

Taking the 'L' Out of 'LUST'

by Michael D. Travis, PE, CEP and Royce L. Conlon

Michael Travis is a registered professional engineer and a certified environmental professional. Mr. Travis works as an environmental engineer for the Alaska Department of Transportation and Public Facilities Statewide Research team and teaches environmental auditing techniques to right-of-way professionals. He is a member of IRWA Arctic Trails Chapter 71.

Royce Conlon is an assistant research engineer with the Alaska Department of Transportation and Public Facilities Statewide team. Her work concentrates on solving environmental engineering problems with underground storage tanks and petroleum contaminated soils and groundwater.

LUST is one of those words that instantly grabs your attention. However, it can strike fear into the hearts of right-of-way professionals. LUST stands for Leaking Underground Storage Tanks. Underground Storage Tanks (UST) represent the number one environmental liability for any property transaction. The Environmental Protection Agency

If the EPA regulator says, "Sell the kids and get a second job. You have a LUST," it may not be far from the truth!

(EPA) estimates that there are presently four million UST in use and approximately 25 percent are leaking. Therefore, the probability of the right-of-way professional encountering a LUST during their career is very high.

While it's true that some UST are exempt from federal and state regulations (i.e., home heating fuel tanks and small gasoline tanks), no tank is excluded when it leaks. If the right-of-way agent buys or manages property with a LUST, the agent can inherit costly liabilities. The Comprehensive Environmental Response Compensation and Liability Act of 1980 (Superfund) and the Superfund Amendments and Reauthorization Act of 1986 can impose liability on the unwary buyer, regardless of fault. In addition, if the LUST threatens drinking water sources, the EPA can enforce provisions from the Clean Water Act of 1977 which require an immediate clean-up response.

Clean-up costs can be enormous. If the EPA regulator says, "Sell the kids and get a second job. You have a LUST," it may not be far from the truth! A leaking 1,000-gallon heating fuel tank can easily result in a \$30,000 cost to clean up the contaminated soils and replace the tank. If the contamination reaches the groundwater, the total costs often exceed \$100,000. The bottom line is that it's cheaper to detect and avoid a LUST than to acquire expensive clean-up liabilities.

WHAT CAUSES LUST?

UST leak for several reasons. Damaged tank fuel lines and plumbing are the most common causes of leaks. In fact, EPA estimates that 90 percent of all LUST result from faulty plumbing. Pipe connectors corrode faster than the rest of the tank and thus are the most susceptible to leakage. Also, fuel lines are frequently damaged from improper land uses such as operating heavy equipment or driv-



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ing stakes or fence posts over the lines.

Overfills by the fuel delivery company are another frequent mishap. Sometime during the lifetime of an UST the delivery man will spill some fuel around the tank. This event is usually insignificant except when the spill is large or happens frequently. When a large spill or frequent spills occur, the resulting soil and ground-water contamination is identical to a LUST.

Finally, as a tank gets older, the chances of leaking increase greatly. Most unprotected tanks create "corrosion cells" within the soils. This process naturally degrades and pits the tank's walls. Eventually, pinhole leaks develop and slowly release the tank's contents. A corrosion cell develops immediately after a bare steel tank is installed. Pinhole leaks can develop as quickly as five years after installation.

DETECTING LUST

Detecting LUST does not require a highly trained environmental engineer with sophisticated equipment. Real estate appraisers, relocation specialists and property managers possess the necessary observation skills to discover potential LUST. Right-of-way professionals should look for the following signs:

- **Discolored soil around the tank.**

Stained soil indicates that past overfills have occurred. If the stain is large or the soil is clearly saturated with fuel, the right-of-way agent should enlist the help of an environmental consultant to investigate the extent of the contamination. Hopefully, it is just the soil surface that is contaminated, and simple excavation and removal can clean the site. However, if the contamination extends to the groundwater, the right-of-way professional should seriously reconsider purchasing the property.

- **Stressed or dead vegetation near or in the proximity of the tank.**

As a rule of thumb, yellow grass over a fuel tank indicates that the soil is contaminated with 300-500 parts per million (ppm) of total petroleum hydrocarbons (TPH). Grass usually dies with concentrations greater than 500 ppm TPH. Most states tolerate a soil contamination of 100 to 300 ppm TPH. The toleration level is dependent on the exposure risks to the surrounding environment. The right-of-way agent should contact the local environmental regulatory agency to obtain the maximum contamination level allowable on the property.

- **Structural damage such as a bent standpipe or a depression in the ground surface over the tank or fuel lines.**

Frequently, equipment will back into the fill or vent pipe, or drive over the tank or its fuel lines. This can stress the tank and cause the tank, joint or pipe to rupture.

- **Vent pipe that is less than 1.5 feet taller than the fill pipe.**

Fuel delivery companies use positive pressure cutoff valves to stop the flow of fuel into the tank. To generate enough hydrostatic pressure to trip the valve, the fuel begins to rise up the vent pipe until the pressure requirements of the valve are met. The vent must be tall enough to produce the needed force without overflowing, thus generating a spill.

- **Unusual oil consumption rates.** Fuel delivery records are a wealth of information.

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They are available through the fuel delivery company or the present owner. A leaking tank usually becomes worse over the course of time. As a result, fuel records will show a trend of unexplained, increased fuel consumption over a period of a few years.

- **Complaints of an odd taste in the well water.**

Submergible pumps in drinking wells create a "cone of depression" in the water table. This "cone" concentrates any impurities in the water table. Therefore, fuel from a LUST often ends up in the residential water well. Drinking water that exhibits a petroleum odor or an oily sheen must be immediately tested for benzene,

toluene, ethylbenzene and xylenes. These chemicals are components of petroleum products that quickly break down and move in the groundwater. Their presence indicates a spill or release has occurred in the vicinity.

- **Fuel odors in adjacent basements.**

Spilled or leaked fuel usually spreads out and around the tank until it encounters groundwater or an impermeable surface such as a basement wall. The fuel then accumulates at this surface until it finds cracks, pores or an alternate route. Concrete and treated wood foundations often have minute pores or fissures that fumes can impregnate. If the right-of-way agent smells fuel in the basement, a sure bet is that soils along the base-

ment walls are saturated with a petroleum product.

TANK TESTING

If any of these signs are present, with the exception of soil stains, the right-of-way professional must order a tank tightness test. Tightness testing requires the temporary installation of equipment. Basically, there are two types of tightness tests: volumetric and nonvolumetric. A volumetric test involves filling the tank to a specified level and precisely monitoring the change in level and temperature over several hours. Non-volumetric tests include indirect methods such as ultrasound and tracer gas techniques. Regardless what method is chosen, the EPA requires the technique to detect a leak of 0.1 gallon per hour.

Tank tightness tests are sophisticated and require highly trained and experienced personnel to perform them. When choosing a tank testing consultant, the right-of-way professional must verify that the operator is certified to perform the test. Certification is offered by the company who markets the specific method to be used, the Steel Tank Institute or the state environmental regulatory agency. By calling these sources, the right-of-way professional can validate the consultant's method, training and reputation.

The costs of tank tightness testing varies with tank size, location and quantity of tanks to be tested. A reasonable estimate is \$350 to \$500 to test a 300- to 1000-gallon tank.

GOOD NEWS – BAD NEWS

First, the good news. If the tank fails the tightness test, the UST may not be leaking. Since the detection limit for testing is very low, there are a number of reasons why a tank can fail a tightness test:

- Inaccurate information supplied

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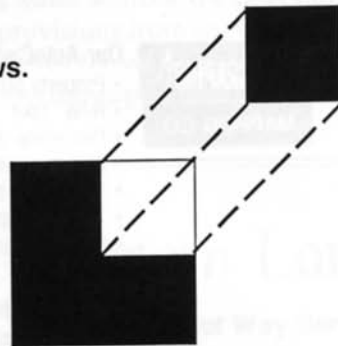
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by the owner to the consultant pertaining to tank size, type and shape

- Temperature changes causing the fuel to contract
- Consultant inexperience
- Malfunctioning testing equipment
- Vapor pockets in the tank
- Tank ends deflect under the increased pressure

The right-of-way professional must make a judgement call if the UST has signs of leaking, but passes the tightness test. The right-of-way agent should not hesitate to enlist the assistance of an environmental engineer to review the results and offer an opinion.

Now, the bad news. If the tank passes the test, it still might be a LUST. A leaky tank can pass the

tightness test for the same reasons previously mentioned. Also, the leak could be below the EPA detection limit. This can still amount to a significant release of contamination. For example, if a test reported an unaccountable loss of 0.04 gallons per hour, the tank would pass the test. However, over a period of one year, this would produce a loss of 350 gallons. The costs of removing the contamination from the soils and groundwater that were caused by this leak would be enormous.

Remember, with the exception of the inert tracer method, tank tightness tests do not detect historical spills. What this means is, the tank may pass a tightness test, but the soils still could be contaminated from overfills.

BE WARY

Whenever property acquisition or management is contemplated, the right-of-way professional must be alert to the presence of UST on the property. If an UST is found, the right-of-way agent must look for the leak or spill signs previously described. If these signs are present, a tank tightness test must be ordered, along with soil and groundwater testing if necessary. The right-of-way professional should incorporate the opinions of an environmental engineer if any doubt remains about the extent of the contamination.

Tank and soil testing will raise the cost of doing business, but it is far cheaper to be safe now than sorry later. Remember, UST is cause for concern, but LUST is downright scary! 