

“What have I learned about underground storage tank systems? They leak!”

LYNN WOODARD, NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

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Are Fuel Storage Tank Owners Compliant and Vigilant?

LEAKING FUEL STORAGE TANKS

Leaking underground storage tanks (LUSTs) are a significant and widespread threat to groundwater quality in the United States. Petroleum storage tanks, both above ground and underground, can be found in virtually every community in New England—and each and every tank has the potential to leak. New England states have made great progress in developing programs to prevent releases of gasoline and other petroleum products into the soil and groundwater environment. For the most part, municipalities have relied on their state underground storage tank (UST) programs to regulate these pollution sources. But in your source water protection areas, relying solely on the state to protect your drinking water from petroleum releases may not be enough.



Here a Tank, There a Tank, Everywhere a...

In 1983, the CBS program *60 Minutes* aired a story that brought national attention to families suffering from the effects of leaking USTs on their groundwater supplies. Less than a year later, Congress enacted the Subtitle I RCRA Amendments, calling for the U.S. Environmental Protection Agency to develop UST regulations to protect human health and the environment. The resulting rules spelled out a number of technical and financial responsibility requirements and timetables.

But the federal rule did not cover all storage tanks. Tanks *not* regulated by the federal rule include:

- farm and residential tanks holding 1,100 gallons or less of motor fuel used for non-commercial purposes
- tanks storing heating oil used on the premises where it is stored
- aboveground tanks not covered by federal Spill Prevention, Control, and Countermeasure regulations
- tanks holding 110 gallons or less
- emergency spill and overfill tanks

While the New England states adopted UST regulations that were more stringent than the federal program, there are still gaps and unsolved problems. For example:

- Many abandoned USTs are still in the ground and may still contain petroleum product.
- Some owners are not properly operating and maintaining their UST systems.
- No tank system is “leak proof.” Even if a system has state-of-the-art secondary containment, leak detection, and all the bells and whistles, leaks can still go undetected. It has now become apparent that vapor leaks from piping systems are an avenue for gasoline releases.
- Careless fuel-delivery and vehicle-fueling practices can compromise a tank owner’s best efforts.

Unfortunately, states often do not have sufficient resources to conduct on-site compliance inspections as often as necessary. According to a 2000 survey of the New England states, UST facilities were inspected once every 9 years, on average.

Take a Closer Look

The work of keeping petroleum products out of the environment is far from over. If your municipality is serious about source water protection, you need to take a closer look at your petroleum storage tanks and address the following issues:

- what to do about tanks not subject to state or federal regulations (e.g., home heating oil, aboveground storage tanks)
- what to do about abandoned, or “orphaned,” tanks that have not been properly closed and removed
- how to ensure that tank systems in source protection areas are designed and installed such that the risk of a release is minimized to the greatest extent possible
- how to ensure that tank systems in source protection areas are in compliance with all applicable regulations and are properly operated and maintained on an ongoing basis
- how to reduce or eliminate current and future threats from the source protection areas

Let’s look at some of the Strategies for Action municipalities can take to minimize threats to their water supply sources from underground and aboveground storage tanks. *As a general rule, always check your state requirements and statutes.*



FYI

What Tanks Are Covered by Federal SPCC Regulations?

Very large storage tank facilities are subject to the requirements of federal Spill Prevention, Control, and Countermeasure (SPCC) regulations, under the authority of the Clean Water Act. Clearly, it is best if any such facility is not located in a source water protection area. These are the only aboveground storage tanks regulated at the federal level.

A facility subject to SPCC rules must meet three criteria:

- It must be non-transportation-related.
- It must have an aggregate aboveground storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons.
- There must be a reasonable expectation of a discharge into or upon navigable waters of the United States or adjoining shorelines.

The plan must show how facility owners will prevent any discharge of oil into navigable waters. Preparation of the SPCC plan is the responsibility of the facility owner and must be certified by a licensed professional engineer.

Strategies for Action

Consider establishing a comprehensive program to prevent the contamination of present and future drinking water from fuel storage tank releases.

If your community's Source Water Assessment report has identified land uses that are likely to have USTs or above ground storage tanks (e.g., gas stations, automobile dealerships, trucking and busing companies, public works facilities, homes with heating oil tanks), this is your cue to pay attention to these potential threats to your source water area. How many such storage tank systems are identified in your report? Are there other regulated and non-regulated tanks in the source water protection area that are not identified in the report? And...are all of your municipally owned tank systems in compliance with state regulations?

Ultimately, it is up to your community and your water supplier to determine how much risk you are willing to accept in your watershed or groundwater protection area. Communities are able to adopt more stringent regulations (than federal or state) for all tanks, including those not regulated by the state. Many local governments address residential USTs through board of health regulations, zoning bylaws, or general bylaws or ordinances. Begin by reviewing your state UST/AST regulations to see what is covered and what might be lacking.

The initial effort of establishing a municipal tank program can be time-consuming, depending on the tank population, and it requires a long-term commitment. Also, it is important to identify a local entity that has authority over tanks. In New England, these authorities tend to be with the board of health, planning department, or fire department.

Take advantage of readily available GIS map resources to inventory all storage tanks in your source protection area.

Do you know where all the USTs and ASTs are in your source water area? If your community doesn't have information on UST and AST locations, your state program may. When a petroleum release occurs, state and local regulators can use GIS mapping information to identify proximity to source protection areas. It is also easy to update GIS maps as new information is available.

To conduct the inventory, make it a point to first verify your Source Water Assessment by conducting drive-by surveys, consulting sources such as local fire department records, and questioning residents, businesses, public works officials, and fuel distributors. For each tank facility, identify the owner or operator, number of tanks, location of tanks



FYI



When Bad Things Happen to Nice Wellfields

All it takes is one leaking tank to create a water supply emergency. The federal UST program was created in hopes that we could prevent such disasters, but they can and do still happen. In the summer of 2001, a resident of the village of Pascoag, Rhode Island, had his tap water sampled because it tasted bad. When it was confirmed that the water had high levels of methyl *tertiary*-butyl ether (MtBE), an additive in gasoline, a protracted nightmare ensued for the residents, businesses, and the utility district.

The source of the gasoline release was a Mobil station located on Main Street, not far from the public wells. After months of bottled water and health advisories from the state Department of Health, informing residents that the water should not be used for drinking, cooking, and bathing small children, a long-term solution was provided by a neighboring village of Harrisville. The two water districts merged, the court ordered the Pascoag wellfield shutdown, and the water began flowing from Harrisville to Pascoag.

Ultimately, the village of Pascoag found a water supply solution, but every community should ask itself: "What if....?"



(usually on a plot plan), age of tanks, type of construction and material, and location on a GIS map.



Make a special effort to locate and remove or properly close all abandoned tanks.

A surprising number of abandoned or orphaned USTs lay buried and forgotten throughout New England. These tanks are of interest because they are old, made of bare steel, prone to corrosion, and likely to eventually spill their contents into the environment. They may be identified on existing maps, but you may also want to investigate further by checking with long-time residents and going back to historic municipal records, maps, and aerial photos. Many state or local authorities insist that these tanks be removed and allow abandonment in place only if a tank is in or near a building and removal would compromise the structure of the building. Check with your state to find out if there are programs to help pay for the removal of these tanks.



Contact your state UST program to find out:

- **which UST facilities in your community's source protection area are in the state regulatory database**
- **when those facilities were last inspected**
- **facility compliance records**
- **how you can work with the state to address facilities of concern**

Municipalities should not assume that state-regulated USTs are inspected regularly or that they are in compliance. Some states try to prioritize their UST facility inspections based on environmentally sensitive areas, but it is no secret that state and local governments are painfully short of enforcement resources. It is a good idea to cross-check your UST-facility database with the state's so you can capture facilities that may have been overlooked in your databases. Work with the state to target facilities of concern for more frequent inspections, and make sure enforcement action is taken where necessary. Establish a schedule for checking with the state.



Develop municipal ordinances, overlay zones, best management practices, or regulations to address potential threats from petroleum storage tanks in your source water protection area.

Local governments have various options for controlling potential water supply threats, including:

- prohibiting new USTs in sensitive areas
- establishing rules for storing residential heating oil tanks, including prohibiting underground storage
- registering tanks
- requiring the upgrade or removal of existing tanks
- restricting the location of new storage tanks
- establishing installation, construction, testing, and monitoring requirements

- ensuring that tanks are inspected to enforce the rules
- reviewing system designs with state UST program staff
- requiring certification of UST installers and removers (if the state doesn't have a program)
- requiring installation of groundwater monitoring wells near tanks located in source water areas
- providing a cost-share arrangement for removing tanks

If your community is not ready to adopt a comprehensive storage tank program to protect your water supplies, consider adopting some protective measures. You could start with a requirement to register all tanks or just heating oil tanks, which enables you to more accurately assess the problem and alert officials of the location of the tanks in the event of a leak, spill, and contamination situation.

Registration information can be linked with source water protection areas and be used to establish an effective tank management and education program. It can form the basis for further regulation, such as testing and removal requirements.

Educate all tank owners about the need for enhanced vigilance in source water protection areas.

Do tank owners know if their tanks are in a source water protection area? Do they know that their tanks are a threat and a liability? Education is a key way to help prevent a problem from happening. Work with your state, local businesses, oil distributors, and homeowners to develop a



CASE STUDY 

Keeping Bad Things Away from Good Drinking Water

Maine's UST Siting Law

In 2001, the State of Maine passed An Act to Protect Sensitive Geologic Areas from Oil Contamination, which prohibits or modifies the installation of UST facilities in proximity of existing water supplies (public and private wells) and future water supplies (significant sand and gravel aquifers). The requirements apply only to motor fuel and bulk plant USTs, not to the expansion of USTs that existed at a site prior to the implementation date.

Under the law, tanks cannot be installed:

- within 300 feet of a private well, other than the well used to supply water to the business with the UST
- within 1,000 feet (or within the source water protection area, which ever is larger) of a community water supply (e.g., municipal well, mobile home park well, condominium) or a school well
- over a high-yield (more than 50 gallons per minute) sand and gravel aquifer
- within 1,000 feet (or within the source water protection area, which ever is greater) of a transient (e.g., restaurant, highway rest stop) or non-transient (e.g., school, office park) public water supply

- over a mapped moderate-yield (between 10 and 50 gallons per minute) sand and gravel aquifer

A New Water District and Some New Rules

The small town of East Pittston, Maine, established a new water district after a release from a local "mom and pop" fueling operation knocked out a number of private wells. The new district, with the help of the state, drilled two new wells outside the contaminated area, and, with the help of Maine Rural Water Association, developed the Town of Pittston Wellhead Protection Ordinance.

In Zone 1, a 300-foot protective area around the wells, no tanks are allowed; in Zone 2, which covers the whole recharge area, tanks greater than 500 gallons are prohibited, and any development is controlled through a permit process.

The Maine Department of Environmental Protection (DEP) has long encouraged communities, businesses, and homeowners to get buried heating oil tanks out of the ground, and the citizens of East Pittston had done that too. Between having a significant petroleum release from a fuel tank and being well educated about home heating oil tanks, the town has adopted a very cautious outlook about storage tanks.

message that will help people recognize that it is in their interest to be vigilant in preventing leaks, to avoid the high cost of future contamination, and to support local efforts to reduce risk.

Encourage homeowners to replace their USTs with above ground tanks located either indoors or outdoors on a concrete slab in a protected area. Make sure they know that most homeowner's insurance policies do not cover LUSTs and self contamination. (See Self-Inspection Checklist below.)

Tanks may be everywhere, but do they need to be? If tanks need to be there, let people know that extra precautions are a must in source water protection areas. Target commercial tank owners and residential heating oil tank owners. Provide clear and simple guides for such topics as removing tanks and BMPs for residential heating oil—checklists, brochures, and Web site addresses—so no one can say: "But I didn't know."

Self Inspection Checklist for Home Heating Oil USTs

If you answer "YES" to any of the following questions, call your oil burner technician for a more detailed inspection and corrective measures. (Of course, the best thing to do is to remove your UST and switch to aboveground storage.)

- Are you using more fuel than normal?
- Is your tank taking on water—a rise in water level greater than 1/2" for an 8-to 12-hour period? (Your oil burner technician can check for water or provide you with water-finding paste so you can check yourself.)
- Are there signs of oil sheens in nearby streams, wetlands, or drainage ditches?
- Are there signs of distressed (withered) vegetation over or down slope of the tank?
- Is the tank vent clogged or restricted because of ice, snow, or insect nests? (Screened vents can be used to prevent insect nest problems.)
- Is the overfill whistle silent when the tank is being filled? (Ask your delivery person.)
- Are there signs of spills around the fill pipe or the vent pipe?



CASE STUDY

What Cape Cod Towns Did about Their Residential USTs

All 15 towns in Barnstable County, Massachusetts have local health regulations for residential heating oil USTs. These towns comprise Cape Cod, whose entire geographic area is a source-water aquifer. Shaken by a devastating UST release in 1977 that contaminated Provincetown's public water supply, many towns adopted UST regulations in the early 1980s. In 1986, the Barnstable County Health and Environmental Department (BCHED) saw the need to initiate a comprehensive program to prevent the contamination of groundwater from underground fuel storage.

BCHED developed a model Board of Health regulation that covered mandatory tank registration along with various installation, testing, spill/leak reporting, and removal requirements for home heating oil tanks. The department has no authority to mandate towns to adopt regulations; it is strictly advisory.

Typical regulations adopted by the towns included requirements for the registration and tagging of all heating oil USTs, oil dealers to report any unregistered tanks to the local health department, removal of tanks that are 30 years old or more (20 years in a few cases), and a soil vapor test (for petroleum hydrocarbons) for tanks 15 years old or more. The BCHED runs the programs for all but two towns.

When the program began, about 3,000 tanks were registered under the program, now fewer than 300 home heating oil tanks remain buried underground. Most homeowners installed new tanks in their basements, while others switched to an alternative fuel source.