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August 14, 2009


TO: DISTRIBUTION

RE: Settlement Agreement and Final Order – Civil Action No. 01-191-RSWL and Civil Action No. 98-9039-RSWL Consolidated

Pursuant to paragraph 44 of the Settlement Agreement and Final Order, enclosed is the Odor Control Measures Summary Report for fiscal year 2008/09, July 1, 2008 to June 30, 2009.

If you have any questions, please contact me at (323) 342-6236 or Ali Poosti at (323) 342-6228.

Sincerely,



Brent Lorscheider, Division Manager
Bureau of Sanitation

BCL/SCR:as

Enclosure



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CERTIFICATION OF DECLARATION

Re: Settlement Agreement and Final Order – Civil Action No. 01-191-RSWL and Civil Action No. 98-9039-RSWL Consolidated – Odor Control Measures Summary Report for FY 2008/09, July 1, 2008 through June 30, 2009.

I certify under penalty of law that the attached Odor Control Measures Summary Report for fiscal year 2008/09, July 1, 2008 – June 30, 2009 was prepared under my direction in a manner designed to ensure that qualified and knowledgeable personnel properly gathered and presented the information contained therein. I further certify, based on my personal knowledge or on my inquiry of those individuals immediately responsible for obtaining the information, that to the best of my knowledge and belief the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information and willful submission of a materially false statement.



Barry G. Berggren
Division Manager
Wastewater Collection Systems Division
Bureau of Sanitation

August 06, 2009

Date

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*Wastewater Collection System
Odor Control Measures
Summary Report*



***FY 2008-2009
July 1, 2008 - June 30, 2009***

PREPARED BY:

WASTEWATER COLLECTION SYSTEMS DIVISION

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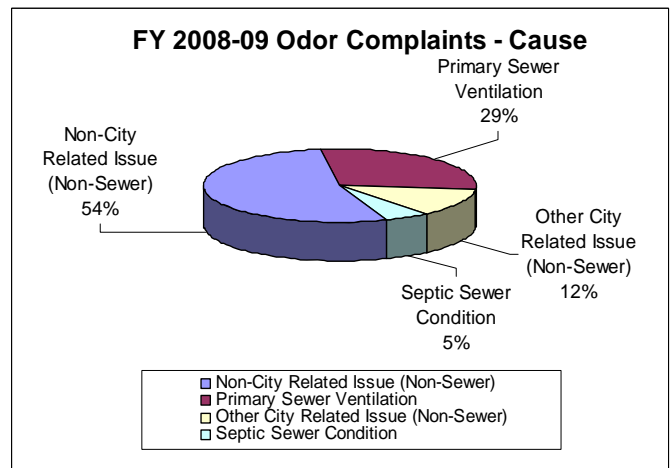
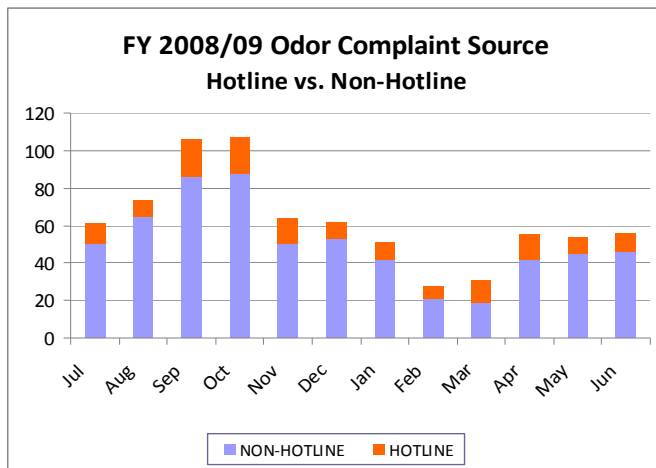
WASTEWATER COLLECTION SYSTEM ODOR CONTROL MEASURES SUMMARY REPORT FISCAL YEAR 2008 - 09

This report covers fiscal year 2008/09, from July 1, 2008 to June 30, 2009. It provides a summary data of each of the various elements of the odor control measures implemented by the Bureau of Sanitation, Wastewater Collection Systems Division. This report will be submitted to the Odor Advisory Board.

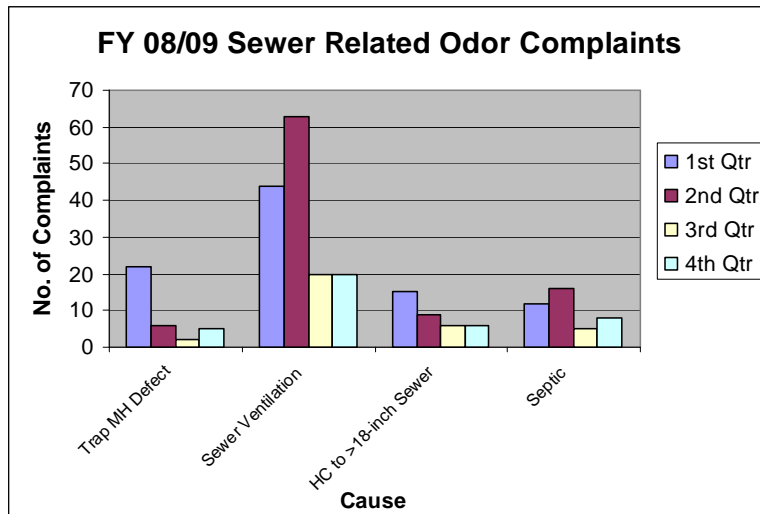
I. Odor Complaint Summary

Bureau of Sanitation Wastewater Collection Systems Division (WCSD) responds to various odor complaints from the public. However complaint investigation is primarily geared toward identifying and mitigating sewer-related odor. Other non-sewer odor issues are referred to other city departments or outside agencies for follow-up investigation and mitigation. Odor complaints are received by 24-hour odor complaint hotline at 1-866-44SEWER or on-line at www.lasewers.org or the City-Wide 3-1-1 phone number for government services or information. Non-hotline complaints are received directly from the public through contact with one of our wastewater collection system district offices; or referrals from council offices, other city departments or other agencies.

In fiscal year 2008/2009, WCSD responded to 747 odor complaints. Graphs depicting complaints received by hotline and non-hotline sources and cause of complaints are presented as follows:



Sewer related complaints are caused by sewer ventilation where foul air is forced out and released from maintenance holes or other sewer structures or facilities; by sewers that have become septic due to debris build-up causing a surcharged or hydraulically loaded system; or by properties with house connection laterals directly connected to large diameter sewers.



Sewer related odors account for 34% of the complaints received or 257 complaints. The first half of the fiscal year was challenging for the Bureau of Sanitation compared to recent years. A major portion of the sewer related odor complaints occurred during the 1st half of the fiscal year due to increased ventilation type complaints caused by defective trap maintenance holes, sewer ventilation through maintenance holes, odors from various major sewer interceptor rehabilitation projects and odors affecting those properties with house connections

directly connected to large diameter sewers. Comparatively, the second half of the fiscal year was significantly improved due to repairs of trap maintenance holes, increased inspection and sealing of sewer maintenance holes and the completion of the aforementioned sewer rehabilitation projects.

The remaining 66% of odor complaints investigated were non-sewer related. They include odors from standing water, dirty alley, stormwater catch basin sources, owner plumbing trouble, etc. All sewer related odor complaints were properly investigated and addressed, while non-sewer related odors were referred to the appropriate City department or other government agencies. An annual report detailing responses to these complaints will be provided to the Odor Advisory Board as required by Collection System Settlement Agreement.

II. Sewer Maintenance Activities

Routine sewer maintenance is necessary to allow the wastewater to flow freely and unimpeded in the sewer pipe. When debris settles and collects in the pipe, conditions for hydrogen sulfide generation become favorable. Sewer blockage and/or debris accumulation reduces wastewater velocity, increases detention time, and promotes solids deposition. Maintenance also involves sealing sewer maintenance holes or other access structures to prevent the release of foul odors. Additionally, WCSD conducts a chemical root control treatment application to control/prevent root infestation within the sewer. Root infestation causes obstruction, which can create a blockage.

This fiscal year WCSD cleaned 5,467 miles of sewers using hydroflushing, mechanical rodding or bucketing methods. Root control chemicals were applied to 358 miles of sewers at an annual cost of \$2.0M. In addition, a pilot demonstration to evaluate a large diameter pipe cleaning method was conducted on the West Los Angeles Interceptor Sewer (WLAIS). Approximately 5,000 feet of large diameter sewers ranging from 36 to 60-inches was cleaned and an estimated

100 tons of debris were removed. Removal of debris decreased hydrogen sulfide generation in this sewer.

III. Trap Maintenance Hole Repair

Trap maintenance holes are physical sewer structures, which control the migration of sewer gases from large diameter sewers to smaller diameter sewers (6-inches to 15-inches). Trap maintenance holes mimic p-traps used in residential plumbing. A water seal is created and isolates the sewer gases from the source. Occasionally, trap maintenance holes need rehabilitation and/or require new construction or minor repair, as needed. This fiscal year, the City approved a new standard design of a trap maintenance hole. The new design will ensure a continuous seal and allow crews better accessibility to maintain the trap maintenance hole without compromising the seal. Fourteen (14) trap maintenance holes were rehabilitated or constructed with the new design during FY 08/09. As a result of recent renegotiation of the Collection System Settlement Agreement, a project to upgrade 300 trap maintenance holes using the new trap design standard will be implemented in the upcoming fiscal years. The major focus of trap repairs will be performed in the South Los Angeles area. It is expected that these upgrades will significantly improve sewer odor releases where traps maintenance holes are located.

IV. Chemical Addition

Chemical control technologies are used to prevent the formation and release of hydrogen sulfide into the sewer headspace. WCSD uses caustic (sodium hydroxide) shock dosing to control sulfide generation and Thioguard magnesium hydroxide to provide vapor phase odor control. Chemical applications are applied for odor control along the North Outfall Sewer (NOS) and MAZE Sewer System in South Los Angeles, the La Cienega San Fernando Relief Sewer (LCSFVRS) in the Valley and Hollywood areas and the West Los Angeles Interceptor Sewer (WLAIS) in West Los Angeles. Caustic shock dosing occurs in the South Los Angeles Interceptor Sewer where sulfide generation is controlled to mitigate odors occurring in the Maze Sewer System. The shock dosing program was expanded to address odor issues on the West Los Angeles Interceptor Sewer (WLAIS) in September 2008.

The continuous Thioguard application to the NOS is added from the Boyle Heights Area Sewer System, which eventually flows to the NOS and Maze Sewer System and North Central Outfall Sewer (NCOS) in the South Los Angeles and Baldwin Hills area. The application of Thioguard magnesium hydroxide continues in the valley area and corridors along La Cienega San Fernando Relief Sewer (LCSFVRS) in the Hollywood area.

The use of odor control chemicals has reduced hydrogen sulfide concentrations in the sewers by as much as 90%. The annual budget for chemical addition is \$3.5M.

V. Air Treatment

Interim air treatment facilities using carbon adsorption technology is used along various odor hotspots in the City's collection system. There are currently thirteen (13) operating carbon scrubbers ranging in capacity from 5,000 to 10,000 cubic feet per minute (cfm). Foul air is

extracted and passed through activated carbon to which the odorous constituents adhere. The scrubber not only treats the odorous compounds in the sewer system, but also relieves the air pressure occurring in the system by creating a negative pressure in the system.

Carbon media is replaced periodically before odor contaminant breakthrough occurs. In some cases monthly carbon change-out occurs due to higher contaminant loading to the carbon scrubber. Additionally, the stack emissions of the carbon scrubber are monitored for hydrogen sulfide on a weekly basis to monitor compliance with the South Coast Air Quality Management District permit requirements. The readings are posted on a quarterly basis on the City's odor website at www.lasewers.org

The air treatment facilities (ATF) at Jefferson and La Cienega and NCOS are on-going construction projects. Bureau of Sanitation requested EPA to extend the Settlement Agreement construction deadline to September 2010 from May 2008 due to various circumstances. The NCOS ATF project was awarded in June 2008 and for similar reasons is expected to have construction delays. The renegotiated construction completion schedule for the NCOS is May 2011.

VI. Studies

The Task Order Solicitation (TOS) 1 – Air Treatment Facility Review Study is underway. The Bureau of Sanitation has selected HDR Engineering, Inc. to lead the study. HDR will conduct a study of the City's wastewater collection system in order to evaluate the ability of the proposed ATFs to provide satisfactory odor relief to the collection system and determine alternatives. The study will include an analysis of the sewer system as a whole including both current conditions and planned modifications to the sewer system. It will evaluate the effects that collection system structure as drop structures and siphons have on the ventilation of sewer odors and will also evaluate proposed facilities intended to mitigate sewer odor complaints, taking into account the pattern of sewer odor complaints. Currently, HDR and the City is currently studying the possibility of conveying pressurized sewer gases from the North Outfall Replacement Sewer to the North Central Outfall Sewer. Furthermore, the City is developing a scope of work for the NORS Siphon Study.

VII. Monitoring

Monitoring of the wastewater collection system is necessary to identify the sources and causes of odor generation. Monitoring is conducted at least semi-annually at designated monitoring points throughout the collection system to gage the seasonal variation in odor generation and to monitor the effectiveness of the chemical treatment. The monitoring indicates that the odor control applications are effective in mitigating odors. On the other hand, the monitoring also indicates where hotspot locations exist. This information will be evaluated as part of the odor master planning efforts.

VIII. Odor Master Plan

The City of Los Angeles continues to expand. Upgrading the wastewater collection system and treatment plants will continue to be an on-going process in order to handle the anticipated increase in sewage that accompanies an increasing population. This will be accompanied by a continuous and increasingly sophisticated effort to control sewer odors.

A key part of the City's effort to mitigate sewer odors is the formulation of the Wastewater Collection System Odor Control Master Plan. The master plan evaluates the current odor control program and provides recommendations for an improved odor control program. Elements of the program that will be reviewed include operations and maintenance activities, on-going monitoring activities, odor complaint history, odor complaint response procedures, construction of odor control facilities, sewer design standards, and new odor control technologies. The Odor Master Plan was completed in October 2006 and the city continues to follow through with the master planning activities. As a result of recent negotiations with government plaintiffs, the Odor Master Plan will be updated on an annual basis. The next update of the Odor Master Plan has been initiated and is scheduled for completion by September 2009.

IX. Conclusion

The City of Los Angeles, Bureau of Sanitation has branched in many new directions to address the sewer odor issues and is making big strides in its efforts to control the generation and release of the foul air from the City's wastewater collection system. The various odor measures described in this report work collectively to address sewer related odors. Implementation of these new strategies will vastly enhance the Bureau's odor control efforts in the collection system.