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LEAVE IT TO THE EXPERTS

Spot checks enable the City of Glendale to get to the root of SSO problems. Staff members take pride in their field responsibilities, training and certification

By Jim Force

The Wastewater Maintenance Section in the City of Glendale, Calif., has attacked the root of its sewer problems by letting the guys in the field do their thing.

Plagued by sanitary sewer overflows, most often caused by root intrusion, the section abandoned its program of scheduled line-by-line CCTV monitoring and adopted

a “spot check” approach based on field observations from its maintenance crews.

The results have been spectacular. “In early 2005, we were seeing an SSO rate as high as 15 spills per 100 miles of sewer line,” explains John Hicks, wastewater superintendent. “Since summer of 2008, we’re down to an average of about 3.5 spills per 100 miles, and we’ve flat-lined at that rate. In fact, with-

in the last year we’ve gone 100 days without an SSO — not bad for a collection system of this age.”

Nice town

The 207,000 residents who enjoy the parks, art attractions, quaint restaurants and unique neighborhoods of Glendale know little about the hundreds of miles of sewers that lie beneath their suburban Los Angeles community.

That is, until there’s a problem. “Out here,” says Hicks, “sewer overflows are simply unacceptable. Our goal is clean beaches and dry living rooms.”

The Glendale collection system contains some 350 miles of sanitary sewers; 7,500 manholes; 1,350 catch basins; one large sanitary lift station; and two stormwater lift stations. Since much of the city slopes upward against the foothills of the



Rod Torres, senior wastewater maintenance worker, and Daniel Ori, wastewater maintenance trainee, set up a combination truck to jet and clean a storm drain. This Vactor truck is one of two such units owned by the City of Glendale. (Photography by Patrick Botz-Forbes)



Wastewater maintenance worker Jason Badgley lowers a cleaning nozzle into a manhole.

Verdugo Mountains, little pumping is required; gravity does most of the work. The Los Angeles Bureau of Sanitation's



PROFILE:
City of Glendale, Calif., Public Works Department, Wastewater Maintenance Section

FOUNDED:
 1884

INCORPORATED:
 1906

POPULATION SERVED:
 207,000

SERVICE AREA:
 30.7 square miles

EMPLOYEES:
 16

INFRASTRUCTURE:
 350 miles of sanitary sewers; 1,350 catch basins; 7,500 manholes; 2 stormwater lift stations; 1 sanitary lift station

ANNUAL BUDGET:
 \$1.74 million

WEB SITE:
www.ci.glendale.ca.us



Members of the City of Glendale maintenance team are, from left, Roy Rodriguez, wastewater crew supervisor; Dave Martinez Jr., senior wastewater maintenance worker; John Hicks, wastewater superintendent; Rod Torres, senior wastewater maintenance worker; and Bryan Ortega, wastewater crew supervisor.

water reclamation plant just over the border treats the city's wastewater.

While the collection system is mid-sized by industry standards, it is old and often difficult to access because of steep sewer easements and rights of way off the street. It demands the full attention of Hicks and his leadership team of wastewater crew supervisors Bryan Ortega and Roy Rodriguez, and senior wastewater operators David Martinez, Jr. and Rod Torres.

Up to the middle of 2007, Hicks recalls, Glendale shared a CCTV platform (CUES) with sister communities Pasadena and Burbank. "But we terminated that arrangement about three years ago because each community needed one full-time," he says.

With its own CCTV unit and Granite XP survey software (CUES), Glendale began a regularly scheduled program of sewer inspection, moving through the system area by area. "We used it in what we call a district-survey mode, viewing our sewer lines from top to bottom in each of our 12 maintenance districts," says Hicks. "Our CCTV inspection was essentially divorced from our daily cleaning work, except when the crews ran into something."

Down, then back up

Glendale saw a dramatic decrease in overflows between the

GETTING RID OF GREASE

With more than 500 restaurants in town — some of them pretty ritzy — the City of Glendale Wastewater Maintenance Section must take special precautions about grease. A tough new FOG (fats, oils and grease) ordinance gives the city the legal authority it needs to limit the amount of these sewer clogging materials entering the system.

Senior operator Rod Torres is in charge of the section's "restaurant run" program. Using the section's Warthog cleaning nozzles, the wastewater section provides a cleaning of the main serving each restaurant at least once per year. The normal cycle time for cleaning any other line in the system not serving a restaurant is 18 to 24 months.

"We maintain a complete list of all the restaurants in the city and keep it updated," Torres says. "All restaurants are required to maintain an effective grease trap, as well as separate sinks for pots and pans, and we notify each establishment that their grease trap will be inspected on a regular basis."

The inspections are performed by the Public Works Environmental Division, which has two former members of the wastewater section on its staff. However, when grease is the cause of a stoppage or SSO, both groups work closely to investigate the exact source of the grease.

Torres says one reason for the inspections is to make sure every restaurant has an effective, approved grease trap. "We've had some issues where a food service establishment has installed a grease trap that really doesn't do the job," he says.

One of the best ways to get grease compliance is to get the restaurant manager to see that establishment's grease trap first-hand, Torres has found. "We take them out to the trap so they can physically see the amount of grease they are discharging," he says. "Their eyes get real big. It's good for them to see that and realize they may be responsible for a sewer backup in a nearby home or business."

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John Hicks

winter of 2005 and the winter of 2006. “For a time, we thought we were getting pretty good SSO reduction by just hydrojetting through the system faster,” says Hicks. “But then in the spring of 2007 our SSOs shot up again, even though the cleaning regimen had not changed. We asked ourselves, ‘What’s going on?’ We realized we were just not getting the root material out.”

Facing the increase in overflows, Hicks and his team made a critical change in direction. “We decided that we would let the crews in the field determine where the CCTV inspection was most needed,” Hicks says. “The crews now schedule post-cleaning spot-check inspections based on what they see in the tailings and feel at the hose-reel controls, not on some arbitrary decision by off-site supervisors.”

The crews also recommend the most appropriate follow-up activity when they confirm a problem. “We developed a simple Word table in landscape form that the crews use to report their findings and recommendations,” Hicks says. “It’s a one-sided worksheet they file after a team member verifies that the follow-up is complete. It has worked out very well.”

Cleaning them out

Crew supervisor Rodriguez explains the new cleaning protocol. “Our three flushing crews use a WG-1 Warthog jetting tool (StoneAge) to clean and proof the lines,” he says. “The Warthog has an integral skid and uses high-speed rotation and a penetrating jet that can achieve 3,000 psi at 50 to 80 gpm.

“If they can’t pass the Warthog, then they request the CCTV unit right away,” he explains. “Once we have a look, we can determine what needs to be done — waterjetting, root trimming, or full-blown chemical root abatement.”

The Glendale crew relies on a Vector combination sewer cleaner for jetting and flushing, a root saw from Sewer Equipment Co. of America, a prowler easement machine from 3T Equipment, a sewer rodding machine from SRECO-Flexible, and service and support from local distributor Plumbers Depot Inc.

For chemical root abatement, Glendale relies on a private contractor from Visalia, Calif. Pacific Sewer Maintenance employs chem-



Above: Wastewater maintenance worker Nery Villagran guides an inspection camera unit down a manhole to hunt for roots and other blockages. The camera vehicles use CUES Granite XP survey software. Right: An OZII camera with an Ultra Shorty transporter from CUES.



ical foam that causes the roots to die-back and lose their capability to trap and retain debris.

“We bring in Pacific Sewer about twice a year, at a cost of about \$1 a foot,” says Martinez. “We budget \$18,000 a year for the service. First we trim roots back as far as we can — that gives us a 7- to 8-week grace period. When the roots grow back, then the chemical foam is applied, using the contractor’s jetter. We’ll see significant die-off in about a month. We’ve yet to experience a stoppage in a chemically treated line.”

Rodriguez observes, “We were down to an average of just one to two stoppages a month last year, and our goal this year is single-digit stoppages for the year.”

Reacting when needed

When a stoppage and an overflow do occur, Glendale is prepared for that, too. “We recently implemented standby crews, which are on call 24/7,” Rodriguez says. “The crews are responsible for responding to an incident, restoring flow and filing the proper reports.”

Ortega, who has more than 30 years’ experience in sewer maintenance, thinks the quickness with which the Glendale section responds to emergencies may be unique. “I’ve been some places where you report an overflowing manhole, and three days later it’s still running,” he says. “Here, we take a lot of pride in getting there in a hurry — boom, boom.”

In an after-hours callback situation, the team leader of a three-man response crew is expected to be on the scene within 30 minutes. “We’ve had homeowners really surprised at our response time,” Ortega says. “It’s been outstanding — limiting the amount of water that gets into the storm drain and preventing damage to homes.”

When the Glendale crew finds a major defect in the system, it works closely with the city’s Public Works Engineering Department to



The City of Glendale is proud that each member of the collection system team has earned certification in Collection System Maintenance through the California Water Environment Association. Inset: The spreadsheet collection system workers use to record information from spot checks of the system.



A Prowler easement machine from 3T Equipment helps the Glendale crew reach off-road locations for cleaning and inspection.

initiate repairs. “When we find a hole or a break,” says Rodriguez, “it goes on a spreadsheet that is shared with the engineering group. It’s classified A (fix now), B (fix soon), or C (watch).”

Hicks observes, “The support of the engineering group in getting the collection system repaired has been outstanding.” For emergencies, Rodriguez can call in a repair crew under contract with the city. Response time is guaranteed to be between two and 24 hours. In a pinch, the Wastewater Maintenance Section works with heavy

equipment to reach off-road locations for cleaning and inspection. became available for repairing sewer lines that had moved or were offset or broken. Glendale took part in that effort, but portions of the system are very old, dating to the early 1900s, and the lines still move and break on occasion. “It’s an ongoing thing,” says Hicks. Earthquake or not, his team continues to work with the engineering team to repair and upsize lines on an annual basis.

If all this teamwork and field responsibility suggests effective training and a strong sense of professionalism at Glendale, that’s no

unit, to hydroflushing, to safety procedures like proper use of respiratory equipment.”

Each new hire must satisfy a one-year probationary period and successfully complete practical and written tests on each major section in the manual. Certification is another point of pride at Glendale. The city has invested much of the last four years getting the entire staff certified in Collection System Maintenance through the California Water Environment Association.

“We all hold certificates ranging from Grade 1 through Grade 4, with the exception of our latest hire, who is a wastewater trainee. Certification is not a state law yet, but we absolutely push everybody on the staff to get certified. At the end of the day, we want all members of our staff to feel like they are growing, advancing their knowledge, and participating in the professionalism of the section.

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“Infrastructure jobs are desirable jobs. It’s steady, good, honest work. The benefits are good, and technology has brought the work above the street. I don’t know who coined that phrase, but it’s true. You come for pay and benefits and you stay for growth and opportunity.”

John Hicks

equipment operators from other city operations to make the repair.

Communication is key

Hicks notes that Rodriguez has done “a great job” keeping the engineering staff informed and showing them how much their efforts help reduce SSOs. Rodriguez meets face-to-face with the engineering department every three months to review what the sewer crews find in the field.

These are productive sessions. Rodriguez and Hicks recall that after the 1994 earthquake centered in nearby Northridge, federal funds

accident. “I don’t know if it’s the poor economy or our reputation, but the last time we had an opening on our team, we had hundreds of applications,” Hicks says.

Training is critical. Martinez and Hicks are working on an extensive training manual that is specific to Glendale’s collection system and mirrors the one Glendale developed for its water department. “The manual is a guide for new employees, taking the entire operation and breaking it down step by step,” Hicks says. “It will cover every phase of sewer maintenance, from using the Vactor

You come for pay and benefits and you stay for growth and opportunity.”

In Hicks’ mind, sewer maintenance is very much a thinking man’s game, preventing the next stoppage, and keeping the region’s beaches clean and the residents’ living rooms dry. ♦

MORE INFO:

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CUES Inc.
800/327-7791
www.cuesinc.com

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Sewer Equipment Co. of America
800/323-1604
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