Corrosion Issues with Underground Propane Tanks

How to meet the requirements for testing and documentation for customer-owned tanks

Underground propane tanks are a great way to store propane and not lose space in your yard or have to look at the tank. They are also protected from the effects of fire. But, they can rust and cause problems for their owners.

Consumers who own their own underground propane tanks need to know that some of the rules for those tanks have changed. The rules specifically apply to new installations (as of January 1, 2011), but they can affect tanks that have been installed for several years.

The latest edition of the *LP-Gas Code* has a requirement that each underground (UG) propane tank installed after January 1, 2011, must have a cathodic protection system (see below) included to help prevent corrosion of the tank. There are also requirements for testing the effectiveness of the system on a specified schedule, to document the testing, and to maintain the test results for a specified time.

Background Information

The purpose for the cathodic protection is to provide a higher level of safety. UG propane tanks can be subject to severe corrosion conditions and can degrade and start leaking over time with no visible signs. Leaks from UG tanks have resulted in injuries and severe property damage.

The type of cathodic protection usually provided is an anode bag, which is a magnesium or zinc rod enclosed in a cloth bag with a moistening agent and electrically connected to the tank. This is not the place to go into the theory of operation of a cathodic protection system, but the metal in the anode bag corrodes away and, in so doing, protects the steel of the propane tank, just as a sacrificial anode does on a boat.

Meeting these requirements for tanks owned by the propane companies is not a significant issue. They know the requirements and have accepted the responsibility to comply. Tanks owned by their customers are a different situation. Testing must be performed according to the specified schedule and documentation kept. We are trying to determine how to best accomplish that among customers who traditionally know little about the technical side of their propane systems. However, those who have purchased their own tanks have the responsibility for performing tests or having them performed and maintaining documentation.

The schedule for testing these tanks is not burdensome, but it must be followed. The test is conducted with a volt meter and a certain reference cell and returns a voltage value. Above a certain voltage and the system is working properly; below that value, it fails. The initial test must be performed when the tank is buried and verifies that the protective system is working. The second test occurs 12 to 18 months later. If both of these tests result in values that are acceptable, the test interval increases to not more than 36 months. If the test value ever falls below the acceptable voltage, the system must be repaired and the test schedule starts over. The results of each test must be documented and the results for the last two tests must be retained and available for inspection. We suggest that the test results should be kept for the life of the tank. The voltage readings can be valuable information and can indicate when the anode may be reaching the end of its life.
The Survey

We encourage you to take the survey, below, so you can provide input for how you feel your UG propane tanks should be treated with respect to this new rule. Complete the survey and mail it to:

NCDA&CS, Standards Division
Attention: Survey
1050 Mail Service Center
Raleigh, NC 27699-1050

or FAX to 919-715-0524. We will accept responses to the survey, written and online, until the end of November 2011.

The purpose of the survey is to gather ideas from consumers. There may be some ideas presented to us that we would like to implement, but laws and regulations may prevent that. We want to get the pulse of what is important to consumers with these tanks. What are you thinking relative to the new rules? What should we consider as we plan our inspections that help ensure safety? We look forward to your input.

Please limit your responses to underground propane tanks only. These requirements do not apply to above ground propane tanks or to tanks containing any other fuel, water, or other liquid.

Thank you for your time and consideration.

1. In light of the information above about the requirement to have cathodic protection and to provide for testing and maintaining the documentation of that testing, I feel that: (check one)
   a. __ The propane company that supplies fuel should be responsible for testing and documentation.
   b. __ The propane company should give me the option of who (the company or me) should be responsible.
   c. __ I would prefer to have an independent person, such as a company in business to provide testing and documentation, perform the testing, and maintain the documentation. I would make the arrangements.
   d. __ I would prefer to have an independent person, such as a company in business to provide testing and documentation, perform the testing, and maintain the documentation. The propane company would make the arrangements.
   e. __ I, as the owner of the tank, would maintain the documentation on my own and make it available to my supplier and the inspector.
   f. __ Other. Please explain ____________________________________________________________

2. The propane company should maintain a list, possibly including themselves, of companies that can do the required testing and make it available to me on request. (check one)
   a. __ Yes
   b. __ No
   Comments?
3. If you selected No to question #2, what is your preferred way to find out who can perform the testing? (check one)
   a. __ I would consult a printed document, such as the Yellow Pages, to find a testing company.
   b. __ I would consult the Internet and do a search for a testing company.
   c. __ I would call the propane company and ask for their suggestion.
   d. __ I would contact a government agency to get a list.
   e. __ Other. Please specify ____________________________________________

4. Considering that a propane company needs to know when a customer-owned UG propane tank was installed and whether or not the tank is cathodically protected if it was installed after January 1, 2011, what is the best method for them to find out? (check one)
   a. __ They should question the owner, who will tell them.
   b. __ Whoever installs the tank must leave a clear, weather-resistant tag on the tank that shows the installation date.
   c. __ Whoever installs the tank must leave a clear, weather-resistant tag on the tank that shows who to contact to find out the installation date.
   d. __ Other. Please specify _____________________________________________

5. As part of their inspection duties, LP-Gas Inspectors will test UG propane tanks for whether or not they are corroding, no matter when they were installed. This is a non-destructive test that does not involve any digging or uncovering of the tank, unless mud has accumulated under the dome. The preferred action of the inspector is: (check one)
   a. __ When active corrosion is found, the inspector should notify the owner of his findings and provide suggestions for correcting the situation.
   b. __ When active corrosion is found, the inspector should notify the owner of his findings, provide suggestions for correcting the situation, and hang a tag on the tank stating that no deliveries to that tank are allowed until the situation is corrected.
   c. __ Other. Please specify _____________________________________________

6. We have taken the position that, according to previous LP-Gas Code requirements, testing of UG propane tanks is needed to determine if corrosion is occurring. (As we have limited staffing, a sampling of tanks would be tested.) When inspectors find that corrosion is occurring, they will write an inspection report to the owner, stating that corrections are required. Usually, this means adding an anode bag to the tank installation. As anode bags are not easily available to the public, the owner’s course of action should be: (check one)
   a. __ Contact the propane company to have them correct the problem.
   b. __ Contact a testing company to have them correct the problem.
   c. __ Materials and instructions should be easily available to tank owners so they can make the corrections themselves.
   d. __ Other. Please specify _____________________________________________
7. Having a UG propane tank in use that is actively corroding violates some of the safety requirements of the LP-Gas Code. Typically, when an inspector finds a tank in violation of those rules, the tank owner is notified of the violation and given the opportunity to correct the violation. If the violation is not corrected in the allowed time, then the owner of the tank, even if it is the customer, may be subject to civil penalties. We know of a situation where a leaking tank caused a neighbor to suffer burn injuries. The tank owner may have liabilities he does not expect. Do you feel that the possibility of a penalty is justified?
   a. __ Yes. Please explain _______________________________________________________
   b. __ No. Please explain _______________________________________________________

8. Some propane customers own their UG propane tank and switch suppliers at will. When they change, the new propane company will have no information readily available about the previous test results on the tank. Assuming that the company is not allowed to make a delivery unless they know the tank passed the test, the preferred way to inform the company is to: (check one)
   a. __ Have the delivery person check with the owner to find out the test results. If the owner is not at home, no delivery is allowed and the owner may be charged for a missed delivery.
   b. __ Have the delivery person check with the testing company to find out the test results. If the testing company cannot be reached, no delivery is allowed and the owner may be charged for a missed delivery.
   c. __ Have the test results summary (pass or fail and the next test due date) attached to the tank on a weather-resistant tag so the delivery person has immediate access to the information.
   d. __ Other. Please specify _____________________________________________

9. What other comments would you like to make about this issue? Please put these comments on an additional page.

10. The person providing responses to these questions is: (check one)
    a. __ An owner/employee of a propane company.
    b. __ A customer of a propane company.
    c. __ A citizen with an interest in this issue.
    d. __ Other. Please explain _____________________________________________

11. If you are a customer or otherwise interested citizen, do you have, on your property, an underground (UG) propane tank? (check one)
    a. __ Yes
    b. __ No.

12. Is this UG propane tank yours or the propane company’s? (check one)
    a. __ Owned by the propane company.
    b. __ Owned by the property owner/customer with a bill of sale or other proof of ownership.
    c. __ Owned by the property owner/customer with no proof of ownership.