

Preventative Maintenance on Wastewater Lift Stations

Many small wastewater systems in Kansas need a wastewater lift station at the end of their gravity collection system to lift and pump the wastewater to the treatment plant. Larger systems and communities that have changes in grade or elevation need multiple lift stations to lift and move the wastewater from lower levels to higher elevations. The two types of lift stations that one will normally find used in Kansas are the dry well/wet well type and the single wet well with submersible pumps and electric motors above ground. The dry well/wet well lift station has two separate compartments where raw wastewater enters one compartment (wet well) and the pumping control equipment is located in the other compartment (dry well). This type of lift station does allow access for inspection and maintenance but does require the operator to enter a confined space.

The other type of lift station with submersible pumps allows routine inspection and maintenance without entering a confined space. The motors and associated equipment such as valves, meters, etc., are located above ground for easy access. The submersible pumps can be removed when necessary, using guide rails and a hoist. This type of lift station is being more commonly used probably because they cost less and all maintenance can be performed at ground level.

Regardless of the type of lift station or stations you have in your system, routine maintenance is a must to assure proper operation. I know from past experience as an operator that a preventative maintenance program must be prepared and followed for all lift stations.



KRWA Wastewater Tech Brian Bowles conducts a visual inspection of controls on a lift station controls, looking for dark areas on relays and motor starters. Below, he tightens those that were loose.



Regardless of the type of lift station or stations you have in your system, routine maintenance is a must to assure proper operation.

Performing routine maintenance on lift stations has many benefits including less after hour call-outs, fewer lift station down times, and a reduction in over-time costs. It is important that before starting any maintenance work on a lift station that the main electrical power be turned off.

Routine tasks that need to be performed include:

- Tightening all electrical connections to relays, float wires, and connections to the motor starter contactor,
- Opening the wet well and pull the floats to the surface for cleaning and inspect for bare spots on the float wires. When returning the floats back into the wet well, make sure that they are hanging at the proper height
- Turning the power back on to the lift station and run the pumps manually to check the amperage draw at start-up and also while the pump is running to ensure that motor windings are not getting weak. Watch the wet well while running the pumps to see if both pumps are pumping at about the same rate. While the pumps are running, do a visual check of the check valves for shaft leaks and that the travel is adequate to ensure that valves are closing properly. After completing all of the maintenance tasks, observe the station as it goes through a couple of cycles to make sure everything is operating correctly.

Other maintenance tasks include cleaning of the wet well. The walls of the wet well can be washed down with your sewer jetter. Also, pump the wet well down to its lowest level to remove as much debris as possible. If necessary, a vacuum truck can be used to remove debris. In my experience, it seemed that the best time to perform this



A wastewater lift station is a pumping station that moves wastewater from a lower elevation to a higher elevation. The benefit of using a lift station in a sewage collection system is that it saves a substantial amount of money in excavation costs.

maintenance of the wet well was in the fall after the lift station has performed throughout the heat of the summer.

To summarize, I know there are companies that perform this kind of work for a nominal fee but I found that when the work is done in-house, staff learned the process and become more familiar with station operations.

Brian Bowles joined the KRWA staff as a Circuit Rider in late November 2021. Brian has 30 years of work experience in a lead or supervisory role in construction, technical and management positions.

He most recently was the Public Works Superintendent at the city of Minneapolis, Kan.





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