

Case Study:**May 5, 2017**

Self-Cleaning Lift Stations Comparisons
SWC Utilities 7 Year Study
Collections Superintendent: Mr. Pat Caffey
2/12/2000 thru 4/23/2017

Location,

High Traffic, High Profile area at a traffic light. 150' from the front of on of the largest outdoors retailer store.

Problem:

Odor Control
High Chemical Cost
Continuous Pump Clogging
Pump replacements every 6 months
Weekly Pump Outs
High Labor Cost
Line Clogging
SSO's
High H₂S
Corrosion

Scenario:

7 years ago, SWCU spent several hundred thousand dollars installing 6 of the top rated, "self cleaning lift stations and lift station cleaning devices". All failed miserably but one. This particular one was the least expensive, (Less than \$5,000), installed in 10 Minutes, it has no moving parts to wear out, requires almost no maintenance, solved all of our H₂S issues, eliminated 100% of the pump outs, Eliminated 100% of the F.O.G. deposits, and opened the discharge lines. It was shocking to see these results from such a simple device. What was even more shocking was the fact that solved 100% of our problems in less than 24 hours.

Confession;

Admittedly, this particular device was, in my opinion the least likely to solve any of our issues. It was just too simple! The only reason I agreed to the test was because the representative, who came to see me, actually invented this unit. He was from a nearby town and he offered a money back guarantee if we did not see substantial results in just 4 hours. My thoughts were, good after 4 hours, this is one less thing I have to deal with. The only station that was left was a nightmare for us. It was the worst station out of all the ones we had. It was a 10' in diameter 20' deep, effluent was 6' deep. It severed a high flow commercial area. The matt build up was around 3' every 4 to 5 days. This station was pumped out twice weekly; we added over \$60,000 a year in odor control chemicals.

I was actually embarrassed when we pulled up to the station and he pulled out his unit and tried to drop it in. The matting was so thick he had to work with the unit to

even get it through the thick matt and all the grease. Within 10 minutes, the unit was installed, wired and ready for operation.

Results:

Two of the units that were selected, one used a wand with a spray feature and the other with an injection nozzle built into the pump line, failed with in the first 12 months. The nozzle unit continuously clogged and the wand system clogged continuously causing it to become unbalanced and it had to be reinstalled 3 times before removing it.

Both of these units used effluent from the pump station as their water source. Three of the test units were state of the art, impressive looking fiberglass pump stations with tapered bottoms designed to collect and remove all the solids. These stations did a good job of removing solids that normally built up on the bottom of the stations but did nothing for floatable debris, odor control, corrosion control, or F.O.G. deposit build up. They were expensive, costly and difficult to install. Two of the station had their pumps actually suspended directly over the cone shaped bottom, which at first appeared like a great set up. After 3 years, it was determined by two of the manufacturers that the vibration from pumps caused the fiberglass basins to develop cracks and began to leak. The solution was to pull the pumps, fill the bottom with concrete and patch the fiberglass cracks.

As of January 2017, two of these fiberglass stations have been replace with larger standard flat bottom stations. One of the stations remains in operation and is operating effectively since the concrete bottom was added 3 years prior.

Shocking Results:

The smallest, lowest cost, and simplest device we tested shocked us all. This unit has been operating flawlessly for the past 7 years. It has saved us hundreds of thousands of dollars in chemical cost, labor cost, repair cost, and SSO spills.

The flow rate in this station has grown from 50,000 gpd 7 years ago to over 300,000 gpd. Concerned about the continued growth in the area, the station was scheduled for a 1.2 million dollar replacement and up grade. The upgraded cost allowed for the installation of a larger digester like the one that was already installed and performing flawlessly. The representative who originally sold us this digester system was called in to properly size a new unit for the new pump station.

After reviewing the drawings and flow rates, he determine that by simply increasing the Hp of the pumps from 7.5 Hp to 15 Hp., increasing the digester size from a 1Hp to a 2 Hp unit, and raising the effluent level 24 inches would more than handle the additional flow. This was done over 9 months ago and everything is working perfectly. We spent \$46,000 on pumps and installation and \$12,000 up grading the digester from a 1 Hp to a 2 Hp with extra ozone. We spent \$58,000 VS \$1.2 Million. I would like to say thank you to Randy McGuffin, inventor, designer and manufacturer of the Little John Digester. Excellent invention!

Pat Caffey
Collections Superintendent Retired
SWC Utilities



DO2E Little John Digester for F.O.G. & Odor Control
Now available with Ultra Violet Ozone for Advanced Treatment