
THINK



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Expedited Site Closure

by Emil Onuschak, Jr.

The first question asked by owners and operators after they learn they are responsible for a leaking underground storage tank is "How soon can I get it closed?" This interest is shared by the Underground Storage Tank (UST) Branch because the sooner a leaking tank is addressed and appropriate remediation is completed, the less the damage to Delaware's soil and groundwater resources. And environmental contamination that is not addressed is a cost that, sooner or later, we all pay.

"*Expedite*," meaning "to carry out promptly; to facilitate" is a hot topic these days, in Delaware and nationally. The U.S. Environmental Protection Agency is officially encouraging and supporting the expediting of program actions wherever possible and standards-setting organizations such as the American Society for Testing and Materials (ASTM) are busy developing the standards and procedures to implement the concept.

The UST Branch is working with the EPA and ASTM to make sure Delaware's needs and interests are represented and to learn from others new ways to improve our program for the benefit of all.

So, how can we work together to expedite closure of your leaking underground storage tank (LUST) site? There is a whole menu of actions you may consider, ranging from the simple and inexpensive (even free!) to the complex and costly. One of the services provided by the UST Branch is to help you choose from among these actions what's best for expediting closure of your site and still

meet the requirements of State and federal underground storage tank laws.

In general, you can't go wrong with the following actions:

1. Play by the rules.

The fastest, cheapest release to fix is the one that never occurs. Operate your underground storage tank facility properly and you can prevent almost all releases from happening in the first place. And if you or your employees have any questions about proper design, installation, operation, maintenance, retrofitting or closure of an underground storage tank facility, \$50 per regulated tank per year buys *unlimited* expert support on all these topics from the UST Branch!

2. Talk to us.

Ask questions. If you don't understand the answer, ask again. We'll tell you what's required—and why—and we'll offer suggestions and guidance based on our own staff's skills and experience, and gleaned from other experts worldwide. Contrary to what "they" say, we're not out to "get you" — there's simply no point to that. The truth is, we're all in the same boat and it's in everybody's best interest to paddle together!

Oh alright, talk may be cheap, but it's not free. Unless you can visit our office in person, talking to us will cost you the price of a first-class stamp or a long-distance phone call.

A word of caution to any newcomers reading this: some folks have difficulty

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dealing with such a candid approach. They don't feel secure unless they're surrounded by lawyers and financial advisors. They may be tempted to perceive our candor as a sign of being "easy." **Don't.**

Dealing in good faith goes a long way toward expediting closure of your LUST site. It's what we do. Anything less on *your* part would be a big mistake.

3. Do something... now!

Okay, you've played by the rules and you're comfortable that you understand everything you need to know about your underground storage tank facility. Still, a fateful day arrives when you get some unwelcome news: your facility has suffered a release. Words and phrases like "release," "volatile organic compounds," "adsorbed phase," "regulated substance," "hydrogeologic investigation," "contamination," "parts per million," "Maximum Contaminant Limit," and, of course, "liability!" swirl through your mind with numbing effect. Alright. Allow yourself 30 seconds for uncontrolled rapid breathing, then get a grip and assert yourself.

Put out of your mind any thoughts of having "Uncle Billy" or "Cousin Joe" yank the offending tank some dark weekend. They wouldn't be doing you any favor.

Because despite all the scientific and technological advances in the proper management of underground storage tanks, despite all the terminology, the fact remains that the single most effective procedure you can use to expedite closure of a LUST site is: **do** something and do it **now!**

But wait! you say. You've heard that "Mother Nature" will naturally destroy the contamination emanating from your facility.

Can't you just wait for the problem to "go away?" Well, that depends. On what, you ask? On whether or not you can wait several *centuries* for Nature to do its thing! On whether you may get thirsty in the meantime, or want to redevelop the site, or sell it, or leave it to your heirs, and on whether your neighbors— especially those in the downstream direction—take exception to your inaction. And all this in addition to the possibility that the Department or the Attorney General's Office may decide to select *you* as the perfect example, as in "to make an example of."

There's one thing as a tank owner or operator that you may *not* do: it is not up to you to decide whether or not a release has occurred. Making this decision is the responsibility of the UST Branch, based on the authorities and criteria contained within the Underground Storage Tank Act, its regulations and the UST Branch's "Technical Guidance Manual."

Specific steps in this decision-making process are described in "Think Tank" articles nearly every quarter and, when necessary, may be resolved individually by a simple telephone call to the UST Branch.

Don't try to ignore the need for action. As part of its assignment, the UST Branch tracks the status of all registered underground storage tanks in Delaware and can readily tell who's been naughty and who's been nice in this regard! You're interested in *expediting* closure of your site, remember?

Alright. Your facility has suffered a release, it's been confirmed and you're ready to face up to your responsibilities. What, specifically, do you do? You exercise your common sense. You can't solve the problem until you know how far it extends. You

want the answers to four questions: (1) where did the release start, (2) how far has it gone, (3) how did it get there, and (4) what are your options?

After a release is confirmed, most owners and operators decide to hire a consultant who has the tools and the experience to define the extent of the problem and then solve it in an expeditious manner. Which one do you hire? Purchasing professional services is just like buying anything else: you shop around, ask questions, compare prices and check references. One thing the UST Branch *cannot*— indeed, *may not*—do is recommend individual consultants.

However, we can supply you with names of contractors and consultants who do UST work and who are familiar with procedures in Delaware.

And, since September 12, 1995, contractors performing installation, closure, retrofit/upgrade and relining of regulated underground storage tanks are required to be certified by the Department. Certification means the contractor has received training in the proper performance of these tasks, has adequate insurance and has passed a written examination.

4. Take charge.

Make it your business to know what's going on. Ask questions, but try not to argue. Arguing wastes everybody's time.

If you feel confused by unfamiliar terminology, ask for clarification. If you want another opinion, call the UST Branch and we will explain terminology to you. We do not compete with private consultants or contractors, of course, but it *is* our job to evaluate, comment on and approve or disapprove their proposals.

Delaware's 1998 Compliance Deadlines

The previous two articles in this series discussed tank testing requirements and impressed current systems and their relation to the December 22, 1998 requirement that all existing tanks and integral piping meet corrosion protection standards. This part will discuss sacrificial anodes as a compliance option to meet those standards.

Differences in electrical potential develop when a metal is placed in contact with an electrolyte. This phenomena is called galvanic corrosion, and is what happens when a steel tank, or product line is placed in the ground and surrounded by moist soil which acts as an electrolyte. Impurities in the steel and differences in the electrolyte concentration create corrosion cells, and over time will cause tank or line failure. (Fig. 1)

One method of protecting steel is the addition of a sacrificial anode. The anode is at a higher energy level (potential) than steel and when electrically connected to the tank, will corrode preferentially in place of the tank, thereby protecting it. (Fig. 2)

New USTs may be installed with attached anodes as in the stiP₃® system. The tank is coated to reduce the amount of exposed steel, electrically isolated from the

product lines and an anode designed to protect the tank from corrosion for at least 30 years is attached. To insure that the UST and anode work properly, any damage to the coating during the installation process must be repaired before the tank is covered. Also, care must be taken to insure that the dielectric bushing that electrically isolates the tank from the piping is not damaged and the plastic covering placed over the anode during shipment must be removed before installation. Steel piping may be protected by applying a suitable coating and adding bag anodes which are then electrically connected to the steel pipe.

Existing USTs and their associated piping may be protected by retrofitting with anodes. In this case, the number of anodes and their placement must be specified by a certified corrosion expert. The cost for upgrading a bare steel tank and piping with sacrificial anodes may make this an unattractive option. Other options such as impressed current or internal lining may be more cost effective if the choice is to keep the existing tank.

Properly designed and installed, a sacrificial anode system is a simple and effective low maintenance method to prevent

corrosion. Regulatory requirements require that the cathodic protection system be tested within six months of installation and every three years thereafter. Testing is a simple procedure that takes only a few minutes and does not require any down time for testing. The results must be kept on file with other UST records.

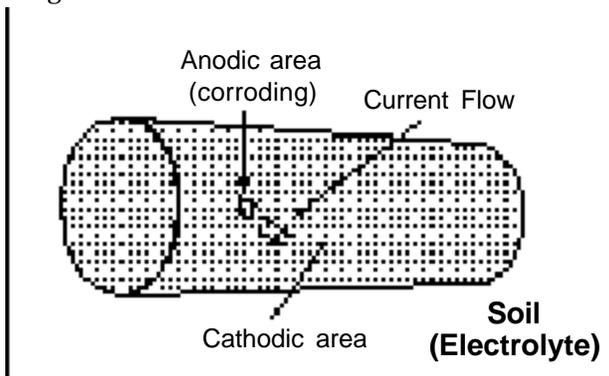
Note: In the early years of the UST program, well intentioned tank owners were approached by well intentioned contractors to take proactive measures and protect existing bare steel tank systems from corrosion. The fix consisted of using the same size and number of anodes as on the stiP₃® tank and attaching these anodes to the existing bare steel system.

The fix was doomed to failure. No calculation of the number and proper location of the anodes by a corrosion expert was involved; consequently the anodes have certainly been exhausted and the systems are now unprotected.

If this scenario sounds all too familiar to you, please take the steps needed to assess your system. If you missed a required test of the system, then what you don't know may cost you. □

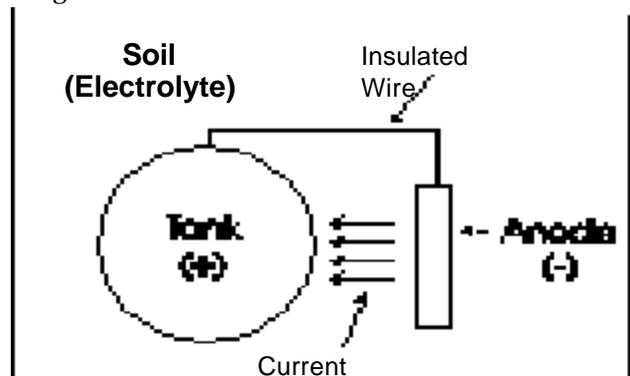
DON'T BE LATE FOR 1998!

Fig. 1



Corrosion cell on an unprotected tank.

Fig. 2



Sacrificial anode protecting tank.

THINK TANK

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Make sure the UST Branch is informed *before* large amounts of time or money are invested (see Point #2 above). The Branch has published a "Technical Guidance Manual" of recommended procedures for doing just about everything. Including nifty checklists.

You might spring a pop quiz on any consultant you're considering hiring and ask if he knows about and follows the UST Branch's "TGM." In fact, the UST Branch has, free (see, I told you!) for the asking, a quick-read brochure on how to hire a contractor or consultant.

5. Follow through.

It is not the purpose of this short article to try to summarize all the publications that provide guidance on various aspects of expediting site closure. Rather, the purpose of this article is to pique your interest in how you

can best help yourself when you find you're responsible for a LUST site.

For those who are interested in more detail, the following list of selected readings should prove useful. n

Selected Readings:

ASTM, Standard guide to site characterization for environmental purposes with emphasis on soil, rock, the vadose zone and ground water, D5730-95, American Society for Testing and Materials, Conshohocken, PA.

ASTM, Guide to risk-based corrective action at petroleum release sites, E1739, American Society for Testing and Materials, Conshohocken, PA.

Onuschak, Jr., Emil (1994) Decisions, decisions...!: "Think Tank," No. 12, spring, 1994.

USTBranch, Technical Guidance Manual: New Castle, DNREC.

Announcements

Barbara Thompson, our Facility Information Specialist, was married June 16. We wish Barb and her husband Jim the best. In the future, please ask for Barbara McGuigan.

Corrosion Protection Required

