STI® Tank Talk

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Upcoming Events hosted by STI/SPFA and other industry organizations may be reviewed and downloaded from our website. Plan your professional development calendar for the remainder of the year!

The Editors of *Tank Talk* added a short feature article in the last issue and will continue publishing a piece called, ***Tank Talk's Spotlight on Safety***, due to the good response received. Please write info@steeltank.com if you have a topic you would like *Tank Talk* to consider featuring. This month's ***Spotlight on Safety*** piece is the article on *ANSI Z117.1 2009 Standard Update - Confined Space Program*.

Tank Talk is a periodic publication of STI/SPFA. To subscribe, please visit the Publications section of our website.

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Ultra Low Sulfur Diesel - Fact or Fiction?

Lorri Grainawi of STI/SPFA recently spoke with fuel experts and developed this article to address some common misconceptions about ultra low sulfur diesel (ULSD) fuel. See if you can identify which of the below statements and questions are factual and which are not!

ULSD holds more water?
Fiction! The manufacturing process used to make ULSD results in a diesel fuel that actually holds less water in suspension than "older" higher sulfur fuels.

The sulfur in diesel fuels kills bugs. Therefore, the new low sulfur fuels are more susceptible to MIC (microbiological influenced corrosion).
Fiction! Under laboratory conditions, it may be possible to show higher growth for bugs with low sulfur fuels than high sulfur fuels, but under real life conditions, these differences do not make a difference. Under the right conditions, i.e., in storage systems with water and bugs present, bugs will grow. With warmer temperatures, bug growth will flourish even more readily. The first fuel biocide was patented in the mid 1960's. There are numerous articles published as early as the 1940's that discuss fuel degradation issues due to microorganisms.

ULSD is more corrosive than higher sulfur diesel fuels.
Fiction! Actually, any petroleum fuel is noncorrosive to metals. In order for corrosion to occur, a conductive material like water must be present in the fuel system. Some operators in the field believe it is more critical to keep water out of ULSD tank systems than it was with previous diesel systems. By persistently removing any accumulation of water, no corrosion or microbial activity will take place. In addition, fuel additives, contaminants, etc., may react with components and create a corrosive situation.

Mixed metals, such as aluminum and steel, in the presence of water, will corrode.
Fact! However, in these cases, only one of the metals will corrode, not both. Whichever material is more

electrically active will become the anode and protect the other. In the case of aluminum and steel, the aluminum will protect the steel. Galvanized metals will also corrode to protect steel.

If you are experiencing corrosion issues with ULSD storage, please review STI's suggestions about what you can do.

IFC Hearings Scheduled October 24 - 26 in Baltimore

The recently published 2008 International Fire Code (IFC) includes new language on alcohol blended fuel-dispensing equipment. Alcohol blended fuels are defined as fuels with at least 15 percent alcohol content. This category of fuels requires dispensers, hoses, nozzles, breakaway fittings, swivels, flexible connectors, emergency shut-off valves, vapor recovery systems and pumps to be listed or approved for alcohol blended fuels. In addition, systems switching from gasoline to alcohol blended fuels are subject to fire code official review and approval prior to dispensing operations.

Proposals for the 2012 IFC have already been submitted and 2009 Code Development Hearings will be heard October 24 - 26 in Baltimore. Several changes to fuel tank storage are included:

> Allow fuel oil storage tanks inside buildings used for space heating in quantities exceeding 660 gallons to comply with construction requirements given in NFPA 31.

> Require outside above grade storage of Class IIIB liquid motor vehicle fuels, such as B100, to be in tanks listed and labeled in accordance with UL 142 or UL 2085.

> Limit protected AST capacities, storing Class I, II, or IIIA fuels inside buildings, when the room is protected by an approved automatic sprinkler system, to 1500 gallons for Class I liquids and 3000 gallons for Class II and IIIA liquids.

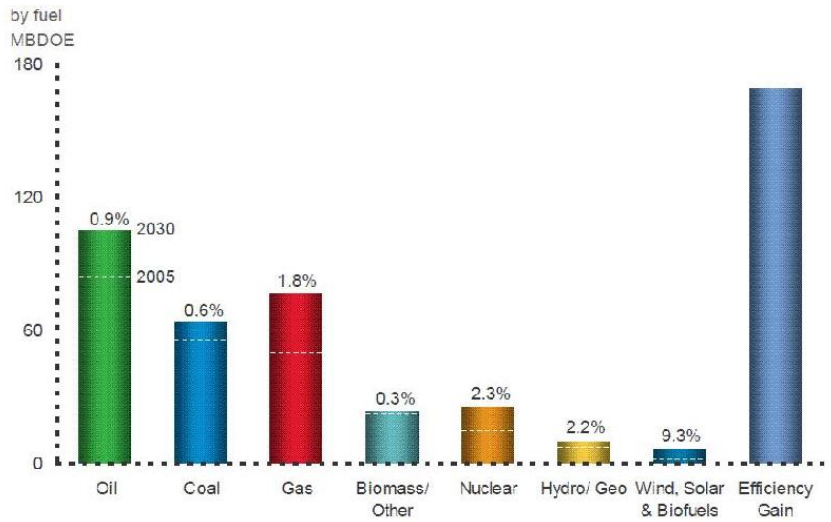
> Allow emergency vents to discharge inside a building, with tanks installed inside a building, when Class II or IIIA liquids are stored.

> Require pressure vacuum vents to be installed and maintained in accordance with API 2000.

> Disallow any dissimilar metallic parts to be joined in equipment in the presence of alcohol blended fuels.

> Allow fuel dispensing equipment to be certified by the manufacturer as an alternative to existing Code requirements that mandate the equipment to be listed and labeled.

Energy Outlook



Todd Onderdonk of Exxon Mobil presented the chart above at the September 24, 2009 STI/SPFA Pressure Vessel Conference in Houston. It is part of Exxon Mobil's The Outlook for Energy: A View to 2030 publication which states that total global energy demand growth is expected to average 1.2% per year from 2005-2030. By 2030, oil will remain the largest source of energy supply at 34%, with natural gas surpassing coal as the second largest source.

Nuclear power will grow significantly, while wind, solar, and biofuels will have the highest growth rate of all

fuels at 9.3% per year. Energy efficiency improvements will translate to energy savings of about 170 MBDOE (million barrels per day of oil equivalent energy) by 2030, about double the corresponding growth in demand.

Ecleberry of Modern Welding Retiring

Modern Welding Company, Inc. of Owensboro, Kentucky has announced that Ron Ecleberry, V.P. Sales & Marketing, is retiring November 30, after 43 years of service with the company. Ecleberry began his career at Newark, Ohio in 1966 and became a Vice President in 1990.

Tony Honey, V.P. and Manager of the Modern Welding Company of Georgia, Inc. subsidiary, will replace Ecleberry as V.P. Sales & Marketing at the corporate office in Owensboro, Kentucky. Steve Fort, Manager of Technical Services for the company will assume Honey's position as Plant Manager of the Augusta subsidiary.

Ecleberry has been very active with the Steel Tank Institute, serving on its Board of Directors as President, Chairman of the Board and as Chairman of its Member Services Committee. The Hall of Fame Award, STI's highest honor given to Members in recognition of long-term, distinguished service, was presented to Ecleberry in 2007.

ANSI/ASSE Z117.1 - 2009 Confined Space Standard Update

The 2009 version of the ANSI/ASSE Z117 Standard on confined space becomes effective November 2, 2009. It provides minimum performance requirements to develop and implement a comprehensive confined space program to protect workers.

During meetings while revising the **2003 version of the Z117.1 Standard**, the Z117 Accredited Standards Committee for Confined Spaces reviewed 200 fatal incidents from the U.S. Department of Labor Occupational and Safety and Health Administration (OSHA) database. A review of the incidents occurring between 1993 and 2004 suggests that the cause of death associated with confined space entry has not changed appreciably. The distribution of causes has also remained about the same.

The data indicates that about two-thirds of fatal incidents involved atmospheric contamination. Engulfment accounted for less than 10 percent of the identified causes. However, the sampling reviewed did not include all U.S. fatal confined space incidents.

For additional details about the Revised Z117 Standard and to purchase the Standard, please visit ASSE.

STI/SPFA provides its position with the construction of storage tanks relative to confined space on its website.

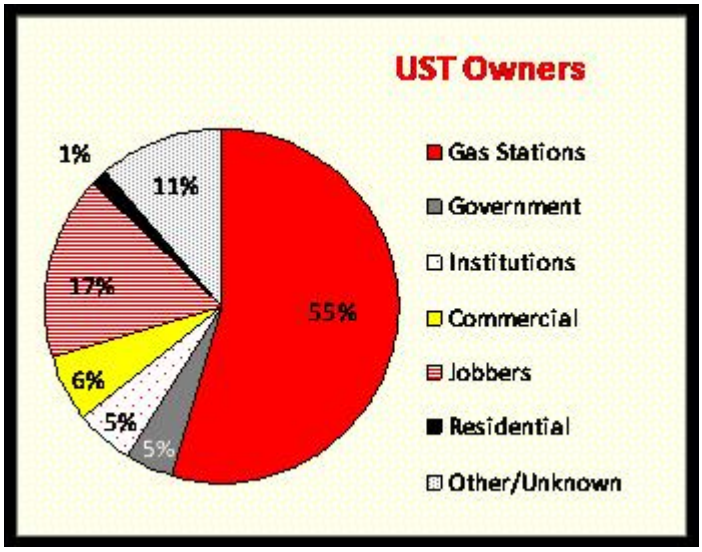
NFPA 30 - Removing Water from Flammable & Combustible Liquid Storage Tanks

With the introduction of biofuels into the motor vehicle fueling infrastructure in recent years, an even greater attention level has been given to keeping water out of the storage tank system. Of course, many weights & measures agencies have focused on water accumulation for many years.

Paragraph 21.8.8 of the 2008 Edition of **NFPA 30 - Flammable and Combustible Liquids Code**, also requires tank owners to establish a procedure for checking and removing water from the bottom of storage tanks. An accompanying appendix states:

The accumulation of water in the bottom of a tank encourages microbial activity that hampers operations and increases the risk of product release. It is imperative that tank owners and operators routinely monitor the tank bottoms for accumulation of water and establish a procedure for when and how the water is to be removed. The appendix references a number of technical publications for additional information including API 1501, API RP 1621, AP 2610, ASTM D 6469, NORA's Oilheat Technician's Manual, and STI's Keeping Water Out of Storage Tanks publication.

UST Owners of STI-Labeled Tanks



STI has kept a record of the types of buyers of STI-labeled USTs for 30 years.

This pie chart reflects the breakdown of owners by category.

The "Jobbers" category includes USTs at gas stations and in the distribution network.

"Institutions" are hospitals, schools and universities and similar buyers.

Tanknology, Inc. - Q&A

Wayne Geyer of STI/SPFA spoke with Tanknology, Inc. about services it offers for tightness testing, inspection and cleaning of underground steel and non-metallic storage tanks.

1.) How has underground tank tightness testing changed in the past dozen years?
Certainly the biggest change to tank tightness testing was Tanknology's introduction of the VacuTect system in 1988. Prior to VacuTect it was necessary to over-fill a tank for a tightness test. Today it is extremely rare to over-fill a tank for testing and perhaps a half a dozen under-fill testing methods are available in the U.S. Unknown to most UST owners, there are significant differences between the various methods of tightness testing. In the early years of the current UST regulations, say 1988 through 1994, tightness testing methods were evaluated and specified by individuals with engineering degrees or other technical expertise. Today's owners tend to choose their tank tightness testing methods based on service provider availability and cost.

2.) Tanknology introduced video camera inspection of USTs. How has that technology been accepted by industry and the regulated community? Since the first PetroScope in November 1991, the remote controlled video inspection method has been widely popular for inspecting underground steel tanks, internally lined steel tanks and fiberglass tanks. There have been more than 3,000 such UST inspections performed by Tanknology. Both Industry and most regulators accept PetroScope as a much safer alternative to manned entry inspections which also meet standards for an acceptable underground storage tank inspection. Two standards have been adopted referencing this technology as an acceptable inspection method. American Society for Testing and Materials (ASTM) G158 "Three Methods for Assessing Buried Steel Tanks" lists PetroScope method as an acceptable method for assessing steel tank structural integrity. Additionally, Ken Wilcox and Associates (KWA) has a recommended practice for Inspecting Buried Lined Tanks Using a Video Camera technology. Furthermore, the London Fire Marshall has accepted PetroScope for underground storage tank inspections thereby making this an acceptable technology in the UK.

Has video imaging improved over time?
Both the PetroScope lighting and resolution have been improved since the first PetroScope unit. PetroScope can easily locate a corrosion pit or a hairline crack in a tank lining at a distance of 30 feet. Other improvements over the first PetroScope consist of the capability to set the unit to auto or manual focus and make manual adjustments to the aperture, thereby controlling camera light sensitivity. Additionally, oxygen and temperature sensors as well as the motors for panning and tilt are all built in the unit giving the operator more control.

3.) Why does Tanknology provide an internal UST cleaning service?
Tanknology provides four specialized tank cleaning services that specifically address the most common reasons an UST needs to be cleaned. The most common reasons tanks require cleaning include receiving contaminated loads, debris or obstructions found in tank bottoms through either foreign objects (rags, backfill, etc.) or years in service (chemical deposits, flaking), water removal, and preparation for alternative fuels. Tanknology's bottom sweep and debris removal service uses a combination of flexible stingers and proprietary vacuum hoses to remove all debris and water from the bottom of a tank. Our Ethanol Preparation

service encompasses the technologies created to perform the bottom sweep, however an additional step is added to wash the bottom of the tank with water.

A Tanknology-designed nozzle is maneuvered across the tank bottom and effectively removes chemical deposits found on the bottom third of the tanks sidewall. The water is removed and the process is repeated until the tank is deemed clean. The third service Tanknology offers is our trademarked Fuel Pure service. Dirty or contaminated fuel is circulated through a series of filters and all the clean fuel is returned to the tank while contaminants and water are stripped out by the filtering process. Finally, Tanknology offers a service that will pressure wash the entire interior of an empty tank. A specialty nozzle that rotates in a 360 degree fashion is inserted at multiple tank openings and will remove any remaining contaminants out of an empty tank, which is ideal for converting a tank to a new fuel type. Tanknology has found that over the course of a tank's lifetime, one or more of these cleaning services are likely to be needed. In summary, Tanknology has a range of options to address tank contamination and we customize the cleaning approach to the specific need.

4.) What types of testing or inspections does Tanknology provide for steel and non-metallic tanks?
Tanknology's prevalent inspection service involves inspecting leak detection systems to ensure that they are performing to manufacturers' and/or regulatory standards. Tanknology has over 100 Technicians certified to inspect nearly all of the various manufacturers' tank and line monitoring systems to ensure all sensors and probes that are attached to the underground tank and associated components are functioning properly. This inspection is provided for both steel and non-metallic tanks. Tanknology also installs tank monitoring systems.

Another inspection service that Tanknology provides is cathodic protection inspection, engineering and repair. While Tanknology has historically not been involved in UST construction, we have offered a turnkey cathodic protection service for the last 20 years. Tanknology also offers a unique device to monitor the rectifier of impressed current cathodic protection systems. Our device is called the ARC (Automatic Rectifer Compliance). The device continuously monitors rectifier outputs and automatically logs regulatory required voltage, amperage and hours of operation information onto a website that is accessible by subscribing customers at no charge. The device uses pager-like communication, hence will work anywhere that a pager works.

5.) What type of testing can Tanknology perform on non-metallic tanks to address compatibility?
Tanknology provides inspection of underground tanks to determine the compatibility with products such as ethanol blends of gasoline. We compare available installation records and tank charts to physical measurements such as diameter and length, color, continuity, and presence of striker plates in order to determine the make and model and compatibility. We provide internal video inspection services as well.

Tanknology also provides deflection testing on non-metallic underground storage tanks to ensure they haven't experienced undue deflection that may lead to cracks and leaks. Deflection may be caused by improper installation, excessive traffic loads, high groundwater, damaged tank pads, and incompatibility with the ethanol blends of gasoline for some early model tanks. Tanknology provides an extensive survey of each tank, including diameter and bottom flatness readings at three locations. We compare the results to the original manufacturer's specifications and calculate the percentage of deflection at all three locations in order to verify that the tank is within acceptable tolerances.