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Implementation Strategy 2.0: Sanitary Sewer Systems (SSS)

In a Report to Congress, the EPA addressed the extent and possible solutions to human health and environmental impacts caused by sanitary sewer overflows (SSOs). In the Houston region, sanitary sewer systems are separate and not intentionally combined with storm water sewer systems. SSOs are untreated or partially treated discharges from sanitary sewers. “SSOs can range in volume from one gallon to millions of gallons. The microbial pathogens and other pollutants present in SSOs can cause or contribute to water quality impairments, beach closures, shellfish bed closures, contamination of drinking water supplies, and other environmental and human health problems” (Environmental Protection Agency Office of Water, 2004).

Sanitary sewers can fail to function properly due to blockages, line breaks, defects that allow storm water and groundwater to overload the system, lapses in sanitary sewer system operation, inadequate design and construction, power failures, and vandalism. EPA has concluded that SSOs contribute to bacteria loading in almost all impaired streams, but may or may not be a primary source of loading. EPA acknowledges that SSO data is difficult to assess.

Based on estimates presented in the TMDL reports or draft technical documents, an average of 77 SSOs were reported each month, representing a monthly average of over 700,000 gallons.¹ SSOs were reported in all but two watersheds.

In general, implementation actions consist of encouraging improvements to sanitary sewers; reducing the amount of fats, oils, and grease entering the systems; addressing lift station inadequacies; improving reporting of violations; strengthening controls on subscriber systems²; maintaining an accurate map of sanitary sewer coverage; and evaluating the penalty structure for SSOs and other sanitary sewer violations.

Implementation Activity 2.1:

Develop Utility Asset Management Programs (UAMPs) for Sanitary Sewer Systems

A UAMP is a common-sense, proactive approach to managing, maintaining, and operating an SSS. The EPA’s Capacity, Management, Operation, and Maintenance (CMOM) is probably the most well-know UAMP. This section discusses UAMP with CMOM as a guide for this implementation activity. UAMPs are intended to function independently of the EPA--which developed the CMOM concept--unless technical or other assistance is sought from the EPA by the owners or operators of an SSS.

UAMPs provide a framework for self-evaluation and planning for the function, condition, and performance of a sanitary sewer system. Currently, UAMPs are voluntary in Texas, although the TCEQ or EPA can require them, usually in the form of a CMOM plan, through a consent decree or administrative order. To facilitate the development and implementation of many elements of UAMPs, the TCEQ offers the Sanitary Sewer Overflow Initiative (SSOI). SSOI is a voluntary program to improve the operation of Sanitary Sewer Systems. Some operators have voluntarily

¹ CC-TCEQ 2009, BWO-TCEQ 2009, Metro-UH&Parsons 2009, LH-Miertschin 2009

² A subscriber system is a sewer system that conveys flow to a wastewater treatment facility, or sewer system thereof, owned and operated by a separate entity. The term is not intended to indicate individual private laterals, such as a homeowner’s connection to a sewer system.

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implemented a UAMP, CMOM, or similar program as a means to improve performance and reduce costs. It should be understood that CMOM elements will vary with requirements and circumstances of individual entities. Therefore, the BIG does not recommend that TCEQ, EPA, or other regulators develop or use a ‘standard format.’

2.1.1 Require a UAMP Plan as part of WWTF permits. All permits for new WWTFs shall include a UAMP plan. Starting five years from the approval of this implementation plan, all permit renewals for WWTFs shall include a UAMP plan. As allowable by law, the UAMP plan should apply to any subscriber systems that contribute to the WWTF. For reference, EPA provides sample language for incorporation of UAMP into permits in its 2007 draft publication, “Model NPDES Permit Language for Sanitary Sewer Overflows.”

Operators of existing SSS are encouraged to develop a UAMP plan, including self-evaluation, planning, implementation, and re-evaluation, prior to the inclusion of UAMP requirements in a permit. In general, components of the UAMP plan will include clearly stated goals, a description of the organization, the permittee’s legal authority, an overflow emergency response plan, measures and activities, design and performance standards, a capacity assurance plan, provisions for self audits, and a communication plan. Activities specified in the plan might include lift station maintenance, provision of generators for lift stations, periodic manhole surveys that include cover levels and wall condition, periodic line cleaning, and condition surveys. More details and resources for plan development are provided in Appendix TBD.

Operators of SSS are encouraged to seek technical assistance from either TCEQ or EPA as appropriate for their SSS, although the oversight of neither TCEQ nor EPA is a requirement of the program. SSS owners and operators are encouraged to consider participating in the TCEQ’s voluntary SSOI program as a means to improve SSS performance and to facilitate development of an appropriate UAMP plan. TCEQ’s Small Business and Local Government Assistance (SBLGA) program is also a source of technical assistance. For reference, the EPA’s publication, “Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems,” provides guidelines for the development and evaluation of a CMOM program. Minimum elements of the UAMP plan would include the provision of updated coverage maps, confirmation of subscriber system registration (see “Implementation Action 2.5: Strengthen Controls on Subscriber Systems”), and improved reporting requirements (see “Implementation Action 2.4: Improve Reporting Requirements for SSOs”).

As resources are available, H-GAC shall collect and make available copies of UAMP, CMOM and SSOI plans for reference.

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TCEQ is encouraged to make facilities that do not have a UAMP or CMOM plan and facilities that are not implementing their UAMP or CMOM plan higher priorities for inspections and enforcement.

- 2.1.2 *Develop a series of webcasts and meetings to provide introductory information about UAMPs.* H-GAC, TCEQ, or another appropriate entity shall offer a series of meetings geared toward local sanitary sewer owners and operators, providing introductory information about UAMPs, including CMOM and SSOI. Meeting topics may include a description of the problems presented by sanitary sewer systems, a definition of CMOM, an outline of EPA guidelines, case studies, and a description of benefits such as cost savings, cost avoidances, and pollution reduction. In an effort to make the information accessible to an expanded audience, the meetings will be recorded and made available in a webcast format during the meeting and as an online archive. Potential development partners include the Water Environment Association of Texas, TCEQ, the Water Environment Research Foundation, EPA, the Texas Water Utility Association, the Texas Rural Water Association, and the Association of Water Board Directors – Texas. Continuing education credits should be given to SSS operators for participation in training related to UAMP.

Implementation Activity 2.2:

Address Fats, Oils, and Grease (FOG)

FOG is considered to be the leading cause of blockages in sanitary sewers, and EPA estimates that blockages account for nearly 50% of all SSOs (Environmental Protection Agency Office of Water, 2004). This implementation activity encourages local governments to adopt ordinances that allow operators of sanitary sewer systems to determine the proper size for grease traps, to inspect them, and to require grease traps be properly cleaned and otherwise maintained. H-GAC, in consultation with stakeholders and as resources allow, shall develop model language to facilitate the adoption of such ordinances.

The TCEQ developed a model ordinance in response to the 78th legislature's amendment of the Texas Water Code, and created standards for managing grease stoppages in utilities' sanitary sewer lines. See Tex. Water Code § 26.0491; "House Bill 1979 Model Standards for a Grease Ordinance," TCEQ August 2004.

Possible topics for public education include efforts targeted at reducing FOG from residences and multi-family dwellings. Available resources include the *Can Your Fats*³ brochure developed

³ http://www.cleanwaterways.org/downloads/brochures/FOG_brochure_English.pdf

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by Harris County and the City of Houston, the City of Houston's *Can Your Grease* program⁴ and TCEQ's *Let's Tackle the Grease in This Kitchen*⁵ poster and video.

Implementation Activity 2.3:

Encourage Appropriate Mechanisms to Maintain Function at Lift Stations

Occasionally, lift stations may cease to function and may discharge sewage into waterways, as demonstrated during the extensive power outages following Hurricane Ike in 2008. Lift stations may also fail to function during circumstances other than power outages, such as mechanical failure or repair.

Lift station operators are encouraged to undertake appropriate actions to maintain function of lift stations during power outages and other situations. A comprehensive plan, possibly part of the UAMP plan, shall be developed to address such situations. Appropriate mechanisms for inclusion in the plan might include installing underground power lines to lift stations, negotiating with power providers to reclassify lift stations as a higher priority for service restoration, installing solar-powered generators, developing partnerships with transportation partners to allow hybrid vehicles to serve as mobile generators, installing quick-connects if the use of mobile generators is necessary, using by-pass pumps, or using a wireless remote system. Owners and operators are strongly encouraged to install quick-connects at lift stations. Quick-connects allow the quick connection of lift stations to alternative power sources such as mobile generators without the need for time-consuming and expensive facility modifications during a post-storm or other failure.

Implementation Activity 2.4:

Improve reporting requirements for SSOs

Current EPA regulations specify reporting requirements for noncompliance, including SSOs, in 40 CFR § 122.41(1) (6) and (7).

- 2.4.1 *Implement statewide database to record reported SSOs, allowing operators of sanitary sewer systems to enter information directly into the statewide database, State of Texas Environmental Electronic Reporting System (STEERS).* TCEQ shall further develop that system to allow collection, analysis, and dissemination of this information. This action is not intended to increase the data-entry requirements for TCEQ staff; instead, it is intended to streamline reporting and analysis.
- 2.4.2 *Develop capacity for communities to use statewide database to record reported SSOs.* The existing TCEQ database security features require a broadband internet connection for access. Until all sanitary sewer operators have access to a broadband internet connection, database reporting should not be required.

⁴ http://www.publicworks.houstontx.gov/utilities/corral_grease.html

⁵ http://www.tceq.state.tx.us/comm_exec/forms_pubs/pubs/gi/gi-290.html/at_download/file

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In 2009, using American Recovery and Reinvestment Act (ARRA) funds, the Texas Department of Agriculture began mapping the coverage of broadband internet access in Texas (<http://www.connectedtx.org>). Once areas without coverage have been identified, funds may be available to develop coverage in rural areas, including all of the non-urban areas of the BIG region.

Once a statewide database is available and all communities in the BIG have the ability to report electronically, communities shall be required, by permit, to utilize the database to report SSOs.

- 2.4.3 *Require reporting of SSOs to local programs.* EPA regulations allow WWTF permits to include requirements that SSOs be reported to local programs, such as those of cities and counties, in addition to mandatory reporting requirements. The statewide database described above should be developed to include reporting capabilities that would allow the program to automatically alert local governments about SSOs.

Implementation Activity 2.5:

Strengthen controls on subscriber systems

Subscriber systems are those systems that do not operate their own WWTFs, but instead enter into contracts with permitted WWTFs. The WWTF permit covers the subscriber systems; the subscriber system does not have its own permit. The term subscriber system is not intended to include private laterals such as those connecting a private residence to a sanitary sewer system. While the exact linear footage of subscriber sanitary sewer is unknown, it is also unknown whether the contracts that WWTF have with subscriber systems provide adequate controls and responsibility for operation, management, and maintenance of the subscriber system. Contracts could be developed to require appropriate controls.

- 2.5.1 *Identify subscriber systems.* Two approaches shall be taken to identify subscriber systems. First, as resources are available, H-GAC shall contact WWTF permittees and ask them to provide information regarding subscriber systems. Second, the BIG can petition TCEQ for rulemaking to require registration of subscriber systems. As resources are available, H-GAC or another appropriate agency shall distribute information about subscriber systems. If stakeholder concerns regarding subscriber systems remain after five years, the BIG may consider petitioning the TCEQ to require that subscriber systems be permitted.
- 2.5.2 *Develop model contracts.* As resources are available, H-GAC shall work with attorneys for WWTFs, MUDs, and other stakeholders to develop one or more model contracts that would address concerns relating to controls and responsibilities for subscriber systems. Contracts might address operation or maintenance requirements, rights to inspect or repair, flow reduction incentives, flow metering, and the ability to pass on fines or other

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financial burdens resulting from violations of permit requirements and for unauthorized discharges under the Clean Water Act.

- 2.5.3 *Provide a circuit rider program to work with WWTF permittees and subscriber systems to strengthen subscription contracts.* As resources are available, H-GAC shall provide a circuit rider program to review and evaluate subscription contracts and implement terms identified in “Implementation Action 2.5.2: Develop Model Contracts.” This program would proceed on a voluntary basis by watershed, using the geographic prioritization framework recommended by the BIG and described later in this I-Plan. As part of the program, education on UAMP, metering, and UAMP development assistance could be provided. WWTFs, MUDs, and their attorneys and accountants would be expected to participate.

Implementation Activity 2.6:

Restructure penalties for Sanitary Sewer System violations

TCEQ’s existing penalties do not always deter poor maintenance or operation. Instead, some may consider penalties for sanitary sewer violations to be a cost of doing business that is less expensive than fixing the problem.

TCEQ should evaluate penalties and recommend changes for consideration. TCEQ should consider making penalties for repeat violations a more effective deterrent than they currently are.