



## Cracked Tank Flange on Marco Island Leads to Inquiry

After Hurricane Rita ripped through Southern Florida, a cracked underground storage tank (UST) flange on Marco Island in Florida further disrupted the September boating season and raised concerns about environmental impact, according to the Naples Daily News newspaper.

While officials in Florida's Collier County said their evaluation determined that the ruptured tank had not caused serious pollution to the clear waters and habitats in Caxambas Pass, a report from the Florida Department of Environmental Protection differed.

In the wake of the leak, which was at least partially caused by a storm surge, hundreds of boaters who use the park's boat ramp discovered that the launch facility and the park might not re-open for several weeks, a county official said.

The leak from a 10,000-gallon fiberglass-reinforced plastic tank occurred during the afternoon of Sept. 21, county officials said. The 10-year-old UST was near the concession building in the waterfront park. The tank was removed for testing to determine why a flange and other system components ruptured. Upon completing of the failure analysis, the tank was slated for disposal at a county landfill.

Collier County pollution control officials were notified of the problem on Sept. 22, and discovered then that the tank's mounting flange, piping and electrical conduit had been ruptured. "Tidal influences floated an unknown amount of fuel out of the ruptured flange during unusually high tides influenced by storm surge from Hurricane Rita," a county report said.

Though local officials said the tank contained almost 9,700 gallons (36,708 liters) on Sept. 21, the leak was discovered the following morning as employees arrived for work. After the park had been closed, about 3,800 gallons (14,380 liters) of gasoline and water were pumped out of the tank.

"We would have to estimate that up to 500 gallons (1,892 liters) of unleaded gasoline might have seeped into the bay following the discharge event," DEP Waste Cleanup Program Director Wayne Marsella said in a Sept. 26 report. "An additional 6,000 gallons-plus (22,706 liters or more) is suspected to have accumulated and saturated the soils within the (tank) and seawall compound" at the park's seaside boat ramp, Marsella said.

Some of the soil saturation could have occurred from an overflow incident on Sept. 21, the newspaper reported.

Environmentalists were concerned about the effect of the leakage on marine habitat near the park that is home to sea creatures such as the manatee.

County officials gave preliminary indications that they would consider an

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aboveground storage tank as a replacement.

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## Hiatus Ends: Energy Bill Mandates State UST Inspections

If your regulated underground storage tank (UST) system has not received a visit from state inspectors, it will – sometime during the next two or three years.

The Domenici-Barton Energy Policy Act of 2005, signed by President George W. Bush in August, includes mandates for state inspection programs to assure compliance with federal UST regulations.

The legislation calls for any regulated USTs that have not been inspected since Dec. 22, 1998 – the deadline for tank owners to comply with the federal regulatory program – to be visited by state inspectors by August 2007, and every three years thereafter.

All regulated USTs must be placed on a routine three-year inspection cycle, the new law says.

States that can demonstrate a lack of resources to conduct inspections within three years can apply to the U.S. Environmental Protection Agency (EPA) for a one-year extension to meet the requirement. However, EPA is not obligated to grant any extensions.

A key challenge to the new federal law, according to the Petroleum Marketers Association of America, is that only 19 states have regulatory programs with capabilities to meet the three-year inspection mandate.

Another challenge for states is how to choose between requiring secondary containment or mandating financial responsibility for equipment manufacturers or installers for systems installed near water wells.

In addition, states will need to prepare for criticisms that may arise when inspections become more frequent, which inevitably will lead to non-compliance fines. For instance, the Texas Commission on Environmental Quality (TCEQ) was the target of Henderson County commissioners in July when elected officials were informed of a \$2,480 fine assessed for underground storage tank violations, according to the Athens Daily Review newspaper.

Commissioners were particularly incensed because the fines were for paperwork infractions. "TCEQ needs to protect Mother Earth, but this is ridiculous," said one commissioner. "They came out here and had to find something. There was no leak and no fuel spill, but they said the tanks were out of compliance."

The official language from the energy bill can be accessed at <http://thomas.loc.gov/cgi-bin>. Section 1523 provides information on UST system inspection.

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## STI Announces New Fabrication Standard for Double Tank Bottoms

Steel Tank Institute has created a new way to provide secondary containment on both underground and aboveground storage tanks.

The STI Standard for Double Bottom Tanks, F051, has been developed for the addition of an external second tank bottom to underground and aboveground atmospheric steel storage tanks. The standard addresses the manufacture, inspection and testing of double bottom tanks prior to shipment.

“The concept of a double bottom increases the service life of a single-wall tank, but without the added cost of a double-wall tank,” said STI Technical Committee Chairman Tim Woofter of Stanwade Metal Products. “The second bottom creates an interstitial space where product can be detected and contained.”

A release from today’s well-constructed steel storage tank is extremely rare. However, history has shown that nearly all such releases occur at the bottom of the tank, whether it is above or below grade.

Monitoring of the interstitial space of a double bottom UST does not relieve tank owners of meeting the EPA’s 40 CFR Part 280 requirements for release detection since it is not monitoring all liquid containing surfaces of the primary tanks.

The storage of certain hazardous chemicals requires complete containment of the primary tank by federal law. Some state and local regulations also require complete secondary containment of all fuel storage components.

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## Massachusetts Tanks Probed for Water, Brine

Vehicles that failed to run after refueling have led to investigations of underground storage tanks (USTs) during September at two separate retail locations in Massachusetts.

Water was the suspected reason for the stalled vehicles at a service station in Raynham, according to the Worcester Telegram & Gazette newspaper.

Salt brine was the leading suspect of similar problems at a station in Auburn, according to WCVB-TV in Boston.

<http://www.thebostonchannel.com/news/4974911/detail.html>

State officials inspected a retail site in Raynham to determine how a UST there became contaminated with water, the Worcester Telegram and Gazette reported.

The station on Route 138 closed after a motorist complained of engine problems after fill-up.

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### STI/SPFA NEWS

#### [STI/SPFA Calendar of Events](#)

Click the link for a complete listing of current course offerings. Brochures, course information, educational requirements and location information is available for each course. Register online using our secure site. Check back often as courses are added frequently.

#### [2005 AST Inspector Training Courses](#)

Baltimore, Maryland  
Level 1&2 Tank Inspection  
Certification  
December 12-16, 2005

Level 2 ONLY  
December 14-16, 2005

Contact Dana at 847/438-8265  
x 246 to request a private  
seminar.

#### [2005 Cathodic Protection Tester Courses](#)

Contact: Claire 847/438-8265  
x 248.

#### [2006 Water Storage Tank Seminars](#)

February 7, 2006  
South Bay Area California

February 9, 2006  
Orange County Area  
California

Contact: Anne 847/438-8265 x  
233.

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570 Oakwood Road  
Lake Zurich, IL 60047

A Massachusetts official said the water likely accumulated in the tank because of condensation, or leaked in through a tank opening during a recent heavy rainstorm.

Of the two consumer complaints, the service station's owner had either paid for repairs or was awaiting estimates of any damage caused by the contaminated gas.

If inspectors discover a crack in the tank that let in groundwater, the Office of Consumer Affairs will seek help from the Department of Environmental Protection, the state official said.

About 50 miles away in Auburn, the local fire chief said they are investigating if a double-wall tank leaked and allowed salt brine to mix with gasoline in the primary containment vessel, WCVB-TV reported.

A local service station was pinpointed as the source of discolored and cloudy gasoline that resulted in engine breakdowns.

Local repair-shop officials said customers all reported malfunctions after fueling up at the same location.

A spokesman for the service station owner said they were aware of the complaints. The oil company was investigating the problems and pledged to take care of customers.

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847/438-8265

[info@steeltank.com](mailto:info@steeltank.com)

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## Chicago Fleet Adds E85 Tank Systems



Increasing numbers of vehicles in the Chicago municipal fleet are filling up with E85 (85-percent ethanol), which prompted city officials earlier this year to add special aboveground storage tank systems to enable storage and handling of the cleaner-burning fuel.

The Chicago municipal Department of Fleet Management is attempting to lead by example by establishing and promoting policies that sustain a fuel- and energy-efficient fleet.

The policies and procedures are part of Mayor Richard M. Daley's Green Fleet Action Agenda, which is designed to make Chicago a better and cleaner place to live, work and raise a family.

With an eye on environmental protection and saving taxpayers money, the Chicago Department of Fleet Management this year has added storage and handling capability for fuels that are 85-percent ethanol (E85).

The addition of four new 1,000-gallon (3,784-liter) Fireguard aboveground storage tanks and affiliated equipment at various municipal fueling sites underscores the city's commitment to expanding the use of cleaner-burning fuels, said Commissioner Howard Henneman. But the rising price of gasoline – compared to the price of fuel ethanol – has added another good reason for drivers of the city's 200 flexible-fuel vehicles to use E85.

Flexible-fuel vehicles are light-duty vans, sports utility vehicles and sedans that have been manufactured in recent years with the ability to run on standard gasoline blends or E85. (This link provides information about manufacturers and individual models of flexible-fuel vehicles:

<http://www.e85fuel.com/e85101/flexfuelvehicles.php?topic=For%20Fleets>)

In addition to the four geographically dispersed E85 fueling locations that began operating in Chicago this year, another tank system is being installed at O'Hare International Airport, said John Yarish, projects administrator for the fleet management department.

Funding for the municipal E85 tank systems was provided through the Clean Cities program of the U.S. Department of Energy.

Because of existing equipment at the municipal fueling sites, "we wanted to make sure the E85 dispensers and pulsers integrated successfully with our fuel management system," Yarish said.

Another key concern was to ensure that all tank-system components were compatible with E85, said Steve Berning, president, Accurate Tank Technologies, Inc. of Naperville, Ill., which installed three of the four E85 tank systems in Chicago.

Local codes permit a maximum AST capacity at any fueling site of 2,000 gallons (7,569 liters). This gives Chicago officials some leeway in future expansion of E85 usage.

The E85 tanks are part of the Chicago's Mega Fuel Site program, which in the mid-1990s began consolidating 63 scattered fueling sites for the city's vehicles into 14 locations. The new sites minimized environmental risk by closing down older storage tank systems, and were located so that most municipal employees would not have to drive more than two miles to reach a fuel dispenser.

Mega site No. 15 is on the drawing board to start operations in 2007.

Chicago's municipal vehicles combine to use about 12 million gallons of gasoline, diesel and E85 fuels per year.

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## **New Tank System Incentives Flow From Energy Bill**

The federal Energy Bill signed by President George W. Bush in August included provisions for increased use of alternative fuels such as ethanol and biodiesel, while recognizing the need to expand the national infrastructure for fuels with home-grown additives.

"The bill will help triple the number of E85 ethanol fueling stations in the next year by providing a tax credit for their construction," said U.S. Sen. Barack Obama (D-Ill.), who represents a state with sizable corn and soybean interests. "This will help the millions of people who already drive flexible-fuel vehicles to fill their tanks with fuel made from 85 percent ethanol that is 50 cents cheaper than regular gasoline."

Provisions of the Energy Bill that also could affect storage-tank systems include:

- A 30-percent federal income tax credit, up to \$30,000 to assist with the establishment of alternative fuel infrastructure. This provision becomes effective on Jan. 1, 2006 and will be available for two years. The credit will enable service station owners to pay for new equipment compatible with the alternative fuels or convert system components, as appropriate.
- A requirement that federal fleets purchase alternative fuel for use in their alternative fuel vehicles.
- Excise-tax incentives for the blending and use of biodiesel.

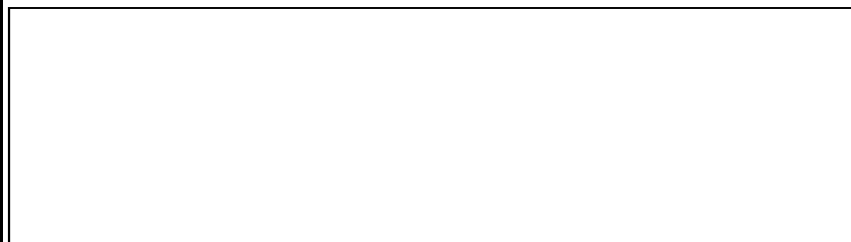
The excise tax credit is a penny per percentage point of biodiesel blended with petroleum diesel for "agri-biodiesel," such as that made from soybean oil, and a half-penny per percentage for biodiesel made from other sources.

The credit is taken at the blender lever with the intended effect of lowering the cost of biodiesel to consumers in taxable and tax-exempt markets, according to the National Biodiesel Board.

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## **BioWillie Tanks**





Creating a unique image for biodiesel fuel, the BioWillie brand at this location has developed integrated aboveground storage and fueling units with a distinctive mural on the tank exterior. This unit is in Carl's Corner, Texas.

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## Ohio County's Inspections Uncover Fuel Quality Problems

Fuel-quality testing in Summit County, Ohio gas stations this year has found dozens of violations, including water and sediment in storage tanks, and gasoline that failed to meet octane standards, according to the Akron Beacon Journal newspaper.

No citations were issued against any stations in this first round of testing. County officials wanted to give businesses a chance to correct problems before issuing fines.

The Summit County Council in October 2004 passed a measure to allow fuel quality testing in the county, which is not a state requirement.

Testing began in June, and after three months inspectors had checked 230 gas stations and found 502 violations. More than 80 percent of infractions were for debris on the spill rims of underground storage tanks (USTs) containing gasoline and diesel fuel. "There were frogs, cigarette butts, rags, other debris, leaves, water and gasoline," said Helen Fusco, director of administration for the county fiscal office.

Although spill-rim violations can lead to contaminated fuel, they are not a violation under the county's laws. More serious violations included three instances of gasoline that did not meet octane standards, 26 cases of water in underground tanks, and 35 instances in which fuel had no octane labeling.

No tests revealed sediment in any fuel. However, sediment was discovered 18 times in underground storage tanks. Sediment in storage tanks alone is not a violation in Summit County, as long as it does not pass through to the pump.

A county official said a second round of testing will begin soon. Plans call for stations to be tested three times a year. Penalties for violations can range from a citation to fines to a stop-sale order on pumps. [http://www.rednova.com/news/display/?id=242075&source=r\\_science](http://www.rednova.com/news/display/?id=242075&source=r_science)

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## Canadian Province and Association Give Away Oil to Promote Tank Inspection

Five homeowners on Prince Edward Island received \$500 (Canadian) of heating oil this year – simply for having their oil tanks inspected and tagged by regulators.

The Prince Edward Island Department of Environment, Energy and Forestry and the Canadian Oil Heat Association partnered on an initiative that dramatically boosted awareness of the need for tank inspection. At the start of the promotion, about 35,000 heating-oil tanks in the province had not been inspected and marked with an identification tag.

Prince Edward Island leaders changed provincial regulations in 2001 to help eliminate the most common preventable causes of domestic oil spills – internal corrosion on tanks that are too old and improper tank installation, including inadequate weather protection.

The random-drawing promotion of the oil giveaway program resulted in a 73-percent annual increase in tank inspections for the period of March 1 to Aug. 19, said Ralph Moore, coordinator, Home Heat Tank Program.

Last year, 2,744 tanks – typically under 2,200 liters (580 gallons) and including obround tanks – were inspected and tagged during that time frame, but this year the number rose to 4,764.

“With additional reports being received on an almost-daily basis, I feel that once all inspection reports for 2005 are received the program will realize a 100-percent increase for the contest period over the same period in 2004,” Moore said.

The 22,000 tanks already registered have the following profile:

### **Piping**

Bottom outlet – 49.72 percent  
End outlet – 48.94 percent  
Top outlet – 1.33 percent

### **Gauge**

14 -- 58.03 percent  
12 -- 41.15 percent  
Corrosion-resistant -- 0.82 percent

### **Location**

Inside - 69.67 percent  
Outside - 30.33 percent

Regulations require that all oil tank systems be examined by a licensed inspector to ensure compliance with provincial standards, and tagged to indicate the date by which the tank system must be replaced.

During the first four years of the program about 15,000 tanks had been inspected and tagged.

Prince Edward Island, the smallest of Canada's Atlantic provinces, was the first province or territory in the nation to have regulations on home heating tank installation and replacement.

Price Edward Island regulations mandate a maximum 15- to 25-year life on non-corrosion resistant tanks. Tanks with bottom openings have an extended life of five additional years versus end-outlet tanks. Any tank with 12 gauge thickness (2.36 mm or 0.093 inch) also is granted an extended life of five additional years versus thinner-wall tanks.

Funding for the oil giveaway promotion was provided through the Atlantic provinces' portion of the Canadian Oil Heat Association's national marketing fund, which includes contributions from major oil companies and independent firms that are members of the oil heat group.

For more information on the Prince Edward Island home heating tank safety program, click on [http://www.gov.pe.ca/photos/original/eef\\_homeheatbro.pdf](http://www.gov.pe.ca/photos/original/eef_homeheatbro.pdf)

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## **Careful Tank Installation Remains a Key in Oil Heat Industry**

The importance of proper tank installation cannot be overemphasized in the heating oil industry.

Oil & Energy magazine in its July 2005 edition cited the remarks earlier this year of John Levey, who authored the Guide for Quality Installation and Maintenance for the National Oilheat Research Alliance.

"A poorly installed oil tank is always going to become a problem," Levey told attendees of a seminar at the National Association of Oil Heating Service Managers Conference.

An independent review of industry practices demonstrated that installation techniques need improvement, Levey said. Post-installation tank inspection should be combined with more training on proper installation methods and greater adherence to tank-system operating instructions.

Levey made several specific recommendations on ways to improve oil-tank installation:

- Select a tank size based upon calculations of one-third of a customer's annual consumption

- Place the heating oil tank inside whenever possible to avoid temperature swings and a possible build-up of condensation
- Transport tanks with care
- Store tanks inside before installation – again to decrease the possibility of condensation
- A dealer should inspect a tank upon receipt and before starting installation
- When filling a tank initially, have a service technician or installer present to monitor tank performance
- Install tanks at least two inches from any walls to enable inspection and maintenance ease

“If we don’t proactively replace tanks before they fail, we’re putting our businesses on the line,” Levey said. “The Achilles heel of this industry is not the tank. It’s the reluctance of the industry to replace it.”

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## **New Fuel Oil Tanks Publication, Video are Completed**

The National Oilheat Research Alliance (NORA) has published the Heating Oil Storage Tanks Guide for Quality Installation and Maintenance and a companion video.

The 266-page book is a thorough compilation of procedures and heating oil storage tank information. The cost is \$20 per manual, including one pocket-sized service guide.

The new publication is available for online purchase through NORA at [https://www.norastore.org/online\\_shop.cfm#c20](https://www.norastore.org/online_shop.cfm#c20).

The companion video also is available for \$4 at the NORA online store.

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## **How Close is Europe to Common Standards for Fuel Station Equipment?**

The costs of building a filling station on either side of the English Channel only a few years ago were vastly different – primarily because the regulations in France were poles apart from those in the United Kingdom.

Today, standardization of fuel handling and storage systems is decreasing any pricing differentials as European regulations increasingly point toward common

methods of construction, installation and maintenance in 28 nations.

Jamie Thompson, technical chairman of the European Service Station Committee (CEN), has authored an article for *The Bulletin* (Journal of the Association for Petroleum and Explosives Administration) on the new standards enacted during the last decade, and proposed changes still on the table throughout Europe, for tanks, dispensers, overfill protection and a wide variety of storage-system components.

[Click here](#) for a link to the complete piece.

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## **Corrosion Group Weighs in with New Guidance on Remote Readings**

NACE International, the world's leading corrosion association, recently shed some new light on the question of remote reference-cell placement when testing cathodically protected underground storage tanks.

NACE was responding to three questions that focus on the most effective locations where a reference cell could enter when cathodic protection is tested using a reference cell and a voltmeter.

The NACE document provides another chapter in the ongoing debate among various state regulatory bodies about the acceptance of a remote reading – at least 25 feet away from the tank – with cathodically protected tank systems that use galvanic anodes.

However, some authorities prefer that several readings be taken at grade – incrementally spaced over the tank top.

Tank Talk last visited this topic in depth in a March 2005 article by Kevin Henderson of the Mississippi Department of Environmental Quality. Henderson discussed the value of remote placement of reference cells when testing galvanic cathodic protection tank systems.

[http://www.steeltank.com/\\_synmrkmail/messages/tanktalk\\_vol20\\_number1.html#10](http://www.steeltank.com/_synmrkmail/messages/tanktalk_vol20_number1.html#10)

Anodes on sti-P3® tanks are normally attached to the bottom of the tank head. This means the tank top surface furthest away from the anodes is the most likely area to get inadequate corrosion protection. Hence, the logic used is that if a protective reading is obtained here, then the entire tank must be protected from corrosion.

However, between the reference cell placed at grade above the tank and the tank's top surfaces are factors that can impact the accuracy of such readings, such as a concrete slab, non-conductive soil (due to the presence of hydrocarbons or dry granular soils) and interference from pipe, conduit and sumps. A reading remote from the tank normally avoids these factors and takes a snapshot of the entire tank, rather than the top surfaces.

Since 1988, STI has taken more than 100,000 cathodic protection test readings as part of its Watchdog program with earlier installed sti-P3® tanks. Today, cathodic protection testers take at least one reading over the tank, preferably near the mid-point of the tank, and one reading remote from the tank, usually at least 30 feet away.

The two readings combine to provide a better “picture” to STI of whether the tank is getting proper protection on galvanic corrosion protection systems. (Note: normally a remote reading is not used with impressed current systems.)

Due to the controversy, STI asked NACE International for an interpretation of NACE recommended practices. On Sept. 14, 2005, NACE responded to STI that its Specific Technology Group (STP) 35 had formulated a response to three specific questions related to the TM0101-2001 document.

TM0101-2001 is a NACE International standard test method that provides descriptions of the measurement techniques and cautionary measures most commonly used on underground tanks to determine whether a specific criterion has been complied with at a test site.

The NACE response addresses three questions:

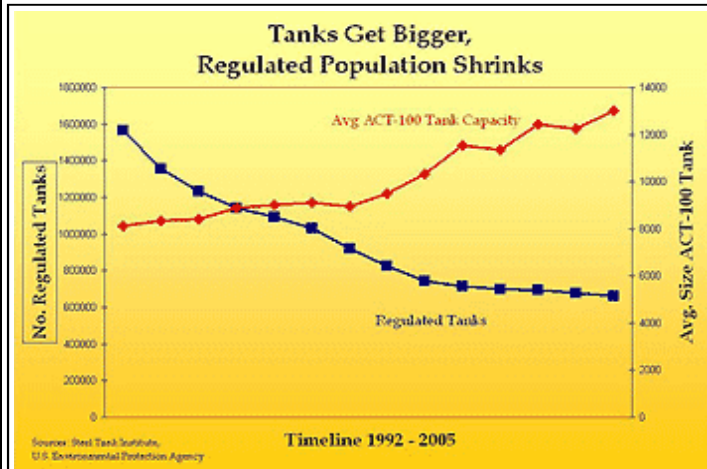
- Does TM0101-2001 require a specific number of readings to be taken when testing the cathodic protection of an underground tank system?
- Does TM0101-2001 require that the reference electrode be placed directly over the tank?
- Does TM0101-2001 require at least three readings, all directly over the tank with one at both tank ends and one in the center of the tank?

[Click here](#) for the committee's response to the questions.

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## Regulated Tank Population Statistics



The number of regulated underground storage tanks (USTs) in the United States has dwindled since 1992, according to the U.S. Environmental Protection Agency. However, the average UST capacity has climbed by more than 50 percent, as measured by Steel Tank Institute registration figures for the ACT-100<sup>®</sup> technology.

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## Muddy Water Brings the Blues to 2 Georgia USTs

A service station in Decatur, Ga. had two underground storage tanks (USTs) closed in July by state officials after water and mud were found by inspectors responding to consumers' calls about suspicions of fouled fuel.

"We are in the business of protecting the consumer," said Commissioner Tommy Irvin of the Georgia Department of Agriculture. "The pumps will remain locked down until maintenance can be performed on the tanks and follow-up testing can be done."

The station's diesel pumps were allowed to remain open because no evidence of contamination in the diesel UST had surfaced.

"We found 10 inches of muddy water in the regular underground tank and three inches in the premium underground tank," Irvin said. "Our fuel lab confirmed the mud and water in the samples taken from the pumps."

Water exceeding one inch in depth within a fuel tank violates state regulations. The owner has indicated that customers whose vehicles were damaged would be repaired, Irvin said.

[http://www.theweekly.com/news/2005/July/07/gas\\_pumps.html](http://www.theweekly.com/news/2005/July/07/gas_pumps.html)

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## California Issues Caution on Older UL 971 Flex Piping

The influential California State Water Resources Control Board (SWRCB) has joined a growing chorus of concerns about thermoplastic flexible piping for underground storage tank (UST) systems – and issued advisories primarily focused on product compatibility.

"Our primary concern is that materials used to construct certain thermoplastic flexible piping may not be sufficiently compatible with fuels and other hazardous substances commonly stored in USTs," said the SWRCB advisory of Aug. 31.

The advisory notes the July 1 advent of new requirements for plastic flex pipe to obtain Underwriters Laboratories' UL 971 listing.

"If UST owners or operators choose to install thermoplastic flexible piping, we strongly recommend installing only flexible piping that has been manufactured to meet the post-July 1, 2005 revised UL 971 standard, because we expect this piping to be less susceptible to degradation," the advisory said.

The California action follows a growing body of evidence, particularly as gathered by regulators in Florida and Mississippi, of various problems that led to a revision of the UL 971 standard.

[Click here](#) to read the complete advisory, which includes links to photos of problems posted online by Florida's Department of Environmental Protection.

The California advisory also includes a frequently asked questions document, which can be accessed by [clicking here](#).

In addition, California regulators provided a tip sheet for visual inspection of plastic flex pipe systems, which is available by [clicking here](#).

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## Steel Facts

The production of one ton of steel today results in 80 percent less air, water and solid waste emissions than 10 years ago.

<http://www.canadiansteel.ca/industry/factsheets/quickfacts.htm>

For every ton of steel recycled, the steel industry conserves 1,200 pounds of iron ore, 1,400 pounds of coal and 120 pounds of limestone. In 2003, nearly 70 million tons of steel were recycled using the electric arc furnace production method and the blast oxygen furnace production method. More information on recycling processes is available at: [http://www.recycle-steel.org/PDFs/leed/steel\\_takes\\_LEED\\_011405.pdf](http://www.recycle-steel.org/PDFs/leed/steel_takes_LEED_011405.pdf)

The USS Ronald Reagan is a Nimitz-class aircraft carrier whose length is almost equal to the height of the EmpireStateBuilding. It is secured on the ocean by two 30-ton steel anchors and chains that previously were used by the USS Ranger, starting in 1957. <http://www.reagan.navy.mil/build.htm>

Type 316 stainless steel has been used to clad the outside of Petronas Twin Towers in Kuala Lumpur, currently the world's tallest buildings, and Jin Mao Tower in Shanghai, the third tallest. [http://www.nickelinstitute.org/index.cfm/ci\\_id/11021.htm](http://www.nickelinstitute.org/index.cfm/ci_id/11021.htm).

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## Meetings and Conferences

Oct. 24 to 25, 2005

Safe Tank Entry Workshop, American Petroleum Institute and National Fire Protection Association, Phoenix, Ariz.

[www.api.org/petroteam](http://www.api.org/petroteam)

Oct. 26 to 27, 2005

Annual Storage Tank Management and Technology Conference, American Petroleum Institute, Phoenix, Ariz.

[www.api.org/petroteam](http://www.api.org/petroteam)

Oct. 29 to Nov. 2, 2005

WEFTEC 05, Water Environment Federation, Washington, D.C.

<http://www.weftec.org/registration/registration.htm>

Nov. 1 to 3, 2005

Chem Show , New York, N.Y.

<http://www.chemshow.com>

Nov. 9 to 10, 2005

National Institute for Storage Tank Management UST Conference, Orlando, Fla.

[www.NISTM.org](http://www.NISTM.org)

Nov. 13 to 16, 2005

FabTech International and American Welding Society Welding Show, Chicago, Ill.

[www.fmafabtech.com](http://www.fmafabtech.com) [www.aws.org/expo](http://www.aws.org/expo)

Nov. 14 to 18, 2005

2005 Tri-Service Corrosion Conference, NACE International, Orlando, Fla.

[www.nace.org/triservice](http://www.nace.org/triservice)

Nov. 15, 2005

2005 Fall Operating Practice Symposium, American Petroleum Institute/ National Petrochemical and Refiners Association , Chicago, Ill.

[http://api-ep.api.org/training/index.cfm?objectid=B9FE7A77-F519-4F6A-862B33DE60844392&method=display\\_body&er=1&bitmask=002005001000000000](http://api-ep.api.org/training/index.cfm?objectid=B9FE7A77-F519-4F6A-862B33DE60844392&method=display_body&er=1&bitmask=002005001000000000)

Nov. 16 to 18, 2005

2005 PEI Convention at the NACS Show , Petroleum Equipment Institute and National Association of Convenience Stores, Las Vegas, Nev.

<http://www.pei.org/show/>

Dec 4, 2005 11:30 AM - 5 PM

ASTM D02.E on Burner, Diesel, Non-Aviation Gas Turbine, and Marine Fuels Workshop:ASTM and BIODIESEL

<http://www.astm.org/MEETINGS/nextmeeting.htm>

Dec. 6 to 8, 2005

Power-Gen International, Las Vegas, Nev.

<http://pgi05.events.pennnet.com/>

Jan. 12 to 13, 2006

Steel Water Pipe Manufacturers Technical Advisory Committee, San Diego, Calif.

March 20 to 22, 2006

18<sup>th</sup> Annual National Tanks Conference & Expo, New England Interstate Water Pollution Control Commission, Memphis, Tenn.

[www.neiwpcc.org/tanks06](http://www.neiwpcc.org/tanks06)

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## Online Sources of UST & AST News and Information

### Online Publications

*2004 Biodiesel Handling and Use Guidelines*

<http://www.nrel.gov/docs/fy05osti/36182.pdf>

### *Engineering News-Record Special Section on Steel*

<http://www.enr.com/resources/special/archives/2005/steel.asp>

### *Fuel Oil News*

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

### *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.npnweb.com/>

Petroleum Equipment & Technology

[www.pe-t.com](http://www.pe-t.com)

**Steel Tank Institute Water in Fuel Tanks Research**

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

TulsaLetter

<http://www.pei.org/TulsaLetter>

Underground Tank Technology Update

<http://uttu.engr.wisc.edu>

## Associations

American Automobile Manufacturers Association discussion on fuel compatibility standards

[http://www.eere.energy.gov/afdc/e85toolkit/pdfs/aama\\_eth\\_standards.pdf](http://www.eere.energy.gov/afdc/e85toolkit/pdfs/aama_eth_standards.pdf)

American Iron & Steel Institute

<http://www.steel.org>

American Petroleum Institute

<http://api-ep.api.org/>

American Water Works Association

<http://66.45.110.61>

National Association of Convenience Stores

<http://www.nacsonline.com/NACS/News/>

National Biodiesel Board

[www.biodiesel.org](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

<http://www.pei.org>

Petroleum Marketers Association of America

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

Safe Tank Alliance

<http://committees.api.org/ehs/safetank/index.html>

Society of Independent Gasoline Marketers of America

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

*Steel Plate Fabricators Association*

[www.steeltank.com](http://www.steeltank.com)

*Steel Tank Institute*

[www.steeltank.com](http://www.steeltank.com)

## **Federal Regulatory Agencies**

*U.S. Department of Energy Alternative Fuels Data Center*

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

*U.S. Department of Energy Alternative Fuels Data Center Related Industry Links*

<http://www.eere.energy.gov/afdc/progs/related2.cgi?afdc|0>

*U.S. Department of Energy E85 Toolkit Equipment Requirements and Specifications*

<http://www.eere.energy.gov/afdc/e85toolkit/>

*U.S. Department of Energy, Energy Information Administration Ethanol Compendium*

<http://www.eia.doe.gov/oiaf/ethanol3.html>

*U.S. Department of Energy Equipment Conversions*

<http://www.eere.energy.gov/afdc/e85toolkit/conversions.html>

*U.S. Environmental Protection Agency, Office of Underground Storage Tanks*

<http://www.epa.gov/swrust1/>

*U.S. Environmental Protection Agency, Office of Underground Storage Tanks, MTBE and Underground Storage Tanks*

<http://www.epa.gov/swrust1/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*

[www.epa.gov/swrust1/states/stateurl.htm](http://www.epa.gov/swrust1/states/stateurl.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 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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