

Water Authority Takes Advantage of Special Secondary Containment Vessel for Chlorine Gas Cylinders to Avoid Scrubber Installation at Separate-Site Raw Water Pump Station

—Provides for Considerable Operations and Maintenance Savings—



Instrumentation on top of unit includes a failsafe valve that ties into the chlorine leak detection sensor, so that in the event of an external release, the failsafe valve will close, stopping any external leak.

The Erie County (NY) Water Authority reports taking advantage of a special secondary containment vessel for a chlorine gas cylinder to avoid the need for another scrubber system at the separate-site raw water pump station that serves their 30 MGD conventional surface water treatment plant (SWTP).

The special vessel serves the one cylinder in use at the pump station, while a scrubber system serves the eight cylinders inside the plant. Installations similar to the one at the raw water pump station may be undertaken as part of a switch from liquid chlorination at various booster pump sites in its potable water distribution system.



The one-ton ChlorTainer™ cylinder containment vessel was supplied with loader, scale system, and instrumentation. Roller stands ease cylinder changing.

“It’s been a big help economically to be able to use the containment vessel for the cylinder installation a half mile down the road from the plant,” said a staff representative. “We don’t have the very significant operations and maintenance (O&M) burden there that we have for the scrubber system in the plant. The risk management plan (RMP) says we have to either treat any gas leaks or contain them, and the containment option, which requires very little attention, allows us to avoid time and availability

from the 2 full-time plant operators to regularly maintain another scrubber system, to help assure it will work if needed.”

“Using the containment vessel just requires loading and unloading cylinders, and testing the sensors,” he continued. “There’s really not much to it.”

The one-ton ChlorTainer™ unit, supplied with loader, scale system, and instrumentation, was manufactured by TGO Technologies of Santa Rosa, CA, which is also known by its product name of ChlorTainer.

The Authority’s 30 MGD SWTP, which went on line in the 1970’s, is joined by a larger plant to serve about 550,000 users in Erie County, excluding the City of Buffalo. Its conventional process includes chemical pretreatment for coagulation and flocculation; sedimentation; filtration; and disinfection.

Chlorine gas is vacuum-fed from 1-ton chlorine cylinders, at the separate-site raw water intake, to provide for prechlorination for Zebra Mussel control. The 1-ton secondary containment vessel for the gas cylinder was installed last November and started up in December.

The vessels enclose chlorine gas cylinders, the chlorine transfer hose, and seismic lock-down brackets. The chlorine transfer hose is attached to the supply valve, pressurized, and tested for any leaks at the hose ends. Then the door is closed and secured by a clamshell locking mechanism.

Operators switch to the standby containment vessel automatically when the full cylinder runs empty, opening the vacuum breaker valve. The switch-over is performed automatically, and does not require personnel to be present.

With any accidental leaks of chlorine kept within the containment vessel, no atmospheric venting is generated. The vessels are ASME-rated pressure tanks, and any leaks are recycled to the injection system at a normal flow rate. A failsafe valve ties into the chlorine leak detection sensor, so that in the event of an external release, the nitrogen failsafe valve will close, stopping it completely.

Any leak or release of chlorine gas from the vacuum line downstream of a vacuum regulator will lose the vacuum condition, and cause the

vacuum regulator to close, stopping the flow of chlorine gas to the vacuum line. The maximum release of chlorine gas will be the amount of chlorine gas that is the length of the vacuum line to the chlorine injector, and not drawn into the water solution by the suction of the injector.

The vessels’ life expectancy is stated as no less than 100 years, given proper maintenance. This features annually changing out the Viton O-ring on the door, which takes less than about one hour and costs under \$200.

In a further commitment to serving the water industry, ChlorTainer is partnering with the American Water Works Association (AWWA) to financially support aspiring civil and environmental engineers and encourage their entry into that industry. For every ChlorTainer unit sold, the company will donate \$1000 toward engineering scholarships. The donation will go to the corresponding AWWA Section scholarship fund for the municipality that purchases the ChlorTainer(s). Further information is available via the AWWA scholarship page.

Further information about ChlorTainer is available from TGO Technologies, www.ChlorTainer.com, (800) 543-6603, sales@ChlorTainer.com, 3471 Regional Parkway, Ste. B, Santa Rosa, CA 95403.

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