

## City's Water Utilities Capital Projects Manager Reports Long Term Safety Enhancement from Special Secondary Containment Vessels for Chlorine Gas Cylinders

*Safety Enhancement for Both Employees and General Public, via Various Deployments;  
Installation, Training, and Operation Noted as Easy and Trouble-Free*



*Special secondary containment vessels for chlorine gas cylinders have provided long-term, readily accomplished safety enhancement for employees, as well as the public, via installation at booster stations, as well as at two WWTP's and a WTP. The units are reported as requiring only simple, easy maintenance, and with operators easily trained for routine use.*



*Booster station installations typically feature two 1-ton units, with drawbridge loading, side by side.*



*Booster station installations also use ChlorTainers designed for 150-lb. chlorine gas cylinders.*

The capital projects manager for the City of El Paso, TX water utilities' extensive network of treatment plants and booster stations reports long-term, readily accomplished safety enhancement for its employees, as well as the public it serves, via various deployments of special secondary containment vessels for chlorine gas cylinders.

“We have had no incidents of chlorine gas exposure for our workers or surrounding communities,” said the manager, Warren Marquette, P.E. “Our facilities are right up against our population in many locations, and we’ve conducted simulated plume escape studies as part of our hazard operations program. I had seen the cylinder containment units elsewhere, and continued use of these systems already by El Paso Water, as a means for improving reliability and safety during chlorine dosing. We’re pleased to have enhanced workplace safety, while also enhancing public safety.”

“We were glad to find out there was a way to readily enhance safety when chlorine gas cylinders are being stored and handled,” he continued. “My experience with chlorine goes back 25 years, including its use in chemical production processes. My first installation here, for potable water and wastewater, was at one of our booster stations in 2002, when I was serving as a consultant to the utility. We’ve since expanded deployment considerably, including after I became an employee in 2015, first as utility engineer, and a year later as capital projects manager. We now have them installed at numerous other booster stations, as well as at two of our wastewater treatments plants (WWTP’s), and a blended desalination/well water drinking water treatment plant (WTP).”

“The use of pressurized chlorine systems at our other plants has made deployment there impractical, due to available footprint and overall consumption rate of plant,” Marquette added, “We expect further use of this secondary containment technology coincident with further buildout of existing facilities, and it is also being considered for an advanced purified water, direct potable re-use plant now in the design stage.”

“We’ve been using this technology for over 20 years now, including many units. From the start, they’ve gone incredibly smoothly, including the commissioning, especially compared to other systems we’ve put in. We dose by weight, and the units come with a built-in weigh scale, as well as nitrogen fail-safe isolation valve, weight indication, safety valve, regulator connection; everything well packaged, for simple, seamless integration into our SCADA system; basically plug and play.”

The special secondary containment vessels for chlorine gas cylinders, manufactured by ChlorTainer/TGO Technologies, Inc. of Santa Rosa, CA, are currently in use at three plant locations---a 17.5 MGD WWTP, a 12.5 MGD WWTP, and the 27 MGD blended WTP---where chlorine is dosed into reclaimed water at the clearwell and again at the discharge pipe. They are also currently in use at numerous booster stations, in both 150-lb. and 1-ton sizes, where chlorine is further added to maintain free chlorine residuals as regulated throughout the distribution system.

“We dose chlorine into the discharge of the booster stations using a quill injector fitting,” Marquette explained. “In the plants, we’re dosing into whatever clearwell we have, and then again at discharge. For the booster stations, we’ll typically have an electrical room, a pump room, and a separate room for the ChlorTainers; two 1-ton units, with drawbridge loading, side by side. Chlorine solution is injected to the pump station distribution discharge to maintain chlorine residual.”

“The delivery truck brings the cylinders in, sets them on the included roller conveyor, rolls them in after removing the empty container; takes 15-20 minutes tops, including inspection. We trained people very easily. The units are simple, easy maintenance; operators love ‘em, no safety issues at all. We’d be happy to share our experience, through our people in charge of water production, water and wastewater; go through all plants and booster stations that have them; I would definitely recommend it.”

Marquette also noted that “there haven’t been any installation contractor issues; they’ve gone very smoothly.”

The installation contractor for El Paso Water Utilities’ secondary containment vessels for chlorine gas cylinders has been Smithco Construction Inc., headquartered in Caballo, N.M., since 1969. They serve all of that state, plus parts of Arizona and West Texas, particularly the Odessa/Midland area and El Paso.

The installations have been “probably as straightforward as you can be,” reported Robby Sanders, a Smithco

project manager, for a recent installation. “We installed a 1-ton ChlorTainer as part of a booster station for El Paso drinking water that was completed in 2019. Commissioning was then delayed due to Covid, but we expect that to be completed soon. We put it in the utility’s own concrete block (CMU) building that we built for that project. Due to the delay between installation and commissioning, we will probably have to revisit the warranty situation, but I have no concern about that.”

“We’ve also been awarded new contracts for ChlorTainer installations for the utility’s Airport and Ranchos Real booster stations,” Sanders continued. “The first one I did was in 2018 in Carlsbad, New Mexico; I knew about the product from one of our other project managers who had already done similar work in El Paso. Our scope of service in Carlsbad also included installation of 20,127 LF of 24” waterline; 9,650 LF of 16” waterline; and supervising a subcontractor for a 5 million gallon concrete pre-stressed water reservoir.”

“In all of the ChlorTainer installations, discussion with field crews has been seamless and effortless; the units have been straightforward and easy to install. Deliveries have been on time, and they come with good installation instructions which are very helpful.”

Regarding submittal reviews among his firm, the vendor, and the utility’s consulting engineer, Sanders added that “compared to other kinds of equipment, this one is more detailed, but it’s been easy to get approved, by the second time around; we get it released, and fabricate right away. That’s not always the case with water plant equipment. The vendor has been very responsive to any question or comments; they get back to us right away.”

The secondary containment 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.

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 about half an hour of time and approximately \$200. Further information about ChlorTainer is available from ChlorTainer/TGO Technologies Inc., [www.ChlorTainer.com](http://www.ChlorTainer.com), (800) 543-6603, [sales@ChlorTainer.com](mailto:sales@ChlorTainer.com).

*\*Catalytic Reporting, LLC newsletters are sponsored by equipment manufacturers, who allow for objective reporting based on interviews of their customers, who in turn provide review and approval for accuracy and completeness. Titles and headlines are created to help readers recognize solutions for problems and needs, typically related to issues such as quality, reliability, efficiency, and compliance. Circulation and distribution are customized for each newsletter.*