



underground storage tanks (USTs) to prepare for a transition to 10-percent ethanol fuel mixtures in the Chicago marketing region. Bradley now works as principal of E&CM Systems, and executive director of the e-Petroleum Alliance, LLC. He can be reached at 630-260-7692.s underground storage tanks (USTs) to prepare for a transition to 10-percent ethanol fuel mixtures in the Chicago marketing region. Bradley now works as principal of E&CM Systems, and executive director of the e-Petroleum Alliance, LLC. He can be reached at 630-260-7692. Given the ongoing growth of ethanol, TankTalk asked Bradley about the maintenance implications for UST owners.

Q. Why should petroleum marketers clean their tanks before converting to ethanol?

A. Economically, it makes the most sense. If you ignore the need to clean your tanks there will be a much higher likelihood that an incident of phase separation will occur. The work we did at Amoco in the 1990s showed that by removing water and cleaning your tanks, you virtually eliminate phase separation. This type of preventive maintenance is much cheaper than removing thousands of gallons of useless product from a tank, lose business because your operations are shut down unexpectedly, clean and refill the tanks, and then pay for whatever problems your customers may have with their vehicles because of the phase separation and bad fuel.

Q. How were the tanks cleaned and what was done with the fuel as the tanks were cleaned?

A. At the Amoco locations we used a mobile, truck-based filtering system that did an excellent job of removing impurities. Depending upon the location and age of the tanks, the process took anywhere from one to four hours per tank. The fuel was recycled back into the tanks as it went through a multi-stage filtration process.

Q. During your role with fuel conversions in the Chicago area, what did you typically discover inside the tanks? Are there any major surprises or stories to share?

A. In addition to water, microbial contaminants and sludge, we found a lot of unusual debris – ballpoint pens, nuts, bolts, wrenches, screwdrivers, and even tampons – in the bottom of tanks. We surmised that individuals working on the tank would occasionally bend over and some of these things would fall from their shirt or jacket pockets into tank openings.

Q. Would you recommend that tanks be cleaned on a regular basis? If so, why and how often?

A. Based on what we saw in the 1990s, it's safe to say that a regular tank-cleaning program with an interval between 7 to 10 years would be about right. Suppose, for example, you spend \$2,700 to clean a typical three-tank service station installation, and you do this once every nine years. Your amortized cleaning cost will be roughly \$400 a year for a maintenance expenditure that provides a lot of customer satisfaction.

Q. Do you think that the tank-cleaning process extends the life of the tank or any other UST equipment?

A. There is no doubt that cleaner equipment has a longer lifespan. That

### [Courses Schedule is Under Development](#)

#### Level 1 - Tank Inspection Certification

#### Level 2 - Tank System Inspection Certification

Click the link above to see information about course content from 2005 courses. A new schedule will be posted on the STI web site as soon as it is completed, or you may contact Dana at 847/438-8265 x 246 to request a special seminar location.

### [2005 Cathodic Protection Tester Course Schedule](#)

March 29-30, 2005 Dallas, TX

April 12-13, 2005 Edison, NJ

April 19-20, 2005 San Antonio, TX

June 14-15, 2005 St. Paul, MN

Click the link above to register for these courses. Additional courses will be posted on the STI web site when they are scheduled. Or you may contact Claire at 847/438-8265 x 248.

### [2005 Water Storage Tank Seminars](#)

Midwest Regional Seminar - April 19, 2005, Columbus, OH

Western Regional Seminar - Tentatively scheduled for September 8, 2005 in California

Eastern Regional Seminar - October 18, 2005

Click the link above to register for the April course. Contact anne at 847/438-8265 x 233 for more information on additional courses.

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Tank Talk is published quarterly by

goes for the tank, meters, dispensers and filters.

Q. Did the project provide the results you were looking for (e.g., delivery of a high quality fuel)?

A. Amoco (now BP, plc) has taken great pride for many years in providing top-quality fuel to motorists. The maintenance work we did in the 1990s led to an ethanol transition in which we did not experience a single incident of phase separation. The money spent on that maintenance effort was well worth the investment.

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the Steel Tank Institute.

Jim Wisuri, Editor

Contributing Editors: Wayne Geyer, Lorri Grainawi, Anne Kiefer, Larry O'Shea, Dana Schmidt.

## **Frozen Tank Vents Probed in Missouri Bulk Plant AST Explosion and Fire**

Regulators in Missouri are cautioning aboveground storage tank (AST) owners and managers everywhere to beware of icy weather conditions that could affect the safe operation of vents.

Investigators are examining whether two frozen vents could have led to a bulk-plant fire in Marshall, Mo. – about 80 miles (129 kilometers) east of Kansas City – as a driver was unloading fuel from his truck into a standing 12,000-gallon (45,425-liter) AST.

The source of ignition may have been the idling tank truck, but that question is still under investigation.

The Jan. 7 incident, which led to the death of the truck driver, occurred during a period in which rain, mist and freezing temperatures could have caused the lockup of both the emergency vent and the primary pressure-vacuum vent of the AST.

Investigators believe the frozen vents led to over-pressurization. Without adequate venting, stored hydrocarbons will vaporize during a fire and strain the limits of an atmospheric-rated tank.

After the initial explosion, firefighters spent more than a day extinguishing a pool fire, which at times featured non-insulated tanks with burning product and vent-flame surges of 60 to 100 feet (18.3 to 30.5 meters) in the air, said John Albert, an investigator and trainer with the Missouri Department of Agriculture's Division of Weights and Measures. An elevated water cannon was used to extinguish the flames inside any tank containing ignited fuel.

In the bulk plant's yard, firefighters doused tanks on the trucks with water and foam to prevent additional explosions. The tower truck and three other unstaffed devices were used to spray water on tanks to keep vapor spaces

cool.

Investigators discovered a nine-inch split in the bottom of an AST that exploded initially, then again about 18 hours after the start of the blaze.

They are trying to determine the impact of the split on the overall blaze, which ultimately affected seven other nearby tanks – some storing various grades of gasoline and others diesel fuel.

Of the eight non-insulated atmospheric tanks exposed to a pool fire for about 32 hours, only one showed distortion, Albert said.

Fortunately for all involved, two 30,000-gallon (113,562-liter) propane tanks at the bulk-fuel facility were located far enough from the fire to remain unaffected.

About 50,000 gallons (189,271 liters) of gasoline and diesel – including about 8,000 gallons (30,283 liters) in the truck and the rest in the eight standing tanks – caught fire. As vent fires eventually developed, emergency vents on all of the other nearby ASTs operated as designed, Albert said.

Witnesses said the explosions could be heard several miles away, Albert said.

During January, the Division of Weights and Measures received reports of several other tanks in Missouri that experienced frozen vents. However, the Marshall incident was the most dramatic, Albert said.

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## **Maine Sunset Regulation Forces Tank Owners to Confront Warranty Questions**

Attention, underground storage tank (UST) owners in Maine: do you know when your tank warranty expires?

The question is gaining importance because a substantial number of motor-fuel and generator USTs buried prior to 1985 were delivered with 20-year warranties. Maine regulations – enacted in the mid-1990s – require that a UST be taken out of service when its warranty coverage ends, and properly abandoned.

“The regulation was equipment based, and we felt that no equipment lasts forever,” said Diana McLaughlin, environmental specialist IV. “Since the tank manufacturers use warranties as an expression of their confidence, we adopted it as a deadline.”

However, Maine’s regulatory-enforcement question isn’t easily answered.

“A lot of tank owners haven’t retained the manufacturers’ warranty information,” said Butch Bowie, an environmental specialist with the Maine Department of Environmental Protection (DEP).

In addition, a significant number of petroleum marketing locations have changed ownership at least once or twice – which increases the possibility of lost paperwork.

Maine since 1991 has required secondary containment for new UST installations. Many of the USTs installed in the late 1970s and early 1980s were single-wall construction.

The compliance strategy for the Maine DEP regulators will feed off of the state’s UST database.

“We plan to do advance-notification mailings to targeted tank owners,” McLaughlin said. “We have a database that includes literally every facility and the installation date the tank owner gave us.”

Owners and managers who face the need for removal will be given notice about a year in advance of any deadlines, McLaughlin said. The first deadline is Jan. 1, 2008.

Non-compliant tanks will be cited with a notice of violation, which could eventually lead to fines.

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### **Getting it Right: Pipe Fitting Leak Leads to Massive Connecticut Diesel Spill**

How many times has a “tank leak” story appeared in a local newspaper when the tank had nothing to do with the problem?

We’ll never know, though statistics from Florida have shown that underground storage tanks in that state have been the actual source of pollution only about 11 percent of the time during recent years.

Here’s an abridged version of an article from early January in which the local reporter, Scott Cornell of the New Britain (Ct.) Herald, got the story

right:

A faulty union on some piping connected to underground storage tanks at a truck stop in Milldale, Ct. caused a 30,000-gallon (113,562 liters) leak of diesel fuel, but should be completely repaired by the spring of 2005, according to truck-stop officials.

The diesel fuel had been leaking from the storage tank system since June of 2000, said a truck stop environmental associate. Since then, steps have been taken to decontaminate the site and replace the underground storage system.

"A union on some of the piping leaked and got out of the sump, and about 30,000 gallons of diesel fuel was found in the ground," the truck-stop official said. "The product has been removed, and we have a remediation in place to treat the groundwater by pumping the water out of the ground and cleaning it."

The tanks themselves never actually leaked, the official said. The pipe fitting was the cause of the problem.

The travel center is doing its part to comply with a cleanup order from the Connecticut Department of Environmental Protection, he said.

By springtime, the six old tanks should be removed and replaced by new ones, and groundwater should be completely free of any diesel product. Regulations in Connecticut require that tanks be limited to a 20-year service life.

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## **DOE Document Outlines Biodiesel Storage and Maintenance Issues**

A new U.S. Department of Energy (DOE) handbook offers counsel on issues that affect the storage and handling of biodiesel – both as a neat and blended fuel.

The publication 2004 Biodiesel Handling and Use Guidelines, a longer and updated version of a booklet first published in 2001, cautions tank owners and operators about the potential for 100-percent biodiesel (B100) acting as a solvent within storage tanks and cold-weather considerations.

### **Neat fuel issues**

"B100 is a good solvent," the DOE publication says. "It may loosen and/or dissolve sediments in fuel tanks and fueling systems left by conventional diesel over time."

"If you plan to use or store B100 for the first time, clean the tanks and anywhere in the fuel system where sediments or deposits may occur before filling with B100," the DOE publication says. "The level of 'cleaning' depends on the amount of sediment in the system (i.e., if the system is

sediment free there should be no effect) as well as the blend level of biodiesel being used.”

As a practical matter, B100 is seldom used in vehicles today. However, jobbers who create biodiesel blends for customers need to be aware of the potential need for insulated and heated storage systems.

The publication cautions that “B100 freezes at higher temperatures than most conventional diesel fuel and this must be taken into account if handling or using B100.”

B100 should be stored at temperatures between 5 and 10 degrees Fahrenheit higher than the cloud point of the fuel. Storage at 40 to 45 degrees Fahrenheit (4.44 to 7.22 degrees Celsius) is fine for most B100, although some B100 fuels may require higher storage temperatures.

As is the case with conventional diesel fuel, biodiesel faces the potential complications of gelling in colder climates. Those complications can escalate if storage tanks have not been purged of water, said Leland Tong, a consultant with MARC-IV Consulting, L.L.C. For both standard diesel and biodiesel, when tank and piping systems are inadequately insulated and heated, ice and gelled fuel can plug filters – which prevents a normal product flow.

“As B100 begins to gel, the viscosity also begins to rise, and it rises to levels much higher than most diesel fuel, which can cause increased stress on fuel pumps and fuel injection systems,” the DOE publication says. “Cold-weather properties are the biggest reason many people use biodiesel blends.”

### **Blend considerations**

Using biodiesel in a 20-percent blend (B20) can significantly reduce or eliminate concerns about sediments and cold-weather fuel-storage, the publication says.

“The cleaning effect is much greater with B100 and blends with 35 percent or more biodiesel, compared to B20 and lower blends,” the publication says. “Most people do not clean their tanks before B20 use, although it is still wise to keep some extra filters on hand and monitor potential filter clogging a little closer than normal when first starting up with B20.”

“Blends of 20-percent biodiesel or less minimize any cleaning effect or solvency issues with accumulated sediments in tanks, although minor filter plugging may be observed during the initial weeks of B20 use in some cases.”

“Blends above 20 percent should always be stored in clean, dry tanks as recommended for conventional diesel fuel. Using B20 for a year or more will probably not ‘clean’ your tanks and is not a substitute for a thorough tank cleaning when preparing for higher level blends or B100 storage.”

The entire DOE document is available at <http://www.nrel.gov/docs/fy05osti/36182.pdf> .

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## **29 Percent of Gasoline Samples in Michigan Failed Quality Testing in 2004**

A statewide inspection initiative in Michigan last year found that 29 percent of gasoline samples had failed to meet minimum quality standards, according to the Saginaw News.

Fifty service stations were fined during the four-month inspection period for repeated violations between May 1 and Sept. 7. The 50 stations – among 953 tested – received fines for violations related to problems with water, octane, vapor pressure, product misrepresentation or product contamination.

State officials had boosted inspections by 30 percent in an operation during the summer's peak driving season as fuel prices spiraled above \$2 a gallon.

An official with one Saginaw area convenience store operator told the newspaper that water condensation in underground storage tanks is a problem faced by all gasoline retailers.

Typically, tank monitors alert clerks that water is building up inside the storage vessel. Workers are instructed to pump out the tank and refill it with undiluted gasoline. "We have a very nice tank monitoring system for our stations," the convenience store chain executive said.

Michigan inspectors rechecked all retailers who received warning letters to ensure that violations were corrected. Many violations resulted from inadequate maintenance of equipment. "I don't think we see any evidence of intentional violations, but the end result to the consumer is the same," a Michigan regulator said. "So we take enforcement action when that occurs."

<http://www.mlive.com/news/sanews/index.ssf?/base/news-13/1102089019315410.xml>

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## **SP001 Committee Considers Risk-Based AST Inspection Standards**

Last summer, Steel Tank Institute formed a new committee to review and update its standard for inspection of shop-fabricated tanks, SP001-03, Standard for Inspection of In-Service Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids.



This committee is composed of a balanced group of environmental regulators, tank owners and users, inspectors and manufacturers. They have met for one- or two-day sessions on five occasions and engaged in numerous teleconferences of smaller groups. All meetings have been productive and full of lively discussion with all points of views presented.

The new standard will link inspections to a risk-based matrix. This means that facilities with extensive safeguards in place to prevent, detect and contain spills from tanks will face less-frequent inspections than those facilities with fewer protective measures.

The committee is considering

- Expansion of the SP001 standard to include inspection of portable containers and of field-erected tanks up to 30 feet (9.14 meters) in diameter – and a maximum capacity of 300,000 gallons (1,135,624 liters)
- Expansion of tank-owner inspection checklists
- A modified inspection criteria and frequency sequence based on risk
- Addition of several new definitions
- The development of leak-testing criteria

The committee is on track to issue a revised edition later this year.

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### **West Side Story: Albuquerque Buses Count on Permatank for Unique Storage Solution**



The West Side Transit Facility called for Permatank last year to meet a unique storage challenge. Serving buses in the local mass-transit district, the facility needed underground storage capacity for both fleet fueling and a backup-generator system.

So, one 50,000-gallon (189,271-liter) Permatank – divided into two

compartments – wound up serving three uses:

- To provide diesel fuel for buses, a 40,000-gallon (151,416-liter) compartment was created.
- Feeding off the same massive compartment were pipes connected to the backup generator.
- A 10,000-gallon (37,854-liter) compartment provided unleaded gasoline for smaller mass-transit district vehicles.

Also installed about 500 yards (457 meters) away as part of the facility's overall storage plan was a 5,000-gallon (18,927-liter) Permatank.

Built by TECSA and installed by Eaton Sales and Service, LLC, the two Permatank® vessels show the flexibility of steel in addressing underground storage systems both large and small.

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## **Maryland Enacts Emergency Regulations for MTBE, Other Petroleum Products**

Emergency regulations – carrying the weight of law until late July – were approved in January for certain parts of Maryland to prevent MTBE (methyl tertiary butyl ether) and other petroleum products from reaching groundwater supplies.

The regulations, unanimously approved by the state's Joint Committee on Administrative, Executive and Legislative Review, required more frequent underground storage system testing for vapors – as well as liquid leaks and rigorous safeguards against environmental releases.

The regulations call for the maintenance of a -0.5 inch (-12.7 millimeters) water-column vacuum within an underground storage tank (UST), which is patterned after requirements established by the California Air Resources Board (CARB). (Editor's note: meanwhile, CARB is seeking public comment on proposed tougher requirements for vacuum settings.)

The emergency regulations took effect on Jan. 26 and will remain active for six months. The Maryland Department of Environment (MDE) published the regulations in the Maryland Register and planned to adopt them under a normal regulatory process that would include a public hearing and comment period.

The emergency regulations required installation of double-walled pipes on all new regulated motor fuel underground storage systems and built-in sensors to warn of leaks. The emergency regulations also required increased groundwater sampling, regular testing of tanks and fittings, and procedures for gas station owners and others to follow when underground storage systems are suspected of contaminating groundwater.

The regulations apply in areas where wells are the primary source of

household drinking water and local geology makes it impractical for homeowners to find an alternative water source. MDE planned to identify the areas and notify affected tank owners or operators.

Service stations and other underground storage facilities in affected areas had until late February to begin quarterly sampling of water in on-site domestic wells and tank field-observation pipes. They were also required to conduct annual tightness tests for fittings in catchment basins and containment sumps.

Additionally, they faced mandates for installation and sampling of three groundwater monitoring wells. Results must be reported to MDE.

If MTBE at levels greater than 20 parts per billion (ppb), more than 5 ppb of benzene or more than 100 ppb of total BETX (benzene, toluene, ethyl benzene and xylenes) were found in the monitoring wells, the operator was required to develop a corrective action plan. They were also required to perform an advanced helium leak-detection test, which would identify vapor leaks.

In addition to repairing all leaks immediately, the operator was required to install a soil vapor- extraction system in the tank area or other advanced technology to keep vapors within the tank system.

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### **Newsletter Article Examines Data on Remote Reference Cell Placement**

Kevin Henderson of the Mississippi Department of Environmental Quality has published a lengthy article on the value of remote placement of reference cells when conducting cathodic protection testing.

“While it is important to realize that many factors must be considered when testing the structure-to-soil potential of a cathodically protected tank, reference cell placement is of critical importance,” Henderson says in the piece.

The article – available at [http://www.neiwpc.org/PDF\\_Docs/lustline\\_48.pdf](http://www.neiwpc.org/PDF_Docs/lustline_48.pdf) – begins on Page 28 in the November 2004 edition of L.U.S.T.Line, a publication of the New England Interstate Water Pollution Control Commission.

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### **Cracked UST Costs Local School District**

A local school district in Torrington, Ct. had to replace a cracked underground storage tank last fall because it was allowing groundwater to seep in, according to the Republican-American newspaper in nearby Waterbury.

The partially filled fiberglass-reinforced plastic tank did not leak because the cracks were in the upper quadrant. However, the tank stored oil used in a school boiler, which wouldn't fire up during pre-winter testing because of excessive water that had entered the vessel via gravity.

The replacement of the cracked 12,000-gallon (45,425 liter) tank was a 6,000-gallon (22,712 liter) aboveground storage tank. The \$85,000 to remove and replace the UST originally had been earmarked for parking-lot repairs and a new tractor for lawn care and snow plowing.

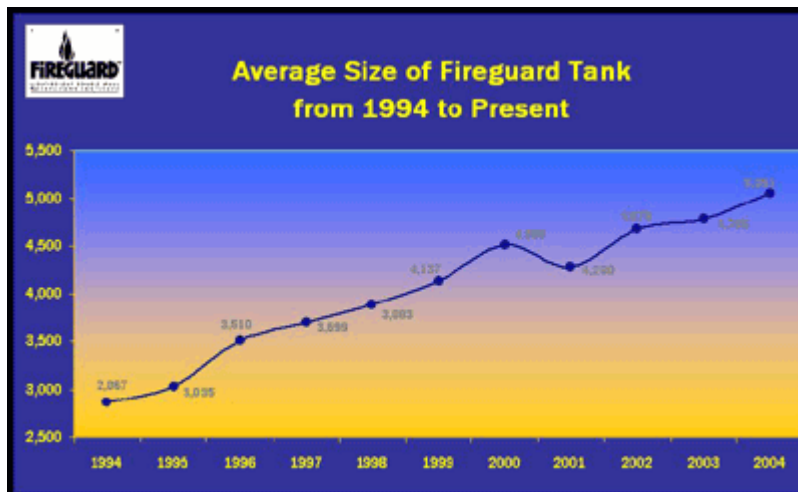
When the top of the tank was uncovered, workers discovered both new cracks and older imperfections that had been patched since it was buried in 1976. Repair records for the patches could not be found, a school district official said.

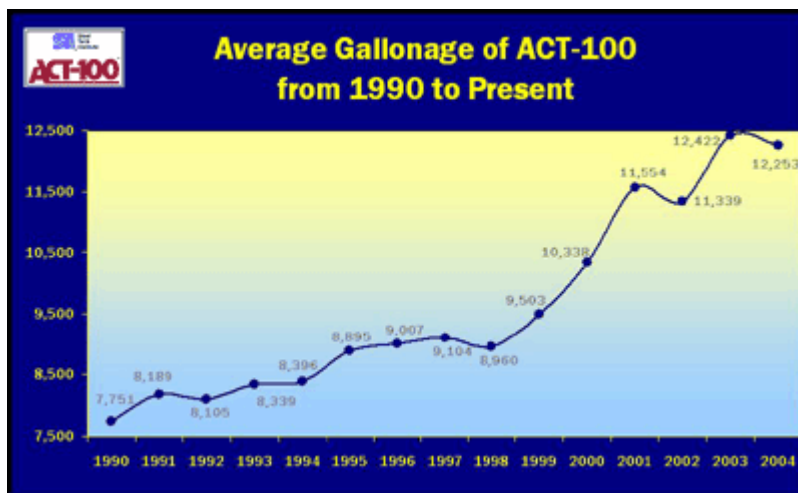
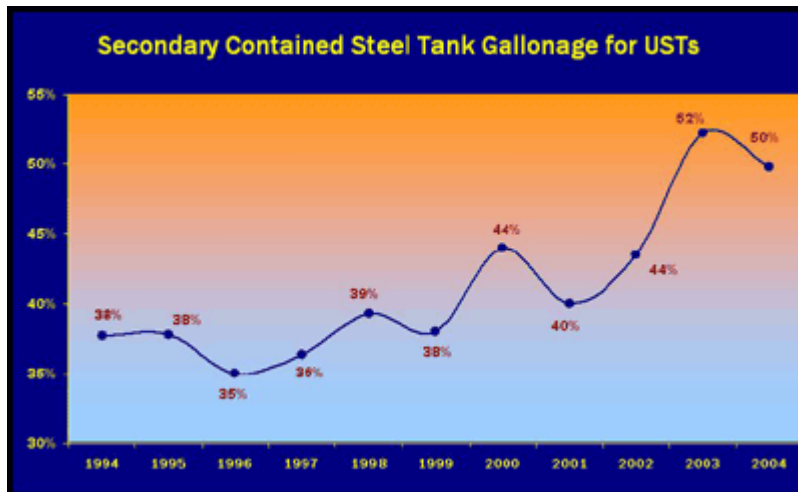
The aboveground tank will be easier to monitor and less expensive, the official said.

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### Three Key Trends Reshape the Storage Tank Industry





The trends in the storage tank industry are clear when you examine the numbers over a number of years.

Steel Tank Institute registration data compiled into the charts preceding this article tell the story of the industry's evolution as environmental regulations and fire-safety codes have redefined the marketplace.

Fanning the flames for Fireguard® – During the last decade, the forces that advanced fire-rated aboveground storage tanks have also led to steady growth in average tank capacity, from 2,867 gallons (10,853 liters) in 1994 to 5,051 gallons (19,120 liters) in 2004. That's a 76-percent increase.

A bigger story for composite tanks – The average capacity of an ACT-100® tank has climbed by 58 percent, from 7,751 gallons (29,341 liters) in 1990 to 12,253 gallons (46,383 liters) in 2004.

Driving the demand for secondary containment USTs – The total annual gallonage of new steel underground storage tanks manufactured with secondary containment technology has jumped by about one-third since 1999.

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## **New Software Expedites Sizing of AquaSweep Oil-Water Separators**

The Steel Tank Institute has recently developed new software to aid its licensees in the sizing of the AquaSweep oil-water separator. This new software enables STI licensees to determine the exact size that will meet a customer's requirements.

Given influent characteristics such as oil parts per million, oil type (diesel, motor oil) and flow rate, the program will determine the tank size and the appropriate locations of coalescers and other equipment inside the oil-water separator.

In addition, by providing data on the drainage area of an installation site, a proper unit size can be determined. The unit can also be sized to meet any effluent characteristics, such as oil parts per million, that may be required by local authorities.

An AquaSweep licensee can use the program to evaluate each of the five STI-approved separator model designs to meet customer expectations for optimum performance.

STI performed extensive testing of the five models to develop the data points necessary for the software's calculations. This involved subjecting a test unit to various influents and conditions and analyzing the effluent obtained. Each of the models was tested with a variety of oil concentrations and conditions.

Contact an AquaSweep licensee for more information. A list of fabricators is available at <http://www.steeeltank.com/locator/Default.htm>

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## **Steel Facts**

In Texas, a metal roof can lower your homeowners insurance by up to 35 percent. <http://www.steel.org/facts/metalroofing.htm>

In cooperation with the Federal Highway Administration and the U.S. Navy, the American Iron and Steel Institute's member companies developed High Performance Steel (HPS), a new bridge steel plate technology that weighs up to 28 percent less than conventional steel bridge design materials, totaling savings to state transportation departments of 18 percent. Today, there are 200 HPS bridges in various stages of service, design and construction in 38 states. <http://www.steel.org/facts/Transportation.htm>

Making tin cans from recycled steel takes only one-fourth of the energy

needed to make them from new steel and created only one-fourth of the water and air pollution created by making cans from new steel.

[http://www3.niu.edu/recycling/alum\\_facts/page2.html](http://www3.niu.edu/recycling/alum_facts/page2.html)

The walls and bottom of 1.5-acre earthen impoundment for a wastewater-treatment facility in Augusta, Ga. were covered with a carbon steel lining – featuring continuously welded 160 square foot (14.9 square meter) plates – to create a 4.5 million-gallon (17,034,353-liter) lagoon.

[http://www.pollutionengineering.com/CDA/ArticleInformation/features/BNP\\_Features\\_Item/0,6649,142682,00.html](http://www.pollutionengineering.com/CDA/ArticleInformation/features/BNP_Features_Item/0,6649,142682,00.html)

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## Industry Conferences & Meetings

March 21-24, 2005

Industrial Fire World Conference & Exposition, Corpus Christi, Texas,

<http://www.fireworld.com/conference.html>

April 3-7, 2005

NACE International, Corrosion/2005, Houston, Texas

<http://www.nace.org>

April 7-8, 2005

Safe Tank Work Practices Workshop, American Petroleum Institute, Richmond, Calif.

[ernyw@api.org](mailto:ernyw@api.org)

April 26-28, 2005

American Welding Society, 2005 Welding Show, Dallas, Texas

<https://s12.a2zinc.net/clients/aws/aws2005/>

May 11-13, 2005

National Institute of Storage Tank Management, Annual International Conference on Aboveground Storage Tanks, Orlando, Fla.

<http://www.nistm.com>

June 6-10, 2005

Independent Liquid Terminals Association Conference and Trade Show, Houston, Texas

<http://www.ilta.org>

June 12-16, 2005

American Water Works Association, Ace 05 Conference and Exposition, San Francisco, Calif.

<http://www.awwa.org/ace2005>

Aug. 21-24, 2005

American Society of Civil Engineers, Pipeline Conference 2005, Houston, Texas

<http://www.asce.org/conferences/pipelines2005/index.cfm>

Oct. 29-Nov. 1, 2005

National Association of Convenience Stores, 2005 NACS Show, New





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>

Steel Tank Institute Water in Fuel Tanks Research

<http://www.steeltank.com/library/pubs/waterinfuel tanks.pdf>

### **Federal Regulatory Agencies**

U.S. Department of Energy Alternative Fuels Data Center

<http://www.eere.energy.gov/afdc/index.html>

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, MTBE and Underground Storage Tanks

<http://www.epa.gov/swerust1/mtbe/index.htm>

U.S. Environmental Protection Agency, Oil Program, Spill Prevention Control and Countermeasure

<http://www.epa.gov/oilspill/spcc.htm>

### **State Regulatory Agencies**

California Air Resources Control Board

<http://www.arb.ca.gov/homepage.htm>

U.S. Environmental Protection Agency database of state UST program websites

<http://www.epa.gov/swerust1/states/stateurl.htm>

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

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

American Society for Testing and Materials <http://www.astm.org/>

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

International Fire Code Institute <http://www.ifci.org/>

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

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

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

Underwriters Laboratories Collaborative Standards Development System

<http://csds.ul.com/Home/Default.aspx>

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

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