When Private Property Threatens Public Health: A Private Lift Station Oversight Program

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Photo 1: This photo of a private lift station electrical control panel located adjacent to a parking lot shows several cars pulled up even with the panel. If either vehicle had parked farther to the side, substantial damage to the lift station, as well as an electrical hazard, would have resulted. This illustrates the importance of protecting private lift station systems from vehicular traffic.

Photo 2: The flexible black plastic shown here is acting as a "temporary" wet well cover after the previous cover rusted through and fell into the wet well. The lift station is located in the front parking lot of a large condominium in a 55-plus community, presenting a substantial hazard to the seniors who live there. "Temporary" in this case was several months, according to residents.

Photo 3: At this shopping center parking lot, several planks and pieces of shelving were used to cover a pit dug by maintenance crews while repairing damaged sewage lines to a private lift station.

Photo 4: This photo shows a manhole cover that was left off for several days. A temporary bypass pump had been installed as shown while the pumps were under repair. A consistent issue with many lift stations was a lack of regular maintenance and system testing, which often led to abrupt and complete failure of the entire system, as happened here.

Photo 5: An apartment complex manager couldn't get the lift station to work, so he removed several cleanout caps from sewage pipes that ran down the side of the building. He put the trash can there to "catch" the sewage. Layers of dried toilet paper and fecal matter surrounded the receptacle. Residents also use this area behind the building to store bicycles, barbeque grills, and other outdoor equipment.

The city of Hollywood is located on Florida's southeast coast between Fort Lauderdale and Miami. Hollywood has a population of approximately 140,000 and is the location of the Southern Regional Wastewater Treatment Plant, which serves the sewered portions of Hollywood and several surrounding communities, and has an average treatment flow of 50 million gallons per day.

The city has very little topographical variation, is close to or below sea level in many areas, has a relatively high groundwater table, and had rapid population growth and geographical expansion in the 1950s and 60s. All these factors contributed to the need for an extensive lift station system to move wastewater flows through the city to the Southern Regional Plant. Although the city itself owns and maintains over 70 lift stations, more than 120 lift stations continue to be privately owned and maintained.

Problem History

Hollywood began developing its private lift station program in 2001 in response to an escalating series of sanitary sewer overflows. The city has an obligation to respond to sewer overflows to protect the environmental and public health. The high cost of correcting and cleaning up sewage spills related to private lift stations, which are frequently reported on weekends or after hours, began to cause concern at the Southern Regional Plant as systems aged and failures became more frequent.

Field crews responding to alarms and complaints also noticed dangerous conditions at some private lift stations, several of which had ill-fitting wet well or valve pit covers. Some had homemade covers of plywood and other inappropriate materials. Other systems had metal covers or supports that had rusted through, unsafe electrical systems, or inadequate protection from vehicular traffic. Photos 1 through 11 illustrate some of the specific hazardous conditions found at various private lift stations early in the implementation of the program.

Photo 6: At this large strip shopping plaza the electrical control supports, panels, and conduits have rusted through. One panel door was rusted shut and fell off when our electrician finally managed to pry it open.

Photo 7: Inside another electrical control panel, wires have been spliced and covered with duct tape. Copious quantities of rodent feces inside the box may indicate the reason for splicing.

Photo 8: Another "temporary" bypass in a residential area in front of one-story condos. The valve pit, wet well, and control panel were all left open. City personnel added the caution tape when called out to the property by residents who stated that it had been in this condition for several weeks.

Photo 9: Although this bypass area was somewhat protected by temporary caution fencing, it still presented a significant hazard to curious neighborhood children. The private lift station is located near a community playground.

In addition to concerns over increasing emergency response costs and the health and safety hazards associated with ill-maintained private lift station systems; the city became concerned that many of these lift stations were being neglected to the point of total system failure. Once their systems failed, many owners of the lift stations could not afford to replace the pumps, control panels, or other large system elements.

Many of the private lift stations are located in small, lower-income, or elderly (fixed-income) apartments or condominium complexes, and residents are unable to absorb large unexpected expenses. Residents were often unaware of the purpose or importance of their private lift stations until they were impacted by spills or back-ups.

The city considered several options to alleviate these issues. First, a study was undertaken to examine the feasibility of upgrading these stations and having the city's public utilities department take them over and maintain them. A few larger stations (15 total) were upgraded and added to the city system. The owners were happy to deed them over to the city in exchange for no longer having to maintain them.

The majority of the stations studied, however, would have to be completely replaced and upgraded to meet the city's standards and be added to its telemetry system. The cost to do so was considered prohibitive, based on the numbers served by these smaller stations.

Another issue with a city takeover of smaller private lift stations is a lack of easements. Many of these systems are adjacent to buildings and even have parts that are inside private residences. Entering private property for scheduled yearly inspections or emergency maintenance is manageable, but to have city personnel doing so to perform monthly maintenance opens up numerous liability and private property issues.

It was ultimately decided to have the public utilities department implement and manage a municipal oversight (permitting and inspection) program, while maintaining private ownership of these facilities. The first step in this process was to write and enact new amendments to the city's code of ordinances.

Code of Ordinance Changes

In October 2001, the city amended its code of ordinances sewer use section. Several new paragraphs were added to include requirements for owners of private wastewater systems. Under the new ordinance, each private lift station must be permitted and inspected by the city yearly. Lift station owners must also contract a maintenance company to perform rou-

Continued on page 48

Photo 10: Flooding around an overflowing lift station. The light was on and the panel was open as shown when city personnel arrived, but no maintenance crews were onsite. Home and condo owner associations frequently rely on their regular maintenance staff, who have little or no training, for the upkeep of their private lift station. Staff members may not even be aware of the equipment's purpose.

Photo 11: Here a control panel is located inside a storage room to protect it from the elements. The panels are inaccessible because of the large quantity of stored items in the closet. This also illustrates how infrequently these systems are tested or checked for damage.

Continued from page 47

tine maintenance on the lift stations at least monthly. Eligible maintenance companies must have a licensed plumber or certified wastewater collection system technician to oversee the stations maintenance program and must also guarantee 24-hours-a-day, seven-days-a-week, 365-days-a-year emergency response.

Additional provisions of the ordinance include requirements to minimize inflow and infiltration, and to establish and follow approved spill and other emergency response plans. Owners must supply the city with additional system information, including site plans, pump information, drawings, and any use agreements with other entities.

Permit and inspection fees are currently set at $200 per year. Fees may be changed with approval of the Hollywood City Commission. If a facility fails initial inspection, the owners are given 30 days to correct the violations and send in proof that the corrections have been completed.

If proof of correction is not received within 30 days, a re-inspection is performed and a $50 re-inspection fee assessed. If the private lift station fails re-inspection, further fines or referral to code enforcement may apply.

After legal authority for the program was established, personnel began identifying the locations of existing private lift stations within the city limits.

Private Lift Station Identification

Although initial private lift station lists contained less than 80 such lift stations, further investigation showed many additional previously undocumented private lift stations within Hollywood's borders. By 2009, over 150 had been identified in the city. Currently, 116 of these are considered jurisdictional and are permitted and inspected by the city.

There are a number of lift stations that are neither city-maintained nor regulated. Non-jurisdictional lift stations include those on Seminole Tribal lands (technically not within city limits), several at Florida state parks (do not recognize city jurisdiction), and those at Broward County Schools (school boards have exemptions to local regulations by state statute). In 2006, Hollywood began permitting private lift stations within the city that flow to drain fields.

All private lift stations were issued unique, three-part identification numbers by the city, and owners were provided with stickers showing the identification number and the city's emergency contact information. Owners of these lift stations were also required to post the contracted maintenance company name and phone number on a clearly visible portion of the outside of the lift station—usually the control panel.

The identification number itself has three separate sections. The first is a geographical identifier—E, NW, or SW—followed by a unique, three-digit facility number and then a suffix identifying the specific station. The suffix was added because some locations have multiple lift stations at one location; one hospital has five, one park has four, etc. Examples of complete permit numbers include E101-01, NW101-01 and NW101-02, or SW101-01.

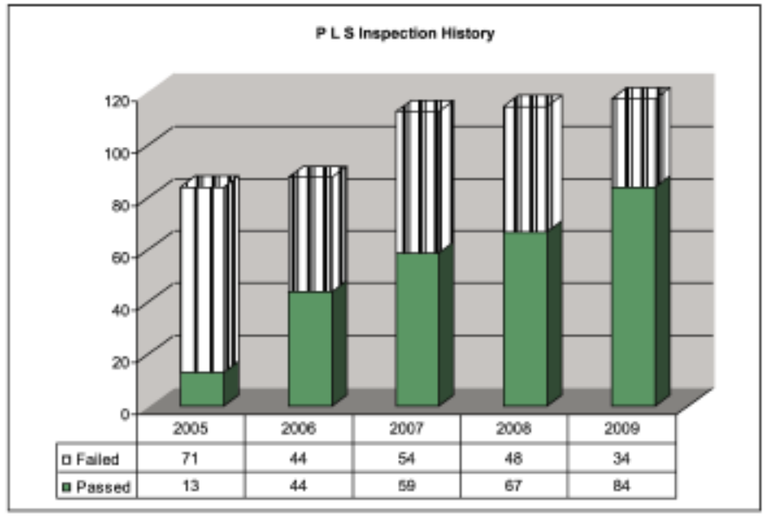
Yearly Inspections

As per city ordinance, all private lift stations are inspected yearly. A certified city electrician and a compliance technician familiar with lift stations are present at all inspections. As previously mentioned, all owners must contract a maintenance company to care for their private lift stations and inspections are coordinated with these private companies. Owners or their representatives may also be present, but they rarely attend inspections. The maintenance representatives must show their maintenance routine and records, as well as demonstrate that all equipment operates properly.

The basic elements of any lift station include a wet well into which the wastewater flows, pumps to move the wastewater up to a higher elevation so it will gravity flow into the nearest city line, an electrical system and controls to run the various elements, and valves and appurtenances through which water flows. During inspections the liquid containment areas are inspected for general integrity of the structures to ensure there are no leaks, cracks, or compromises.

Many of our wet well covers had holes in the cover or open vent holes, which we required to be appropriately covered to prevent inflow. Wet wells are also assessed to see if they need cleaning—for example, if they have heavy grease build-ups—and for any other problems.

Pumps normally are not inspected, but they are tested to ensure that both pumps work. The pump control systems (most often floats with a few bubbler systems) are tested to ensure they trigger high-water alarms, alternate pumps, and shut off for low water levels. All alarm and electrical systems are also tested. Pest control, especially for the electrical systems, is frequently a problem that must be addressed. Improper wiring and non-functional alarms were common problems found in early inspections.



Inspectors will also evaluate and comment on the general housekeeping and security of the system. This includes how well it protects the public from the hazards of a private lift station and issues such as odor, obstacles, and proper maintenance of vegetation. Basic information about the system is obtained or updated as needed. For example, any major changes that have occurred within the past year are noted and new equipment such as control panels, pumps, valves, or pipes that have been installed are detailed.

The private lift station is given a pass-or-fail grade and the inspector or owner representative signs the inspection sheet that he or she has been notified of the findings. A written report is sent to the owner, with copies to the maintenance company, within a month of the inspections. In some cases, failure elements must be corrected immediately—for example, if the system is not operating. Other repairs must be completed within 30 days of written notice.

Proof of repair may be provided via photos and receipts. If valid proof is not received within the required time period, a re-inspection will be scheduled and an additional $50 fee will be charged.

Items that the utility would like to have corrected but that are not urgent will be included in the written report as "recommendations." These recommendations must be addressed prior to the next inspection.

As the below chart illustrates, the condition of private lift stations within the city improved dramatically the inspection and permit program was implemented. The chart also shows the increase in total inspections, which was primarily a result of the identification of existing but previously unrecorded systems.

Education

Although most owners do not attend inspections, many residents or business leaseholders do come out and ask questions during inspections. Others become interested in the equipment following clogs, costly repairs, or emergencies.

We have developed informational sheets about private lift stations to help owners, managers, and residents understand the importance of their system; to tell them who to call if an alarm sounds or flashes; and to explain how they can help keep their system clear. Our biggest effort is aimed at getting owners or residents to keep inappropriate items, such as rags and grease, out of their system. Flyers are provided in both English and Spanish; other translations are available on request.

Interest in the workings of private lift stations has increased over time, and many complexes have requested flyers to hand out to residents or tenants. The utility distributed approximately 150 flyers in 2004, 300 flyers in 2005, 500 flyers in 2006, and 875 flyers in 2007. In early 2008, the utility began distributing most flyers electronically—they can be downloaded from the www.hollywoodfl.org Web site, or a master will be e-mailed upon request and the recipient can print the quantity needed.

Maintenance companies are also educated on proper procedures and the city's requirements. Although maintenance companies may profit from repairs, their profit margin, and especially their customer satisfaction, are much better if problems and repairs can be avoided. The majority of maintenance companies operating in Hollywood have been very cooperative with the program and have benefited from added business and greater owner comprehension when repairs are necessary.

Spill Response

During the five years since the private lift station program began, it has greatly reduced the number of associated incidents and emergencies. City staff members continue to respond to any spill at a private lift station, but the responsibility for repair and clean-up has shifted to the owner and the contracted maintenance company.

Owners are required to update and sign spill response plans every year. Plans include acknowledgment that owners are aware of their responsibilities and will notify the city of any alarms or spills. Southern Regional Wastewater Treatment Plant personnel will respond if necessary and notify other city departments or county and state agencies when required or advisable. As of summer 2009, the city has been able to achieve 100-percent voluntary compliance with clean-up and repair requirements.

Current Issues & Revisions

The city of Hollywood's private lift station permit program is a dynamic program based on an ordinance that specifies certain requirements but allows for flexibility. Monthly maintenance, yearly renewal, yearly inspections, spill plans, and inflow and infiltration prevention plans are required, but other sections are up to the utility to interpret.

For example, the ordinance states "PLS [private lift stations] must be maintained to provide continuous service, 24 hours per day, 365 days a year." This gives regulators the flexibility to address individual situations based on their unique circumstances and equipment as long as the result is a fully functioning station.

This mixing of specific, quantifiable requirements in the ordinance with more general language to broaden options has produced a useful program with measurable benefits for Hollywood. Permittees are more aware of their private lift station functions and their responsibilities, safety and maintenance practices have improved, and the number and severity of spills has decreased.

Basic procedures and policies for the private lift station permit program have now been firmly established. Ownership changes and occasional poor maintenance practices continue

Continued on page 50

Continued from page 49

to present challenges. During the 2003-2006 real estate boom, properties often changed ownership one or more times a year. These ownership changes often complicate education and improvement efforts by staff. The Southern Regional Wastewater Treatment Plant regulatory program exercises the flexibility provided by our ordinance to make adjustments as necessary and looks for ways to improve overall private lift station quality, primarily through owner and public education.

The program continues to grow and improve. One recent addition to the permit program was the requirement that all private lift station owners provide the city with hurricane and other emergency response procedures. This requirement was a result of the spills and other issues that arose after Hurricane Wilma cut off power to sections of the city for several weeks in 2005.

Under this provision of the program, all private lift stations were categorized by staff as either commercial, residential, or "other" facilities. Commercial entities may elect closure of the facility as their hurricane response action. Residential facilities have several options, including permanent or temporary generators, special contracts with pump companies to supplement their regular maintenance contracts, or the acquisition of generator- or battery-run bypass pumps.

Facilities classed as "other" include parks, churches, and hospital facilities. Some outpatient hospital centers elected closure; however, most hospital facilities have permanent generators.

In 2006, the program was further expanded and private lift stations that connect to drain fields began to be regulated for the first time. These lift stations were not part of the original program because the Southern Regional Wastewater Treatment Plant's original position was that regulation was primarily to protect the plant from pass-through or interference of pollutants produced or introduced by private lift stations; however, the code of ordinances states only "within the city" as the definitive jurisdiction, so the utility elected to begin regulating these lift stations to protect our citizens and environment.

For further information about this program, contact Ali Parker by telephone at 954-921-3414 or by e-mail at aparker@hollywoodfl.org.