

B *Risk Control* BULLETIN

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HYDRO-PNEUMATIC TANK BEST PRACTICES

In June 2011, a hydro-pneumatic tank ruptured killing one person. While the root cause(s) has not been published, there are lessons to learn and best practices to apply. Cal/OSHA Unfired Pressure Vessel Safety Orders do not specifically address hydro-pneumatic tanks (e.g., surge tanks). However, that does not mean such tanks do not need preventative maintenance and testing.

The American Society of Mechanical Engineers (ASME) developed construction and

inspection standards to minimize the potential for catastrophic failure. Additionally, Cal/OSHA regulations provide guidance for the construction and inspection of pressure vessels for other than compressed air, LPG, NH(3), and natural gas.

Hydro-pneumatic tanks must have a manufacturer's plate and be constructed to ASME standards. The manufacturer's plate must list the maximum allowable working pressure (MAWP).

"All pressure vessels not otherwise covered herein shall be designed and constructed in accordance with the ASME Code, or in accordance with good engineering practice for the pressure and service in which they are to be used." (8 CCR 460(d))

An ASME-certified pressure relief valve is installed to prevent tank failure. The pressure relief valve should be set at or below MAWP, installed in communication with the air volume, not have an

isolation valve between the tank and relief valve, and should be tested periodically or replaced every five-years.



"Any pressure vessel not specifically covered or exempted elsewhere in these Orders, shall be protected by one or more safety valves or rupture discs set to open at not more than the allowable working pressure of the vessel, and by such other controlling and indicating devices as are necessary to insure safe operation of the pressure vessel." (8 CCR 467(a)).

A pressure indicating gauge shall be provided that has a sufficient indicating range at least 1-1/2 times the relief valve set point.

No visual signs of exterior damage or corrosion should exist.

If repairs are required, they should be completed by certified welders.

Tanks are properly secured to a foundation to prevent accidental movement with appropriate allowance of expansion and contraction.

Tanks should be inspected by agency personnel at least annually, to ensure they are in compliance with all of the above conditions. Written documentation of inspections should be maintained.



GROUND COVER MATERIALS

Background: CHUBB Group (JPIA's excess Property Coverage provider) was visiting several locations for a member of the ACWA/JPIA. CHUBB provides excess Property and Boiler and Machinery coverage for the ACWA/JPIA membership. When visiting a booster pumping station, where a new generator and propane tank had been installed, the CHUBB representative noted that they were walking on a bed several inches thick of ground up tires. The ACWA/JPIA member referred to this as "tire bark" (on the web as "rubber bark"). The member stated that they had done research into the product before selecting it for use as a ground cover. The primary purpose was for weed control. At the station visited, the material covered the entire fenced area of the station (about 1,000 square-feet) including around and under the propane tank, and all other station facilities. The area was not irrigated or otherwise landscaped.

In discussing the material with the member, CHUBB was informed that the member had experienced several instances where the material had ignited during hot work operations (cutting and grinding), and one involving an electrical problem. All fires were readily controlled without injury or property damage. CHUBB expressed concern and agreed to look into the material.

After researching "rubber bark," a news report from June 2011 was found regarding a fire at a playground located in Clovis, California involving the material.

<http://abclocal.go.com/kfsn/story?section=news/local&id=8188527>

Studies show that wood and rubber mulch will burn easily, but if a fire starts, a wood mulch fire is easier to put out. When rubber bark mulch catches on fire, it will burn longer and hotter than wood mulch, and will be harder to extinguish. A rubber mulch fire will throw off black smoke, where the wood mulch will give off a whitish gray smoke that is not as toxic as the rubber fire. The potential for a fire is greater when mulch is used as a ground cover over a large non-irrigated area.

Recommendation: CHUBB has provided the ACWA/JPIA with the following recommendation:

LC-2011-10-1 Ground Covering Materials: The wood and/or rubber bark (recycled tire) materials used for ground covering is combustible, and can spread an exterior fire throughout the exterior area. Rubber bark is comprised of rubber tires and burns similarly. There have been several fires where these materials increased fire damage to surrounding structures and equipment, where little fire spread would have occurred if non-combustible materials were used. CHUBB recommends replacement of the wood and/or rubber bark materials to a non-combustible stone aggregate material.

(Reference: Chubb Loss Control)



ACWA/JPIA members are encouraged to follow CHUBB's recommendation. These materials should be removed and replaced with non-flammable products when used:

- ❖ In large non-irrigated areas
- ❖ Close to buildings, facilities, and equipment
- ❖ Where hot work operations could occur, or exposed to sources of ignition

Non-combustible alternatives should be considered during new construction projects or upgrades.

H.R. LABOUNTY SAFETY AWARDS

The cut-off date for the spring round of safety awards is **March 16, 2012**. You may submit nominations at the following link:

<http://www.acwajpia.com/filecabinet/rmnopw/sftyincntvform.doc>

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