

US EPA ARCHIVE DOCUMENT

MEMO

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To: Michelle Moustakas, EPA Region 9

From: Bill Hahn and Dianne Stewart, SAIC

Subject: Sewage Collection System Inspection of Stege Sanitary District (NPDES Permit No. CA0038482; RWQCB Order No. R2-2004-0014)

On March 30 and 31, 2009 EPA Region 9, RWQCB 2, and SAIC conducted an inspection of Stege Sanitary District's (SSD) sewage collection system. The inspection was done as part of a series of inspections of the EBMUD satellite systems in conjunction with the EBMUD Stipulated Order. The main purpose of the inspection was to identify ways in which the system could reduce I/I so as not to contribute to overflows at the EBMUD wet weather facilities. The inspection also evaluated the SSO response and correction programs.

The first eight of the program areas below follow the programs or activities identified in the EBMUD document entitled *Technical Memorandum Subtask 4.6 – Community O&M Activities Impacting Peak Flows*. The first paragraph under each program area states an accepted industry practice for the program. This is followed by bullets that indicate what SSD is doing within this program area.

Findings

1. Sewer Inspection Program

Sewer agencies should have an inspection program that includes planned periodic inspection of all sewer system assets using closed circuit television to determine their current condition at least every 10 years.

- SSD plans to video 20% of the system annually, which will result in a full system inspection cycle of five years. Pipes are also videoed after all SSOs or blockages, and after chemical treatment for roots.
- All CCTV work is done by SSD staff because they have found this leads to better consistency of results.
- Force mains are not inspected.

2. Condition-Based Sewer Rehabilitation

Sewer agencies should use condition-based sewer rehabilitation that includes use of inspection data to select sewer line segments for repair/rehabilitation/replacement to reduce infiltration.

- SSD plans to use the information collected in its CCTV program to assess condition and schedule future sewer rehabilitation/replacement projects.

3. Inflow Source Identification and Elimination

Sewer agencies should have ongoing programs to identify sources of inflow (such as roof leaders) and take action to eliminate those sources.

- SSD has conducted smoke testing in the past. They sent letters to the property owners, including a flyer and a printout with a picture that shows smoke coming out of the house or the lateral. The property owner has to come to the SSD for a permit to disconnect the illicit connection. This is so that SSD will know who has responded and who hasn't. SSD staff then inspects the work. Only about 10% of the identified property owners have responded.

4. Chemical Root Control Program

Sewer agencies should consider using herbicides to stop/reduce the damage to pipes, joints, and structures that is caused by root intrusion.

- SSD has a chemical root control program. This program involves 12 miles of pipe that is treated annually. The chemical is reapplied every three years. In 2008, SSOs due to roots decreased to about 11% of total spills, compared to the prior four year period when roots caused 26% to 51% of all spills.

5. Data Management (Computerized Maintenance Management System)

Sewer agencies should collect O&M data by individual asset and analyze that data to identify appropriate maintenance and capital improvement actions.

- SSD has a CMMS that is connected with a geographic information system (GIS) of pipe and manhole locations. The CMMS schedules and prints out inspection schedules on maps for the crews to use in their daily activities.

6. Rehabilitation/replacement of lower laterals

Sewer agencies should rehabilitate or replace lower laterals during sewer system capital improvement projects.

- SSD does not have ownership of any part of the lateral. As an experiment, in 1986, SSD took over temporary ownership of all the laterals in Subbasin N, and replaced all the mains and laterals in this subbasin. They found that flow was reduced by 86% as a result of this work. However, they concluded that it was less expensive to provide relief capacity, so they installed relief pipes in other areas where capacity was a problem.

7. Private lateral testing/inspection and rehabilitation program

Sewer agencies should have a program to require mandatory testing of the private portion of private laterals to determine their condition. The program should include requirements to repair or rehabilitate laterals that fail the inspection.

- SSD has a private lateral inspection program that includes mandatory inspection of the lateral by the homeowner's contractor upon property sale or installation or repair of laterals. Laterals that fail the inspection must be repaired or replaced. Since the program began in July 2005, 1,102 laterals have been videoed that SSD knows about. They estimate that 90% fail the inspection.

8. Routine Flow Monitoring

Sewer agencies should conduct periodic flow monitoring to identify areas with infiltration/inflow contributions to the total flow

- SSD has two flow meters temporarily located at Subbasin N and C. These will be moved to A and G after EBMUD completes its study. SSD plans to purchase additional meters over the next five years for the other subbasins.
- SSD uses the Hydra Hydraulic Model. The model is calibrated with actual flow measurements.

9. SSOs Rates/Response/Correcting Causes

SSD's NPDES permit contains requirements for controlling and containing SSOs and SSO reporting. State Water Board Order No. 2006-0003-DWQ, as amended, contains further requirements, including electronic reporting. The most recent and comprehensive SSO reporting requirements are contained in a May 1, 2008 Letter from the Regional Board.

- SSD's spill rate (number of spills per 100 miles of pipe per year) for 2008 was 12.9. Because SSD does not own any portion of the lateral, spills from laterals are not reported unless they are due to a problem in SSD mains.
- Their spill response plan does not include written procedures for receiving calls and dispatching crews, spill volume estimation, or determining spill start time. SSD uses the San Diego methods of volume classification. They plan to incorporate these procedures into the response plan in the future.
- SSD uses CCTV to investigate the cause of every SSO. Depending on the cause, the pipe may be scheduled for chemical root control, more frequent cleaning, or a repair project.

10. FOG Program

EBMUD implements the FOG control program for all of its satellite agencies.

- SSD identified that there are 120 FSEs in its service area.
- Each of the satellites has adopted a FOG source control ordinance equivalent to the East Bay Municipal Utility District Wastewater Control Ordinance, Ordinance 311A-03. Apart from an oil & grease limit, the ordinance does not contain specific FOG program requirements.
- EBMUD has issued permits to about 3,000 FSEs in the service area. The FOG program focuses on GRD installation and appropriate maintenance. The required GRD pumping frequency is once every three months, and this is only changed if the GRD is found to exceed the 25% rule during an inspection or if it is found to cause or contribute to a blockage or overflow in the collection system.
- EBMUD did not know how many FSEs have GRDs. GRDs are required for food handling facilities that meet any of the following criteria:
 - New construction
 - Remodels, additions, alterations or repairs valued at or greater than \$75,000
 - Has caused or contributed to a grease related collection system blockage resulting in maintenance requirements and/or a sewage spill.
- The goal for FSE inspections is once every three years.
- EBMUD has a comprehensive public education program for residential grease control.