



Testimony to Steel Strength



The strength of steel was proven yet again by an STI member when a UL 58 steel tank was hydro-tested to failure. The tank ruptured at 110 psi. UL 58 tanks are intended to operate at atmospheric pressure and are factory leakage tested at 5 psi.

Spotlight on Safety: NREL Reports

The National Renewable Energy Laboratory (NREL) has published two reports about ethanol and gasoline mixtures in tanks.



The first report was published in 2008, *Experimental and Modeling Study of the Flammability of Fuel Tank Headspace Vapors from High Ethanol Content Fuels*, and the second in 2010, *Experimental and Modeling Study of the Flammability of Fuel Tank Headspace Vapors from Ethanol/Gasoline Fuels, Phase 2: Evaluations of Field Samples and Laboratory Blends*.

Quoting from the first report, "Gasoline is so volatile at most ambient temperatures that the headspace vapors in the tank are actually too rich to burn, as long as some liquid fuel remains. However, as temperature drops, or as the liquid fuel level goes down, the volatility of the fuel decreases. As the liquid level drops, there is less fuel vapor mixed with the air in the tank. If the ambient temperature is cold enough and the tank is nearly empty, then the fuel-air mixture in the tank becomes flammable and can pose an explosion hazard if ignited. Ethanol by itself in a fuel tank produces headspace vapors that are flammable at room temperature and over a broad range of commonly encountered ambient temperatures.... Ethanol/gasoline blends generally have volatility characteristics between those of the two major constituents.... The extent of the difference, and hence of any increased risk, depends on composition of the gasoline part of the blend and how much gasoline is present in the fuel mixture."

Downloads of the complete reports can be accessed at <http://www.nrel.gov>.

The work done by NREL was aimed at quantifying the difference in flammability standards between E85 blends and gasoline. Going forward, this will be more important in the marketplace because, as noted recently in a report from the [state of Minnesota](#), increased ethanol usage will be the norm. As usage increases, the industry will be required to gather and study additional data to determine if the potential for increased flammability is realized and then design and develop storage and distribution systems with those findings in mind.

Duncan Petroleum Case Settled

A \$2 million penalty is to be paid by Duncan Petroleum Corp. and Robert M. Duncan as the result of allegations they violated federal and state underground (UST) regulations at 17 gas stations in Delaware and Maryland.

The settlement also resolved Duncan's alleged failure to perform compliance tasks under a 2006 Consent Agreement. Officials said Duncan had agreed to complete the tasks in order to bring five of the Maryland gas stations into compliance with the UST regulations. Since that time, the gas stations were sold and major renovations concluded at each location.

The civil penalty is notable, first, because there was no fuel released and, secondly, because the basis of the EPA/DOJ cases was that the presence of an overfill valve does not mean a facility is in compliance. Rather, the valve must be part of a functioning overfill system that is subject to ongoing inspections, testing and preventative maintenance to be in compliance.

The U.S. Department of Justice Press Release is available [here](#) for review and printing.

Summer is Lightning Strike Season

In This Issue

**Testimony to Steel Strength
Spotlight on Safety
Duncan Petroleum Case
Settled
Summer is Lightning Strike
Season
AWWA Supports Fed.
Infrastructure Bank
Shuttle Discovery Halted by
Burst Water Pipe
Lake Mead Cavern Floods
What's Wrong with This
Picture
WATER: Facts & Figures
INDUSTRY CALENDAR**

Do you want to know what is going on in the Pressure Vessel industry? Register today for the [STI/SPFA Fall Conference!](#)

INDUSTRY CALENDAR

[WEFTEC 2010](#)

October 2 - 6
New Orleans, LA

[Stainless Steel World Conference & Exhibition](#)

October 5 - 7
Houston, TX

[PEI at the NACS Show](#)

October 5 - 8
Atlanta, GA

[STI/SPFA Fall Conference](#)

October 6 - 7
The Woodlands, TX

[PV Workshop: Pressure Vessels for the 21st Century](#)

October 7 - 8
The Woodlands, TX

[Duplex Stainless Steels Conference & Exposition](#)

October 13 - 15
Beaune, France

[API Storage Tank Conference & Safe Tank Entry Workshop](#)

San Francisco, CA
October 18 - 21

[ASDWA 25th Annual Conference](#)

October 18 - 21
Pittsburgh, PA

[STI/SPFA Cathodic Protection Testing Course](#)

Tank owners need to be aware of the dangers of lightning strikes. Numerous incidents from this past summer indicate that June and July are months for lightning strikes that lead to fires.

In Saint Mary Parish, LA, a lightning bolt struck a tank and the resulting blaze took firefighters over five hours to control. Luckily, no oil leaked from the tank. See details [here](#).

In Jackson, MS, a lightning strike caused an explosion at a gas station when it ignited gas vapors near the underground storage tanks. [Read more...](#)

A fiberglass tank containing salt water and condensate exploded when it was hit by lightning in Gregg County, TX. The contents of the tank burned. Additional information is available [here](#).

STI/SPFA gathers information about incidents involving tanks in its online newsletter, "Tank and Petroleum Use Mishaps." Please click to read the current and recent issues posted on www.steeltank.com.

AWWA Supports Federal Infrastructure Bank

In his Labor Day address, President Obama called for the creation of a federal infrastructure bank.

AWWA "commends President Obama for proposing the creation of a federal infrastructure bank and strongly urges the inclusion of water systems in any such funding mechanism. Because the bank would have access to low-interest loans through the federal treasury, the bank represents "a fresh, sustainable approach to funding to upgrade the aging water infrastructure problem," according to AWWA Executive Director David LaFrance. For more information on the concept of a federal water infrastructure bank, visit www.awwa.org.

Burst 24" Pipe Halts Discovery Rollout

Normally, weather, mechanical or highly technical problems are at the root of NASA delays. However, NASA announced recently that one step in preparation for Space Shuttle Discovery's final launch was delayed due to a burst water pipe, proving that even NASA is not immune to failures in such critical infrastructure systems.

The estimated day-long setback in the roll out of Discovery to move it from the Orbiter Processing Facility to the Vehicle Assembly Building resulted from the 24" wide water pipe that broke and cut off a water-fed fire suppression system.

November 1 is the scheduled launch date for Discovery's 39th and final mission into Earth orbit.

The pipe was made of [cast iron](#), suggesting that it had been installed some time ago. For additional information about this NASA setback, [read more](#).

Lake Mead Cavern Flooding Halts Tunnel Work

A cavern near Las Vegas that took two years to build filled with water unexpectedly in July. The setback could last for months and impact a \$700 million pipeline project designed to tap drinking water deeper in the drought-stricken Lake Mead. Ultimately, the project is expected to enable the region to continue to draw water, even if the lake level is impacted by drought conditions. Approximately 90 percent of the Las Vegas region's drinking water is drawn from Lake Mead through two existing intake pipes that remain intact. Authorities have indicated that they are in "a race against time" to finish the so-called 'third straw' that is dug more deeply to keep water flowing to the region. Additional details about the project are available [here](#).

What's Wrong with This Picture?



The emergency vent on the left had been field "installed" atop/over the small opening on the right, falsely indicating the atmospheric operating tank to be in compliance with codes and standards. The actual vent opening is insufficient, since a larger access opening was not cut into the tank. If this tank were to be involved in a major pool fire, the flow of vapors generated by the fire would be hampered from venting out of the tank, subjecting the tank to a pressure situation and possible failure. This

[STI/SPFA Steel Water Storage Tank Seminar](#)
October 21
Tampa, FL

[FABTECH Expo 2010](#)
November 2 - 4
Atlanta, GA

[STI/SPFA Steel Pipe Design Webinar](#)
November 12
Online

[ASME Int'l. Mechanical Engineering Congress & Exposition](#)
November 12 - 18
Vancouver, Canada

[API Refining & Equipment Standards Meeting](#)
November 15 - 17
Nashville, TN

[STI/SPFA SP001 AST Inspector Training](#)
November 15 - 19
Denver, CO

[Power-Gen International](#)
December 14 - 16
Orlando, FL

Additional Events Scheduled:
[2010 - 2011 Industry Calendar of Meetings, Seminars & Conferences](#)

Tank Talk is published periodically by STI/SPFA. For additional information or to enter a complimentary subscription for yourself or a colleague, please visit our [website](#).

Recent and archived Issues of Tank Talk are also available on the [subscription page](#).

EDITOR: Vivian Peek Bartt

CONTRIBUTING EDITORS
Wayne Geyer
Lorri Grainawi
Dana Schmidt



STI/SPFA
944 Donata Ct.
Lake Zurich, IL 60047
info@teeltank.com
www.steeltank.com

situation is a good example of why tank inspections are important to safety.

WATER: Facts & Figures

In its August 2010 issue of Opflow, AWWA provided this graphic, **Water Loss vs. Pipe Leak Size**, to illustrate how a small leak can release a surprisingly large amount of water over time.

Pipe Leak Size	Water Loss			
	Per Day		Per Month	
	gal	(l)	gal	(l)
•	360	(1,360)	11,160	(42,241)
•	3,096	(11,720)	95,976	(363,270)
•	8,424	(31,890)	261,144	(988,430)
•	14,952	(56,593)	463,512	(1,755,392)

EPA recently reported there are approximately 155,000 public water systems in the U.S. Additional EPA statistics about drinking water may be accessed [here](#).

SOURCE: Opflow, August 2010, Published by AWWA



Try it FREE today.