

# *Odor Control Measures Summary Report*



***FY 2004-2005***  
***July 1, 2004 - June 30, 2005***

PREPARED BY:  
WASTEWATER COLLECTION SYSTEMS DIVISION

# City of Los Angeles Bureau of Sanitation

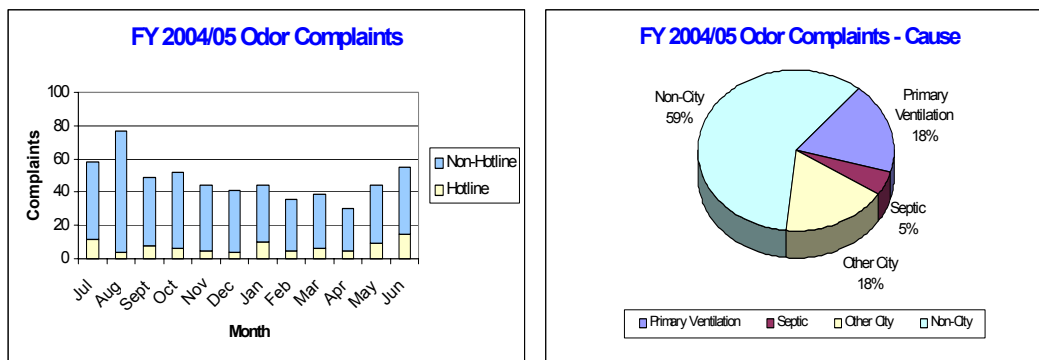
## Wastewater Collection System Odor Measures Summary FISCAL YEAR 2004-05

This report covers fiscal year 2004/05, from July 1, 2004 to June 30, 2005. 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 or non-hotline sources such as the City-wide 3-1-1 phone number for government services or information; direct contact from the public; or referrals from council offices, other city departments or other agencies.

In fiscal year 2004/2005, WCSD responded to 569 odor complaints. A graph depicting complaints received by hotline and non-hotline sources and cause of complaints is presented as follows:



Sewer related complaints caused by sewer ventilation and septic conditions account for 23% of the complaints received. The remaining 77% 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. Quarterly reports detailing responses to these complaints have been provided to the Odor Advisory Board.

## **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 root infestation within the sewer, which causes obstruction.

WCSD cleaned 3,699 miles of sewers using hydroflushing, mechanical rodding or bucketing methods. Root control chemicals were applied to 474 miles of sewers at an annual cost of \$2.2M.

## **III. Sewer Construction and Trap Maintenance Hole Repair**

Sewer construction and repair plays an important role in odor control. Trap maintenance holes are physical sewer structures, which control the migration of sewer gases, typically 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, as needed. 27 traps were rehabilitated and 1 was newly constructed during FY 04/05. The average cost for a trap MH rehabilitation is \$3850 each or a total of \$103,950. The cost to install a new trap maintenance hole is \$12,280. A majority of the trap maintenance hole projects were located in the MAZE Sewer System.

Newly constructed relief sewers not only improve the hydraulic capacity of the system, but also improves air dynamics. By relieving the over capacity sewers, the air space above the flow line is increased, consequently reducing the air pressure in the pipe. The migration of sewer gases is minimized. The newly commissioned East Central Interceptor Sewer (ECIS) which relieved the North Outfall Sewer (NOS) is an example of the added benefit this relief sewer provided. As a result, the NOS air pressure was reduced resulting in decreased odor releases. The ECIS construction was \$260M.

## **IV. Chemical Addition**

Chemical control technologies are used to prevent the formation and release of sulfides into the sewer headspace thereby limiting the exhaust of hydrogen sulfide into the atmosphere through vented structures, such as maintenance holes. WCSD uses caustic (sodium hydroxide) shock dosing to control sulfide generation and Thioguard magnesium hydroxide provides vapor phase odor control. The current chemical control applications are focused on odor control along the MAZE Sewer System. The cost for this application is about \$1.6M annually.

## **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 nine (9) operating carbon scrubbers ranging in capacity from 5000 to 10,000 cubic feet per minute (cfm). Foul air is extracted and passed through an activated carbon to which the constituents will 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 vacuum and hence negative pressure in the system. Some of these interim facilities will be replaced by permanent air treatment facilities starting in 2008.

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.

## **VI. 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 where treated.

Additionally, the stack emissions of the carbon scrubber are monitored for hydrogen sulfide on a weekly basis. The readings are posted on a quarterly basis on the City's odor website at [www.lasewers.org](http://www.lasewers.org).