Maine Department of Environmental Protection

Tanks In Maine

News for Those Who Install, Inspect or Manage Underground or Aboveground Tanks in Maine

Volume 1, Issue 1 December 2005

DEP Guidance on Flexible and Nonmetallic Piping

The Department issued revised guidance entitled, "Guidance on Permissible Forms of Nonmetallic Piping Pursuant to 06-096 CMR c. 691 §5.B(1) and 6.B(1)" on October 18, 2005. The Department mailed the document to all installers and inspectors and a list of interested parties soon after.

In July 2005, Underwriters' Laboratories (UL) issued a revision to their Standard 971, "Nonmetallic Underground Piping for Flammable Liquids." Numerous instances of piping failures, especially flexible piping, provided the impetus for UL to determine the existing standard failed to protect the piping from failure. For example, one employee of the Florida Department of Environmental Protection, who records voluntary reports of flexible piping "incidents" (failures) and discharges, released a recent compilation in September 2005 documenting over 420 such recorded incidents from 25 states.

One of the 25 states is Maine, where at least eight (8) instances of degradation of flexible piping, fortunately not involving discharges, have been found or confirmed by DEP Staff. The incidents discovered in Maine didn't become major discharges because they were caught in time by installers, inspectors, DEP staff, and the leak detection systems. In one case, degraded pipe resulted in approximately 800 gallons of product collecting in sumps. However, it was contained, discovered, and corrected before escaping into the environment.

Failed Flexible Secondary Containment Piping

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STI Revises Inspection Standard for Aboveground Storage Tanks

The Steel Tank Institute (STI) issued the third edition of SP 001 "Standard for Inspection of Aboveground Storage Tanks" in July of 2005. This latest edition replaces STI SP001-03, "Standard for Inspection of In-Service Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids," issued in January of 2003. The current edition was developed, in part, to address the July, 2002 revision of the federal Spill Prevention, Control and Countermeasures (SPCC) regulation that includes integrity testing of regulated tanks. The current standard includes a revised inspection schedule based upon the capacity of the tank, secondary containment and provisions for leak detection. The revised standard also includes field erected tanks up to 30 feet in diameter and 50 feet high, and portable containers 55 gallons or greater in size.

For more information on the third edition of SP 001 or to order a copy of the standard, you can visit the STI's website at www.steeltank.com or contact the STI by telephone at: (847) 438-8265.

A New Look:

In the last issue of "The Maine Installer," we let you know we were evolving our format. This is the next step in that process, in which we've changed the name. We will still publish information germane to certified underground oil tank installers and inspectors, but we will also include information helpful to owners and operators of Underground and aboveground tanks.

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DEP Piping Guidance (Concluded)

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A detailed discussion of UL's actions can be found on the internet at the Petroleum Equipment Institute's (PEI) website, www.pei.org/ul971/. While UL attributed piping failures to "improper installation, inadequate maintenance, and failure to respond to alarms," it felt it needed to address the problem by requiring, among other things, evaluation of the piping for the intended use, evaluation of the piping for abnormal use, and strengthened long term exposure testing. In summary, the failures were significantly associated with long-term exposure of the piping to product from the exterior, sometimes combined with physical stress that occurred during installation.

These developments resulted in a dilemma in interpreting Maine's rules. Once compatibility proved to be at issue, two sections of Chapter 691 conflicted. On one hand, the rules specifically permit pipe listed under the previous (1995) standard (see Section 5.B(1)(a)(ii) and Appendix R, paragraph 7) even though that standard has been shown to be insufficient to protect piping from failure due to lack of compatibility with the product. On the other hand, the rule also requires (Section 5.B(1)(b)) "all facility construction materials must be chemically and physically compatible with the product to be stored." As is its usual procedure, the Department took the interpretation most protective of the environment, that the old piping, not proven to be compatible with the product stored, should no longer be installed in Maine.

In doing this, DEP purposely limited the scope of the guidance to facilities used for the marketing and distribution of oil or storage of motor fuel. We did this because it appears that piping listed under the new standard does not appear to be available in sizes used on facilities used for the on-site consumption of heating oil. Moreover, we acknowledge we also already compromise the product compatibility issue for number 2 heating oil in that we allow the use of PVC for secondary containment – a substance which has its own compatibility issues with oil.

If you have not already received a copy of the guidance, please let Theresa Scott know (Theresa.J.Scott@maine.gov, 207/287-7169) and we will send you a copy.

Making Sense of UL 971; The Revised Nonmetallic Piping Standard

In January 2, 2004, Underwriters Laboratories Inc. (UL) revised its standard for Non-metallic Underground Piping for Flammable Liquids (UL 971). The revised standard became fully effective on July 1, 2005. In order for manufacturers to continue to apply the UL mark to piping manufactured on or after July 1, 2005, their piping must undergo a review and be tested for compliance with the revised standard. Only piping that UL finds to be in compliance with the revised standard will be authorized to continue to bear the UL mark. The following questions and answers are intended to provide a brief overview of the new UL 971.

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Why was UL 971 revised?

Nationwide reports of nonmetallic underground storage tank pipe failures and reports indicating that not all nonmetallic pipe is performing as intended prompted UL to take a critical look at UL 971. UL reports that these nonmetallic pipe failures are a result of improper pipe system installation, inadequate pipe system maintenance, failure to properly respond to leak-detection alarms, and other unspecified causes.

What are some of the differences between pre- and post-July 1, 2005, UL 971-listed pipe?

The most critical difference between pre- and post-July 1, 2005, UL 971-listed pipe is the physical testing to which the pipe is subjected. The revised UL 971 standard requires more stringent physical testing, which is intended to better simulate long-term use and real field conditions and thereby improve the ability of post-July 1, 2005 pipe to withstand the conditions found at operating UST facilities.

For example, prior to undergoing compatibility and permeability testing, pipe samples will be preconditioned by being subjected to bend, drop, and impact tests. Conducting compatibility and permeability tests on pipe that has been preconditioned with the usual abuse pipe experiences during transport, assembly, and installation better approximates true installation and field conditions. As another example, to address pipe degradation resulting from long-term exposure to fuel, pipe samples will now be subject to more stringent compatibility and permeability testing that incorporates new criteria for dimensional stability and increased minimum-retention values.

Other major revisions to UL 971 include evaluating piping as a system (rather than evaluating individual components) and a requirement for installation of pipe by qualified persons.

In summary, the standard was revised to incorporate more stringent testing and installation requirements so that pipe systems manufactured to meet this revised standard have less chance of experiencing the fail-

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Making Sense of UL 971 (concluded)

(Continued from page 2)

ures we have seen in the past.

Does pre-July 1, 2005, UL 971 pipe maintain its listing?

July 1, 2005, is when newly manufactured pipe must meet the revised UL 971 standard. It does not affect the listing of existing pipe manufactured prior to July 1, 2005. Therefore, UL 971-listed pipe manufactured prior to July 1, 2005, can remain in the ground. It should be noted that after July 1, 2005, some states might not allow piping to be installed that does not meet the revised UL 971 standard. Owners/operators and installers should check with their state UST programs before installing nonmetallic pipe after July 1, 2005.

Note: *Inspectors and owners/operators should know that purchasing UL-listed pipe after July 1, 2005, does not guarantee that the pipe was manufactured after July 1, 2005, and meets the revised UL 971 standard. In fact, it may take months or even years before the pre-July 1, 2005, pipe stock is depleted.*

How do I identify pipe manufactured on or after July 1, 2005?

Pipe manufacturers are required by UL to mark the date of manufacture on the pipe at ten-foot intervals, and on fittings or fitting bulk packaging. Most pipe manufacturers use what is called a modified "Julian Date Code." This code typically consists of a two-digit code for the year in which the pipe was made (for example, 2005 reads as 05), and a three-digit code for the day of the year (from 001 to 365) or a four-digit calendar month and day notation (for example, 0101 for January 1).

Depending on the pipe manufacturer, a modified Julian Date Code for piping manufactured on May 12, 2005 could read 05132 (two-digit year identified first, followed by the three-digit code for the day of the year), or 13205 (three-digit day of year identi-fied first, followed by the two-digit year code), or 050512 (two-digit year identified first, followed by two-digit calendar month, ending with the calendar day).

Because manufacturers use different Julian Date Codes, it will take time and research to determine the date on which a given pipe was manufactured. If you are unable to locate or decipher the date, you can contact the supplier or manufacturer of the pipe for assistance. Also note that there are some differences in labeling (e.g., changes to product types and fuel types), which might also serve as a way to determine the difference between pre- and post-July 1, 2005, pipe.

The Future of UL 971

The January 2, 2004, revision of UL 971 is just a steppingstone toward addressing the nonmetallic pipe failures we've seen in the field. In fact, UL 971 is currently under revision to include even more stringent testing and to set higher performance criteria so that nonmetallic piping manufactured in the future will not experience the problems that we have seen in the past. So, be vigilant and continue to report those piping failures to UL at www.ul.com.

Laura Chaddock, Chief, UST Leak Prevention Technical Unit at the California Water Resources Control Board. This article is excerpted from LUSTLine, Bulletin No. 50, August 2005. Published by the New England Interstate Water Pollution Control Commission, Lowell, MA.

New Internet Tool for Researching Oil Spills

The Department's new Hazardous & Oil Spill System (HOSS) online reporting service is designed to enable web users to access the basic oil and hazardous materials spill data contained within the department's main spill reporting database. Users can search for spills by spill number, spill date, town where the spill occurred and whether a spill involved an aboveground or underground petroleum storage tank. In addition, they can conduct a keyword search. This service allows you to retrieve a report once the data relative to it has been approved by the DEP for public viewing. There is no cost for searching or viewing reports.

It is possible that additional information on the spill may be located in the master spill file. If you want to look at more information on a particular spill, you will need to schedule a time to review the paper files on that spill. Contact the Bureau of Remediation and Waste Management File room at (207) 287-7843 to schedule an appointment.

The system can be accessed at http://www.maine.gov/dep/rwm/hoss/.

Federal UST Program Changes

Part of the recently enacted Federal Energy Policy Act of 2005 (Public Law 109-58) included provisions regarding underground storage tanks (USTS). That part of the Act, entitled the Underground Storage Tank Compliance Act of 2005, became law on August 8, 2005. For Maine as well as for other states, the Act changes the State/Federal relationship from one of negotiating grants and cooperative agreements to requirements for us to meet specific program implementation deadlines that are mandated by the law. Our Federal funding is contingent on Maine meeting all those commitments, but current restrictions on the "LUST Trust" fund to pay only for cleanups were lifted.

Important provisions to the State's program are: (1) mandatory inspections, (2) implementing a training program for UST operators, (3) having a mechanism to prohibit deliveries to facilities in violation, and (4) having a mechanism to require either secondary containment or financial responsibility requirements for equipment manufacturers and installers. The Act also includes a provision that waives "sovereign immunity" for Federally owned UST facilities to clearly give States the jurisdiction to regulate them.

Mandatory inspections are to be accomplished in two rounds; the first includes Federally regulated facilities that existed as of the Federal upgrade deadline, December 22, 1998, and haven't been inspected since that time. The first round is required to be completed in two (2) years. The second round involves all Federally regulated facilities, which must be inspected on an every three (3) year schedule. For Maine, the key question is whether or not the Federal government will accept the inspections conducted by our certified installers or inspectors, or whether or not only inspections by State employees count. While the U.S. Environmental Protection Agency (EPA) has not completed its final policy on the question, it has said that until a final policy is developed, the inspections conducted by our certified installers and inspectors will count.

"...until a final policy is developed, the inspections conducted by our certified installers and inspectors will count."

Deadlines for providing UST operator training include one for the U.S. Environmental Protection Agency to provide guidelines to the States within two (2) years of passage of the Act. In four (4) years or by August 8, 2007, the States are required to implement such programs. Of the provisions required of the States, this is the one which may very well require the most effort in Maine.

States are required to implement a "delivery prohibition" within two (2) years. Fortunately, we believe we already have sufficient authority as part of the annual inspection program legislation. The enabling statute for it is 38 MRSA §563.9. However, until we receive formal word, we do not know for sure that what we have meets the Federal requirement.

Requirements for secondary containment or financial responsibility for installers and manufacturers are due from the States in 18 months. Once again, we believe we have already met this obligation through the secondary containment requirements provided by 38 MRSA §564.1.A and the Department's Chapter 691.

We will keep you posted as information becomes available .

Department Clarifies Policy on Siphon Piping

The Department executed a policy clarifying technical requirements for siphon piping on September 1, 2005. Generated at the request of several installers, the policy was mailed to all installers and inspectors as well as some interested parties on September 12, 2005. If you did not get a copy and wish one, please contact Theresa Scott (Theresa.J.Scott@maine.gov or telephone 207/287-2651).

Connecting existing tanks with siphon piping has become popular with the increased use of dispensers that are capable of blending products to provide a "mid-grade" gasoline. With blending dispensers, there is often no longer a need to maintain a separate tank for storage of a mid-grade product. Former mid-grade tanks are being converted to other products and are being siphoned to other tanks to increase storage capacity for those other products.

The question raised was whether or not siphon piping is pressurized piping pursuant to the Department's rules and thus requires secondary containment and interstitial space monitoring, or

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Siphon Piping (concluded)

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whether siphon piping is suction piping and therefore does not require secondary containment.

After its review, the Department concluded that siphon piping, including the small diameter tubing be between the siphon and the pump head, operates on negative pressure and thus is intrinsically safe. A "leak" in that piping would merely cause product to drain back into the tanks and cause the siphon not to function. No or only very limited discharge to the environment would ever occur.

While not creating direct threats to the environment from breakage, siphon systems do raise other concerns when ball float valves are used for overfill prevention, When a ball float valve is used to restrict the flow of a delivery into siphoned tanks, overfill of one of the siphoned tanks may result in pressurized flow through the siphon piping and subsequent discharge into the environment if the siphon piping is compromised. Therefore, an overfill device other than a ball float should be used.

Further, leak detection systems based on product inventory, including daily inventory with annual statistical inventory analysis as well as the use of an automatic tank gauge (ATG) become more complicated when multiple rather than single tanks or chambers are involved.

Finally, siphon piping, including, including small diameter tubing between the siphon piping and the submersible pump head, remains subject to corrosion.

Therefore, the Department concluded that single-walled siphon piping is permitted under the Department's rules provided ball floats are replaced with other overfill devices, ATG's and/or inventory data are used such that a leak from all parts of the siphoned system can be detected, and that appropriate corrosion protection is applied.

2006 - 2007 Annual Tank System Inspection Forms

The Underground Tanks Enforcement Unit recently modified the Annual Tank System Inspection form as the result of comments from several installers and inspectors. The new form is available for downloading on the Department's website and can be used immediately. You may continue to use any existing stocks of the form for inspections this 2006 inspection year. However, for the 2007 inspection year, July 1, 2006-June 30, 2007 and ongoing, you must use the new form.

There are a number of changes and updates on the form and we will address all of them here. First, while not a change, please use the comments sections to note specific problems on the systems you are looking at and even more important, note what corrective actions you took. Also, make sure that the owner has filed the appropriate registration paperwork when necessary. The Department looks at data to identify potential trouble spots before they become environmental threats. This assists both the Department and you, as the installer or inspector, in being aware of areas of special concern over the long term.

Starting with the new form, we are also requesting copies of some of the documents you reviewed to make your decisions. This relates specifically to the following methods of leak detection, when applicable:

Daily inventory - copy of the most recent full months reconciled inventory sheets for all tanks,
Automatic Tank Gauging - copy of the printout showing the facility location and the most recent passing leak test
Groundwater Monitoring - copy of the weekly log.

If the facility is unable to provide copies of documents, please note on the Inspection form your request and the refusal of the facility to provide the copy. Do not FAIL the inspection just because you are unable to send copies of the requested materials to DEP.

Another change of note, the Cathodic Protection section now asks two questions regarding impressed current systems. There are very few of these systems in the state but we are now collecting data on them. In the former "Crash Valves" section we added a question regarding the dispensers, asking if there are any signs of weeps or leaks under the dispenser. There have been many incidents of dispensers with weeps and drips coming from various components and in at least one instance, this has lead to a very big clean-up in an area where there is no public water but, numerous wells that may be impacted. A few of the questions have also changed, so you should review the form and be sure that the question you are answering is really what you think it is.

Lastly a few reminders:

1. Please only send in those pages with information on them; the Department

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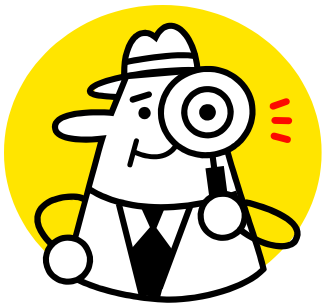
"the 2007 inspection year, July 1, 2006-June 30, 2007 and ongoing, must use the new form. "



2006 - 2007 Annual Tank System Inspection Forms

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staff remove pages that are not used and it is a waste of paper to send them. This will also save you ink, paper and postage.

2. If you find water or petroleum in any sumps or the interstitial space you are required to report this evidence of a possible leak to the Department.. Explain what you saw at the facility; more information on the inspection is better than less.
3. Always sign and date each inspection.
4. Remind the owner/operator of the requirement to send in the Inspection or, even better, as a service to your customer send a copy to the Department directly. This past year Department staff went to a number of facilities where the owner/operator failed to send in the inspection to the Department even though they had one at the facility itself. Many owner/operators stated surprise that the inspection was not sent in by the installer/inspector.
5. Make sure that all items at the facility are checked. Be sure to mark all the boxes on the form itself showing that everything was checked. The Department sends incomplete, confusing or unsigned inspections back to the facility owner/operator, and we send a courtesy letter to the inspector.

As usual the Department staff is happy to assist installers and inspectors with any questions they may have regarding specific facilities. We hope that this article and the updated form will provide us with more valuable information and we look forward to a continuing working relationship with all installers, inspectors, and owner/operators. If you have questions regarding these changes please contact Tim Rector at 207/287-7818 or by email at timothy.rector@maine.gov.

A Clarification of DEP's Role Regarding SPCC Requirements for Aboveground Oil Storage Tanks

In the June 2005 edition of the "Maine Installer" we introduced the DEP's SPCC program for aboveground oil storage tank (AST) facilities in the State of Maine. To briefly recap that discussion: SPCC stands for "Spill Prevention, Control and Countermeasures" and refers to a federal regulation that is administered by the U.S. Environmental Protection Agency. The federal regulation 40 CFR Part 112 requires SPCC plans for facilities that store more than 1320 gallons of oil in aboveground storage tanks or containers. An SPCC plan is a site-specific written plan that specifies the design features of the facility for spill prevention and containment, routine facility procedures to prevent spills including regular facility inspections, and spill response procedures. The Maine Legislature enacted legislation in the summer of 2002 adopting by reference the federal regulations for spill prevention and control at retail and marketing AST facilities in Maine.

One component of the Maine DEP's SPCC program is conducting SPCC technical assistance site visits to individual facilities in Maine. During the DEP site visits we inspect the tanks, piping, dikes, loading racks, dispensers, and any other associated facilities as applicable. We will also review the facility's SPCC plan if there is one in place. If a facility does not have an SPCC plan we provide the owner/operator with some basic written information on SPCC planning to assist them in getting one developed for their facility. As discussed in our previous article, the current focus of the DEP's SPCC site visits is education and outreach rather than enforcement. However, staff will pursue enforcement actions if an ongoing discharge of oil or some other egregious violation posing an eminent threat to the environment is observed, or there are violations of the DEP standards that pertain to underground piping at AST facilities.

It has come to our attention since the publication of the June, 2005 article, that some confusion may have been generated regarding

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"the establishment of Maine's own SPCC program does not mean that the EPA has delegated its authority"

SPCC (concluded)

(Continued from page 6)

the Maine DEP's role in relation to the EPA's role in enforcing the SPCC regulation. Please note that the establishment of Maine's own SPCC program does not mean that the EPA has delegated its authority to enforce the SPCC regulation to the State of Maine. The EPA retains its authority to enforce the SPCC regulation in Maine, and continues to conduct it own site inspections and compliance actions at facilities in Maine, independently of the Maine DEP. The EPA may choose to pursue active enforcement against a facility that it inspects and finds is not in compliance with the SPCC requirements.

If you have questions about Maine's SPCC program for AST facilities please contact Sara Brusila at the DEP, in-state toll free at 1-800-452-1942 or (207) 287-4804, or via e-mail at: sara.brusila@maine.gov. If you have questions about the federal SPCC program please contact Don Grant, EPA, Region 1, at (617) 918-1768 or via e-mail at: grant.don@EPA.gov.

Examination Results

The Board of Underground Storage Tank Installers offered an examination on June 13, 2005. As a result, there are two (2) new underground oil tank inspectors in Maine. They are:

⇒ Dawson Davis; G.R. Adams, Hampden.

⇒ Darren Ricker, Gaftek, Bucksport.

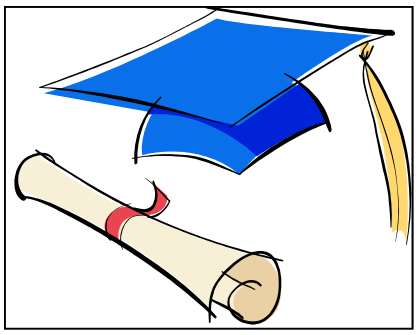
Dawson is the son of Dennis Davis, who is one of our certified installers.

In addition, Todd Adjutant of Portland Pump Co. passed the final examination to become fully certified as a Class 2 Underground Storage Tank Installer.

Congratulations, to all!

We had another examination, the third this year, on December 7, 2005. We will publish the results in the next newsletter.

The Board and its staff is spending a significant amount of time updating the installer examinations. While we are still using the old examinations at this time, we continue to try to bring the exams current as soon as possible.



Training Available

The Maine Oil Dealers sponsored a tank installer/ inspector training on November 22, 2005 to which the Board of Underground Storage Tank Installers granted three (3) hours credit for certified installers and inspectors. In addition, the Board renewed or granted credit to a number of other programs at its August meeting:

⇒ HAZWOPER Refresher Training; SafeTech Consultants (2 credit hours);

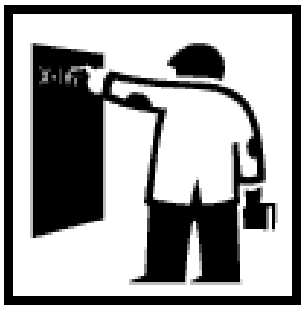
⇒ Installation of Xerxes Fiberglass Tanks; Eastern States Associates (1 credit hour);

⇒ Installation of Ameron Piping ; Eastern States Associates (2 credit hours);

⇒ APT On-Site Products Training, John W. Kennedy Co. (2 credit hours); and

⇒ OPW Fueling Components, John W. Kennedy Co. (1 credit hour).

DEP is planning a workshop for March 1, 2006. If you have anything you would like to hear discussed, call us and tell us. Either Jim Hynson (207 287-7889) or Theresa Scott (207 287-7169) can take your suggestion.



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Goodbye, Raquel

Raquel Ross came to the DEP's oil enforcement unit as an environmental specialist a little over two years ago officially. Before that, she worked as a conservation aide for a number of the divisions in the Department's Bureau of Remediation and Waste Management.

During that time, her coworkers knew her as a friendly, competent comrade. The regulated community also knew that she would treat them with professionalism, integrity, and respect. Unfortunately for us, but good for her, it became time for her to leave us for bigger and better things.

Raquel is moving on to the Natural Areas Program of the State Planning Office. She holds the position of biologist there.

While we will miss her, we wish her good luck and all the best.