

# UST TALK

A Newsletter for Underground Storage Tank Owners/Operators  
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**“An ounce  
of  
prevention  
is worth a  
pound of  
cure”**

## MAINTENANCE



Because regulations make tank owners and operators responsible for preventing releases to the environment, a check of equipment and records is a good idea. Weekly checks can spot potential problems early and help owners stay ahead of the game. In their weekly checks, owners and operators should look to see if equipment is operating correctly. They should note if the site has changed and ensure that records are being kept the way they should be.

Here are some suggestions for weekly operations and maintenance checks:

1. Look at the equipment.
  - a. Open the dispensers and check for leaks. Look to see that the shear valves are properly anchored under the dispensers, if you have a pressurized line system.
  - b. Look at the spill buckets. Are there any cracks or loose gaskets? Are they empty and clean? Open the fill caps to see if the drop tubes are still there and, if appropriate, the drop tube shut off valves are in place.
  - c. Open any other tank top man ways and take a look at what is there. Make sure any caps (such as vapor recovery or Automatic Tank Gauging (ATG) riser caps) are on and secure.
  - d. If there are sumps, open them. Is there water or product in the sump? If so, remove it and properly dispose of it. Then investigate to find where it came from.
  - e. Check the vent lines if they are not in the canopy. Are the rain caps still on? Have trees grown up around them? (If so, the trees may need to be trimmed.)
  - f. Is the automatic tank gauge working? Are there any alarms that need to be investigated/reported?
  - g. If appropriate, ensure the impressed current system rectifier is on and operating.
2. Check the paper work.
  - a. There should be weekly leak detection results.
  - b. Corrosion protection monitoring and testing records should be available. Testing is required every 3 years.

Checking the various parts of the underground storage tank system on a regular basis will increase the likelihood of finding any problems early. So, spend a little time each month and check out that UST facility. As Mr. Franklin said, “An ounce of prevention is worth a pound of cure.”

*Extracted from South Carolina UST Newsletter*

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## QUESTIONS FROM A TANK OWNER

(Extracted from South Carolina UST Newsletter)

### My automatic tank gauge has so many alarms; I'm tempted to ignore them all. What do they all mean?

First of all, please don't ignore the alarms. Automatic tank gauges (ATG) use alarms to alert the owner/operator to unusual operating conditions, release detection information or tank gauge system failures. Although, ATGs may be set up differently based on model or type, most often they have three types of alarms: system alarms, tank alarms, and sensor alarms.

**SYSTEM ALARMS** are about equipment failures or program malfunctions. Minor alarms such as "paper out" and more important alarms such as a "no probe" (no information from the probe in a particular tank) are examples. System alarms could also include critical alarms like the "leak" alarm that comes when data from the probe indicates the tank is leaking. System alarms require action – replacing paper, installing a new probe, or testing the tank or piping to determine if a leak is real. Someone familiar with the system and testing procedures should check out the system immediately and do testing or repairs as necessary. System alarms also might let you know a tank has failed a test, such as "leak test: failed, leak test increased, or test failure." Any of these or other alarms that indicate unusual operating conditions or that a release may be occurring should be reported to the UST Program within 72 hours.

**TANK ALARMS** are usually related to inventory and water levels. When the ATG was set up, warning levels were programmed in. Tank alarms warn you if the tank is getting too full (high limit or overfill alarm) or too empty (low limit or delivery needed). There is also an alarm to let you know if there is water in with the fuel (water limit alarm). Tank alarms may be the first clue an owner has that the tank system is not performing properly (water entering the tank through tank top) or that outside forces (a delivery that caused the tank to be overfilled) have affected the tank. Tank owners should investigate each alarm to determine the root cause and change procedures as needed to protect the system.

**SENSOR ALARMS** are tied to sensors in different parts of the tank system. There may be sensors between the "walls" of a double wall tank that will cause an alarm if there is liquid where there is not supposed to be any or if the liquid level changes in a brine-filled interstice (liquid detected, high or low brine or water detected alarms). Other sensors may be in pump or dispenser sumps and will cause an alarm if there is liquid in those spaces (fuel alarm or sump full). If you ever have a question about what an alarm means, call an Underground Storage Tank staff member at (802) 241-3888.



*Veeder Root*

## Awards

The following tank owners/operators have been recognized by the UST Program for operating an exemplary facility:

**Lutz Saborowski of Lutz's Citgo Repair, Montgomery**

# MTBE Phase-out and Ethanol Introduction in Vermont's Motor Fuel Supply

by Andy Shively and Ted Unkles



Connecticut, Maine, New Hampshire, New York, Rhode Island and Vermont have passed ether oxygenate bans in recent years. As

of this writing (February 2006), Massachusetts remains the only New England state that has not passed this type of legislation. New York and Connecticut bans are currently in effect with New Hampshire, Rhode Island and Vermont taking effect on January 1, 2007. The change of motor fuel additives from MTBE to ethanol is already underway. A survey of petroleum terminals in New England conducted by the New Hampshire DES reveals that some companies in the petroleum distribution industry are gearing up to begin blending ethanol into the motor fuel supply as early as Spring 2006. This means Vermont's motor fuel storage and distribution industry should plan for ethanol blended gasoline sooner rather than later.

So what is the problem? MTBE, Ethanol, does it really matter what they put in gas, as long as it runs your customer's car? Actually, yes, it matters a great deal, and the wise gas station owner or operator will avoid serious problems by taking a few steps before ethanol is introduced into the underground tank system. Failure to prepare and maintain an underground storage tank system can result in customer complaints, lost customers, and customers asking for auto repair bills to be paid.

Fuel quality can be significantly compromised for a number of reasons, among them phase separation and solvency. Phase separation is caused by the fact that ethanol, which is a type of alcohol, mixes with water and can hold water in fuel. This is how dry gas works. But when too much water is present in the fuel, the ethanol may hold enough water in the fuel to cause serious problems with an automobile engine. Solvency is another problem: ethanol will dissolve sludge; scaling and residuals adhered to the walls of an UST, causing unacceptable levels of dirt, grit, rust flakes, and other contaminants in the gasoline. Both these issues can be

avoided by taking a few initial steps to ensure your storage system does not develop fuel quality problems.

- Pump all water from the UST **prior to conversion**. Phase separation is a direct result of excessive amounts of tank bottom water. If tank bottom water is not removed, the fuel in the system will develop phase separation. If that happens it will clog filters in both dispensers and automobile fuel systems, slow dispensing rates, upset customers and increase maintenance and repair costs.
- Ensure ongoing UST system integrity. Check **all** tank top features to reduce water intrusion into the storage tank. Remain vigilant about monitoring tank water content. Act quickly to remove tank bottom water if discovered.
- Change all dispenser filters before conversion. Use water and ethanol absorbing filter model. These types of filters will reduce the possibility of dispensing water to customers in case phase separation occurs. For the initial months following conversion to ethanol, change the dispenser filters more frequently and monitor dispensing operations. Clogged filters will dispense slowly and are a warning sign to change the filter and investigate tank water problems. However, don't install ethanol-compatible filters before you receive your first load of gasoline with ethanol, because these filters are not compatible with blends containing ethers. In other words, be ready to replace your filters when you receive your first load, but don't change the filters beforehand.
- Clean your tank before you receive your first load of gasoline with ethanol. Tank bottom cleaning technology exists. The procedure generally entails cleaning the tank walls and filtering out the scale, sludge and residuals. The procedure usually takes a few hours and does not require excavation. It does require the UST to be empty and remain out of service during the process.
- Contact your distributor to find out when they anticipate introducing ethanol to the fuel supply. This will give the owner and or operator the time to prepare for ethanol conversion to ensure smooth operations and reduce customer complaints.

# Energy Act Impacts on VT UST Program

By Marc Roy



In August 2005, President Bush signed the Energy Policy Act. This piece of legislation lists several very specific items that UST programs across the country will have to implement over the next few years. UST staff have attended several meetings with national and regional UST permitting programs and cleanup programs to discuss the Act and what it means to our State and programs. In short: Inspections!

The Act requires States inspect all facilities that have not been inspected since the 1998 UST upgrade deadline within two years of enactment. In VT, that's about 720 facilities that will have to be inspected by August 2007! The Act also requires that once the '98 inspections have been completed, all facilities must be inspected on a three-year cycle. This is about 400 inspections per year.

We're taking some steps in order to try to meet these goals. First of all, we are pre-announcing our inspections, and keeping a weather eye open to get to facilities year round. We are training two people from other programs in WMD, Tim Cropley and Maria Stadlmayer, as inspectors. We will be hiring two temporary employees this year to conduct inspections. And finally, EPA New England will help us out by conducting 100 inspections in the southern counties. We're not sure if these efforts will be enough, but we'll be out there!

In addition to the emphasis on inspections, the Act requires states develop an operator training program. EPA has two years to develop guidelines, and states must implement their own program two years after that. The training described in the Act is for three different levels of employee, and will be mandatory.

While the Energy Act increased the amount of Federal assistance to States tremendously, Congress has yet to fund the programs. Our estimate for additional resources to complete the UST program tasks (inspections, training program, and other reports etc) are 3 full-time staff and \$250,000 annually.

Of additional concern is how the requirements of the Act will affect the implementation of the self-certification program we are working on. We just don't know if we have the resources to be able to implement the self-certification program, and keep up with the inspection requirements. We are hoping that Congress may modify or delay parts of the Act for states who are implementing self-certification programs for this sector, but we have no idea if that is possible. Two other states (RI and VA) have received EPA funding to implement (ERP) Environmental Results Program; RI is ahead of us in implementing, VA has just begun.

At this time, because we have the ERP funding in-hand and are unsure of how all the Act requirements will trickle down to the states, we are continuing to develop the self-certification program. We will also continue our efforts in a targeted inspection campaign to deal with the facilities not inspected since the '98 deadline. We will also continue to work with EPA and the regional and national organizations towards finding solutions on how to implement the requirements of the Energy Act.

# Vermont Biodiesel Use on the Rise

By Greg Strong and Netaka White, Vermont Biodiesel Project

Increasing oil prices, growing concerns over fuel security, and worries about the environmental impacts of fossil fuels, all have Vermonters taking interest in a renewable fuel in ever-increasing numbers: biodiesel. Rudolph Diesel, the inventor of the diesel engine in 1895, intended for his new machine to operate on a variety of fuels, including biofuels. It might just be that this very old fuel has something new to offer Vermont – and the nation.

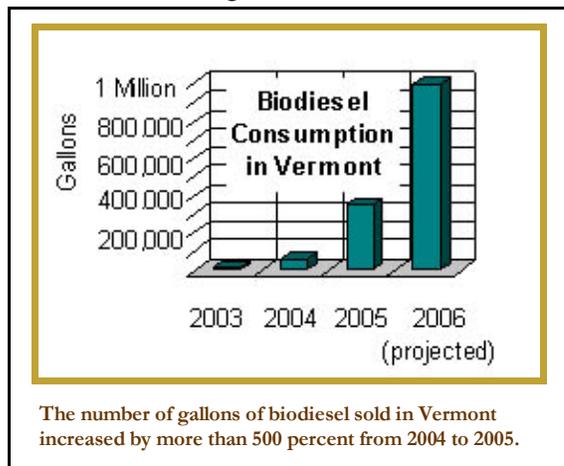
**Biodiesel background:** Biodiesel is a domestically produced fuel made from any fat or vegetable oil, such as soybean or canola oil. It is NOT the same as straight vegetable oil. Instead, biodiesel is vegetable oil or fat that has undergone a simple chemical conversion to *methyl esters*. Biodiesel can be used in any diesel engine or oil burner with little or no modification. Although 100 percent biodiesel contains no petroleum, it can be blended with petroleum (petrodiesel) at any level or used in its pure form (called *B100*, where the *B* stands for biodiesel and the number following it stands for the percentage of biodiesel in a gallon of fuel. *B20* for instance is 20 percent biodiesel and 80 percent petrodiesel).



Photo by: Vermont Biofuels Association

B100 biodiesel is non-toxic, biodegradable, and has a higher flash point than petroleum diesel. It is essentially free of sulfur and aromatics, significantly reducing combustion emissions of carbon monoxide, particulate matter, unburned hydrocarbons and sulfates. Some studies show a slight increase in the creation of NOx in tailpipe emissions. Since biodiesel reduces carbon dioxide by 78 percent compared to petrodiesel, it is the most effective greenhouse gas mitigation technology currently available for heavy-duty vehicles and equipment. Biodiesel offers similar fuel economy, horsepower and torque to petroleum diesel while providing superior lubricity.

Because pure biodiesel (B100) has a higher cloud point than petroleum diesel, it is typically stored in underground tanks or heated above-ground tanks in colder weather. Blended biodiesel, up to B20, can be stored in outside tanks year round, without heating. However, kerosene or off-the-shelf additives are often added to reduce biodiesel's cloud point during wintertime use.



**Biodiesel usage is on the rise in Vermont:** More than 275,000 gallons of biodiesel (on- and off-road) were sold in Vermont during 2005. This compares with 55,000 gallons sold in 2004 (see chart), representing a 500% growth in usage. All indications are that usage will continue to increase as environmental and fossil fuel price pressures remain in place.

Since biodiesel can be used in fleet transportation, institutional heating, and even snowmaking, some of Vermont's commercial users now include Smugglers' Notch and Sugarbush Resorts, University of Vermont, Green Mountain Power, Middlebury College, and the Vermont Department of Buildings and General Services.

On the consumer side, several fuel dealers across the state are offering biodiesel in various blends to their customers for both transportation and space heating purposes. Current dealers of biodiesel include Fleming Oil of Brattleboro, Boise Citgo of Bridport, Patterson Fuels of Richmond, Evans Motor Fuels of Lebanon, NH and Champlain Oil of S. Burlington. These and other Vermont distributors can deliver biodiesel blends to fuel stations around the state, as well as make deliveries to farms and businesses.

There are several organizations, businesses, and initiatives dedicated to building the Vermont biodiesel sector, including the Vermont Biofuels Association (VBA) and the Vermont Biodiesel Project partners. For more information on fuel availability, or educational events and conferences, please visit the VBA website at [www.vermontbiofuels.org](http://www.vermontbiofuels.org) or the website of the Vermont Fuel Dealers Association at [www.vermontfuel.com](http://www.vermontfuel.com). For technical reports and information on national use of biodiesel visit the National Biodiesel Board at [www.biodiesel.org](http://www.biodiesel.org).

# Attacking the backlog of older UST sites *by Chuck Schwer*

**Have you cleaned up your site?**

Currently there is a national effort underway to more aggressively address the number of properties or sites where there has been a petroleum release from federally regulated underground storage tanks (USTs). Since the UST program began in 1985 there have been over 450,000 UST sites discovered nationwide. Cleanup efforts have been successful at many of these properties, yet there is a backlog of over 119,000 sites requiring corrective action. In Vermont, 1,918 sites have been discovered with a backlog of nearly 800 sites. The Sites Management Section (SMS) has developed an aggressive strategy in hopes of reducing this backlog. The SMS will be making contact with tank owners and property owners where an adequate initial site investigation has not been conducted. The SMS will make every effort to assist the owners to help them complete the necessary work. For sites where voluntary cooperation can not be achieved, the SMS has worked with the Enforcement Division to develop an expedited enforcement process aimed at achieving cooperation. The SMS is hopeful that most of the backlogged sites can be addressed without the need for court action. There are also many sites where cleanups have been completed yet groundwater contamination conditions exist that prevent site closure. The SMS is evaluating and promoting the use of innovative technologies in an attempt to accelerate the natural attenuation processes that help to degrade petroleum contamination. For properties where an active cleanup is necessary, the SMS is looking to promote technologies or processes that accelerate the cleanup. There has been some success seen by establishing cleanups based on performance and not time and materials contracting. The SMS will be looking at ways to continue to promote and enhance this technique. If you are a site owner that wishes to discuss this initiative or if you just have questions, please do not hesitate to call Chuck Schwer, SMS section chief at 241-3876 or send him an email message at [chuck.schwer@state.vt.us](mailto:chuck.schwer@state.vt.us).



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