Chlorine Containment News™

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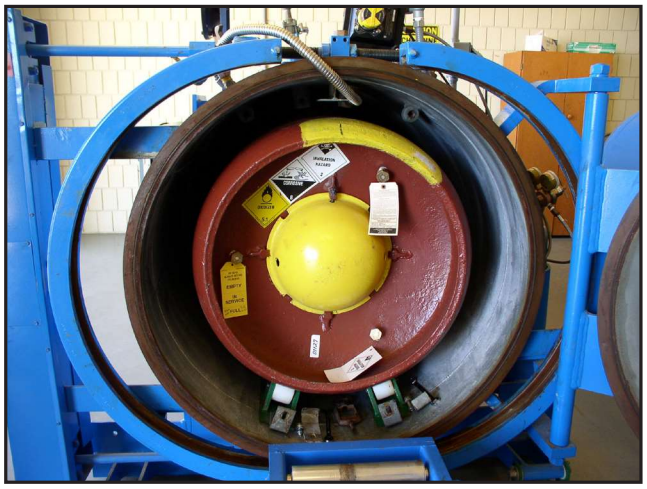
SWTP Maintenance Tech Appreciates Safety Enhancement Via Secondary Containment Vessels for Gas Cylinders

Innovative ChlorTainer™ cylinder containment vessels are designed for not less than 40 years of service. They enclose chlorine gas cylinders, the chlorine transfer hose, and seismic lock-down brackets. Vacuum breaker regulators are attached for fail-safe shutdown if there is a leak downstream



A 1-ton chlorine container is pushed into the secondary containment vessel on rollers. 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.

A maintenance technician for a surface water treatment plant (SWTP), previously employed in the marine industry where he had no experience working with chlorine gas, has noted appreciation for increased safety from the plant's installation of special secondary containment vessels for chlorine gas cylinders. He has also noted minimal impact on his time from their ongoing use and maintenance, and is being trained for those responsibilities.

"Working previously with maintenance for yachts and ships, I didn't have any experience being around chlorine gas," recalled Darryl Culley, one of three maintenance technicians at the City of Benicia, CA, 12 MGD SWTP, 24/7.

Surface water arrives in the plant from an aqueduct that is shared with other municipalities. The special ChlorTainer® secondary containment vessels are manufactured by TGO/ ChlorTainer of Santa Rosa, CA.

"When I began here five years ago and learned of the danger with being exposed to the possibility of chlorine gas leaks," Culley continued, "I was concerned, and then felt much better, relieved to see that the gas cylinders were housed in ChlorTainers, with all the safety devices that are in that product, instead of being left in the open just attached to hoses, even if they were in their own room; they would still just be open tanks sitting on a rack out there by themselves with a hose attached to it. I also learned later that the special vessels had been installed as a much less costly alternative to making a cylinder storage room safer, or changing the whole disinfection system."

Culley added that the rest of the plant's operating staff---about "a dozen" altogether---had been trained in the use and maintenance of the vessels, in addition to the three maintenance techs.

"We're all capable of changing out empty cylinders from the containment vessels, and then putting the standby vessel, with a full cylinder in it, on line. That happens about every month and a half, and takes two people about a half-hour, using maintenance techs as much as possible so operators are free for their other duties. But if push comes to shove, such as with vacations or whatever, anybody on the plant staff can do it."

"The same goes for the annual maintenance for the containment vessels, using a checklist that's part of our computerized maintenance system. It includes all the necessary things we've been doing for years, including rebuilding valves ourselves, and sending out regulators for service by a special contractor; we have backups in stock so we can send them

out for rebuilding once a year, rebuilding some valves and replacing some valves. Then we replace all the hosing, and the vessel door O-rings, buying all the parts from TGO and stocking replacements."

"That's the only time I've had to contact them. It's all done when a unit is taken off line, and takes about three days, 8 hours a day. We go through pressure testing for hoses and valves, following the steps in the ChlorTainer book; it's all in the manual. It's all the recommended things that we've been taught."

Training for both operations and maintenance was noted as readily accomplished.

"We do it with every new employee now, easily trained by other plant staff. They sit and watch a couple of times, for maybe an hour, talking over the changeout steps and the safety procedures, and then it's about 45 minutes for hands-on a couple of times after that; takes a little longer when you're teaching."

"It's really done very safely, and they easily get very familiar and workable enough to be part of the team after that. And TGO still stops by once or twice a year just to check in and see how we're doing."

Altogether, Culley estimated that working with the vessels was only "about 5%" of his job, "maybe 2% of our maintenance tech time; doesn't really take that much."

"I haven't seen any problems with leakage or exposure since I got here, and haven't heard about any here before that," he concluded. "It pays to take it slow and easy in training so problems don't happen, like I've seen in videos where maintenance wasn't done properly in a chlorine system, and things get rusty. It helps that we follow the service manual. There's no rust or discoloration on the units or any leaking chlorine; they look in really good shape; it's hard to tell how long they've been here; how old they are."

"I've learned from employees handed down over the years, they had considered changing to liquid as the chlorine source years ago, because of the possible danger with gas being used the way it was previously, and I know they were glad to not have to face new problems with a liquid source, things I've heard about problems with that elsewhere."

"They avoided that by changing gas use to include the containment vessels, and make everything safer without having to spend millions of dollars on new infrastructure to otherwise make gas safer for the whole disinfection system."

"They're just another well-running piece of equipment in the plant, simple machine to work on, just sits there and works, with gas sensors, with no threat to safety from a whole lot of moving parts. I don't know how anybody could feel comfortable without this."

The ChlorTainer's failsafe valve is powered open using nitrogen and electricity. If the power is lost, the failsafe valve will cycle closed, and will automatically cycle open when the power is restored.

The self-contained, simple, passive design means there are no pumps, fans, scrubbers, or caustic circulation systems, nor is there any need for backup electric power.

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. With any accidental leaks of chlorine kept within the containment vessel, it may be recycled for use.

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. ChlorTainer provides safety containment, not only for chlorine gas, but for sulfur dioxide and anhydrous ammonia as well.

Further information about ChlorTainer is available from ChlorTainer/TGO Technologies Inc., www.ChlorTainer.com, (800) 543-6603, sales@ChlorTainer.com.