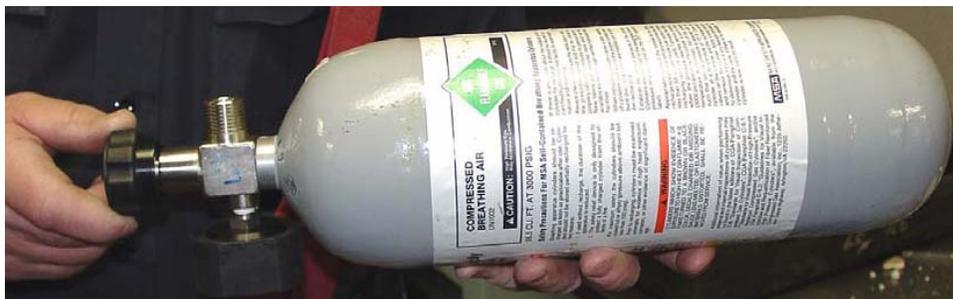




SHOPTALK



Off-Site Compressed Gas Cylinder Incident Injures Workers



What Happened?

- Jacobs Engineering issued a safety alert concerning MSA PremAire emergency escape respirator cylinders, following a serious incident at one of its non-MSFC workplaces.
- An employee hand-tightened the regulator hose assembly to the stem valve of the escape respirator cylinder, then started to tighten the low-pressure connection with a factory supplied wrench. The compressed gas cylinder & its stem valve separated while under pressure, causing first-aid injuries to several employees. This violent release of energy could have resulted in very serious injuries.
- Investigation found that, in association with periodic hydrostatic testing of the escape respirator cylinder, the cylinder valve had been cross-threaded (apparently due to a brass fitting that was longer & of larger diameter than the regulator valve). Deformation of the threads on the valve body indicated that, when the brass fitting was installed, it was forced in with significant torque, exceeding that which could be applied by hand-tightening. It is believed that when the hose assembly was tightened & pressure was applied with the wrench, angular torque caused the valve & gas bottle to separate at the threads.
- This sort of failure could occur with any threaded connection on any pressurized container.



What Can Be Done?

- Assure that quality control procedures for hydrostatic testing of pressurized cylinders document conformance with the manufacturer's procedures for de-valving, exterior & interior inspection, hydro-testing, & re-valving. Require hydro-test service vendors to document conformance to manufacturer's procedural steps.
- Assure that quality control procedures include verification of material integrity.
- Regularly inspect hydro-test facility sites & review quality control procedures used.
- Review job hazard analyses for cylinder support functions; revise as needed. Install a protective container to hold cylinders during respirator assembly operations, protecting operator against potential cylinder failures.
- Inspect escape respirator cylinders & pressurized containers to verify absence of thread damage.