Tank Talk

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The Newsletter of the Steel Tank Institute, *Division of STI/SPFA*

Special Report
Booming Interest in Biodiesel
Spotlights Emerging Storage Safety Concerns

As a growing contingent of entrepreneurs has become attracted to the brewing of biodiesel, fuel experts are becoming concerned about the safety preparations of the new refiners. An escalating number of explosions and fires is providing evidence that safety shortcuts are leading to death and destruction.

“What we’re finding here is many people who are getting into biodiesel refining are not aware of the flammable, combustible or hazardous nature of the product involved,” said Sheldon Schall, chief of the Storage Tank Regulation Section, Wisconsin Department of Commerce.

Among the emerging issues for regulators are how plastic totes – or small-capacity polyethylene intermediate bulk container (IBC) tanks – will withstand the intense flames generated in a biodiesel fire.

The concern is tempered slightly by biodiesel’s relatively high flash point, compared to some motor fuels. According to a sample Material Safety Data Sheet on the website of the National Biodiesel Board, the flash point for B-100 is 130 degrees Celsius (266 degrees Fahrenheit) – if measured according to ASTM 93. Biodiesel is classified as a Class IIIB liquid. However, some liquids used in manufacturing biodiesel have much lower flash points.

Regulators are concerned about the reports of actual fires such as a June 23 incident in Canby, Ore., where it took 45 minutes for firefighters to extinguish a barn-based biodiesel plant blaze. The fire melted a 275-gallon (1,041-liter) plastic fuel storage tank, igniting the biodiesel – then spread to another 275-gallon tank, according to a local newspaper report.

The Canby Herald Online quoted a local fire marshal who was at the scene: “We kept sweeping the fire down, and it kept flaring right back. The fire was burning with tremendous intensity, more so than would normally be encountered in a typical structure fire. When we arrived it looked like a fuel refinery fire. Once we found out that we were battling biodiesel, all the black smoke and intense heat we were encountering made sense.”

The newspaper reported that fire officials were not linking the fire’s cause to fuel manufacturing – focusing instead on an electrical system in a nearby office.

Regulators also are taking note of safety preparedness at biodiesel plants that have a more extensive investment in personnel and equipment.

On July 7, a worker at a plant on the Idaho-Oregon border was killed by an explosion while welding on the top of a tank that contained some amount of combustible liquids. The plant, which was a few weeks away from its official opening, was housed in a former fruit warehouse, according to an Associated Press report.

According to KTVB-TV in Boise, a subsequent investigation by the Payette County (Idaho) sheriff’s department determined that a steel holding tank exploded because welding tools ignited flammable vapors from glycerin and methanol.

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Investigators said that a welder working on top of the tank was attempting to install a two-inch (51 millimeter) steel pipe with a 90-degree elbow to function as a vent. During installation, a steel two-inch cap was removed from the side of the tank where the vent was to be placed. This allowed vapors to escape from the tank. When the welder lit his cutting torch it ignited the vapors – triggering the fire and explosion. For the complete story, click here.

In Wisconsin, Schall said three categories of companies are entering the biodiesel market:

- Relatively small fleet operators that want to make fuel for their own vehicles
- Small refiners that want to sell biodiesel on a local or regional basis
- Larger biodiesel companies with more extensive regional or national distribution plans

As new biodiesel firms crop up, Wisconsin tank system inspectors "have learned of biodiesel refinery facilities with numerous regulatory violations," Schall said. "A lot of people are exploring how to 'home brew' biodiesel thanks to web site instructions. But the web sites don't discuss safety much."

Just as important as safe containment of the final product are appropriate processes for handling and storage of methanol – a primary component in manufacturing biodiesel.

"Our inspectors have seen methanol packaged and shipped in barrels, then emptied into IBC containers," Schall said. The possibility of static-electricity sparks igniting the methanol while it's handled in a plastic container is a growing concern.

Some biodiesel brewers have contended that regulatory oversight isn't needed. "We've been told, 'This isn't a petroleum product. It's vegetable oil,'" Schall said. "As regulators, we don't want to scare people. We're in the 'education first' mode. It's going to take some time and money to address this. Our first concern is fire and human safety. We want to see that these storage tank systems go in with adequate safeguards."

Echoing Schall's concern is Scott Stookey, a product development specialist for the International Code Council and a fire protection engineer who worked 18 years as both an inspector and in other capacities for fire departments in Austin, Texas and Phoenix, Ariz.

"Biodiesel manufacturing commonly involves the use of methyl alcohol, a very low flash point temperature flammable liquid, and sodium hydroxide, a very corrosive solid or liquid that also is toxic through skin absorption," Stookey said. "Proper storage and handling of these materials is essential for the biodiesel manufacturing processes to be successful.

"The requirements of NFPA 30 for the design of storage tanks, normal and emergency venting, containments and process piping must be followed."

Companies or individuals considering biodiesel manufacturing should closely research and follow storage and handling code requirements of NFPA 30 and the 2006 edition of the International Fire Code (IFC), Stookey said. "It's critical to remain diligent, especially during process start-up, manufacturing, or during any period where maintenance activities are underway," he added.

Biodiesel entrepreneurs and facility managers should understand that fire codes give local inspectors broad authority to permit the manufacturing of biodiesel or any other hazardous materials, and issue an immediate stop-use order when evidence shows a hazard is present, Stookey said.

Regulatory experts such as Schall and Stookey recommend that budding biodiesel business owners:

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• Hire somebody with background in the characteristics and requirements of biodiesel refining. That includes building codes and fire codes. For instance, hazardous occupancy permits are needed in Wisconsin for facilities in which methanol and chemicals will be stored and handled.

• Understand the entire refining process and design a facility to come into compliance easily and cheaply (that's "cheaply" as in doing it right the first time).

• Understand the by-products of biodiesel refining such as the hazardous compound of methoxide and the fact that glycerin may contain explosive methanol vapors.

• Know that a new biodiesel business could be affected by federal, state and local regulations related both to environmental and fire-safety considerations.

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Virginia Publishes Guidelines for Monitoring Cathodically Protected USTs

A new Virginia Department of Environmental Quality (DEQ) guideline was recently released for evaluating cathodically protected underground storage tank systems.

The document calls for at least three placements of a reference electrode when conducting measurements "with one of those placements taken locally, one taken remotely, and the third location at the discretion of the tester/expert."

The Virginia action follows Mississippi in the recent issue of cathodic protection test procedures. Mississippi's regulatory guidelines were released in 2002.

The Virginia guidance document (06-2006) is available in Adobe Acrobat (pdf) format at: http://www.deq.virginia.gov/waterguidance/tanks.html

Prior to release, the Virginia procedures were reviewed by NACE International, Steel Tank Institute (STI), the U.S. Environmental Protection Agency's Office of Underground Storage Tanks, DEQ tank staff, and corrosion experts and specialists.

STI also has a recommended practice for cathodic protection testing of sti-P3® tanks – Cathodic Protection Testing Procedures for sti-P3® USTs, R051. This can be accessed at http://www.steeltank.com/Library/pubs/R051-Test-Proc-06.pdf

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Tank Explosions Underscore the Need for Constant Vigilance on Safety

In late May and early June, several news items showed that when anyone works in the vicinity of a tank – atmospheric or pressure vessel – there is no substitute for safety.

In two cases – one in Michigan and one in Mississippi – a total of four individuals were killed when working on or near fuel tanks. In another instance, a federal agency issued a report about a Houston, Texas pressure-vessel incident from December 2004 that resulted in several injuries and significant property damage.

In Michigan, the Grand Rapids Press newspaper reported the death of a worker who was blown 700 feet (213 meters) through the air from the top of an exploding fuel tank, state police said. The explosion in northeast Manistee County was heard five miles away and

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.

2006 AST Inspector Training Courses

October 23-27, 2006
Level 1 & 2
Pittsburgh, PA

October 25-27, 2006
Level 2 Only

Contact Dana at 847/438-8265 x 246 to request a course for your company.

2006 Cathodic Protection Tester Courses

September 27 & 28, 2006
Fargo, ND

November 15 & 16, 2006
Cheyenne, WY

Contact: Lucy at 847/438-8265 x 248.

2006 Water Storage Tank Seminars

October 17, 2006
Sacramento, CA

October 18, 2006
San Diego, CA

November 9, 2006
Kansas City, MO

Check the web site for seminar brochures, which will be posted as soon as locations are confirmed. Contact: Anne at 847/438-8265 x 233.

STI/SPFA Pressure Vessel Conference

October 26, 2006
Houston, TX

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STI/SPFA
570 Oakwood Road
Lake Zurich, IL 60047
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shook photos from walls of nearby homes, police said.

The man was using a power saw to cut fittings from the top of a fuel tanker. The top of the tank flew 200 feet (61 meters) into a wooded area. He was on assignment for a salvage company to dismantle tanks at an abandoned oil well, police said. The explosion ignited a fire that took more than 30 minutes to extinguish. Michigan environmental and worker safety inspectors began an investigation.

In Mississippi, the Hattiesburg American newspaper reported that field welding practices were under investigation after a spark from a torch apparently caused two oil storage tanks to explode. Three of the four workers who were welding an adjacent tank died in the incident, state officials said. A deputy state fire marshal said the explosion and subsequent fire were accidental because the petroleum tanks were supposed to be empty.

"There was some type of neglect involved because this fire did happen," the official said. "There was some petroleum product in the tanks."

The Mississippi Oil and Gas Board, which regulates oil and gas drilling as well as production and storage, and the Occupational Safety Health Administration both began investigations. Also investigating were representatives of the U.S. Chemical Safety Board (CSB).

The men had worked with at the site for about a month, adding a pump to the oil well and another tank to the three already at the location.

A state official said a preliminary review of the site showed a “clean operation.” The tank the men were working on was empty and had been for about three weeks.

“Evidently some vapors jumped from one tank to another although the tank they were working on was not connected to the other tanks," the official said. The explosion did not affect an oil well located near the holding tanks. The crew was preparing the tank to receive oil from a new pump they had installed in a well.

Witness reports said the explosion led to a fire that burned for an hour, during which flames climbed as high as 75 feet (22.86 meters). To read the entire article, click here.

In Houston, the CSB issued a final investigation report on a December 2004 chemical plant explosion that led to a seven-hour fire. In addition to injuries to firefighters and residents, building and car windows were shattered, and nearby structures experienced significant exterior and interior damage.

The site of the explosion is used to refine polyethylene waxes for industrial use. The waxes contain flammable hydrocarbons such as hexane, and are processed and purified inside a variety of steel process vessels. The vessel that exploded was a horizontal tank 12 feet (3.66 meters) in diameter, 50 feet (15.24 meters) long, and operated at a pressure of about 67 pounds per square inch (4.71 kilograms per centimeter).

Investigators determined that the failed vessel had been modified by the owners to install internal heating coils, as were several other pressure vessels at the facility. Following installation of the coils, each vessel was resealed by welding a steel plate over the two-foot (.61 meter) diameter temporary opening. The repair welds did not meet accepted industry quality standards for pressure vessels.

The regulatory investigation found that the owner had not used a qualified welder or proper welding procedure to reseal the vessels and did not pressure-test the vessels after the welding was completed.

As a result, the repair weld failed under pressure, ejecting molten wax and flammable hydrocarbons. The owner used air instead of nitrogen to boost the pressure of the vessel, and the oxygen inside the tank allowed the ignition of the flammable material. The material

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Jim Wisuri, Editor

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

was likely ignited by sparks from the metal fragments. The fire spread back into the damaged tank causing a violent explosion, which propelled the 25-ton (22,600 kilogram) vessel more than 150 feet (46 meters), where it came to rest against a warehouse on a nearby property.

CSB investigators later found a variety of large metal fragments in the neighborhood, including a 120-pound (54.43 kilogram) steel plate located in a field 900 feet (274 meters) away.

Lead Investigator John Vorderbrueggen said the company “could not provide our team with any documentation concerning the design, construction, or safe operating pressure of the vessels. The CSB estimated that defective welds had decreased the strength of the vessels by more than 75 percent. It is likely that the welds were further weakened by metal fatigue from hundreds of operating cycles over many years.”

The case study report and accompanying safety recommendations have been posted to the agency's website, http://www.csb.gov/.

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Maltese Experience Gives a Glimpse of a World Without Regulators

By Jamie Thompson

Would a nation without significant regulation of petroleum marketing be heaven or hell? It depends upon your viewpoint, experience and the need for a level playing field.

I was recently visiting the Mediterranean island of Malta, which has lived with a nationalized oil industry since 1979. But Malta, a nation of about 400,000, has joined the European Community, and therefore has begun to privatize the industry – which will help to establish some sensible rules, regulations and standards to protect its people and environment.

Prior to this recent initiative, Enamalta, the nationalized oil company, served multiple roles: owner of petroleum marketing equipment, owner and distributor of fuel, and primary regulator of itself. That’s a difficult position to hold. In reality, there has been no effective enforcement of environmental or fire safety issues at service stations for more than 25 years.

A new regime is now in place, and the Malta Resources Authority (MRA) is establishing new regulations to control gas stations and ensure public safety. There are about 90 service stations on the islands of Malta and Gozo and a recent survey showed some cases in which modern standards were lacking.

Some of the sites are curbside locations where a motorist can fill up the tank while the vehicle remains on the public road. Underground tanks have been manufactured in Malta with single-wall, flat-head steel design, but not built to a recognized standard. A number have been discovered as leaking. Some double-wall jacketed tanks were installed but the most recent installations and those in the future will all be built to the European standard for double-wall tanks, EN 12285-1.

The lack of meaningful regulation in Malta has meant that station owners have installed tanks underneath the public road and developed ingenious ways of overcoming problems. For example, a few resourceful owners have used buckets installed in dispensers to catch fuel released from pressurized air separators.

Fortunately, the MRA has completed the station surveys. As a result, upgrades are underway on sites posing the greatest risk. The MRA also has adopted the Association for Petroleum and Explosives Administration (APEA) Design Construction Maintenance and Decommissioning of Filling Stations as its new standard for filling station design (http://www.apea.org.uk).

They also have the backing of a raft of European standards for filling-station equipment and are looking to the future with confidence of proper regulations to minimize risks in their communities.

Jamie Thompson is a safety and environmental consultant. He chairs the European Standards Committee on Gas Station Equipment and was for 38 years the fire marshal for London, England.

A Maltese service station owner's daughter lifts a manhole cover in the middle of a road to gain access to an underground storage tank. Tank-truck deliveries and fuel dispensing into customer vehicles all take place in the roadway.

An open pail collects leaking fuel from a dispenser at a Maltese service station.

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Fuel Samples Help Regulators Find Water in Tanks and Correct Quality Problems

How do state regulators ensure that motorists are getting the quality of fuel that they are

paying for – particularly in an era of ever-increasing prices at the pump?

Inspectors from the Missouri Department of Agriculture's Division of Weights and Measures collect fuel samples from retail and wholesale facilities and send them to the lab in Jefferson City to determine important fuel content and traits, such as ethanol and sulfur content, vapor pressure, and octane level. In 2005, more than 8,000 fuel samples were tested and nearly 8 percent were rejected, according to the St. Louis Post-Dispatch newspaper.

According to John Albert, fuel device safety specialist in the Division of Weights and Measures, the most oft-cited fuel-quality complaint is from water in the fuel. Past issues of Tank Talk have reported numerous vehicle problems caused by water getting into the vehicle's engine. Since service station owners often point to suppliers as the cause of fuel-quality issues, the department also tests terminals and intermediary storage facilities such as bulk plants.

Inspectors normally collect fuel samples from tank bottoms in large glass jars and visually inspect the fuel for sediment and water. Inspectors seal and store samples in special containers for transport to the lab. See photo of inspector vehicle.

Tank owners and inspectors can also test for water in the tank with a simple gauge stick coated with a special paste that changes color when inserted into a tank where water is present.

The recent increase in ethanol blended fuels has not gone unnoticed by the Weights and Measures Division. As fuel prices increased during the past year, more ethanol was blended into fuel. If excess water is in the tank or if the system is not properly prepared for the introduction of ethanol, new problems will occur.

Excessive water will cause the ethanol and the water to phase out of the blended fuel and settle to the bottom of the tank. Ethanol acts as a solvent and can dissolve sediments that have accumulated in the tank over time, clogging filters at the dispenser if the storage system is not properly prepared. One major contractor has told Steel Tank Institute that his firm completed more than 3,000 site ethanol preparations, on both steel and plastic tanks, along the Eastern Seaboard in the past few months alone.

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Regulatory View: Recognizing the Differences in Leak Detection Systems

Editor's note: For many tank system owners and managers, staying in tune with regulatory requirements is critical. Beginning with this edition, Tank Talk introduces a new feature – Regulatory View. Periodically, a regulator will offer a perspective on issues that tank managers need to address. The first edition of Regulatory View features the remarks of John Albert, fuel device safety specialist, Missouri Department of Agriculture, Division of Weights and Measures.

Q: *Is there an operational difference between leak detection for ASTs and USTs?*

The environmental concerns of today have brought about many changes in the materials used to transfer and handle petroleum products. The majority of product releases into the environment have been from undetected leaks in piping.

Leak detection is a very important part of any system. However, in relation to aboveground storage tank (AST) systems, it can be difficult to achieve.

Most automatic line leak detectors are designed to alarm, slow product flow during dispensing or both. They are designed to operate in systems with no exposed piping, which is often not the case with ASTs.

When piping is exposed to the sun and heat, for example, the pressure increases. If there was a small leak, such as a pinhole, the leak detector may not recognize it due to this pressure. This would be a false negative.

On the other hand, if the temperature drops at night on exposed piping, thermal contraction occurs. The leak detector recognizes a leak that does not exist. This would be a false positive.

When the tank and piping system is underground, the temperature is maintained at a more constant reading. Everything seems to work well as long as the piping is well maintained and tested.

The best leak detection for any system needs to start with good inventory control, reconciliation and an annual pressure test. This, combined with the equipment and proper training of those responsible for maintaining the system, is essential for successful leak detection.

* * *

A frequent speaker at industry events, John Albert also has produced a couple of tank-system management lists that he often cites in presentations:

Top 10 Causes of Overfill from Shop-Fabricated ASTs

1	**Inattentiveness by the driver, or unfamiliarity with procedures (training)**
2	**Tank size restrictions**
3	**Inaudible alarm**
4	**Incompatibility of equipment (e.g., alarm and emergency vent)**
5	**Alarms dependent upon vapor-tight tank**
6	**Lines for remote fill improperly marked**
7	**Multiple tanks connected by a common fill point**
8	**Poor inventory reconciliation (ignored tank gauging)**
9	**Not familiar with location**
10	**Inappropriately using top 10 percent of tank ullage space to fill entire tank, due to rising cost of fuel**

Top 8 Consequences of Overfill

1	**Tank damage**
2	**Roof failure (projection)**
3	**Bottom failure (rocket)**
4	**Shell failure (catastrophic)**
5	**Product release through vents**
6	**Potential for ignition of spill**
7	**Environmental or property damage**
8	**Injury or death**

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As Ethanol Demand Grows, Tank Cars Move the Product from the Midwest

The boom in ethanol demand largely will be fed by carbon steel rail tank cars.

As Midwestern states gear up for increased production – the 25 ethanol plants of Iowa, for example, project making a record 1.3 billion gallons (4.9 billion liters) in 2006 – they have no pipelines to efficiently move the alcohol-based fuel to faraway markets.

The Des Moines Register newspaper reported that the Union Pacific and Burlington Northern Santa Fe railroads have seen ethanol shipments climb rapidly as local corn gets converted to fuel destined for delivery to Canada and United States refineries on both the East and West Coasts.

"You can ship some by truck, but the freight economics of it mean that St. Louis is about as far as you want to go," said the controller at one Iowa ethanol plant.
While gasoline can be efficiently transported to Iowa via underground pipelines, ethanol is different, industry officials said.

Ethanol is a solvent that cleans out impurities in a pipeline. Therefore, any ethanol

transported by pipeline won't remain a gasoline-quality product, according to an expert with Iowa State University's biomass energy conversion facility.

In addition, most Iowa ethanol plants aren't near pipelines, and ethanol shipments are going to many states with no direct pipeline connections to Iowa anyway, industry officials said.

As rail tank cars grow in importance, an Iowa Department of Transportation official said rail congestion is complicating the flow of ethanol. Chicago, a leading Midwestern hub through which about one-third of the nation's rail traffic passes, is a prominent chokepoint. Manufacturers in other industries also are expanding their use of rail freight service as a way to combat the rising cost of fuel for over-the-road transportation.

In addition to congested tracks, the industry faces a shortage of rail tank cars.

Officials with the Union Pacific, the nation's largest railroad, and the Burlington Northern Santa Fe said they are working to accommodate the growth of the ethanol industry.

A Union Pacific official last year predicted the railroad would transport 2.8 billion gallons (10.6 billion liters) of ethanol annually by 2008, almost doubling its ethanol shipments in a short period of time. The company is attempting to speed the flow of ethanol by investing in track projects near several Midwest ethanol plants.

Burlington Northern Santa Fe transported 37,100 tank cars of ethanol in 2005, essentially quadrupling the ethanol loads of six years ago, a spokeswoman said. The company developed an "ethanol express" program to address fuel needs in California after the state forced an additive change from MTBE to ethanol.

http://www.desmoinesregister.com/apps/pbcs.dll/article?AID=/20060531/BUSINESS04/605310352/1029/archive

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How the Steelmark Made it to the Super Bowl

The National Football League season begins soon, and the helmet logo of the reigning champions again bears the visual imprint of the steel industry.

The Pittsburgh Steelers this fall will attempt to defend their title from Super Bowl XL wearing the distinctive three-star logo helmet design that has been a part of the team since the early 1960s. The design rose to prominence during the team's heyday in the late 1970s. Prior to this year's record-tying fifth Super Bowl victory, the Steelers had captured Super Bowls IX, X, XIII, and XIV.

The logo, adapted for the needs of the NFL team, originates with the American Iron and Steel Institute (AISI), a trade group representing the steel industry.

Displayed on the right side of each player's helmet, the logo symbolizes the strength of the Steelers and Pittsburgh, a long-time bastion of the steel industry. Seven decades after Art Rooney purchased the NFL franchise, the story of the Steelmark and how the Steelers acquired it, is widely unknown – even to some of the team's most avid fans. This story is based on accounts developed by AISI and other sources on the Internet.

The three, four-pointed star-like figures within the circle, called hypocycloids for their geometric origin, made it to the NFL in 1962, when Rooney adopted the Steelmark for his football team. The Steelers logo is based on the AISI Steelmark logo, which initially was created for United States Steel Corporation to promote the attributes of steel: yellow lightens your work; orange brightens your leisure; and blue widens your world. The logo's meaning was later amended to represent the three materials used to produce steel: yellow for coal; orange for iron ore; and blue for steel scrap. The idea to use AISI's steelmark as the logo of the Pittsburgh Steelers originated in their hometown. Robert Sexton, a young Republic Steel employee who worked in the Pittsburgh office of the Cleveland-based company, came up

with the idea of placing the Steelmark on the Steelers' helmet.

The Steelers had to petition AISI for permission to change the word "Steel" inside the Steelmark to "Steelers" before the logo was complete.

To test the Steelmark and see how it looked on an all-gold background, the Steelers' equipment manager was instructed to put it on only the right side of the helmet. The year was 1962 and the Steelers had finished with a 9-5 mark – the best single-season record in franchise history, which qualified them for a playoff game against the Detroit Lions. The Steelers wanted to do something special for their first-ever postseason game, so they changed the color of their helmets from gold to black, which helped to highlight the new logo.

Because of the interest generated by having the logo on only one side of their helmets, along with the team's new success, the Steelers decided to leave the helmet that way permanently.

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Facts of Steel

Remember the famous photos of the highway bridge deck that collapsed during the 1989 Loma Prieta earthquake in California? As a key ingredient of its ongoing, comprehensive, seismic-safety project, the East Span of the San Francisco-Oakland Bay Bridge has incorporated 28 skyway supports – featuring numerous 300-foot (91.44-meter) steel pilings that were pounded into the silt at the bottom of the bay. The steel pilings will add stability for the 260,000 motorists who use the bridge daily. (See Page 10 of the pdf file at http://t2030.mtc.ca.gov/library/AnnualReport-05/2005AR-complete.pdf.)

The largest, mobile, land-based high-capacity steel crane in existence during 2003 lifted a new 850-ton (771 metric ton) bridge segment in New Haven, Ct. The bridge span, a 320-foot (97.54-meter) long truss, serves as the main segment of a 1,280-foot (390-meter) bridge over the New Haven Rail Yard. The crane required more than four weeks of assembly and was delivered on more than 200 tractor-trailer loads of parts. The crane lifted the truss span in its entirety over 65 feet (19.8 meters) in the air and traveled 100 feet (30.48 meters) toward the tracks as it carried the unit to its final position.
http://www.fhwa.dot.gov/bridge/crane.htm

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Wisconsin Newsletter Covers Shop-Fabricated Steel Secondary Containment Tanks

The Underground Tank Technology Update (UTTU), published by the Department of Engineering Professional Development at the University of Wisconsin at Madison, has published an article in its July-August edition on the growing use of shop-fabricated secondary containment in steel storage tanks.
The article can be accessed at http://epdfiles.engr.wisc.edu/pdf_web_files/uttu/UT20n4.pdf

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AST's Barged to Alaska

Large aboveground storage tanks constructed to API 650 are headed to Alaska by barge for installation. According to Rollie Irwin, general manager of Brown-Minneapolis Tank-NW in Olympia, Wash., all 17 of the 21-foot (5.18-meter) diameter tanks were completely shop-fabricated to eliminate the need for field erection at the job site.

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Online Sources of UST & AST News and Information

Online Publications

NEW2006 Biodiesel Handling and Use Guidelines
http://www.nrel.gov/docs/fy06osti/39451.pdf

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

Engineering News-Record Special Section on Steel
http://www.enr.com/resources/special/archives/2005/steel.asp

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

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

NEW National Biodiesel Board Fuel Quality Policy
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

National Petroleum News http://www.npnweb.com/

Petroleum Equipment & Technology http://www.pe-t.com

Steel Tank Institute Water in Fuel Tanks Research
http://www.steeltank.com/library/pubs/waterinfueltanks.pdf

NEW Transport Dangerous Goods
http://www.tc.gc.ca/tdg/newsletter/menu.htm

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

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

American Lung Association of the Upper Midwest http://www.cleanairchoice.org/outdoor/

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

American Water Works Association http://66.45.110.61

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 Learning Center http://learn.pei.org/home.php

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

Safe Tank Alliance http://osha.gov/dcsp/alliances/api_nfpa/api_nfpa.html

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. 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 Fleet 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/swerust1/

U. S. Environmental Protection Agency, Office of Underground Storage Tanks, Draft & Final Grant Guidelines http://www.epa.gov/oust/fedlaws/epact_05.htm#

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

U. S. Environmental Protection Agency, Region III, UST Inspectors Workshop on Fuels and Material Compatibility http://www.epa.gov/reg3wcmd/inspector_workshop/Compatibility.pdf

State Regulatory Agencies (United States)

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

Regulatory Agencies (Australia)

Department of Environment and Conservation, New South Wales (new UST secondary containment requirements) http://www.environment.nsw.gov.au/resources/upssris067.pdf

NEW Department of Environment and Conservation (Liquid Chemical Storage Best Practices), http://www.environment.nsw.gov.au/licensing/envcomplchemicals.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

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Upcoming Meetings & Conferences

Sept. 10 to 13, 2006
2006 APWA Congress, American Public Works Association, Kansas City, Mo.
http://www.apwa.net

Sept. 11-13, 2006
5th European Motor Biofuels Forum, Newcastle UK
www.europoint-bv.com/biofuels2006

Sept. 19 to 21, 2006
Pacific Oil Conference, Reno, Nev.
http://www.petroshow.com

Sept. 25 to 28, 2006
API Storage Tank Conference and Safe Tank Entry, Tulsa, Okla.
http://www.api-u.org/safe_tank_entry.html

Oct. 9 to 11, 2006
2006 PEI Convention at the NACS Show, Las Vegas, Nev.
http://www.peinet.org/show/

Oct. 21 to 25, 2006
WEFTEC, Dallas, Texas
http://www.wef.org/conferencesTraining/Conferences/WEFTEC

Oct. 24-25, 2006
2006 Mary Kay O'Connor Process Safety Center International Symposium, College Station, Tex., http://process-safety.tamu.edu

Oct. 24-25, 2006
Platts Refined Products Storage and Transportation Conference, Houston, Tex.
www.platts.com/Events/pc638

Oct. 29 to 31, 2006
73rd Annual NLGI Meeting, Orlando, Fla.
http://www.nlgi.org

Nov.10 to 12, 2006
2006 Annual SIGMA Meeting, Chicago, Ill.
http://www.sigma.org

Nov.14 to 16, 2006
Stainless Steel World Solutions USA 2006 Conf/Expo, Houston, Texas
http://www.stainless-steel-world.net/ssw2006main/index.asp

Nov. 28 to 30, 2006
Power-Gen International Conference, Orlando, Fla.
http://pgi06.events.pennnet.com/fl/index.cfm

Feb. 20 to 22, 2007
Western Petroleum Marketers Association, Las Vegas, Nev.
http://www.wpma.com

March 5 to 7, 2007
19th Annual National Tank Conference, San Antonio, Texas
http://www.neiwpcc.org/tanks07

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