



## IN THIS ISSUE

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1. [First-of-its-Kind Soy-Biodiesel Testing Shows Compatibility of Steel with Various Fuel Blends](#)
2. [Distinguishing Between Tank Types in Studying Ethanol Stress Corrosion Cracking](#)
3. [Sooner or Later, a Big Problem: Oklahoma Proposes USTs as ASTs](#)
4. [Glycerin Explosion at Ohio Biodiesel Plant Injures Five, Knocks Out Electrical Power](#)
5. [Fuel-Additive Tank Heater Gets Blame for Blaze at South Dakota Pipeline Terminal](#)
6. [AST Inspectors Can be Certified or Recertified Online](#)
7. [PEI Releases New Recommended Practices Summary on UST Inspection and Maintenance](#)
8. [STI/SPFA Recognizes National Water Pipeline and Special Fabrication Projects of the Year](#)
9. [STI/SPFA Publishes New Steel Pipeline Specification](#)
10. [E85 Chart](#)
11. [The Cold Truth: Smart Management Can Prevent Winter's Wrath from Gelling Biodiesel](#)
12. [Facts of Steel](#)
13. [Online Sources of UST & AST News and Information](#)
14. [Industry Conferences and Meetings](#)
15. [STI/SPFA Seminars & Certification Courses](#)

### **First-of-its-Kind Soy-Biodiesel Testing Shows Compatibility of Steel with Various Fuel Blends**

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Unprecedented testing by a nationally recognized independent research laboratory on the electrochemical reaction of carbon steel to various blends of soy-based biodiesel has found a rate of corrosion so low that it could not be measured.

The 12 weeks of testing – collaboratively funded by STI/SPFA, the National Biodiesel Board and the National Oilheat Research Alliance (NORA) – reinforced the compatibility of steel within the full spectrum of blended concentrations.

“These results were extraordinarily good,” said Lorri Grainawi, director of technical services for STI/SPFA. “The laboratory found no significant level of corrosion and no formation of pits. Most important, data collected during both periodic measurements by electrochemical impedance spectroscopy and mass loss studies showed an imperceptible corrosion rate.

“Entering the study, we expected that as fuel samples aged, acids would form and increase both the number of charge carriers (such as ions in solution) and the acid number, thereby elevating both the solution conductivity and the corrosion rate,” she added. “But, results demonstrated that conductivity of the fuel blends was too low to measure any corrosion, even by the end of a 12-week period.”

The study included steel coupons – test samples – immersed in blends of biodiesel and ultra-low sulfur diesel (ULSD) fuel that were maintained at a controlled temperature of 109.4 degrees Fahrenheit (43 degrees Celsius) for the duration of testing.

During visual inspection of test coupons, a small amount of surface rusting was observed, Grainawi said. In most cases, the amount of surface rusting was slightly higher in 100-percent ULSD than in biodiesel – or biodiesel-plus-ULSD blends. The minimal rusting was caused by a reaction between the surface oxide layer of the metal and the fuel blend.

The relative insignificance of visual rusting was demonstrated by microscopic examination and computation of actual weight loss for test coupons, Grainawi said.

Test cells were disassembled, visually inspected, photographed and weighed after one month, two months and at the conclusion of the testing, she said. Typical low carbon steel was used for testing, reflecting the norm for atmospheric steel storage tanks of all sizes and shapes.

Biodiesel blends were chosen to represent biodiesel produced from any type of feedstock. At the time the test protocol was designed, soy was the most common raw material in the United States for feedstock. Soy was also selected for the first phase of the study because it is the most unsaturated and would represent a worst-case condition.

Also, biodiesel naturally tends to become more acidic as it ages. This is important because higher levels of acidity have a tendency to increase corrosion rates.

Water was added to half of the samples to create realistic versions of conditions in an actual storage situation. While STI/SPFA strongly encourages tank owners to remove water from their tanks as part of routine maintenance procedures, the worst conditions occur when some water exists in the tank. The presence of water will also cause fuels to degrade at a faster rate.

During the tests, all biodiesel blends – ranging from zero to 100-percent concentrations – met ASTM International requirements, but were carefully chosen to register at the higher end of acid-concentration limits.

The next 12-week phase of the study will evaluate biodiesel produced from animal fat. Results of that testing are scheduled for release in the spring.

“We are happy to see confirmation of steel’s compatibility for soy-based biodiesel storage,” said Steve Howell of the National Biodiesel Board. “The vast majority of our members rely on steel tanks – both aboveground and underground – so the study’s findings are a welcome reaffirmation.”

“Steel tanks are the predominant choice for the storage of heating oil,” said John Huber of NORA. “The testing demonstrates that compatibility will not be an issue as increasing numbers of oil-heat customers use soy-based biodiesel to power their furnaces.”

[\[Top\]](#)

## **Distinguishing Between Tank Types in Studying Ethanol Stress Corrosion Cracking**

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When storing ethanol, are enormous, field-erected steel aboveground storage tanks (ASTs) subjected to the same loading and stresses as much-smaller underground storage tanks or shop-built ASTs?

Underscoring the question is a growing debate among industry experts about stress corrosion cracking of steel and its relationship to denatured ethanol storage in field-erected ASTs. Stress corrosion cracking is the formation of brittle cracks induced by the combined influence of tensile stress and a corrosive environment, according to [www.corrosion-doctors.org/Forms-SCC/scc.htm](http://www.corrosion-doctors.org/Forms-SCC/scc.htm).

Focused on large-capacity ASTs and associated piping systems that store and handle ethanol, the American Petroleum Institute (API) has drafted a new Bulletin 939-E to address “Identification, Repair and Mitigation of Cracking of Steel Equipment in Fuel Ethanol Service.” Russell Kane, Ph.D., director, corrosion services, Honeywell Process Solutions, has managed the development of the current draft bulletin, which could be voted upon at an API meeting later this year.

The bulletin is intended for the “common man” with “practical guidelines for people in the field,” Kane said.

The draft API bulletin cites 24 stress corrosion cracking failures – none of which have occurred on shop-fabricated steel tanks, Kane said. About 90 percent of the stress corrosion cracking problems have occurred on aboveground storage tanks with 70- to 165-foot (21- to 50-meter) diameters, he said. No failures were reported on tanks less than 30 feet (9.1 meters) in diameter.

“We expect that smaller-diameter, shop-built tanks would be stiffer than the larger tanks,” Kane said. “That should reduce dynamic loads and may reduce susceptibility to cracking.”

A 12,000-gallon (45,412-liter) underground storage tank (UST) receives cylindrical reinforcement from backfill. A 500,000-gallon (1,892,150-liter) AST faces entirely different operating conditions.

“We’re not painting everything with the same brush,” Kane said. “We’re on the early part of the learning curve on this subject and most of the experience for stress corrosion cracking has been in large ASTs. Obviously, these field-erected tanks are fairly dynamic as they are loaded and unloaded. Based on the research that has been performed, dynamic

stresses and strains are one way that we have found to accelerate possible cracking.”

Other contributing factors to stress corrosion cracking are agitation and aeration of product from loading and unloading, and possibly the interplay of floating-roof systems, which are not meant to totally exclude air, he said.

The vast majority of the field-erected ASTs that have experienced stress corrosion cracking from ethanol storage have been in service at distribution terminal blending facilities and refineries, Kane said.

Stress-corrosion cracking has never caused a failure on a shop-fabricated tank built to Steel Tank Institute standards, said Wayne Geyer, executive vice president, STI/SPFA. Warranty insurance records also show that a steel tank built to STI specifications has never failed due to incompatibility with ethanol.

The concern about stress corrosion cracking extends to the pipeline industry. Pipeline leaders are also trying to “sort out the situation,” Kane said. Their concern is precautionary, he added, since representatives of the industry have said ethanol has been transported in pipelines with no problems to date.

[\[Top\]](#)

## **Sooner or Later, a Big Problem: Oklahoma Proposes USTs as ASTs**

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An Oklahoma statute approved by the legislature in May 2007 allowed storage-tank system owners who operate marinas or retail, fleet and commercial facilities to use underground storage tanks (USTs) in aboveground applications.

Legislators included the change in a bill that was intended to provide tax credits to farmers who produce biodiesel for use on their own farms. But apparently, lawmakers were inadequately informed about the implications of the UST-to-AST transformation language.

This left the Oklahoma Corporation Commission (OCC), the agency in charge of creating regulations that meet statutory requirements, in a dangerous predicament.

By law, they were to assemble something that met the lawmakers’ intent. However, the program also had to meet public-safety requirements.

In a meeting on Feb. 14, members of the OCC considered this language:

“Any rules promulgated by the Corporation Commission governing the design and labeling of aboveground storage tanks shall be amended to allow storage tanks designed and built for underground use to be used as aboveground storage tanks if used with secondary containment. Any rules promulgated by the Commission shall not be more stringent than any (U.S.) Environmental Protection Agency standards or regulations relating to aboveground storage tank design.”

If approved, the language would have placed Oklahoma in direct conflict with the National Fire Protection Association’s NFPA 30 standard and other best practices well established in the petroleum-equipment and tank-fabrication industries.

Critical technical issues make the case against the use of USTs aboveground:

- USTs are not equipped with emergency vents
- USTs – whether steel or fiberglass-reinforced plastic – are not designed to be used with supports
- Steel UST coatings have not been formulated for aboveground applications
- Steel thicknesses used on a UST may not correspond to the needs of an AST with equal capacity
- UST heads are not reinforced as they would be in an AST design

In a Feb. 11 letter to Robyn Strickland, OCC administrator, an NFPA representative warned of the potentially fatal consequences of the regulatory move.

“There have been several incidents where fire-exposed aboveground storage tanks that had no emergency venting, inadequate emergency venting, or emergency venting that had been rendered inoperable have failed catastrophically, with consequent loss of life,” said Olin Greene of NFPA’s, Southern Region.

Commissioners on Feb. 14 took no action on the proposal and continued discussion to an upcoming meeting. In the meantime, reports indicate that fire officials around the state are concerned about the legislative language, and are reaching out to elected leaders to brief them on potential hazards created by the specific UST-to-AST provisions.

[\[Top\]](#)

## **Glycerin Explosion at Ohio Biodiesel Plant Injures Five, Knocks Out Electrical Power**

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The dangers of sloppy operational practices during the manufacture and handling of biodiesel cropped up again last month as investigators probed an explosion and fire that required hospital treatment for four workers and a local policeman, according to The Journal Gazette newspaper.

Public safety officials in Defiance, Ohio cited human error as the official cause of the blast. A hospitalized plant employee told investigators that an unsecured manhole cover on a 10,000-gallon (37,843-liter) storage tank filled with glycerin vented fumes into a metal building used for shipping and receiving near the main plant.

As an employee pressed a button to open an electric-powered garage door, the resulting spark ignited the fumes.

The explosion was powerful enough to disrupt electrical service in the city. Emergency-crew dispatchers received 28 calls about the explosion within two minutes. Police evacuated nearby residents for about 90 minutes in the wake of the blast.

Fire officials reported a second blast as firefighters set up hose lines to battle the blaze.

No one was inside the metal building when the blast occurred. But two employees were just outside the structure, one of whom had his hand inside the door.

That employee received third-degree burns on his hand, as well as first- and second-degree burns on his upper body. The other nearby employee suffered bruised or cracked ribs. He and two other employees were treated and released from a local medical center. Also injured in the aftermath was a Defiance police officer who was hospitalized for symptoms of smoke inhalation suffered while he was evacuating homes.

The main plant sustained damage to masonry and windows, forcing it to close until a structural engineer could certify the safety of occupancy.

The biodiesel plant started operations in July 2005 and has an annual production capacity of 7 million gallons (26,490,000 liters).

<http://www.journalgazette.net/apps/pbcs.dll/article?AID=/20080105/LOCAL/801050365>

[\[Top\]](#)

## **Fuel-Additive Tank Heater Gets Blame for Blaze at South Dakota Pipeline Terminal**

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A preliminary investigation by the Rapid City, S.D. fire department indicated that a heater within a fuel-additive tank ignited a fire in January at a local pipeline system terminal, according to the Rapid City Journal newspaper.

The initial explosion occurred in an aboveground storage tank of diesel-fuel additive, according to a fire-department captain. An immersion heater within the tank sparked the explosion, primarily because the fuel level in the tank was low.

An immersed heater is normally well below the surface of the fuel, but in this case the heater became exposed to vapors, he said. There was nothing in the system that could have alerted company officials to the low fuel levels, he added.

Heaters are normally used in similar facilities, but it is rare for them to cause ignition, the captain said. A heater malfunction also could have contributed to the fire, but the equipment was too damaged to definitively determine that.

Safety equipment at the facility functioned correctly and may have helped in reducing damage and potential injury, the fire official said. That included equipment that helped contain the leaking product as well as automatic shutdown and relief valves that reduced the potential for the spread of fire or explosion.

No environmental contamination occurred because of secondary containment equipment in place, the captain said. Rapid City fire crews extinguished the blaze in about 30 minutes. No one was injured.

<http://www.rapidcityjournal.com/articles/2008/01/25/news/top/doc47994b50e4bbe808262161.txt>

[\[Top\]](#)

## **AST Inspectors Can be Certified or Recertified Online**

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Online coursework and testing is available through Steel Tank Institute (STI) for individuals who seek certification to inspect aboveground storage tanks, particularly those that would be affected by the SP001 standard.

Now in its fourth edition, the SP001 standard – Standard for Inspection of Aboveground Tanks – applies to portable containers, shop-built ASTs and field-erected ASTs up to 30 feet diameter and 50 feet in height. Many field-erected tanks built to the American Petroleum Institute's API 650 standard also are subject to regulatory requirements for inspection that would be covered by the SP001 document.

The inspection standards help AST owners and managers to comply with U.S. Environmental Protection Agency regulations under the Spill Prevention, Control and Countermeasure (SPCC) program.

According to SP001, API 653 certified inspectors must obtain an "STI SP001 Adjunct Certification" to perform an SP001 inspection. This is to ensure that an API 653 certified inspector is familiar with construction of tanks and containers included in SP001 as well as the requirements of a tank-system inspection.

Adjunct certification for API 653 inspectors and recertification can be accessed through a convenient STI online program that allows interested parties to study for the exam as they have time, rather than taking several days off of work to attend a seminar.

One requirement included in the fourth edition of SP001 calls for an STI-certified SP001 AST inspector to be a "tank system inspector" – also known as a Level 2 inspector. Recertification will be required for SP001 inspectors who earned their certifications prior to May 2004, the debut date for STI's advanced Level 2 certification program. Because the SP001 standard has evolved since 2004, program leaders emphasized the need for inspectors to understand the document's newer facets, which could affect AST operations. In addition, as certificates of Level 2 inspectors expire, they will be able to obtain recertification using this same online program.

The certification and recertification programs will be based on several aboveground storage tank technical documents from STI, Underwriters Laboratories, Petroleum Equipment Institute and Morrison Bros. Co.

Registered participants will receive a web link to the test, unique user names and passwords and accessibility to the test for 48 hours. The program consists of 11 PowerPoint modules – each followed by quiz questions that enable progress to the next module. After completing the modules, a 30-question test completes the effort. A score of 80 percent or better will yield a passing grade.

Participants also must provide proof of a successful visual-acuity eye exam within the previous 12 months.

The program costs \$200, which can be paid online by credit card. Registration for the certification or recertification can be mailed to Steel Tank Institute, 570 Oakwood Rd., Lake Zurich, Ill., 60047. Or registration can be faxed to (847) 438-8766.

More information about the online certification and recertification is available at [click here](#) .

[\[Top\]](#)

## **PEI Releases New Recommended Practices Summary on UST Inspection and Maintenance**

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The Petroleum Equipment Institute (PEI) has published PEI RP900 – Recommended Practices for the Inspection and Maintenance of Underground Storage Tank Systems.

Reflecting a consensus of PEI's Underground Storage Tank System Inspection and Maintenance Committee, the document is intended to provide a basic reference that mirrors the current state of the art in proper inspection and maintenance of underground storage tank (UST) equipment.

The recommended practices apply to USTs and associated equipment used to store and dispense gasoline, diesel and related petroleum products at vehicle-fueling facilities. The equipment covered includes all below-grade, liquid- and vapor-handling components accessible from grade over or near the top of the storage-tank system.

Information in the 52-page document has been assembled from published and unpublished sources provided by equipment manufacturers, installers and end-users.

The material can provide guidance to facility owners by describing recommended practices that:

- Result in proper inspection, operation and maintenance of underground storage systems
- Enhance the longevity and trouble-free performance of UST equipment
- Promote fire prevention and storage system safety
- Protect human health and the environment
- Lead to regulatory compliance
- Reduce liability associated with the operation of underground storage systems
- Identify potential problems with equipment as quickly as possible

The PEI Underground Storage Tank System Inspection and Maintenance Committee includes representatives from petroleum-marketing, equipment-manufacturing, service- and installation-contracting companies, and regulatory agencies.

Single copies can be purchased for \$40 by PEI members and \$95 by non-members. Print copies of PEI RP900 can be purchased at <http://www.pei.org/Index.aspx?p=rp900>, or by calling (918) 494-9696.

[\[Top\]](#)

## **STI/SPFA Recognizes National Water Pipeline and Special Fabrication Projects of the Year**

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A Southern California pipeline and unique pump fittings for a Texas water project have been honored by STI/SPFA as examples of fabrication and engineering excellence.

A 5,900-foot pipeline linking two reservoirs of the San Diego County Water Authority has been recognized by STI/SPFA as the national Pipeline Project of the Year for 2007.

The Lake Hodges to Olivenhain pipeline project in Southern California, completed in July 2007, was part of a 40-megawatt pumped storage project that used a tunnel to connect two reservoirs that facilitate emergency water storage in the county.

Portions of the welded tunnel liner – featuring steel-plate thicknesses ranging from one-half inch to 1.125 inches – were installed at grades of almost 20 percent. For perspective, an average 20-percent grade would be found on the most difficult mountain-biking trails.

The effort was the first water-supply project in which the steel plate used for pipe fabrication was manufactured using a thermo-mechanically controlled process (TMCP) that complies with the ASTM International standard ASTM A841.

Ameron International, Inc. of Rancho Cucamonga, Calif. fabricated the pipeline with a 10-foot diameter that was capable of handling extraordinarily high water pressure – up to 500 psi. Ameron also provided technical support to the Kiewit/Parsons design/build team during the design and installation of the pipeline. The epoxy-lined project used a straight-seam process – featuring butt-welding from the pipe interior, and incorporating back-up bars. The annular space between the pipeline and tunnel was grouted.



"This project demonstrates innovative approaches in adapting materials and fabrication techniques to extremely challenging conditions," said Wayne Geyer, executive vice president of STI/SPFA.

Exceptional innovation also characterized the three six-ton pump-station fittings for the Gulf Coast Water Authority that were honored as the national Pipe Fabrication Project of the Year for 2007.

The custom products were fabricated from a 78- by 144-inch concentric reducing bend – cut into five pieces by Hanson Pressure Pipe of Grand Prairie, Texas.



The unique requirements of Juliff Pump Station No. 1 in Fort Bend County, Texas included rotation and welding together the five segments to create an 87.8-degree bend. The fittings – completed in 2007, but due for installation this year – will enable the pump station to withdraw water from the Brazos River.

The reducers' 144-inch ends provide the water authority – based in Texas City, Texas – with intake screens designed with 5/8-inch diagonal bars and stiffeners.

Fabrication also included mortar linings and green polyurethane coatings.

"This project demonstrated the strength and flexibility of steel as a material that can provide valuable, long-lasting custom-built solutions for the water industry," Geyer said.

[\[Top\]](#)

## STI/SPFA Publishes New Steel Pipeline Specification

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To help engineers address critical issues on water transmission line projects, a new suggested specification for steel water pipelines has been posted online by STI/SPFA.

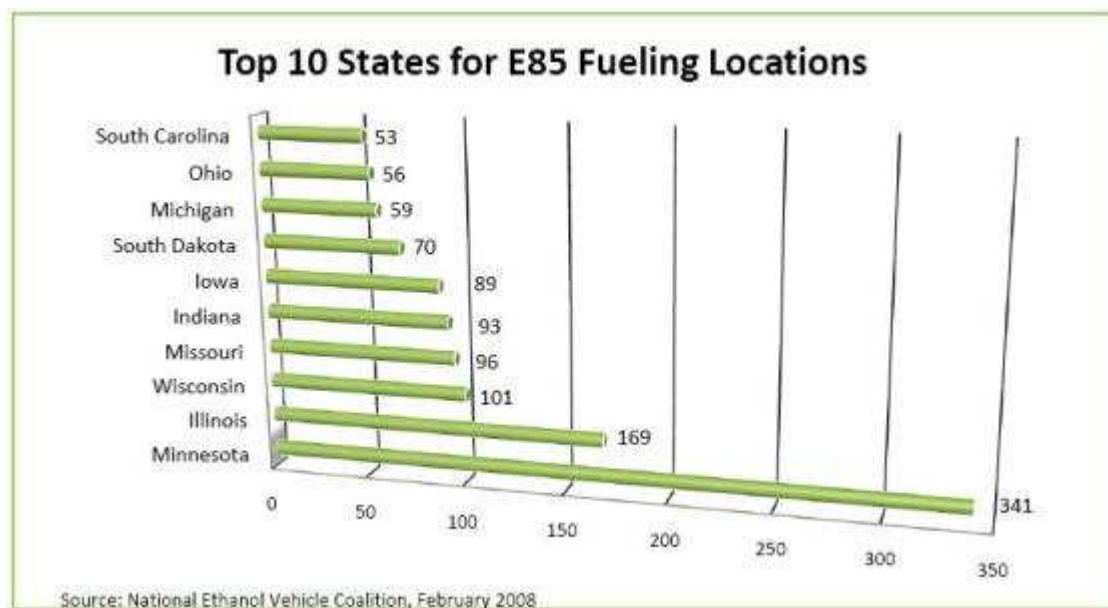
The comprehensive nine-page document addresses such issues that include quality assurance; submittals; handling, storage and shipping; materials; inspection and testing; and installation.

The specification can be accessed at <http://www.steeltank.com/Portals/0/pubs/WSPSpecificationV1-1.pdf>.

[\[Top\]](#)

## E85 Chart

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[\[Top\]](#)

## The Cold Truth: Smart Management Can Prevent Winter's Wrath from Gelling Biodiesel

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Successful ski resorts depend on grooming equipment to keep slope enthusiasts satisfied, no matter how low the mercury may drop. The Biodiesel Bulletin newsletter reports that one resort in New England relies on biodiesel as its fuel of choice for its grooming fleet.

"We know that even with heavy snow falling and temperatures hovering around 20 below, we can count on our biodiesel-powered vehicles to start up and perform with no problems at all," said Jim Mersereau, operations director for Cranmore Mountain Resort in North Conway, N.H. "We have been very pleased with biodiesel's performance and have had absolutely no cold-weather problems."

Cranmore Mountain in 2003 joined other ski resorts, such as Aspen, Colo., in fueling its fleet with B20 (a blend of 20-percent biodiesel and 80-percent petroleum diesel). The resort stores B20 in a 4,000-gallon (15,137-liter) aboveground storage tank.



Like regular diesel fuel, biodiesel can gel at very low temperatures. Richard Nelson, director of engineering extension for Kansas State University's College of Engineering, said users can counteract the temperature reaction in several ways.

"The most important precaution users can take is to make sure they work with a reputable supplier and are using biodiesel that meets the national standard, ASTM D 6751," Nelson said. "Secondly, they need to understand that good fuel management is extremely important, and that is amplified in winter."

Nelson also recommended winter-time practices for diesel vehicles such as:

- Blending biodiesel with kerosene
- Blending biodiesel with diesel treated with cold-weather additives
- Block and filter heaters
- Indoor vehicle storage

[\[Top\]](#)

## Facts of Steel

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Steel style. Architect Frank Gehry, winner of the National Medal of Art, used steel with a flourish in creating the Jay Pritzker Pavilion, a revolutionary outdoor concert venue in Chicago. The 120-foot (36.6-meter) high pavilion includes a flowing canopy of brushed stainless steel ribbons to form the stage opening. The multi-dimensional structural design incorporates connection to an overhead trellis of crisscrossing steel pipes, which support a sound system serving 4,000 fixed seats and the lawn area. About 7,000 people can seat themselves in the lawn. A state-of-the-art sound system, the first of its kind in the United States, was designed to recreate the acoustics of an indoor concert facility by distributing sound throughout the fixed seats and the lawn.

[http://www.millenniumpark.org/artandarchitecture/jay\\_pritzker\\_pavilion.html](http://www.millenniumpark.org/artandarchitecture/jay_pritzker_pavilion.html)

Tower of power. The Kiev TV Tower in the Ukraine is 1,263 feet (385 meters) in height. Built for TV and radio signals, it represents the tallest free-standing lattice steel structure in the world. Construction of the welded tower began in 1968 and ended in 1973. The overall weight of the tower is 2,976 tons (2,700 metric tons). Its construction features steel pipe of various diameters and thicknesses and a four-legged base supporting a cylindrical core. A central pipe, or core, (which houses an elevator) is 13.1 feet (4 meters) in diameter and fabricated of pipe that is .47 inches (12 millimeters) thick. The base is about 328 feet (100 meters) in height. Atop the base is an enclosed level to store microwave transmitting and receiving equipment. At about 656 feet (200 meters) is another enclosed level for television and FM radio transmitters, plus a control and maintenance shop. The tower is unique – no mechanical fasteners were used to build the structure. All joints, pipes and fixtures were welded. [http://en.wikipedia.org/wiki/Kiev\\_TV\\_Tower](http://en.wikipedia.org/wiki/Kiev_TV_Tower)

Lightweight strength. ArcelorMittal and steel gas bottle supplier Liotard received runner-up honors in the Swedish Steel Prize 2007 for a new steel gas cylinder, which is considerably lighter than a traditional cylinder. In many countries where gas cylinders are used for cooking and heating, housekeepers have needed well-developed muscles. Carrying a 57.4-pound (26-kilogram) gas bottle up the stairs was a daunting task. Research officials from both companies were convinced that they could produce lighter gas cylinders by switching to new high-strength steels. They used a dual-phase steel combining very good formability and high strength. It is easier to handle and less expensive to produce. The new steel cylinder weighs 13.9 pounds (6.3 kilograms). It successfully passed stringent testing to guarantee full safety.

<http://www.arcelormittal.com/index.php?lang=en&page=33&tb0=28>

[\[Top\]](#)

## Online Sources of UST & AST News and Information

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### Online Publications

2006 Biodiesel Handling and Use Guidelines <http://www.nrel.gov/docs/fy06osti/39451.pdf>

Buncefield Fire <http://www.buncefieldinvestigation.gov.uk/>

Energy Tomorrow, American Petroleum Institute [www.energytomorrow.org](http://www.energytomorrow.org)

California Air Resources Board, Enhanced Vapor Recovery Phase II Advisory: <http://www.arb.ca.gov/vapor/advisories/adv359.pdf>

California State Water Resources Control Board, Results of Secondary Containment Survey  
[http://www.waterboards.ca.gov/ust/leak\\_prevention/secondary\\_containment/survey.html](http://www.waterboards.ca.gov/ust/leak_prevention/secondary_containment/survey.html)

Fuel Oil News <http://www.fueloilnews.com/>

International Code Council <http://www.ecodes.biz/>

National Biodiesel Board Fuel Quality Policy  
[http://www.biodiesel.org/pdf\\_files/fuelfactsheets/20060621\\_TAB\\_11\\_Fuel\\_Quality\\_Policy.pdf](http://www.biodiesel.org/pdf_files/fuelfactsheets/20060621_TAB_11_Fuel_Quality_Policy.pdf)

National Ethanol Vehicle Coalition E85 Compatible Products and Manufacturers List  
[http://www.e85fuel.com/pdf/E85\\_Equipment\\_and\\_manufacturers.xls](http://www.e85fuel.com/pdf/E85_Equipment_and_manufacturers.xls)

National Petroleum News <http://www.petroretail.net/>

The PEI Journal Online <http://www.thepeijournal.org/content/1q07/index.php>

Recommended Practices for Overfill Prevention for Shop-Fabricated Aboveground Tanks (PEI RP 600)  
[www.pei.org/RP600](http://www.pei.org/RP600)

Renewable Fuels Association Industry Statistics <http://www.ethanolrfa.org/industry/statistics/>

Steel Tank Institute Water in Fuel Tanks Research  
<http://www.steeltank.com/LinkClick.aspx?fileticket=SmQZA0POL4E%3D&tabid=36&mid=535>

TulsaLetter Archive <http://www.pei.org/tulsaletter/search.asp>

Wisconsin Department of Commerce Ethanol Storage and Dispensing Conversion Policy  
[http://commerce.wi.gov/ERpdf/bst/ProgramLetters\\_PL/ER-BST-PL-EthanolConversionPolicyMemo.pdf](http://commerce.wi.gov/ERpdf/bst/ProgramLetters_PL/ER-BST-PL-EthanolConversionPolicyMemo.pdf)

## **Associations**

American Iron & Steel Institute <http://www.steel.org>

American Petroleum Institute <http://api-ep.api.org/>

American Water Works Association <http://www.awwa.org>

Clean Diesel Fuel Alliance <http://www.clean-diesel.org/index.htm>

National Association of Convenience Stores <http://www.nacsonline.com/NACS/News/>

National Biodiesel Board <http://www.biodiesel.org>

National Ethanol Vehicle Coalition <http://www.e85fuel.com>

National Leak Prevention Association <http://www.nlpa-online.org/standards.html>

National Oilheat Research Alliance <http://www.nora-oilheat.org>

Petroleum Equipment Institute [www.pei.org](http://www.pei.org)

Petroleum Marketers Association of America <http://www.pmaa.org/>

Safe Tank Alliance [http://www.osha.gov/dcsp/alliances/api\\_nfpa/api\\_nfpa.html#api](http://www.osha.gov/dcsp/alliances/api_nfpa/api_nfpa.html#api)

Society of Independent Gasoline Marketers of America <http://www.sigma.org/>

Steel Plate Fabricators Association <http://www.spfa.org/>

Steel Tank Institute <http://www.steeltank.com>

### **Federal Regulatory Agencies (United States)**

U.S. Chemical Safety and Hazard Investigation Board, Methanol Fire Report  
[http://www.csb.gov/completed\\_investigations/docs/CSBBethuneFinalReport.pdf](http://www.csb.gov/completed_investigations/docs/CSBBethuneFinalReport.pdf)

U.S. Department of Labor, Occupational Safety & Health Administration <http://www.osha.gov>

U.S. Department of Labor, Occupational Safety & Health Administration, Storage Tanks  
<http://www.osha.gov/dcsp/products/topics/storagegetank/index.html>

U.S. Environmental Protection Agency, Laws and Regulations <http://www.epa.gov/epahome/laws.htm>

U.S. Environmental Protection Agency, National Pollutant Discharge Elimination System, Stormwater Pollution Prevention Plans for Construction Activities <http://cfpub.epa.gov/npdes/stormwater/swppp.cfm>

U.S. Environmental Protection Agency, Office of Underground Storage Tanks <http://www.epa.gov/swerust1/>

U.S. Environmental Protection Agency, Office of Underground Storage Tanks, Energy Act Guidelines for Secondary Containment and Financial Responsibility [http://www.epa.gov/oust/fedlaws/epact\\_05.htm#Final](http://www.epa.gov/oust/fedlaws/epact_05.htm#Final)

U.S. Environmental Protection Agency, Office of Underground Storage Tanks, Final Operator Training Grant Guidelines  
[http://www.epa.gov/oust/fedlaws/epact\\_05.htm#Final](http://www.epa.gov/oust/fedlaws/epact_05.htm#Final)

**NEW** U.S. Environmental Protection Agency, Office of Underground Storage Tanks, State Delivery Prohibitions  
<http://www.epa.gov/oust/dp/index.htm>

U.S. Environmental Protection Agency, Oil Program, Spill Prevention Control and Countermeasure  
<http://www.epa.gov/emergencies/content/spcc/>

### **State Regulatory Agencies (United States)**

California Air Resources Board, Vapor Recovery Information <http://www.arb.ca.gov/vapor/vapor.htm>

Florida Department of Environmental Protection, Leak Autopsy and Program Data Presentation  
<http://www.dep.state.fl.us/waste/categories/tanks/default.htm>

U.S. Environmental Protection Agency, Office of Underground Storage Tanks, State And Territory UST/LUST Program Status And Contacts <http://www.epa.gov/swerust1/states/statcon1.htm>

### **Model Codes and Testing Organizations**

American National Standards Institute <http://www.ansi.org>

ASTM International <http://www.astm.org/>

International Code Council <http://www.iccsafe.org/>

International Code Council jurisdictions <http://www.iccsafe.org/government/jurisdictionadoptions.xls>

National Fire Protection Association <http://www.nfpa.org/>

Southwest Research Institute <http://www.swri.edu/>

Underwriters Laboratories <http://www.ul.com/>

Underwriters Laboratories Canada <http://www.ulc.ca>

Underwriters Laboratories Collaborative Standards Development System <http://csds.ul.com/Home/Default.aspx>

[\[Top\]](#)

## Conferences and Meetings

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Feb. 25 to 27, 2008

13th Annual National Ethanol Conference, Renewable Fuels Association, Orlando, Fla.

<http://www.ethanolrfa.org/industry/conference/>

March 4 to 5, 2008

Cathodic Protection Testing Training and Certification Program, STI/SPFA, St. Paul, Minn.

<http://www.steeltank.com/EducationEvents/>

March 4 to 6, 2008

Washington International Renewable Energy Conference, Washington, D.C

<http://www.wirec2008.gov/wps/portal/wirec2008>

March 10 to 13, 2008

18th Annual West Coast Conference on Soils, Sediments and Water, Association for Environmental Health and Sciences, San Diego, Calif.

<http://www.aehs.com/conferences/westcoast/index.htm>

March 16 to 18, 2008

Canadian Renewable Energy Workshop, Regina, Saskatchewan

<http://www.crew2008.com>

March 16 to 18, 2008

EGSA Spring Convention, Electrical Generating Systems Association, Santa Anna Pueblo, N.M.

<http://www.egsa.org/meetings/springconvention.cfm>

March 16 to 20, 2008

Corrosion 2008 Conference and Expo, NACE International, New Orleans, La.

<http://www.nace.org/nace/content/conferences/c2008/callpapers.asp>

March 17 to 19, 2008

20th Annual National Tank Conference, New England Interstate Water Pollution Control Commission, Atlanta, Ga.

<http://www.neiwppcc.org/tankconference/>

March 18 to 19, 2008

CARWACS, Toronto, Ontario

<http://www.carwacs.com/about.asp>

March 18 to 20, 2008

Aviation Industry Expo, Dallas, Texas

<http://aviationindustryexpo.com/as3gse/index.po>

March 25 2008

Water Storage Tank Seminar, Atlanta

<http://www.steeltank.com/EducationEvents/CalendarofSeminarsCertificationCourses/>

March 30 to April 4, 2008

NHA Annual Hydrogen Conference 2008, National Hydrogen Association, Sacramento, Calif.

<http://www.hydrogenconference.org/>

April 6 to 9, 2008

International Forecourt & Fuel Equipment Show, IFFE, Birmingham, U.K.

<http://www.forecourtshow.com/>

April 6 to 10, 2008  
2008 Spring National Meeting, American Institute of Chemical Engineers (AIChE)  
New Orleans, La.  
<http://www.aiche.org/Conferences/SpringMeeting/index.aspx>

April 6 to 10, 2008  
2008 Global Congress on Process Safety, New Orleans, La.  
<http://www.aiche.org/Conferences/Specialty/GCPS.aspx>

April 14 to 16, 2008  
2008 Spring Refining and Equipment Standards Meeting, American Petroleum Institute, New Orleans, La.  
<http://www.api.org/meetings/topics/refining/index.cfm>

April 15 to 17, 2008  
International Biomass Conference and Trade Show, Minneapolis, Minn.  
<http://www.biomassconference.com>

April 29, 2008  
Storage Tank Seminar, Denver.  
<http://www.steeletank.com/EducationEvents/CalendarofSeminarsCertificationCourses/>

May 3 to 6, 2008  
NAFA 2008 Institute and Expo, National Association of Fleet Administrators, Salt Lake City, Utah  
[http://www.nafa.org/Content/NavigationMenu/Professional\\_and\\_Development1/Education\\_and\\_Events2/Institute\\_and\\_Expo/Fleet\\_Management\\_Institute.htm](http://www.nafa.org/Content/NavigationMenu/Professional_and_Development1/Education_and_Events2/Institute_and_Expo/Fleet_Management_Institute.htm)

May 6 to 8, 2008  
Electric Power 2008, GenCo Alliance, Baltimore, Md.  
<http://www.electricpowerexpo.com/>

May 11 to 14, 2008  
Alternative Fuels and Vehicles National Conference and Expo, Las Vegas, Nev.  
<http://www.afvi.org/NationalConference2008>

May 31 to June 5, 2008  
AIHce'08, American Industrial Hygiene Convention and Expo, Minneapolis, Minn.  
<http://www.aiha.org/aihce08/expo2008/list-exhibitor.htm>

June 1 to 4, 2008  
WindPower 2008, American Wind Energy Association, Houston, Texas  
<http://www.windpowerexpo.org/>

June 2 to 5, 2008  
NFPA World Safety Conference & Exposition, Las Vegas, Nev.  
<http://www.nfpa.org/categoryListWSCE.asp?categoryID=1059&cookie%5Ftest=1>

June 8 to 12, 2008  
ACE 08, American Water Works Association, Atlanta, Ga.  
<http://www.awwa.org/ace08/index.cfm?ItemNumber=5994&navItemNumber=1514>

June 9 to 11, 2008  
28th Annual Conference & Trade Show, Independent Liquid Terminals Association, Houston, Texas  
<http://www.ilta.org/CalendarofEvents/AOCTS/2008/2008info.htm>

June 9 to 12, 2008s  
Safety 2008, American Society of Safety Engineers, Las Vegas, Nev.  
<http://www.asse.org/education/pdc08/registration-fees-and-schedule.php>

June 16 to 19, 2008  
24th Annual International Fuel Ethanol Workshop and Expo, Nashville, Tenn.  
<https://www.fuelethanolworkshop.com/ema/DisplayPage.aspx?pageld=Home>

[\[Top\]](#)

## STI/SPFA Seminars & Certification Courses

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[Click Here](#) to View & Register for Upcoming Meetings & Courses

- February 11 - 15, 2008 STI SP001 AST Inspector Training Course, Denver, Colorado
- March 4 - 5, 2008 Cathodic Protection Tester Training Course, St. Paul, Minnesota
- March 25, 2008 STI/SPFA Water Tank Seminar, Atlanta, GA
- April 29, 2008 STI/SPFA Water Tank Seminar, Denver, CO
- September 22 - 26, 2008 STI SP001 AST Inspector Training Course, Baltimore, Maryland
- Visit our Calendar of Events periodically to view new courses

[\[Top\]](#)

## Contact STI/SPFA

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[\[Top\]](#)

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