

Update – Leaking Acetylene Cylinder Shutoff Valves

2010-04

March 2010

PURPOSE

This Safety Advisory is issued to provide an update on the problem of leaking shutoff valves found on acetylene (C₂H₂) cylinders at DOE sites.

BACKGROUND

On January 11, 2010, while cutting rebar with an acetylene torch at the Savannah River Salt Waste Processing Facility (SWPF), a small fire occurred at a cylinder shutoff valve, which was quickly extinguished. Investigators determined that the cylinder shutoff valve was leaking at the valve stem when the valve was in the open position.

An extensive inspection was conducted on acetylene cylinders at the SWPF. Five out of eight cylinders were found to be leaking just below the handwheel of the shutoff valve. The leaks occurred only when the valves were open. The gas vendor removed the leaking cylinders and provided seven new cylinders; however, three of them also leaked at the same location.

FOLLOW-UP

A product evaluation of the leaking valve that was involved in the fire was performed. The valve was manufactured by Superior Valve between 30 and 40 years ago. Examination of the valve confirmed leaking at the stem caused by excessive contamination inside the valve, which prevented the inside sealing mechanism from operating properly.

CLARIFICATION

There is a technical inaccuracy in [Safety Advisory 2010-02](#), regarding reference to shutoff valves having a double-nut configuration. Acetylene valves typically have either an internal or external packing nut for sealing the valve stem. A letter from Sherwood Valve to their customers regarding the original safety advisory can be found at <http://www.sherwoodvalve.com/default.aspx?pageid=249>. It is important to note that no acetylene valves have been found to have a manufacturing defect and no product recalls have been announced by any manufacturer.

ACTIONS

Sites throughout the DOE Complex should check to see if any of their acetylene cylinders have leaking valves. Leaking valves should be closed and the cylinders taken out service. As a result of Safety Advisory 2010-02, a safety walk down of acetylene cylinders was conducted at the Portsmouth Gaseous Diffusion Plant and out of 93 cylinder shutoff valves examined, 23 valves from various manufacturers were found to be leaking at the valve stem.

Cylinders should be inspected for corrosion, valve damage, leaks, signs of tampering, and valid hydrostatic test date. Leak checks should be performed on cylinder valves, fittings, and regulators. Acetylene cylinders should be located away from and protected from ignition sources.

The discovery of leaking cylinders at DOE sites underscores the importance of always checking cylinder connections for leaks before use and the need to work closely with gas suppliers to ensure receipt of leak-free and safe cylinders.

Questions regarding this Safety Advisory can be directed to Glenn Searfoss (HS-32) at (301) 903-8085 or e-mail glenn.searfoss@hq.doe.gov.

Signed by _____

William H. Roege

Director

Office of Corporate Safety Analysis

Office of Health, Safety and Security

