



Gasoline in a Sewer System Validates Need for an Emergency Response Plan

Workers excavate to repair a faulty valve on an underground fuel storage tank at a convenience store in Cedar Vale, Kansas.

In August 2011, the city of Cedar Vale experienced gasoline in a section of the city's sewer system. Cedar Vale is located in Chautauqua County in southeastern Kansas; it has a population of approximately 600 people.

This incident suggests that generally speaking, small systems do not have the proper equipment and materials to deal with an emergency such as this. That's not being critical of the city but just to explain that no one can ever be prepared for every possible situation. In this case, approximately 150 residents were evacuated from their homes until the problem was identified and corrected. Outside assistance was needed on the project. Typically, it is difficult for anyone to recognize and evaluate all the possible situations during an emergency such as Cedar Vale experienced. That is why the resources

In this case, approximately 150 residents were evacuated from their homes until the problem was identified and corrected.

listed in an Emergency Response Plan (ERP) are so critical when trying to determine how to address an emergency.

What would be declared an emergency at Cedar Vale was first reported on Friday, August 5, 2011 when a homeowner called the city operator Dean Kirchner to report an odor resembling paint thinner in his home. It would later be learned that the odor had also been noticed by another customer nearly a month earlier but that was not reported to the city. The first reporting customer simply added

water to the drains in his home which eliminated further advance of the odor into his home.

During the next few days, the city opened manholes to determine if the smell of gasoline was still present. No odor was detected. There was a slight odor at the first homeowner who noticed the problem. Upon investigation, defective sewer pipes were found under his house.

A 4-gas monitor would have been very helpful to the city in determining additional odors. These monitors detect potential dangerous gases anywhere but especially in confined spaces such as manholes and crawl spaces under homes. Some gases have no odor and some are lethal in high concentrations. Municipal utilities should have the 4-gas monitor; if they don't, they need to know where a unit can be obtained from such as a fire department, a neighboring city or the county may

have proper equipment available and personnel who are trained to use it. I also recommend that people call 911 as soon as possible to have fire and EMS on the scene. Most emergency people would rather be called than to wait until it's too late.

On Thursday, August 11, Operator Kirchner contacted the Kansas Department of Health and Environment district office in Chanute about the problem; he was advised to try to determine if the odor was coming from pipes under the home. The homeowner was not feeling well and was advised by city staff he should seek medical attention.

The next day, the city fire department dumped about 3,300 gallons of water down several manholes and the clean out at the location of the customer who was not feeling well.

On Saturday, August 13, the operator and mayor were called by another customer who reported the smell of gasoline in their home. They checked several manholes and detected the smell of gasoline; they then located a manhole near a convenience store which had fuel flowing into it. They contacted the owner in case others needed to be notified; the store owner reported he was not responsible. KDHE was again contacted and later in the day, the homeowner who had not been feeling well, was hospitalized.

On Sunday, August 14, the city operator was advised that the owner of the convenience store wanted the Chautauqua District 1 fire chief to flush the sewer line. Approximately 6,000 gallons of water was flushed down the line. City operator Kirchner took photos to document the work.

On Monday, August 15, at about 10:30 a.m., a KDHE representative arrived as well as the Arkansas City Fire Department with their monitor to check the Lower Explosive Limit or LEL in the sanitary sewer system.



A member of the Arkansas City, KS Fire Department checks the lower explosive limit (LEL) in a manhole four blocks downstream of the fuel leak.

Maps of the collection system were reviewed and KDHE advised the fire department where to check the LEL in the sanitary sewer collection system. The severity of the problem soon was realized. The fuel had made its way to the wastewater treatment ponds; there were fumes in many manholes. An immediate evacuation of all the people

who were connected to this trunk line was ordered. The evacuation of approximately 150 residents was accomplished by going door to door and using the county calling system. In most counties this "reverse 911" calling system will only contact those who have signed up for it; the system can call land lines or cell phones. Alerts may be sent by email or text. This service works for weather and any emergency situation; even boil water advisories have been sent using this type of system. I recommend checking with the county

Emergency Preparedness Department to make sure they will allow its use for emergencies.

The convenience store had its fuel pump representative check for leaks; one was found. It was due to a faulty valve where the low grade and high grade fuel were blended. This connection was below ground; it was relocated so it could be visually

Water Products[®] INC.

DISTRIBUTOR FOR MAJOR MANUFACTURERS OF WATER, STORM, SEWER AND GAS SYSTEM INSTALLATION, MAINTENANCE AND REPAIR MATERIALS, POLY FUSION EQUIPMENT SALES AND RENTAL. LIVE TAPS AND LINE STOP SERVICE.
LARGE ENOUGH TO SERVE YOU, SMALL ENOUGH TO KNOW YOU.

1-800-365-0252

PO Box 774
600 S. 81 Bypass
Mcpherson, KS 67460

(620) 241-3865
Fax: (620)-241-5087

www.waterproductsusa.com



Above: This photo shows foam in the influent structure between cells 1 and 2 at the city's wastewater ponds.



A worker from Mayer Specialty works to line a manhole with polyurethane coating.

inspected. The installation was rechecked the next day.

After the evacuation and isolating the problem collection system line, about 130,000 gallons of water with 20 bottles of dish soap were used to flush the system again.

An informational meeting was also held on Monday, August 15, to update residents as well as the press. Public relations efforts by keeping customers informed of progress or problems should be a priority.

The explosive limits were continually checked with no sign of decrease and some locations increasing. At 5:30 a.m. on August 17, Kirchner again checked manholes for odors of gasoline. The Arkansas City fire department returned to assist and the city of Winfield Fire Department sent five gallons of NO-FUME, a fire fighting foaming agent that reduces chances for ignition. PK SAFETY from El Dorado arrived with a product

called Micro-Blaze; this was mixed and applied by flushing through the sewer mains. This reduced levels even more with a few "hot spots" of high LEL levels. Residents were allowed to return their homes about 10 p.m. as the LEL levels were within permissible limits. Monitoring of the system continued for the next several days.

The next day assistance was received from Coffeyville's HAZMAT team, PK SAFETY, the State Fire Marshall, and KDHE. Mayer Specialty Services from Goddard was contacted to video the line from the locker plant in the area to the convenience store. At 131 feet, a hole in the collection system was found that was allowing fuel to leak into the system. This section of pipe was isolated and the downstream lines were once again flushed and levels returned to safe levels.

A local contractor was asked to bid to replace the line; as they began work on Saturday, August 20, to replace the

line, fuel began seeping into the excavations; it was vacuumed out for the next several days.

On Monday, August 22 more lines were videotaped.

As the collection system replacement was taking place the dirt was hauled to the city dump to allow the fuel to evaporate. The line was dug by Wednesday August 24, and first 100 feet of line was replaced. The replacement was completed by Friday, August 26.

On Monday, August 29, another 60-foot section of collection line was replaced and Mayer Specialty Services lined three manholes in the area with polyurethane coating. Gravel was placed over the line and parking lots where the line was installed.

On Tuesday, September 6, the city again flushed lines with Micro-Blaze for the final time and clean up of the customer's yard was completed.

According to Dean, the city of Cedar Vale staff, council, contractors and volunteers put in some very long days until this emergency ended. The work by Wayne Cline, Chief of Police, Cedar Vale Officer Barry Speer, city staff member Anthony Bliss, the Chautauqua County Sheriff and county emergency personnel and the Cedar Vale Fire Department was noted and appreciated by city residents.

This incident demonstrates that there is no way to predict how an emergency might impact a community. This situation could have resulted in catastrophic loss of life and property. Everyone involved is commended for their efforts to get it resolved and corrected. It is a vivid illustration of the necessity of having an Emergency Response Plan.

Charlie Schwindamann has been Wastewater Tech at KRWA since September 1999. Charlie holds Class II Water and Class I Wastewater Operator certification. He is a member of the Marysville, KS city council.

