beneficial environmental impacts when determining risks.
6. Consider and incorporate risks into objectives and initiatives.
7. The SMEMS team shall integrate and implement the action plans in the SMEMS process, evaluate the effectiveness of these actions, and consider residual risk thereafter.
8. The SMEMS team shall integrate and implement the action plans in the SMEMS process and evaluate the effectiveness of these actions
9. Review Division's activities and risks at least annually, when changes occur to processes and equipment, or other relevant areas.

## Control of Contractors

### Purpose

To establish guidance on the SME MS's processes as it pertains to contractors, that may have a potential to affect environmental performance and regulatory compliance associated with the SME MS.

A statement is included in Request for Proposals (RFPs) notifying potential contractors of the SME MS and their requirement to conform to the expectations of this system. Additionally, contractors who are awarded work with the Sewer Maintenance Division are required to sign the Contractor Memorandum of Understanding. This document communicates the Division's responsibilities to the contractor within the limits of the SME MS as well as relevant environmental requirements of the contractor.

### Procedure

1. Contractors shall be aware of the SME MS Environmental Policy and EMS system.
  - i. SMD Contract Liaisons shall retain documented information as evidence of its environmental awareness communications, as appropriate.
2. Contractors performing work on behalf of the SMD shall be deemed competent based on appropriate education, training, and/or experience.
  - i. Contract Liaisons shall retain appropriate documented information to show competency.
3. Contractors are to adhere to applicable regulatory and other requirements as stated in the contract agreement.
4. Contract liaisons shall monitor, record, and identify regulatory and contractual compliance or noncompliance during site inspections.
5. Contractors shall be notified, by the SMD contract liaison, of relevant changes via various methods to include electronic communication and face to face meetings.
6. The Contractor shall implement changes in their work practices, related to changes in compliance obligations that would impact their involvement in the SME MS. These changes shall be verified through site audits by the contract liaison.
7. Contractors shall notify the SMD contract liaison for any contractual (non-regulatory) noncompliance.

## Compliance Obligations

### Purpose

To identify, monitor, and track regulatory compliance of the Sewer Maintenance Division and its contractors.

### Procedure

1. The SMEMS team shall identify and document the Sewer Maintenance Division's compliance obligations through networking, communication with regulatory agencies, professional associations and publications, management review processes, the needs and expectations of interested parties, or any other available sources (**see Appendix H**).
2. Establish, document, and maintain operational controls designed to ensure adherence to all identified compliance obligations.
3. To verify compliance, periodic inspections or audits are conducted by local, state, and federal regulators. Additionally, the SMEMS team evaluates compliance with the system at least once per certification cycle, incorporating input from regulators.

## Objectives and Initiatives

### Purpose

To establish objectives and initiatives for continuous improvement of the SMEMS (see [RW Business Plan Catalog MS Teams](#)).

### Procedure

1. Annual objectives and initiatives shall be established based on City/Department policies, risks and opportunities, compliance obligations, significant environmental aspects, and input from interested parties.
2. Objectives shall follow the SMART criteria to ensure they are specific, measurable, achievable, relevant, and time-bound.
3. Objectives and initiatives shall support performance improvements aligned with intended outcomes.
4. Action plans shall assign responsibility, resources, and specific steps for each objective and initiative.
5. Progress shall be continuously monitored and evaluated through team meetings, management reviews, and internal audits.
6. Objectives and initiatives shall inform the Division's annual budget planning to ensure sufficient resources.
7. Final objectives and initiatives shall be communicated via the City's website and internal platforms.
8. Corrective actions shall be taken if objectives or initiatives are not achieved or progress is insufficient.

## Management of Change (MOC)

### Purpose

To communicate changes in conditions, processes, significant environmental aspects, impacts, regulations, requirements, or any new development that occurs which affects the operation of the Sewer Maintenance Division.

### Procedure

1. Monitor for changing conditions, requirements, or regulations that necessitate modification to the operation of the Sewer Maintenance Division.
2. Assess divisional processes affected by changing conditions or requirements; assess if there are effects on aspects, impacts or risks; and review initiation of those changes at SMEMS team meetings.
3. Assign staff to design and implement the changes.
4. Document the changes in the shared locations, using the MOC form and implement approved changes.
5. Update procedures and documents per established requirements.
6. Retrain affected staff and contractors on revised procedures and practices as soon as practical (SMEMS Team and appropriate supervisors).

### Support

The Sewer Maintenance Division shall provide the necessary resources to support the effective operation of the Sewer Maintenance Environmental Management System (SMEMS). Resources include, but are not limited to, personnel, specialized skills, technology, and financial support. These resources are essential for maintaining and improving the SMEMS. Their adequacy and effectiveness will be verified through the implementation of a training program, execution of internal audits, regular management reviews, and fulfillment of the roles and responsibilities assigned to the SMEMS team

## Competence and Awareness

### Purpose

To identify, track, and ensure competence of staff in the operation of the sewer collection system and SMEMS functions, including training activities of contractors.

### Procedure

#### Competence

1. Assess staff competency in performing their assigned responsibilities using some of the following methods:
  - a. City of Raleigh Job Descriptions
  - b. Position Description Questionnaires
  - c. Oral or written tests
  - d. Peer reviews (Program Audits, Program Manager Meetings)
  - e. Communication (meetings, one-on-one discussions, trainings)
  - f. On the job observations and compliance audits
  - g. Annual goal setting meetings, mid-year performance review and annual performance evaluations.

2. Evaluate competency assessments and utilize results to identify opportunities for future training needs.

### **Awareness**

1. Conduct awareness training, to improve competence in the areas of environmental policy, significant aspects; their contribution to the effectiveness of the SMEMS, benefits of the SMEMS; implications for not conforming to SMEMS requirements and not fulfilling compliance obligations.
2. Conduct awareness training with new and transferred employees on policy and general SMEMS awareness as part of New Employee Orientation (NEO).
3. Conduct awareness training on facility emergency action procedures.
4. Post SMEMS policy at locations throughout the facility.

### **Recordkeeping**

1. Document attendance at SMEMS training sessions and maintain records.
2. Maintain employee training records.
3. Program Managers shall maintain competency records for their programs that can be used as a reference for performance evaluations.

## **Communications**

### **Purpose**

To establish and maintain a process for the receipt and evaluation of internal and external communications relevant to SMEMS processes, procedures, and/or performance. (**Appendix F**)

- a. Internal Communication- Contact from within the Sewer Maintenance Division.
- b. External Communication- Contact from interested parties outside the Sewer Maintenance Division. Examples of which include contact from the public, regulatory agencies, or City of Raleigh Departments.

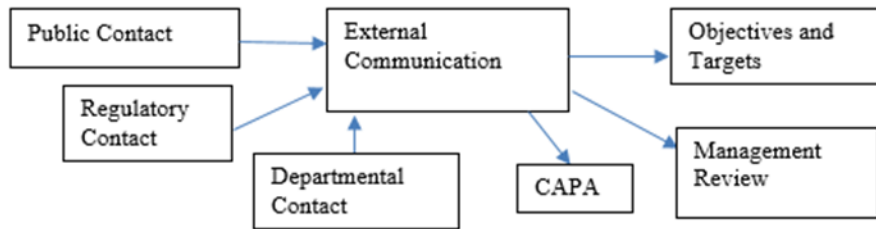
### **Procedure**

1. Provide opportunities for interested parties to communicate their input on environmental impacts, program performance, and potential improvements utilizing various forms of communication media.
2. Review input received (if any) at SMEMS team meetings for relevancy and consideration into planning Sewer Maintenance operations.
3. Document SMEMS related education and outreach efforts on shared locations.
4. Report the performance and outcomes of the SMEMS, at least annually, in the development of the Annual Wastewater Collection and Treatment System Report.

### ***External Communications***

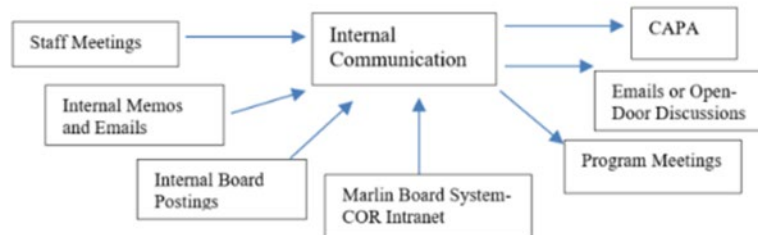
1. Communicate through press releases, notices of discharge, paid legal advertisements, and informational brochures, bill stuffers, door hangers, COR website, public community outreach, and vehicle informational wrap.
2. Document contact, input and information received, from formal and informal, via Cityworks.
3. Review and update objectives and initiatives to help address and incorporate comments and/or concerns received when feasible and/or appropriate.
4. SMEMS information and input from Contractors may be communicated by and to the appropriate SMEMS staff (contract liaison).





### *Internal Communications*

1. Report relevant and required information as detailed in **Appendix F** about Sewer Maintenance activities to staff via emails, memos, staff meetings, postings on the Marlin boards or other methods. SMEMS information is also available on the City's intranet.
2. Provide opportunities for employee input into the SMEMS via the corrective action process, emails, open door discussions, the Department's Hazard Zero program, and program specific SMEMS meetings.
3. Input shall be considered in the development of objectives and initiatives and identifying risk and opportunities for continual improvement of the SMEMS.



## Documented Information

### Purpose

To describe the methods in which the SMEEMS shall control documents to ensure they are updated, correct, and available when needed and to describe the methods on how records are controlled to ensure they are identifiable, legible, and protected.

### Procedure

1. The SMEEMS Team is responsible for ensuring this procedure is effectively established, implemented, and maintained.
2. Documents or records requiring control shall be determined by the consensus of the SMEEMS Team with oversight from the EMC. Retention and storage practices will follow all applicable State and Local guidelines.
3. Documents are to be titled, numbered, and formatted electronically by the EMC, to include the SMEEMS title, original date, revision date, and page number.
4. Example: 02-5250-19.
5. Document owners shall submit documents to the EMC for review and approval to ensure suitability and adequacy.
  - a. If the document requires formal control, the EMC shall assign a document number and place it in the appropriate location.
  - b. If the document does not require formal control (e.g., sign-in rosters, supporting documents):
    - i. If suitable for the SMEEMS, the EMC shall add the document to the appropriate location.
    - ii. If not suitable for the SMEEMS, the document shall be returned to the owner with an explanation.
6. Control of Documents and Records Information:
  - a. Controlled documents and records are published in shared locations.
  - b. Review of controlled documents or records may be made in response to management of change, corrective action, regulatory requirement, management review, interested party input, review of SOPs or periodic review.
  - c. Modifications of documents can be made by the responsible party, EMC, Sewer Maintenance Manager, or their designee, after the SMEEMS team has reviewed and authorized changes.
  - d. Printed copies of SMEEMS documents are labeled uncontrolled.
  - e. Follow the NC Records Retention and Disposition Schedules for Counties and Municipalities and the US EPA records retention guidelines for controlled records.
  - f. Archive or properly dispose of obsolete versions of the documents. Printed documents shall be disposed by confidential shredding and electronic versions shall be deleted.

1. The following documents and records used in the SMEMS require control

<b>Documents</b>	<b>Responsible Party</b>	<b>Location</b>	<b>Retention</b>
Emergency Plans	Health and Safety Specialist	Shared Locations	Current Version
EMS Manual	Environmental Management Coordinator	Shared Locations	Current Version
Standard Operating Procedures (SOPs)	Process Owner(s)	Shared Locations	Current Version (To be reviewed every 3 years)
Regulations and Permits (External Origin)	Sewer Maintenance Manager, Assistant Sewer Maintenance Managers & System ORC	Shared Locations	Life
Correspondence w/ Regulators (NOVs/NOIs)	Sewer Maintenance Manager, Assistant Sewer Maintenance Managers & System ORC	Shared Locations	Life
Objectives & Initiatives	EMC/SMEMS Team	Shared Locations	Current Version
O&M Manual for equipment (External Origin)	Process Owners(s)	Process Owner(s) Office(s)	Current Version
<b>Records</b>	<b>Responsible Party</b>	<b>Location</b>	<b>Retention</b>
Competency Records	Program Managers	Program Manager's Offices	At Least 5 Years
Confined Space Permits	Health & Safety Specialist (HSS)	HSS Office	1 year
Corrective Actions	Environmental Management Coordinator	Shared Locations	At Least 5 Years
Environmental Aspects	EMS/SMEMS Team	Shared Locations	Current Version
Gas Monitor Service Records	Health & Safety Specialist	HSS Office	Life of Unit plus 1 year
Employee Personnel Records (internal)	Administrative Staff (COR) HR maintains original files	Administrative Staff Offices	At least 8 years after termination of employment
Internal and External Audit Reports	Environmental Management Coordinator	Shared Locations	At Least 5 Years
Operation & Maintenance Work Orders	Program Managers & Maintenance Analyst Planners	Cityworks	Life
Management Review Minutes	Environmental Management Coordinator	Shared Locations	At Least 5 Years
Public Inquires and Responses (service requests)	Process Owner	Cityworks	Life
Reports to Regulatory Agencies	Operator in Responsible Charge (ORC) or Permit Holder	ORC's Office	Life
Training Documents/Records	EMC/Utilities Coordinator Health & Safety Specialist, Program Mangers	Shared Locations	At least three years after

			termination of employment
--	--	--	---------------------------

## **Operational Control**

### **Purpose**

To implement and maintain operational controls to maintain a life cycle perspective, the SMEMS addresses environmental requirements of the Sewer Collection Permit and the SMEMS. Operational controls (**Appendix C**) can be utilized to effectively manage outcomes considering quality of outcomes and the safety of internal/external parties.

### **Procedure**

1. Identify operational controls that can affect or influence outcomes.
2. Document identified operational controls.
3. Monitor operational data daily for compliance and record in Cityworks.
4. Update operational controls and monitoring and measurement procedures as necessary.
5. Consider life cycle perspective when developing operational controls.

## **Emergency Preparedness**

### **Purpose**

To ensure effective response to accidents and emergency situations associated with Sewer Maintenance activities, and to help minimize consequences or associated risks, including activities of contractors.

### **Procedure**

1. Review and update the Sewer Maintenance Emergency Action Plan (EAP) annually, taking into account desktop exercises, actual drills, after-action reviews, and personnel changes.
  - a. The Health and Safety Specialist (HSS) shall ensure the EAP is updated and added to shared locations:
    - i. The HSS shall coordinate with the EMC to place the EAP in the shared locations.
    - ii. In the HSS's absence, the EMC may update the EAP.
    - iii. In the absence of both the HSS and EMC, the Administrative Specialist may add the EAP to the shared locations.
  - b. The HSS shall complete a Management of Change (MOC) form detailing updates.
  - c. The EMC shall route the MOC for notification and signatures.
2. Evaluate and provide input for updates to the comprehensive Emergency Operations Plan (EOP) and Raleigh Water's Employee Evacuation Plan (EEP) at least once every three years.
3. Conduct periodic emergency response testing and training to ensure preparedness.
4. Investigate emergency situations related to Sewer Maintenance activities and document corrective action plans for all incidents.
5. Monitor Sewer Maintenance contractors during periodic site visits, through the assigned contract liaison, to verify they possess the most current versions of the EOP/EAP and adhere to applicable guidelines as stated in their service agreements or Memoranda of Understanding.
6. Identify and document potential environmental incidents and emergencies, assess their environmental impacts and associated risks, and develop planning actions to address them (**see Appendix I**).

## **Performance Evaluation**

Periodic review of the SMEEMS takes place through internal audits, monitoring and measuring and management reviews to track and evaluate performance of the system and to identify opportunities for improvement.

### **Monitoring, Measurement, Analysis and Evaluation**

#### **Purpose**

To monitor environmental performance with applicable compliance obligations requirements, measure performance, and track progress toward achievement of objectives.

#### **Procedure**

1. The SMEEMS monitors and measures the following Key Performance Indicators (KPIs):
  - a. SSO rate (reportable vs. reportable dry weather)
  - b. Number of NOV/NOIs that result in assessment of civil penalties by State regulators
  - c. Footage (miles) of pipe cleaned (permit mandates 10% of system)
  - d. Footage (miles) of easement maintained
  - e. Percentage of high priority assets inspected
  - f. Footage (miles) pipe inspected via CCTV
  - g. Vacancy rate (<10%)
  - h. Accident/injuries by type
  - i. Repair (612 Program) reactive (emergency) vs. scheduled work
  - j. Number of civil penalties per number of FOG enforcement actions
  - k. Number of property manager resource kits distributed (FOG Program)
2. Items related to compliance obligations, monthly performance, objectives and initiatives as well as significant aspects shall be monitored.
3. The methods for monitoring are based upon compliance obligations and/or existing performance metrics requested by the Executive Management Team. Information is analyzed, evaluated, documented, and reported via periodic performance reports.
4. Data input by staff are evaluated and analyzed by the program managers on a continual basis and may be discussed in regularly scheduled SMEEMS, SMEEMS Committee (Program), and Management Review Meetings.
5. Review monitoring and measurement activities whenever significant changes in processes, operations or regulatory compliance occur.
6. The SMEEMS does not have equipment that needs calibration.

## Internal Audit

### Purpose

To perform periodic review of the SMEMS to evaluate its performance and identify opportunities for improvement.

### Procedure

1. The SMEMS team shall develop a three-year audit schedule, for conducting internal and process (program) audits, based upon the SMEMS's processes.
2. The SMEMS team develops the purpose, scope, criteria and plans for internal audits.
3. Evaluate SMEMS's performance in the areas of continual improvement as it relates to the intended outcomes and objectives and initiatives.
4. The designated auditor shall conduct audits, develop reports, and review preliminary audit results (findings and/or opportunities) with the process owner and the SMEMS team.
5. Findings shall be addressed by using the corrective action process.
6. The SMEMS team considers opportunities and may address any through the corrective action process.
7. Corrective actions shall be presented to the auditor and the auditors shall follow-up to verify corrective action results.
8. The EMC shall present audit reports as part of the Management Review process.

### Selecting and Training Auditors

1. The SMEMS team selects auditors to conduct internal audits. Auditors must be impartial and objective in the area being audited.
  - a. Internal auditors cannot audit areas where they have direct job responsibilities.

## Corrective Action

### Purpose

The corrective action process identifies actual or potential issues, findings, or opportunities arising from routine monitoring and measurement, emergency incidents, audits, operational experience, or other sources. It determines the actions necessary to prevent their occurrence or recurrence. The following are examples of problem types that require further investigation, root cause analysis, and corrective action

- Incidents
- Noncompliance with legal or other requirements
- Nonconformance with third-party audits
- Findings from internal audits
- Escalated public or customer complaint
- Systemic issues (i.e., problems for which immediate correction is not sufficient to prevent it from repeating)
- Any other problems the SMEMS team determines requires corrective action
- Any problem or issue that causes environmental impacts.

## Procedure

1. Identify, investigate, and evaluate nonconformance, noncompliance, problems or potential problems discovered via complaints, routine monitoring and measurement, incidents and accidents, audits, or regulatory compliance.
2. Document the problem using the corrective action report (CAR) form and report problem to the process owner and EMC.
3. Perform root cause analysis for problems or issues using the 5-why method. Determine if cause can affect other areas.
4. Develop corrective action plan(s) to implement necessary corrective or preventive actions that will address the root cause of the problem, and identify responsibility, resources, and timing of the plan.
5. Monitor and review progress toward resolution at SMEMS and/or staff meetings.
6. Verify effectiveness of the solution to ensure the cause has been eliminated, so the problem will not re-occur, and close the CAR (closed loop). The person verifying effectiveness is typically the person that identified the issue.
7. Maintain status tracking log of CARs (EMC).
8. CARs identifying change in procedure, policy, workflow and/or equipment needs are addressed through the Management of Change (MOC) process.
9. Report nonconformances, noncompliances, and corrective actions to management as part of the management review process.
10. The EMC shall periodically review CAR logs for systemic problems or trends identifying areas of concern.
11. Noncompliance of Sanitary Sewer Overflows (SSOs) shall be tracked through the BasinWide Information Management System (BIMS) process.
12. For detailed step-by-step on the corrective action process, see SOP 600.SOP.5250.0032.610 Corrective Action Procedure.

## Management Review

### Purpose

To provide a strategic review of the SMEMS, at scheduled intervals, to ensure SMEMS's suitability, adequacy, and effectiveness and to identify continual improvement opportunities.

### Procedure

1. The SMEMS EMC, or designee, shall conduct periodic Management Reviews with Top Management, which includes the Assistant Director for Wastewater and Sewer Maintenance Manager.
2. Management Review shall include:
  - a. Status of actions from prior Management Reviews
  - b. Changes in external and internal influences relevant to SMEMS, needs and expectations of interested parties including compliance obligations, significant environmental aspects and risk and opportunities
  - c. Progress towards achieving objectives and initiatives
  - d. Update on SMEMS's environmental performance, to include nonconformities and corrective actions, monitoring and measurement results, fulfilment of compliance obligations and audit results
  - e. Adequacy of SMEMS's resources
  - f. Relevant communication, including complaints, with interested parties
  - g. Opportunities for continual improvement
3. Discuss and provide information to Management Review participants in advance of Management Review along with recommendations for improvements (SMEMS Team).
4. Top Management shall review suitability, effectiveness, and adequacy of the SMEMS, including actions required when environmental objectives are not achieved; opportunities to improve SMEMS's integration with other business processes; and implications for a strategic direction.
5. The EMC, or their designee, shall be responsible for the preparation and publishing of meeting minutes capturing discussions and action items from Management Review.
6. All action items noted shall have responsible parties assigned along with timelines.



## Appendices List

List can be found in the shared location of the SME MS Folder-Manual and Appendices

**Appendix A** – Planning Structure

**Appendix B** – Lines of Authority

**Appendix C** – Operational Controls

**Appendix D** – Aspects-Impacts-SEA Matrix

**Appendix E** – SME MS Risk Assessment

**Appendix E.a** SME MS Risk Assessment -High Only

**Appendix F** – Communications

**Appendix G** – SMD Glossary of Terms

**Appendix H** – Interested Parties

**Appendix I** – Potential Emergencies