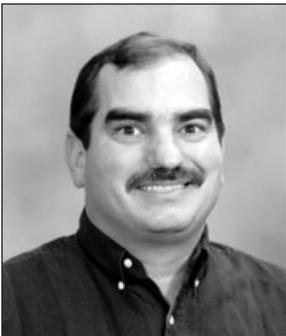


Wastewater worker hazard protection

Worker safety issues for wastewater utilities should be a top system priority. Kansas has more than 1700 people certified by the Kansas Department of Health & Environment as wastewater operators. There are likely many hundreds of additional workers who are not certified. Whether working in the collection system, treatment plant or lab, wastewater workers are exposed to a wide variety of hazards. A goal of this article is to increase awareness in working smarter and safer.

*Charlie Schwindamann
Wastewater Tech*



It's agreed that training and awareness of hazards is at the top of a system's list. From exposure to chemicals and microbial pathogens, to the physical hazards of confined spaces, there is much to consider when addressing safe work practices and worker safety.

KRWA has provided training for confined space and trench safety with classes for the past 13 years. Mid West Fire Training Associates provides these quality classes that are unmatched and accepted as a "must attend." It's KRWA's recommendation that every system send operators to these training sessions, with refresher courses every three years.

Hazardous gases and oxygen deficient atmospheres can pose an acute, life threatening hazard to workers. Operators need to be informed on how to deal with these environments to ensure

worker safety. KRWA recommends utilities that hire outside maintenance contractors on water or wastewater systems

exposure in the United States. There are also no known cases of wastewater workers acquiring HIV as a result of their work

Practicing good personal hygiene and use of personal protective equipment (PPE) will significantly reduce infection or contamination when working with wastewater.

demand awareness of safety being one of the utility's highest priorities. Areas of awareness include confined space safety for those working on water towers and manhole rehabilitation as prime examples.

Pathogens or disease-causing micro-organisms can enter the body in several ways: inhalation (breathing), ingestion (by mouth), adsorption (through the skin, such as with chemicals) and injection (puncture wounds such as needles or cuts). Practicing good personal hygiene and use of personal protective equipment (PPE) will significantly reduce infection or contamination when working with wastewater. Another protection is to be immunized for tetanus, diphtheria and Hepatitis B. The need to vaccinate for Hepatitis B has not been universally recommended as it has not been linked to sewage

environment. Most vaccinations can be scheduled at a county health department.

Biohazards in wastewater include bacteria that cause symptoms of diarrhea, fever,



A crew from Agland Electric, Atkinson, Neb., uses safety harness, rain coat and chest waders while removing and replacing the impeller on lift station pumps at the City of Marysville. Lift stations are confined spaces and proper safety procedures need to be practiced when working on them.

cramps, vomiting, headaches, weakness and loss of appetite. Illnesses associated with these bacteria include typhoid, cholera and salmonella. Fungi like aspergillus often grow in compost and can cause allergic reactions that lead to lung infections or

Protective clothing for wastewater treatment and collection system workers

- Rubber or latex gloves can be purchased locally; most safety magazines have heavy-duty gloves for specific tasks. It is recommended that heavy rubber gloves from a farm and home store with long cuffs be used when working on the collection system such as cleaning and pipe repair. The lighter weight latex gloves are more suited for lab and similar more detailed work.
- Rubber fire department style boots that are slip resistant and have steel shanks to prevent punctures are preferred.
- Face shields and goggles prevent splashes from being absorbed by tissue in the eyes, mouth and nose. Some disease pathogens are adsorbed through mucus membranes.
- A respirator will protect against inhalation hazards when working with bio-solids in the drying beds.
- Hard hats and hearing protection should be standard PPE for each employee.

make asthma much worse. Parasites like giardia, lamblia and cryptosporidium cause diarrhea, stomach cramps, nausea and fever. With proper PPE, risk of contracting these symptoms and diseases will be reduced.

Clothing precautions

An important precaution that demands attention is soiled work clothing. It is recommended to not wear work clothes home. That is a challenge since most facilities do not have a place to shower or change. It would be a good idea for systems upgrading plants to install showers. It is highly recommended to change clothes at work and shower before heading home. Clothing should be washed separately to avoid cross contamination to family clothing. A preferred work clothes washing procedure is to wash each load twice and then cycle the washer empty, adding bleach to purify the machine before the next use.

Hand washing

Frequent hand washing is the most valuable safeguard in preventing infection. A hand

sanitizer is a good item to always have available. Vigorous hand washing before eating, drinking or smoking is recommended. Eating, drinking or smoking should be prohibited while working around wastewater. To help prevent

contamination, a separate place away from work areas for breaks or lunch should be provided.

Job safety is a universal responsibility. It costs a lot of money to train personnel and the little amount spent on safety sometimes is frightening given the hazards at hand. Rubber gloves, boots, hard hats and hearing



Jack Fine, City of Winchester, uses latex style gloves to protect against wastewater while working on lift station floats. These gloves can be purchased at local drug store. The safety net is to ensure no one falling into the station.

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Hand sanitizer works well when soap and water is not available. It is also used after hand washing for extra protection, even though gloves have been worn.

protection cost around \$200 per employee. This investment in individual worker safety is the place for a system to start. Next, training for confined space, trench safety and other similar regimens should be scheduled throughout the year. Investments like these are miniscule compared to the potential loss due to illness, injury or loss of life.

All workers should be trained in the procedure to report potential work related illnesses or safety issues to the proper supervisor or board/council member. Reports should be made in writing with a copy retained in case of questions later.

KRWA Annual Conference & Exhibition March 29-31, Wichita, Kansas

Tuesday, March 29

- *The Unseen Foundation: Wastewater Collection, System Evaluation and Rehabilitation*, presented by Clifford Cate, Trekk Design Group; Steve Hontz, Ace Pipe Cleaning and Brian Smith, Insituform

Wednesday, March 30

- *HDPE: This Could Be The Pipe Of Your Future*, presented by Kyle Risenhoover, ISCO Industries
- *Wastewater Plan Design: A Case Study*, presented by LaVene Brenden, Bartlett & West Engineers, Hiawatha, Kansas .
- *Regulatory Issues for Wastewater Treatment Facilities*, presented by Rod Geisler, Kansas Dept. of Health & Environment

Thursday, March 31

- *Certified Wastewater Operator Forum*, presented by Marsha Carpenter and Vickie Wessel, KDHE
- *Lift Station Grease & Odor Control*, presented by Mike McEvoy, Chemquest, Inc.

Also in EXPO Hall, check out the scores of products and services for the wastewater industry – and don't forget to stop by and say "Thanks" to Cheryl and Kevin at Mid West Fire Training Associates for all the great safety training they provide.

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