

Silent Treatment

Valve technology upgrade at Mt. Horeb, Wis., wastewater treatment plant operates quietly and effectively

By Val-Matic



Michael Goltz, superintendent of the Mt. Horeb, Wis., Wastewater Treatment Plant, settled on the Val-Matic Swing Check Valve because it specifically addressed the slamming and clogging problems exhibited by the previous swing check valves.

Michael Goltz, superintendent of the Mt. Horeb, Wis., Wastewater Treatment Plant, had a problem. The cushion swing check valves installed at one of his eight lift stations kept slamming and clogging.

The particular lift station that gave Goltz trouble preceded 10,000 ft of pipe leading to the treatment plant and it was possibly the worst place to have a clog. The station is on the edge of a residential neighborhood whose inhabitants would certainly be displeased if raw sewage began to creep around their homes.

The check valves in question were allowing sewage to build up on top of the disc, restricting the effectiveness of the valve, which caused it to slam. Sewage would build up on the disc, pushing the disc further down into the flow creating incredible head loss, clogging, and the constant slamming.

The cushion swing check valves being used had a non-metallic insert for the seal. Every time a piece of plastic, wood, or any other sewage solid would nick or chip the cork, the seal would begin to weep.

The Mt. Horeb Wastewater Treatment Plant processes up to 600,000 gpd and they could not afford to have the valves out of commission.

Race against time

The manufacturer of the cushion swing check valves recommended that the valve removed from the line, shipped back to them for repair, then shipped back to the customer for reinstallation.

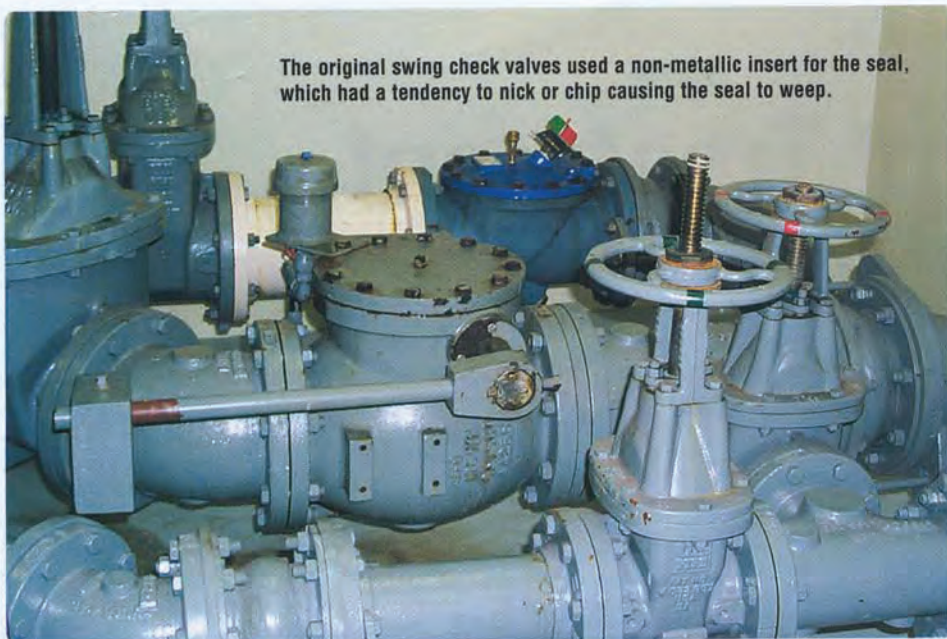
This particular scenario could lead to a downtime of over a month, leaving the lift station down to one pump with no back-up coverage in case of a pump failure—a situation Goltz did not want to encounter.

Instead, Goltz and his crew resorted to repairing the valves on their own to decrease downtime, which was not a small endeavor.

In order to repair the valves, they were completely removed from the line, the shaft was removed and repaired, then the entire system was reassembled. The total repair process took roughly four hours.

Not surprisingly, Goltz decided it was time for a change. When researching different valves, Goltz learned about the Val-Matic Swing-Flex Check Valve. What specifically caught Goltz's attention was that the Swing-Flex was designed specifically to combat the frustration he was facing with the cushion swing check valves at the Mt. Horeb Wastewater Treatment Plant.

The contour of the Swing-Flex's body provided for a 100% flow area to mini-



The original swing check valves used a non-metallic insert for the seal, which had a tendency to nick or chip causing the seal to weep.



The check valves in question at the Mt. Horeb, Wis., Wastewater Treatment Plant were allowing sewage to build up on top of the disc, restricting the effectiveness of the valve, causing it to slam.



Rather than remove and repair the old valve repeatedly, a process that took roughly four hours, it was decided to replace the old valve with a Val-Matic Swing-Flex Check Valve.

mize head loss. Due to the valve's innovative disc design and domed access port, the flow of the sewage is able to self-flush any potential clogs and prevent them from forming.

With the disc being the only moving part, there were no internal components to get in the way and the valve was relatively easy to install. The valve was designed with an angled seat, resulting in a 35° disc stroke, less than half of a traditional weight and lever check valve.

This short disc stroke combined with the Memory-Flex action of the disc served to reduce the closing time of the valve and minimize the flow reversal to quell any resultant water hammer.

"After the installation, when the valve closed from the force main, there is no measurable sound," Goltz said. "I couldn't even hear it shut and you can't get any better than that."

One to another

After the success of the Swing-Flex on one of the two pump lines in the lift station, Goltz decided to replace the remaining traditional cushion swing check valve with another Swing-Flex. The installation was easy and expedient. In just about an hour, the old valve had been removed and the Swing-Flex was being tested for flange tightness.

"The Swing-Flex was very simple to install, there were no mechanicals to worry about, and the valves are simple," said John Klein, senior lead operator of the Mt. Horeb, Wis., Wastewater Treatment Plant.

Wastewater treatment plant operators are all too familiar with the labor and cost associated with using equipment of inconsistent quality, or inefficient design.

Whether the plant is servicing a large metropolis, or a small town like Mt. Horeb, equipment problems can be devastating. By carefully evaluating the unique requirements of each application, operators can be assured that the right equipment can alleviate some of the major inconveniences associated with antiquated technology. [www](http://www.valmatic.com)

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