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A Catch 22

Susan Daywitt

Lift stations are not exactly a fun subject, but they are a vital part of diverse industries because they ensure that systems operate smoothly.

They exist in multiple variations based on area, location, use, and how many and what type of facilities are associated with them. Along with each variation comes its own set of issues.

The Basics

First, let's talk about what a lift station is. A lift station is a system in which wastewater gets pumped to a higher elevation so that gravity can move it to a treatment plant. Commonly, there are two main types of lift stations (pumping stations): a wet well and a dry well. Within those types, there are two main types of pumps: a grinder pump and a regular pump.

A grinder pump is most frequently found in residential, domestic, commercial, municipal and industrial applications that produce grease, food particles, sewage, sludge, manure and other liquids that contain tough solids. It's generally a two-pump system. These pumps alternate to operate the station in concert with an alarm system that will alert the owner of any functional problems (e.g., float, valve, pump and electrical panel malfunctions). The grease, food particles and sewage are ground up and liquefied so they can flow through the system into the main sewer connection without causing clogs.

A regular pump is similar to but not as thorough as a grinder. Unlike a grinder, a regular pump cannot withstand as much solid volume and will not grind up particles. These types of pumps are typically used for septic and wastewater services and for grease purposes. A regular pump uses a series of pumps and valves to move storm water and sewage out of low-lying areas. Similar to the grinder pump, it will pump wastewater to a collection area, where the water is separated from the waste and treated.

One of the best ways to learn how something works is to ask, so I interviewed several Darden facilities professionals who are very familiar with lift stations within the facilities industry. I asked them about their personal experience with lift stations, their biggest issues and what they did to resolve them.

Common Issues

Ed Bordelon, Director of Facilities at Darden Restaurants, has had a lot of experience with lift stations. He encountered a severe issue with a lift station located at his Capital Grill restaurant in downtown Philadelphia. The lift station was located in an area that was not easily accessible, which resulted in inconsistent maintenance checks.

If a lift station is not checked on a regular basis, problems quickly arise. The grease in Bordelon's dual lift station with a grinder pump was bypassing the grease trap due to overheating, causing the grease to not coagulate properly. When the grease does not have a chance to cool down, it will stay suspended and ultimately clog the station. This often happens when restaurant employees pour 200-degree liquids into drain lines.

Two ways of resolving overheating issues are tempering the liquids by pouring cold water down the drain and by installing a second grease trap to allow more time for the grease to cool.

"I learned the hard way about the importance of annual maintenance and in checking control panels, pumps, floats and the wells," said Vincent Yeager, Facilities Manager at Red Lobster. "Everyone forgets these stations are there and never performs the annual maintenance, until it is too late."

“The key to continued operation and reduced breakdowns is to make sure you have a comprehensive maintenance program,” agrees Curtis Sawan, Facilities Manager at Darden Restaurants. “I have three lift stations, and before I was involved, there was sporadic maintenance and continued costly breakdowns.”

Sawan developed a program with the help of trusted service providers who have a record of minimizing breakdowns and keep back-up plans in place. Basically, it involves weekly inspections, cleaning the pit or well quarterly—more if grease levels are too high—rebuilding one pump every six months and keeping a spare pump in the service provider’s possession at all times. Sawan has been able to reduce the failure rate to almost zero. Of course, finding a competent service provider is extremely critical.

It is also vital to make sure the pumps are rated for the appropriate duty size, which ensures they can handle the grease along with the effluent. Be sure to maintain the control panel, clean the contact points, seal the conduit from the sump pit (the gases generated are very corrosive) and ensure all connections are tight and sealed. Make sure the grease trap is in working order and is pumped out on schedule.

Odor is another major issue. With the amount of gases that accumulate in those confined spaces, there is the potential for toxic gases and even explosions. Odors are caused by oxygen deficiency. A good way to increase oxygen content is to add sodium nitrate or pine-scented blocks to neutralize the odors.

When an issue arises, it’s important to address it immediately and efficiently to avoid additional damages or costs. Lift station repairs can be extremely costly; once you come across an issue that requires you to dig deep into your pocket, you’ll want to avoid any future mishaps by fully alleviating the problem head on.

Avoiding Issues

Complications are bound to occur when major operating systems involve grease on a daily basis. But there are several ways to avoid these issues and lessen the chance of them reoccurring. It is imperative to check lift stations on a continual basis, and the schedule depends on the size and location of the station. Semi-annual to annual maintenance (unless otherwise mandated by the municipality) of a lift station is crucial to preserving the lifespan and overall quality of the pumps. Failure to schedule routine maintenance can result in major issues that are costly and sometimes unfixable.

Another way to help alleviate issues is to have the grease interceptor/ trap pumper site inspect the lift station each time they are on the property to service the grease interceptor/trap.

“This is a good way to spot potential back-up hazards and will also help to ensure the station is functioning properly,” said Beth Olson, grease specialist at SLM Facility Solutions Nationwide.

The Reality

Issues are always going to pop up, whether you like it or not. Learn from them the first time in order to prevent them in the future.

When maintained properly, lift stations can be a viable piece of machinery that can benefit your establishment in many ways. The functionality of your lift station depends solely on the upkeep and maintenance. Taking the necessary precautions avoids a large number of issues and costly bills.

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