



Sewer Maintenance Division Environmental Management System Manual



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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"> Updated Cover Revised Risk Assessment Matrix Revised NCDENR to NCDEQ Revised Appendix D / Added and assessed Environmental Impact 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 targets, "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"> Incidents and accidents" to just "incidents" "Legitimate public or customer complaint" to "Escalated public or customer complaint" 	Page 19	SMEMS Team
March 2020	9	Updated the documented information process by changing: <ul style="list-style-type: none"> Purpose: Change "contractor activities within" to "contractor activities in support of." Procedure: Expanded this section to include roles, an example of naming/title of a document, guide for documents that require and don't require control. 	Page 15	SMEMS Team
April 2020	10	<ul style="list-style-type: none"> Updated Compliance Obligation by adding "Federal" to Compliance Obligations #4. Updated Communication section by adding a flow chart for Internal Communication. 	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"> Replaced "CACs" with "Community Outreach" Added "Processes" to the purpose of the Management of Change process Removed chart before planning Replaced Public Utilities with Raleigh Water Add level of effort as a criterion for significance. 	Page 7 Page 13 Page 8 Entire Manual Page 9	SMEMS Team
March 2021	13	<ul style="list-style-type: none"> Added Contractor control Process Updated Documented Information to include record retention schedule Defined risk levels 	Page 10 Page 15 Page 9 #2	SMEMS Team
June 2021	14	<ul style="list-style-type: none"> Updated Intended Outcomes to align with the Department. Note MOC# M.5250.610.2021.011 Remove the PCP process as this is no longer needed 	Page 3 Page 12	SMEMS Team
Sept. 2021	15	Updated SMEMS Team responsibilities	Page 6	SMEMS Team

Sewer Maintenance Environmental Management System

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

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

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. 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 expectation of our workforce.

b. 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.

c. 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.

d. Product Quality

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

e. 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 SMD strives to protect the environment through operations, maintenance, and inspections. Operations are emphasized by having certified operators manage work programs and maintain compliance with the Grade 4 Sewer Collection System permit. Evaluation of new processes for environmental compliance is a continual effort that promotes environmental excellence.

Planned Arrangements

The SMEMS is based on the ISO 14001:2015 standards.

SMEMS Manual Procedure

Review and Approval

- Review manual annually and when regulatory or process changes and/or corrective action dictates.
- Recommend and review any updates and other changes arising prior to the annual review at SMEMS team meetings.
- The Environmental Management Coordinator (EMC) shall summarize changes to the manual in the history log.
- Update manual with approved changes (EMC).

Communications and Revisions

1. Inform APUD for Wastewater and SMEMS team of any significant revisions to the SMEMS manual.
1. Post most recent version of the SMEMS manual on the City's shared locations.
2. Control manual so that changes can be made only by the EMC or designee.
3. Communicate policy to staff, contractors and to interested parties.
4. Recommended manual revisions shall be communicated to the SMEMS team through management review via the EMC.

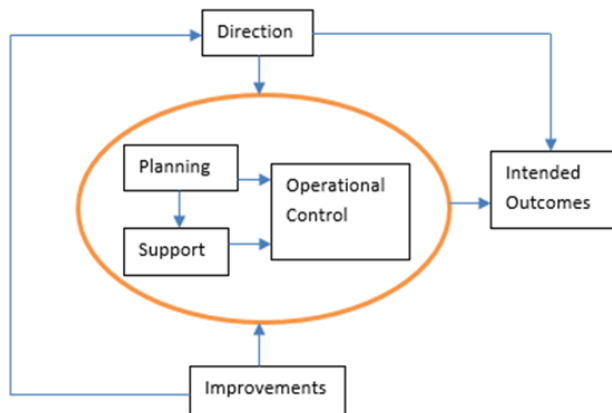
SMEMS Scope

The SMEMS applies to the sanitary sewer collection system within the Raleigh, North Carolina service area, excluding Pump Stations.

Boundaries include the Raleigh service area and merged communities. Engineering, design, capital improvements, private property sewer laterals, stormwater, warehousing, facility maintenance and wastewater treatment are not included in this scope. Pump Stations and the maintenance/repair of them are also not included in the scope of the SMEMS.

The above scope has been determined by the SMEMS team to identify environmental aspects.

Management Direction



SMEMS Policy

The SMEMS'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 in 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.

Leadership and Commitment

SMEMS's top management, which includes the 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. Top management ensures that the SMEMS achieves intended outcomes by setting goals, supporting employee contribution to the SMEMS, promoting improvement, and supporting other managers in their leadership.

Organizational Roles, Responsibilities and Authorities

Purpose

To define the roles and responsibilities of staff and contractors performing SMEMS functions. In addition, other sections and related documents describe roles and responsibilities where relevant to certain procedures.

Responsibilities

The overall responsibility for overseeing the SMEMS lies with the EMC. The EMC is sponsored and supported managerially by the Assistant Director for Wastewater, who has the authority to commit resources and people to the Sewer Maintenance Division and the SMEMS. The SMEMS manual is approved by the Director of Raleigh Water. Future revision and maintenance of the manual can be made by the EMC in conjunction with the SMEMS Team. The SMEMS Team meets periodically to review performance and continual improvement of the management system.

- **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)**
Facilitates and coordinates SMEMS activities and reporting the performance for management review.
- **Health and Safety Specialist (HSS)**
Liaison between the department and SMEMS's safety activities, to include emergency preparedness.
- **Management Systems Coordinator**
Overall responsibility for implementing and monitoring the Raleigh Utility Management System (RUMS).
- **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**
Oversight of wastewater management and overall management of the Sewer Maintenance Division including environmental performance of the collection system.
- **SMEMS Team**
Sewer Maintenance Division's program managers or team leads. The SMEMS Team meets to review performance and continual improvement of the management system and reviews and implements the SMEMS within the programs they manage.
- **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.
- **Utilities Coordinator**
Assigned duties of EMC.

Procedure

1. Roles and responsibilities for various individuals (including contractors) that are specific to the SMEMS are assigned by the Manager of Sewer Maintenance and the EMC. They are reviewed and updated as necessary on an annual basis.
2. The Sewer Maintenance Manager and the EMC will also review existing roles/responsibilities whenever significant operational changes are made to ensure that roles/responsibilities are appropriately defined. Revisions to the roles and responsibilities tables are made by the EMC.

Internal and External Influences

Influences can impact SMEMS’s ability to achieve intended outcomes. Identifying internal and external influences allows the team to gauge system performance and efficacy. By focusing on these areas, the system can ensure that Intended Outcomes are met, and that continual improvement is achieved. Identifying these aspects allows Team members to better understand how these specific influences play a role in the operation of the overall system, and how losing focus in one area can have a ripple effect that impacts other areas.

The SMEMS team has identified the below internal and external influences using various resources which includes:

1. Call Center data (Cityworks)
2. Interested party meetings: community outreach and/or contractor meetings
3. Electronic links to City website (allows interested parties to contact us)

A detailed list of internal and external influences are specified in a PESTLE analysis. The SMEMS top influences are detailed below and are focused based on the expertise of the team’s daily experiences.

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

External influences are customer service related/focused and align with Raleigh Water’s Business Plan, which highlights the desire to become a world-class utility. External influences include regulatory compliance, customers/end users, environmental factors (convictions), and social, political, and competitive circumstances.

Internal influences include Operational Controls that are identified and monitored by the SMEMS, based on system knowledge and best industry practices. Monitoring is achieved by periodic review of the customer call data through Cityworks; responding to stakeholders who attend community outreach events/meetings or make contact via the City website; and considering feedback and input when establishing targets & objectives and significant environmental aspects. The received input is discussed during management review to ensure both internal and external influences are considered when moving forward to become a work-class utility.

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 targets
- e. Interested party input
- 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 considered when establishing objectives and targets. These plans are factored in when considering action items required to achieve objectives and targets. Interested party input and internal/external influences are also included in the plans to address risks.

The operational controls, and significant environmental aspects are influences in determining objectives and targets and risk and opportunities. Objectives and targets are reviewed at least monthly by the SMEMS team to evaluate improvement and are linked to the significant environmental aspects. The effectiveness of these components are reviewed during management review.

Environmental Aspects and Impacts

Purpose

To identify environmental aspect and impacts within the SMEMS that could potentially have an environmental impact, either positive or negative.

Procedure

1. The SMEMS team shall identify and document (Appendix D) environmental aspects and impacts that it has control or influence over, based on historical data, staff experience, system knowledge, public input, and compliance obligations by program areas.
2. Where reasonable, the SMEMS shall consider both direct and indirect environmental aspects.
3. Following identification of aspects, assign an impact rating, from 1 to 5 in the areas of environmental, business impact, severity, and scale to determine significance. Significance is determined by an overall rating of 12 or above or based on the SMEMS's team reasonable assessment, knowledge, and history. Compliance obligations are always considered significant. (12 based on a uniform quantitative measurement)
4. The criteria for determining significance is based upon regulatory requirements and/or a reasonable person's judgment or the opinion and consensus of the SMEMS team members. When determining the significance of environmental aspects, the SMEMS considers:
 - a. the level of Sewer Maintenance control or influence, capabilities, and limitations of available resources
 - b. new or modified developments
 - c. activities, products, or services
 - d. normal and abnormal conditions

- e. potential emergency conditions (escalated issues, contractor damage, CCTV coding)
 - f. past environmental incidents (experience/history)
 - g. regulation
 - h. business impact, severity, or scale (direct/indirect)
 - i. level of effort needed for continual improvement as related to value
 - j. The SMEMS also considers life cycle stages of products or services that can be controlled or influenced
 - k. the ability to effectively improve or easily mitigate an issue
5. Document identified significant environmental aspects (SEAs) and actions plans to address them. (**Note:** Current SEAs are: SSOs, Herbicide Application, Hydraulic Leak, Fuel Consumption, and Vehicle Idling) Appendix E.
 6. Plans to address significant environmental aspects includes: following established procedures, incorporating them into objectives and targets, internal and external influences, risk, opportunities and interested party input.
 7. Environmental aspects and impacts shall be reviewed by the SMEMS team annually, or when there are regulatory and/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 targets.
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 SMEMS's processes as it pertains to contractors, that may have a potential to affect environmental performance and regulatory compliance associated with the SMEMS.

A statement is included in Request for Proposals (RFPs) notifying potential contractors of the SMEMS 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 SMEMS as well as relevant environmental requirements of the contractor.

Procedure

1. Contractors shall be aware of the SMEMS 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 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 SMEMS. 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 compliance obligations for the Sewer Maintenance Division through networking, communication with regulatory agencies, professional associations and publications, management review process, needs and expectations of interested parties, or any other available means. (Appendix H).
2. Establish, document, and maintain operational controls designed to foster regulatory compliance with compliance obligations.
3. To ensure compliance obligations are met, periodic inspections or audits are conducted by local, state, and federal regulators. Evaluation of compliance with the SMEMS is conducted once per certification cycle, including 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. Objectives and initiatives shall be established annually based on the following criteria:
 - a. City/Department level policies
 - b. Risk and Opportunities
 - c. Compliance Obligations
 - d. Significant Environmental Aspects
 - e. Interested Party Input
2. Use the SMART Criteria as a guide for suitability when establishing SMEMS's objectives and initiatives.
3. Set objectives that support performance improvements based on the intended outcome areas.
4. Develop an action plan assigning responsibility, necessary resources, and action items for established objectives and initiatives.
5. The SMEMS team shall continually monitor progress towards objectives and initiatives and evaluate results during regular meetings, Management Reviews, and internal audits.
6. Objectives and initiatives shall be considered during the Division's annual budget development process to ensure appropriate resources are made available.
7. Final objectives and initiatives shall be posted on the City of Raleigh's webpage and internal shared locations.
8. Use the corrective action process if progress is considered inadequate or items are not met.

Management of Change (MOC)

Purpose

To identify and address when there are changes in conditions, processes, significant environmental aspects, impacts, regulations, other requirements, or any new development occurs that 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 for the SMEMS. Resources include, but are not limited to human resources, specialized skills, technology, and financial support. These identified resources are needed for the effective functioning and improvement of the SMEMS. This will be verified by establishing a training program, conducting internal audits, holding regularly scheduled management reviews, and fulfilling the roles and responsibilities of 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)

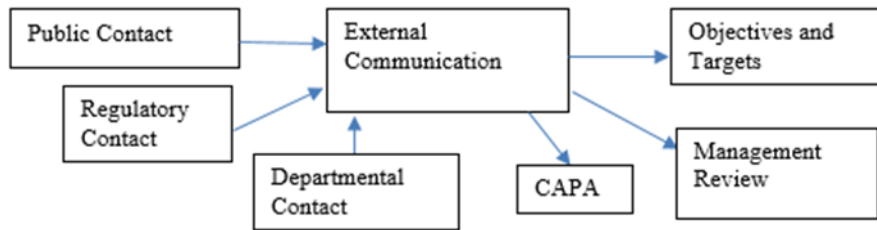
- a. Internal Communication- Contact from within the Sewer Maintenance Division.
- b. External Communication- Contact from interested parties outside the Sewer Maintenance Division. Examples of which include contact from the public, regulatory agencies, or City of Raleigh Departments.

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.

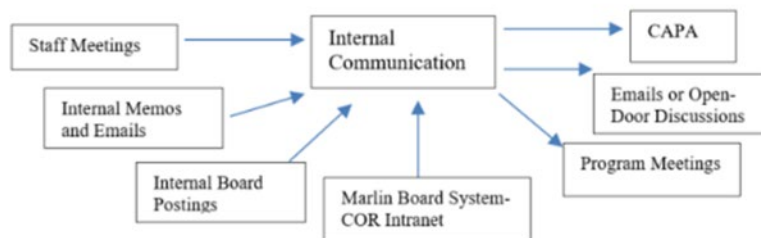
External Communications

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 targets 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 targets and identifying risk and opportunities for continual improvement of the SMEMS.



Documented Information

Purpose

To describe the methods in which the SMEMS 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 SMEMS 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 SMEMS 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 SMEMS title, original date, revision date, and page number.
Example: 02-5250-19.
4. Document owners shall submit documents to the EMC to be reviewed and approved for suitability and adequacy.
 - a. If the document does require control, the EMC shall number it and add to appropriate location.
 - b. If the document does not require control (sign-in rosters, supporting documents, etc.)
 - i. But is suitable to the SMEMS, the EMC shall add the document to the appropriate location.
 - ii. But is unsuitable to the SMEMS it shall be returned to the document owner with an explanation.
5. 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 SMEMS team has reviewed and authorized changes.
 - d. Printed copies of SMEMS 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.

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

Documents	Responsible Party	Location	Retention
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
Records	Responsible Party	Location	Retention
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) at least annually, based on desktop exercises, actual exercises, drills, after action reviews or change in personnel.
 - a. The Health and Safety Specialist (HSS) shall ensure that the EAP is updated and added to the shared locations.
 - i. The HSS shall communicate with the EMC to add the EAP to the shared locations.
 - ii. In the absence of the HSS, the EMC can update the EAP
 - iii. In the absence of the EMC, the Administrative Specialist can add to those locations.
 - b. The HSS shall complete an MOC detailing the changes
 - c. The EMC shall route the MOC for notification and signatures.
2. Evaluate and have input in updating the comprehensive Emergency Operations Plan (EOP) and Raleigh Water's Employee Evacuation Plan (EEP) at least every three years.
3. Conduct periodic emergency response testing and training.
4. Conduct investigations of emergency situations associated with Sewer Maintenance activities and document corrective action plans for incidents and emergency situations.
5. Monitor Sewer Maintenance contractors during periodic site visits, by assigned contract liaison, to verify they have the most current version of the EOP/EAP on file and follow the guidelines in these documents that are applicable to Sewer Maintenance activities as stated in their service agreement and Memorandum of Understanding.
6. Identify and document potential environmental incident and emergencies, the environmental impacts and risk of those incidents or emergencies and planning actions to address them (Appendix I).

Performance Evaluation

Periodic review of the SMEMS 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 SMEMS 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. SSO response time
 - h. Vacancy rate (10%)
 - i. Accident/injuries by type
 - j. Repair (612 Program) reactive (emergency) vs. scheduled work
 - k. Number of civil penalties per number of FOG enforcement actions
 - l. 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 SMEMS Meetings, SMEMS Committee (Program) Meetings, and Management Review Meetings.
5. Review monitoring and measurement activities whenever significant changes in processes, operations or regulatory compliance occur.
6. The SMEMS 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 targets.
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 findings or problems and/or opportunities discovered during routine monitoring and measurement, emergency incidents, audits, experience, or other methods and determines actions needed to prevent them from occurring or reoccurring. The following are examples of types of problems that require further investigation, root cause analysis, and corrective actions:

- 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 targets
 - 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 SMEEMS 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 – SMEEMS Risk Assessment

Appendix E.a SMEEMS Risk Assessment -High Only

Appendix F – Communications

Appendix G – SMD Glossary of Terms

Appendix H – Interested Parties

Appendix I – Potential Emergencies