

## THINK FRANKFORT STINKS? CITY'S WORKING TO FIX THAT

Complaints down since odor control outsourced

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Stewart North has a simple aim that requires some complex chemistry and engineering: making sure west Frankfort doesn't stink, despite the odorous contributions thousands of residents deposit daily into the sanitary sewer system.

And North, president of field operations for Lexington-based Source Technologies, might soon be helping east Frankfort smell better, too.

Mayor Bill May has said he's heard complaints about stench in the Indian Hills and Blanton Acres subdivisions, where Sewer Director Bill Scalf said the worst problems last year seemed to be.

After decades of mitigating most olfactory issues internally, the city outsourced odor control for west Frankfort to Source Technologies in April 2012.

Source first won the full-service contract with a low bid of about \$143,000, Scalf said. The contract, which City Commission renewed this month for about \$146,000, requires the company to monitor, address and prevent complaints about stench and reduce infrastructure corrosion due to sulfuric acid, which sewers can introduce into the atmosphere.

"All these lift stations and pipes and whatnot, they're assets that are owned by the city," North said. "And if they're not protected and taken care of, they will fail, far ahead of when they should have from old age."

Source had performed two previous odor control projects for the city around Choateville and Raven Crest Apartments.

Scalf said the city previously spent about \$100,000 to \$125,000 per year on chemicals alone to handle odor issues internally, plus untracked but significant labor hours, including overtime.

North said the company has only heard two customer complaints in the past year in west Frankfort, which Scalf estimated represents a 75 to 80 percent drop in complaints, or more, from the previous time period.

Scalf said in a typical summer - when the heat naturally increases pungency and residents are outside to smell it more - the sewer department would normally have 10 times the complaints, if not more.

"We've been very pleased with how this has worked out," Scalf said.

So pleased that, in addition to renewing Source's contract for the west Frankfort odor control, the city has paid the company about \$17,800 to do a two-month pilot odor control project on a sewer pump station on the Jim Beam plant property off Georgetown Road. The odor issues from that pump station and a nearby manhole affect The Maples and Indian Hills subdivisions, Scalf said.

Depending partly on how the pilot turns out, Source could also be awarded a contract for handling east Frankfort's odor issues. The city is still recording complaints there.

"Frankly, we're looking to see how this thing at (Jim) Beam turns out," Scalf said.

On a tour Thursday of five of the six pump stations Source has been working on in west Frankfort, North explained the problems and the company's solution.

Hydrogen sulfide gas is responsible for the rotten egg smell of sewers. North said bacteria in the wastewater eventually consume all the oxygen, allowing other bacteria to thrive that eat sulfate and turn it into sulfide.

Sulfide, in turn, can combine in the air with hydrogen and oxygen to create the hydrogen sulfide gas. That gas literally stinks, but it can also combine with air and water to create sulfuric acid, which North said corrodes concrete, iron, manholes and electrical panels and can even cause infrastructure collapses.

North said Source uses three patented chemical processes with one goal: oxidizing sulfide in the wastewater.

"With no sulfide, there is no hydrogen sulfide gas, and therefore there's no sulfuric acid," North explained at the Twin Oaks Pump Station. "So no odor complaints, no corrosion on your infrastructure."

Sewer pump stations are typically in low-lying areas and receive wastewater from higher-elevated areas through pipes that slope down to them. They then pump the wastewater using electricity through what's known as a force main, eventually to reach the wastewater treatment plant on Kentucky Avenue.

The Twin Oaks Pump Station is located right between houses in the Twin Oaks subdivision. It accepts wastewater from that neighborhood and is also fed by a force main from the Cedar Run Pump Station, which itself accepts wastewater from areas around the BP gas station on U.S. 127 south of Interstate 64.

It takes about four hours for that force main to move wastewater from Cedar Run to Twin Oaks, North said - a lot of time for the bacteria to consume all the oxygen. Part of the reason for the pilot project at Jim Beam is the force main there is more than a mile long, Scalf said, and the wasted alcohol that enters the pipes there causes the oxygen to disappear even faster.

"It smells kind of like gross, old alcohol," North said.

To deal with the odor issue at Twin Oaks and farther up the system, Source pumps in an oxidizing agent and a catalyst at both the Cedar Run and Twin Oaks stations.

At Cedar Run, hydrogen peroxide is used to oxidize; at Twin Oaks, Source actually generates oxygen to introduce into the sewer using a "molecular sieve" that takes in air and separates out its biggest component: nitrogen.

"Since we've fired this unit up, a year ago this week, actually, we have not had a single odor complaint from this neighborhood," North said, gesturing toward two adjacent homes, which he said used to complain all the time.