VERMONT
ENVIRONMENTAL CONSERVATION

UST TALK

A Newsletter for Underground Storage Tank Owners/Operators
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MANY TANKS ARE FAILING THEIR THREE-YEAR CATHODIC PROTECTION TESTS

Since 1986, any category one underground storage tank system installed in Vermont has been required to be protected against corrosion. Typically this is done either by using nonmetallic, non-corrodible construction materials such as fiberglass, or by using cathodic protection (CP) to prevent corrosion of metal components. CP is a method of preventing the corrosion of metals by passing an electric current through an electrolyte to the metal surface. This flow of electricity opposes the flow of electrons thus protecting the metal.

In the late 1980s and early 1990s, cathodically protected tanks were the most common type of tank installed in Vermont. At present, there are 1,383 cathodically protected category one tanks installed in our state. This represents 60% of the category one tank population.

Regulations require that cathodically protected systems be tested at least every three years. Since 2000, tank owners have been required to submit their cathodic test results to the UST Program. Recently, we have seen an increasing number of failing tests of cathodic protection systems. Of the 744 tanks that were tested in 2006, 76 tanks – more than 10% – failed. Most of the failed tanks were aged 16- 20 years, but a few tanks that were not even ten years old failed.

Considering how many cathodically protected tanks we have in Vermont, this rate of failure is a very serious cause for concern. It is very likely that the failure rate will increase as the existing population of cathodically protected tanks continues to age. When new, most cathodically protected tanks were supposedly guaranteed from external corrosion for as much as 30 years. Unfortunately many of the manufacturers are no longer in business, and a large number of Vermont tank owners did not register their tanks with the organization providing the warranty, which was a required action in order to activate the warranty. This means that in many cases, a tank owner with a failed cathodic protection system will not be aided by the tank's original warranty. (*Continued on page 4*)

UST Regulations Begin Public Process

On Wednesday, February 7, 2007 the proposed revisions to the Vermont UST Regulations were filed with the Interagency Committee on Administrative Rules (ICAR). This is the first step in the public process of updating the underground storage tank regulations. The purpose of the ICAR review is to ensure that the UST regulations will not conflict with regulations issued by any other state agency. By the time you read this, the ICAR review will probably have been completed, and the public hearings may already be scheduled. A summary of significant changes was published in the fall 2006 issue of the UST Talk newsletter. For the latest information on the public process, or to download a copy of the proposed regulations, visit the UST Program's web site at:
http://www.anr.state.vt.us/dec/wastediv/ust/home.htm

These Charts Tell a Scary Story

These two bar charts tell an alarming story. In 2006 Vermont's UST Program saw a record number of failed cathodic protection tests. As much as we would like to think last year was a fluke, the charts tell us otherwise.

The first graph (Fig. 1) shows the number of cathodically protected tanks that were installed in Vermont for each year. By far, the vast majority of CP tanks were installed during the late 1980s and early 1990s. Keep that in mind while looking at the second graph.

The second graph (Fig. 2) shows the numbers of failed CP tests that were reported to the UST Program over the last six years, and the ages of the tanks when they failed. Over the last several years we saw few failures of tanks that were less than 10 years old, and a modest number of failures of tanks that were between 10 and 13 years old. However, we saw quite a few failures in tanks that were between 13 and 16 years old, and a large number of failures of tanks that were more than 16 years old.

Now, look again at the first chart. See the large number of tanks that were installed in the late '80s and early '90s? All those tanks are now either of the age or soon will be of the age where they are likely to fail their CP tests. This means that in 2007 and 2008 we are likely to see many more failed CP tests.

If you have cathodically protected tanks that are more than, say, 15 years old, you should be prepared for the strong possibility that they will not pass an upcoming cathodic test. How should you address this possibility? First, have your anodes tested early during the construction season. Even if they are not due for their next test until fall, it's a good idea to test them in spring or early summer since it is much easier to install new galvanic anodes or an impressed current system during the warm months. And keep in mind that cathodic protection contractors are busy, so report a failed test to the UST Program as soon as you receive the results, then call a CP contractor. The UST Program requires that failed CP systems must be repaired or replaced within 90 days of the failed test, so there is no time to lose.

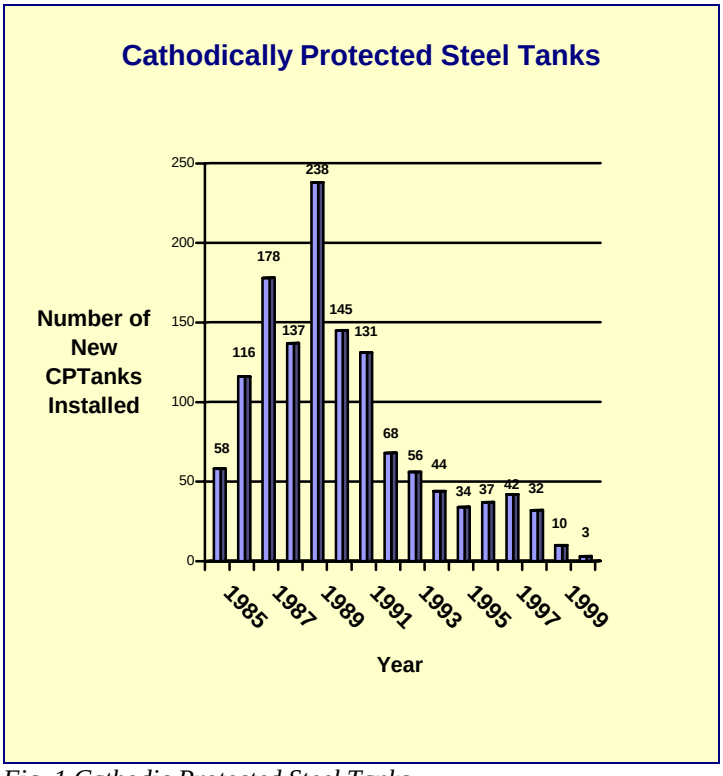


Fig. 1 Cathodic Protected Steel Tanks

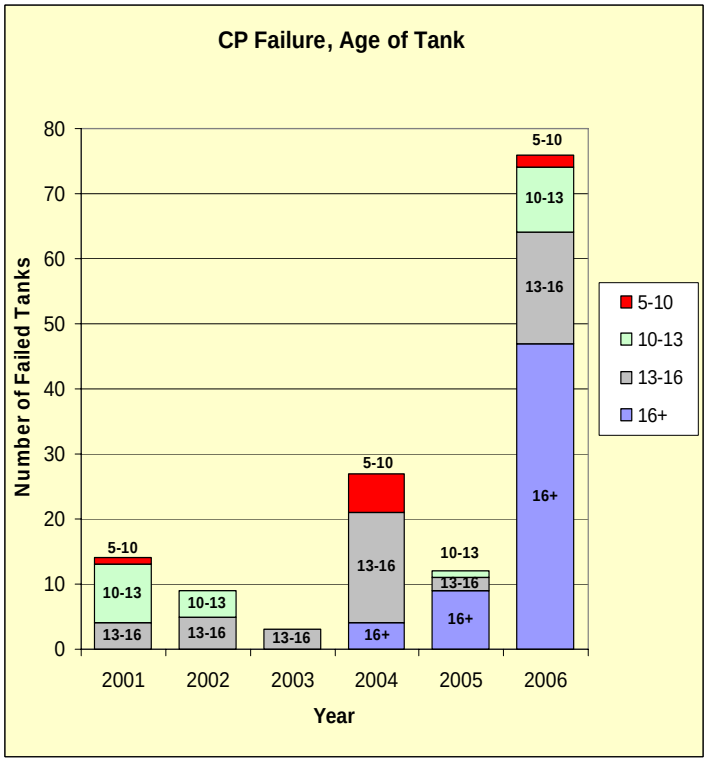


Fig. 2. Cathodic Protection Failure, Age of Tanks

Free Workshops Usher in Environmental Results Program

The Vermont DEC is targeting UST facilities for the implementation of the State's first Environmental Results Program (ERP). One component of the ERP is annual certification of compliance by UST owners/operators.

To assist tank owners with the new task of ERP self-certification, the DEC will be offering free half-day workshops to the public at various locations around the state in late April and early May (see the form below for the date, time, and location of the workshop nearest you). These workshops will introduce tank owners to the ERP and explain the self-certification requirements and procedures.

The Department of Environmental Conservation asks that all participants **register by April 18, 2007**.

TO REGISTER: *Please fill out the form and check off which workshop(s) you would like to attend and return the form below to the following address, or choose one of the other options (fax, email or call Sue).*
Department of Environmental Conservation, attn: Susan Thayer, 103 South Main Street, West Bldg., Waterbury, VT 05671-0404.
***Tel.** #: (802) 241-2361. **Fax**#: (802) 241-3296. **Email address**: susan.thayer@state.vt.us We look forward to seeing you!*

Name:_____ ***Company***:_____
(Please print name or type)
Address:_____

City/State/Zip: _____ ***Tel***: _____ ***Fax***:_____

Please do not call the facilities listed on the form below.

	Self-Certification Workshop Planning					
✓	City/Town	Date	Time	Facility	Street Address	Website (for directions)
☐	Bennington	May 10	9-12:30	Bennington Free Library	101 Silver Street (on the corner of Main and Silver Streets in Bennington)	
☐	Brattleboro	May 9	1-4:30	VT Agricultural Business Education Center	Old Guilford Road, next to Ft. Dummer State Park	http://www.vabec.com
☐	Burlington	April 24	1-4:30	Zampieri Building	108 Cherry Street, across from bus station (downtown)	
☐	Newport	May 4	9-12:30	Emory Hebard State Office Building	100 Main Street	
☐	Lyndonville	May 7	1-4:30	Lyndon State College	1001 College Road	http://155.42.122.3/
☐	St. Albans	May 2	9-12:30	Northwestern Medical Center	133 Fairfield Street	http://www.northwesternmedicalcenter.org/
☐	Rutland	April 25	1-4:30	Rutland Free Library	10 Court Street	http://www.rutlandfree.org/
☐	White River Jct.	April 26	9-12:30	Hotel Coolidge	39 South Main Street	http://www.hotelcoolidge.com/about/directions.html
☐	Montpelier	May 1	9-12:30	State Offc. Bldg Pavilion – 4th Floor	109 State Street	

MANY TANKS ARE FAILING THEIR THREE-YEAR CATHODIC PROTECTION TESTS *(Continued from cover page)*

Why are so many tanks failing? No one knows for certain, but there are many theories. Some cathodic engineers hypothesize that the factory installed anodes were too small for the size of the tank and over the years the anodes depleted faster than expected. Electrical continuity can also be a significant factor in the failure of a cathodic protection system. If underground conduit or other metallic components of the tank system are in contact with the tank, the anodes will deplete faster than they should because they are trying to protect more metal than they were designed for. Determining why a tank has failed requires the skill and knowledge of a corrosion engineer or a corrosion specialist. The repair or upgrade of a cathodic protection system has to be in strict accordance with established industry practices.

Upon receipt of a failed cathodic protection test, the UST Program sends a certified letter to the tank owner or operator requesting that the corrosion protection be restored within 90 days. If the tank owner or operator decides not to repair the corrosion protection, the tank cannot remain in service and must be emptied of product within 90 days of receipt of the letter.

If the corrosion protection is not restored within the 90 days, the UST system must be shut down. An extension for completing the work may be granted beyond the 90 days if the tank owner can demonstrate that he or she has made a good faith effort to restore the system and that circumstances beyond their control are preventing the timely completion of the work. However, tank owner(s) and operator(s) should be aware that extensions beyond 90 days will be rare, and that under no circumstances can an underground storage tank permit be renewed if the tank's corrosion protection is not restored. And operating a tank without a valid permit is a violation of both Vermont law and the Underground Storage Tank regulations.

For this reason, it is especially important that people not wait until late in the year, or until shortly before a permit's expiration date, to test their cathodic protection system. If a system is tested in November or December and it fails, the 90-day window to restore the CP system occurs during the worst time of year to work on a system. Likewise, if a tank owner has the CP system tested just a few weeks before the UST permit expires, and the system fails, the tank owner will have to take the tank system out of service when the permit expires, because the UST Program cannot issue a new permit until the CP system is operating properly.

OPERATING PERMIT COMING UP FOR RENEWAL?

TO RENEW an OPERATIONAL PERMIT for an UNDERGROUND STORAGE TANK the Agency must have on file the following

If applicable to your tank systems:

- **Cathodic protection monitoring test within the last three-years**
- **Line leak detector test within the last year**
- **If the piping leak detection monitoring is an annual line test for a pressurized system, a line test within the last year**
- **If the piping leak detection monitoring is a line test for a suction system, a line test within the last three-years**
- **Stage II – Vapor Recovery System Pressure Decay Test or Annual Maintenance Report**
- **Pressure Decay Test, Air to Liquid Ratio Test, or Blockage Test, within the last five-years**

Thinking Ahead

DO YOU HAVE CATHODICALLY PROTECTED STEEL TANKS?

IS THE THREE-YEAR TESTING DUE?

FOR BETTER RESULTS SCHEDULE TESTING IN THE SPRING AND SUMMER

IF TANKS FAIL, GOOD WEATHER IS NEEDED TO RESTORE CORROSION PROTECTION

2006 UST Compliance Review

The Energy Act of 2005 requires the UST program conduct inspections of every facility that had NOT been inspected since 1998 by August 2007. The number of facilities that fit this category is 660! With the hiring of two outstanding inspectors (as temporaries), and with some assistance from EPA Region I (80 inspections in southern counties), the program conducted approximately 550 inspections! This puts us in great shape to meet our Aug. 07 requirement, and get a good jump on the approximately 400 inspections we'll have to conduct on an annual basis going forward.

The compliance rate for the UST sector is not that impressive; for the 550 inspections, we issued 256 **Notices of Alleged Violations** (NOAVs). This puts the compliance rate at 54%. Thirty-seven of the NOAVs are still open awaiting repair, replacement, or operational correction actions and documentation from the owner/operator.

Despite the large number of NOAVs, owners and operators by and large have accomplished the requested actions and returned their facilities to compliance. We have only referred two cases to the Enforcement Division for further action.

By far the two most frequent violations we wrote NOAVs for in 2006 were failure to conduct weekly manual interstitial monitoring, and problems with spill buckets (full of fuel, water, or debris, or cracked and leaking). And the biggest problem we had with follow-up was getting recipients of NOAVs to respond IN WRITING! Many NOAV recipients expected their contractor to respond to us on their behalf; this often didn't happen because contractors were very busy, or information was submitted that didn't address all the items in the NOAV. To help NOAV recipients ensure documentation of completed actions gets back to the UST Program, we have developed a form (see below) that can be signed and sent in; hopefully this will cut down on the number of calls we make chasing responses to NOAVs!

In 2007, we will continue with our inspections, targeting first the remaining 120 facilities that have not been inspected, then beginning our schedule of inspecting one-third of the facilities in the state every year. To meet our inspection goal, we will again be conducting nearly 500 inspections! We are currently in the process of hiring another temporary inspector for the coming year to help us with this task!

VT DEC Underground Storage Tank Program
NOAV Response Form

FACILITY ID # _____ **You must respond to a Notice of Alleged Violation (NOAV) in writing.**
This form has been provided for your convenience. **The due date is _____**
(*Please call the contact at the bottom of this page if you cannot complete all the requested actions by this date*).

Complete this form and mail or fax it to: VT Department of Environmental Conservation, Waste Management Division, UST Program, Attention: _____, 103 South Main St., West Office Bldg., Waterbury, VT 05671-0404. FAX # 802-241-3296

Please check all that apply:

- ❑ **I have completed all of the requested actions in the NOAV**.
- ❑ **You must provide an explanation of how the actions were completed**. (For example: *On June 15, 2007, XYZ Contracting replaced the electronic sump sensor in the Super gasoline sump. The enclosed printout shows that it is now working*). Photographs and/or work invoices may be used to show the actions taken. Please continue with an additional sheet of paper and return it with the form, if necessary.

_____

_____

- ❑ **I have enclosed the required documentation (e.g., weekly leak detection records).**
- ❑ **I have enclosed photographs of and/or work invoices for the completed actions (optional).**

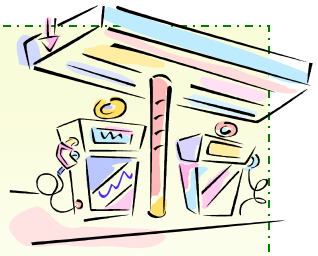
_____ _____ _____
Print Name of Tank Owner/Permittee **Signature of Tank Owner/Permittee** **Date**

_____ _____ _____
Print Name of Contractor (optional) **Signature of Contractor (optional)** **Date**

If you have any questions or are unable to meet the due date, call: _____

Thank you for your cooperation.

Environmental Gasoline Station Checklist



For the past two years we have mailed to all permittees of retail gasoline stations a checklist warning what tests are due in the current year on the tank systems. We hope to expand this service to all facilities this year.

- ✓ **Watch your mail, checklist mailing date is planned for March 5th**
- ✓ **Schedule the required tests with your tank contractor**
- ✓ **Vapor Recovery Stage II annual maintenance test is required to be done by May 15th**

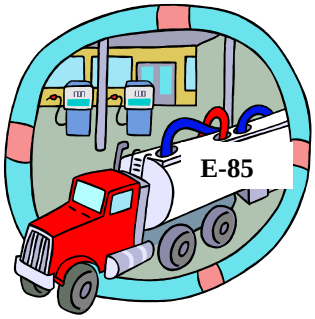
One of the reasons for supplying tank owners with the Checklist in the winter is to warn of the upcoming test requirements and for them to be scheduled with a contractor before the due date. Also by knowing which ones are due in the current year, it may be more cost effective to have the contractor on site once to complete all testing rather than two or three times.

If you have questions on the checklist, please call the UST Program at 802-241-3888.

UST Loan Program

Legislation has been drafted to be introduced in the 2007 legislative session to expand the loan program to include all category one tanks. This would mean loans could be made for the replacement of a tank installed after January 1987 at any facility. Due to the number of abandoned tanks still being discovered, the loan program also would be expanded to cover the removal of any petroleum tank that may pose a risk of release to the environment.

Is E-85 (85% ethanol and 15% gas) coming to Vermont?



If it does, all tank owners – especially those with fiberglass tanks – had better make sure their tanks are compatible with this product. Many fiberglass tanks manufactured prior to July 1990 may not be compatible with E-85. Vermont has 274 fiberglass tanks permitted for operation; of those 157 were installed prior to 1990, and 129 are single walled. Similar concerns exist for piping systems, as well as gaskets and seals in pumps. Tank owners, be aware: gasoline is changing! Make sure all materials your tank system is made of are compatible with the product you want to store in it.

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