

L.U.S.T. LINE



A Report On Federal & State Programs To Control Leaking Underground Storage Tanks

Chug, Chug! Puff, Puff! . . . Pulling UST's Up, Over And Into The Land Of Insurability

There are loads of buried leaking or near leaking underground storage systems . . . the "burning buildings" of insurance-land . . . that insurers won't touch with a ten foot policy. But, EPA, á la Congress, is saying tank owners or operators will have to be able to show, somehow or other, that they have \$1 million "per occurrence" coverage or an annual aggregate coverage, depending on the number of tanks owned, for these worrisome vessels by summer 1988.

Yes, this appears to be a frustrating paradox but if you think back to **The Little Engine That Could** you may immediately see the similarities between the little blue engine and EPA. EPA, with the cooperation of the states, simply must get the UST's over this risky tank hump to the land of insurability, where unprotected UST's will have been removed or replaced by protected tanks with leak detection.

Simultaneously, the folks at EPA's Office of Underground Storage Tanks (OUST) are working with the insurance industry — to educate them on the UST regulatory agenda and to discuss possible solutions — so that they can see that the nature of the beast is improving, and stand waiting on the other side of the high risk hump with insurance policies in hand. In 4, 5, and 6 years from now many of the UST's and associated piping won't be so worrisome. In fact, UST upgrading and leak detection efforts are already well underway.

However, even if the insurance industry can be lured into the UST

cleanup/liability market as UST systems are upgraded, that doesn't solve the short term problem. What alternative financial assurance options will be available in the meantime to tank owner/operators who can't get insurance? Cold hard reality points to the states and the LUSTTrust Fund. Owners and operators need assurance by next summer and leaks and spills need to be cleaned up. States will need to help out and adopt financial assurance programs or create funds to assure that the costs are covered.

"We want to work with the states to set up an infrastructure where we no longer rely on stopgap measures to clean up sites — such as using state funds or amnesty programs," says Louise Wise, Standards Branch Chief at OUST. "But in the meantime, releases must be cleaned up and that may require short term stopgap measures."

"Although the states are required to come up with a financial responsibility program, the goals they set and approaches they implement are their own choice," explains Sammy Ng, OUST Standards Branch Program Manager. "Some states may choose to provide their own permanent financial assurance program, while others may choose to provide 3 or 4 years of assurance until more alluring conditions are created for private insurance to enter the market."

States shouldn't feel that to have a financial responsibility program is to make UST owner/operators permanent wards of the state. "States could set sunset provisions that say

after a certain date the state will no longer be your financial assurance," Louise Wise explains. "But the state will give you 3 or 4 years to get insurance or enter a risk retention group." So far, Virginia and Minnesota are the only states to adopt full fledged financial assurance programs.

Financial Responsibility Big Issue At Hearings

Ron Brand, Director of OUST, feels that by mandating financial assurance in the Superfund Amendments and Reauthorization Act of 1986 (SARA), Congress knowingly created a demand which they felt would eventually lead to a supply. "Now there is tremendous pressure and people are running around trying to find solutions. They are thinking creatively about the problem, so we are seeing some positive action," he says.

EPA came out with its proposed rule in April with the idea that it was best to have a rule out there for people to respond to as soon as possible. During the public hearings the proposed financial responsibility rule drew, by far, the greatest number of comments. The biggest issues, as might be expected, were the availability of insurance and the cost of insurance. Also, the summer 1988 deadline for getting all of this together seems unrealistic to most people.

Other concerns about the proposed rule centered on the high minimum annual aggregate coverage requirement for insurance after

Continued next page

Chug, Chug! Puff, Puff! Continued

closure, and, from the insurance industry's viewpoint, concern that EPA doesn't allow legal defense costs to be part of the \$1 million coverage (this is a Congressional mandate that may need more interpretation). Besides the short deadline, some states are concerned that the responsibility for leaks should remain with the tank owner . . . the risk taker, not the states.

Also LUSTLine has learned that some state officials have already begun having nightmares about the provisions in the proposed rule for "suspension of enforcement". This means that tank owners without insurance must provide evidence that they have made every attempt possible to gain assurance in order to be temporarily excused for not having assurance. In these nightmares the regulators see themselves smothering to death in paper.

"We have heard the comments on the proposed rule and are taking them very seriously. In fact, many of the comments reinforce what we were already aware of," says Sammy Ng. "We are being as open to solutions as possible. We are being radical in our thinking about what we can do to make things easier for the regulated community and the states.

"We see EPA in a 'pushing - pulling' role. We have to push tank owners to find insurance, but we don't want to push so hard that they just say 'forget it'. We also want to

pull in the potential providers of assurance . . . the insurance industry and the states. The insurance industry needs to understand the positive impact UST regulations will have, and we need to make the regulatory language attractive to them," Ng explains.

Yoo Hoo Insurers?!

If the insurance industry were to look at each underground storage system much as they look at people and life insurance policies, they could easily arrive at a system for evaluating potential risk. A 25 year old bare steel tank in corrosive soil with no upgrading would be something like the 60 year old 4-pack-a-day smoker with emphysema.

However, on the other end of the spectrum, there is the newly installed double-walled tank and piping with associated whistles and bells. Surely to insurers, this kind of UST system would represent the physically fit, non-smoking, no cardiac arrest or cancer in the family, brown rice eating female.

Ideally, the insurer should be able to go to the tank owner and say "show me what you've got, show me your installation and maintenance records . . . okay, based on these criteria, you are insurable, here's your rate." If the insurance rate were adjusted up or down based on leak protection, facilities might opt to up-grade more readily. But the insurer needs to know what to look for and for that information they can check with EPA.

Mind you, the insurance industry is conservative and does not change its practices quickly. Experience has to show those of little faith that upgraded systems are less risky. Thus, although EPA would like private insurance to take care of the UST financial problem, it will take time. This is why EPA needs the states to fill in this gap with state financial assurance programs . . . of some form or fashion.

EPA Plans Financial Assurance Marketing Program for States

To go along with Ron Brand's strategy of running the UST regulatory program like a franchise operation such as McDonald's or 7-Eleven — EPA the franchisor and the state and local governments the franchisees — OUST is creating a financial assurance marketing program for its franchisees. Here's how it will work.

OUST will develop tools for the states to use in creating their financial assurance programs by organiz-

Petroleum Marketers Form Risk Retention Group

Petroleum marketers are in the process of establishing a risk retention group to provide pollution liability insurance to people or firms who wholesale or retail petroleum products. The new Petroleum Marketers Mutual Insurance Company (PETROMARK) hopes to begin writing coverage this fall.

PETROMARK expects to begin offering limits of \$1 million per occurrence and \$2 million annual aggregate. When EPA's financial responsibility regulations go into effect, the group will increase the aggregate limits up to whatever EPA requires. Premiums are expected to average \$1,200 for a \$1 million policy per retail location with a \$5,000 deductible. The policy will cover both sudden and gradual pollution losses and will provide both on and off-site coverage.

For more information contact Max Clay at (703) 481-0200.

ing a small focus group to help create prototypes . . . manuals, courses, etc. They will start with two test states (New Mexico and New Jersey have expressed interest) where they will test market the tools. Then they will go out and provide workshops to other states that want to be involved.

The objective is not to develop a model program, because each state will have its own goal or philosophy for what a state fund or program should be. Ideally, the state should be able to say what kind of a program it wants and EPA would like to be able to provide training and tools for that kind of program. If a state decides its original goal is too costly, then it can go back and take a different approach. EPA wants to facilitate rather than dictate what states do about financial assurance.

Ng says if states begin making "good faith" initiatives and start introducing financial responsibility bills, then tank owners who can't get insurance can qualify for "suspension of enforcement".

Ron Brand feels it is important not to lose momentum in finding ways to get the UST's insured. "We have learned so much more about underground storage systems in the past few years and we are learning more everyday. Our goal, from an environmental perspective, is to have a low risk UST population and we hope that insurers will eventually see it that way too. ■

LUSTLINE

Editor, Ellen Frye

PREPARED BY THE NEIWPC WITH A GRANT (#CT-901555-01-0) FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY

Helga Butler, EPA Project Officer
Jennie Bridge, NEIWPC Project Officer
LUSTLINE will be issued four times as a communication service during the Subtitle I RCRA Hazardous and Solid Waste Amendments rule promulgation period. This publication may be copied. Please give credit to the NEIWPC.

The New England Interstate Water Pollution Control Commission was established by an Act of Congress in 1947 and remains the oldest agency in the Northeastern United States concerned with coordination of the multimedia environmental activities of the States of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island and Vermont.

NEIWPC

85 Merrimac Street, Boston, MA 02114
Telephone: (617)367-8522

As everybody probably knows by now, April 17 was a big day for OUST and for UST's: the Agency published **three proposed rules**: one on technical standards and corrective action for petroleum and chemical tanks; one on financial responsibility, just for petroleum tanks; and one on State program applications. (**Federal Register** reprints easy-to-understand summary brochures which are available from the Hotline at 800-424-9346). A 90-day comment period followed during which comments on the rules could be submitted to the OUST docket. EPA also held public hearings in Washington, D.C., Dallas, and San Francisco that were attended by a sizable group of approximately 1,000 people total. The Agency will now go into "regulatory seclusion" until the final regulations on the same three topics are published next spring. The regulations are expected to become effective 90 days after publication in the **Federal Register**.

There are several other UST strings that OUST is trying to tie up. To mention only two for now: **financial responsibility for chemical tanks**, and **exempted tanks**. Regarding the first, the Agency is planning on issuing an Advanced Notice of Proposed Rulemaking in a couple of months to solicit more information on the subject. A Proposed Rule will probably be published along with the final rules mentioned above in the spring of 1988. With respect to the second, EPA is preparing a report to Congress which will summarize the Agency's findings on the comparison between the regulated and the exempted tank universe and the need to regulate the latter. This report is due to Congress in November '87.

Major news from the **Trust Fund** front is that several cooperative agreements have been negotiated and signed between EPA and States in Regions I and V. In fact, there may be others by the time this issue goes to press. These cooperative agreements make it possible for EPA to distribute Trust Fund dollars to the states for the purpose of cleaning up LUST sites.

Two Important New Technical Reports From EPA

Underground Storage Tank Corrective Action Technologies - a comprehensive document with over 100 tables and figures to help explain the complex topics of UST Design; Leak Detection and Environmental Assessment; Corrective Action Re-

sponse Process - including initial corrective action, options, permanent options and risk analysis; Technology Profiles for tank removal, abandonment, etc., on-site and off-site treatment and disposal of contaminants, free product recovery, groundwater recovery systems, subsurface barriers, in situ treatment, groundwater treatment, vapor migration control, collection and treatment, and restoration of contaminated water supplies; and 10 case histories.

The document was prepared by the EPA Office of Research and Development's Hazardous Waste Engineering Lab. To order single copies of EPA/625/6-87-015, write ORD Publications, US EPA - CERL, 26 West St. Clair, Cincinnati, Ohio 45268, (513) 569-7562.

Watch for the Survey of Vendors of External Petroleum Leak Monitoring Devices for Use with Underground Storage Tanks which should be available in the fall. A total of 69 products related to external leak monitoring for UST systems are identified. Devices are divided into four general categories; intermittent liquid phase, intermittent gas phase, continuous liquid phase, and continuous gas phase. Although the information is largely vendor supplied and is not independently verified, the findings help identify the operating characteristics of the various categories of leak detection sensors, which operate under a wide variety of principles and have significant variations. The report includes a discussion on the current state-of-the-art and other pertinent leak detection issues.

This is an EPA Office of Research and Development survey. To order a copy and have your name put on the waiting list call (513) 569-7562.

EPA Tank Test Study Update

ORD's tank tightness testing at the Edison N.J. Lab is well underway. A total of 24 out of 27 vendors of various tightness testing procedures and devices have completed the intensive on-site verification tests. The process of data collection and verification is going very smoothly with high marks from the vendors regarding the Labs approach in this controversial area. There have been no surprises to date as the actual testing is very close to the predicted behavior of the different test apparatus based on earlier EPA mathematical modeling. While no process or device has tested as accurately as espoused in the market

place thus far (0.05 gallons/hour), the EPA research team reports that several have the potential to attain the proposed 0.1 gallons per hour threshold, if some simple changes are made to the way the vendors conduct their testing.

Planning is underway to do verification testing of several automatic in-tank devices. Some inventory control/reconciliation testing may be completed by the end of this summer as well. Pressure line testing devices are slated for testing later in the fall.

Who is Answering Questions about EPA's UST Data Management Systems?

If you are using EPA's data management system and need to ask questions or get help, call either Ray Michie at CRM Associates, Inc. (703) 922-0818 or Bill Foskett at OUST (202) 382-7870. ■

New EPA Publications on Proposed UST Regulations

EPA has summarized their proposed regulations for underground storage tanks in two new "plain English" brochures.

What's In The Pipeline? (OUST No. 26A) describes the proposed requirements for designing, installing, and operating tanks along with the requirements for leak detection and cleanup.

Your Financial Responsibilities (OUST No. 26B) describes proposed financial responsibility requirements intended to assure that owners and operators can cover the costs of leaks and can compensate third parties for damages.

To obtain free copies of these brochures, call EPA's RCRA/Superfund Hotline at 1-800-424-9346 (except in the District of Columbia where the number is 382-3000) or the EPA Small Business Hotline at 1-800-368-5888.

To order copies of **LUSTLine**, Bulletin 6, call Hotline (800) 424-9346 and ask for **Underground Storage Tank Document #EPA/UST - 10C**.

The Gist of the UST Public Hearings

The public hearings in Washington, D.C., Dallas, and San Francisco on EPA's proposed UST regulations concluded on June 5. For a federal regulatory agency, dishing out some complicated and expensive proposed regulations, the Office of Underground Storage Tanks received generally high marks... commenters (mostly tank owners) felt the Agency had listened to their suggestions and concerns during the rule promulgation period.

However, there were also some substantive "but's" and the two major areas of concern were: 1) financial responsibility - requirements are a problem because of the cost and availability of insurance, and 2) the impact of the regulations on the regulated community - the costs associated with the requirements. Of course there were also comments on a variety of technical issues.

Here is a brief rundown on some of the discussion at the hearings:

- financial responsibility
 - the availability of insurance is down rather than up. Many tank owners can't get insurance at any cost
 - the \$6 million annual aggregate amount was considered too high for many jobbers
 - it was suggested that financial responsibility could be tied into whether the UST system has been upgraded or has double-walled tanks and piping.
- piping
 - recent evidence shows that piping is the primary cause of leaks. Some commenters suggested that EPA require double walled piping
 - pressurized piping was a concern. It has the potential to cause the most severe pollution because it can release a lot of product in a short time with no indication.
- corrective action
 - serious questions were raised about whether removal of contaminated soil from the site is the best solution
 - states had concerns about public participation requirements. Public involvement in technical decisions could delay cleanup progress. Many releases are minor and do not need elaborate "red tape" formalities
 - there was concern about the requirement for reporting suspected leaks to implementing agencies.
- leak detection - heard from many

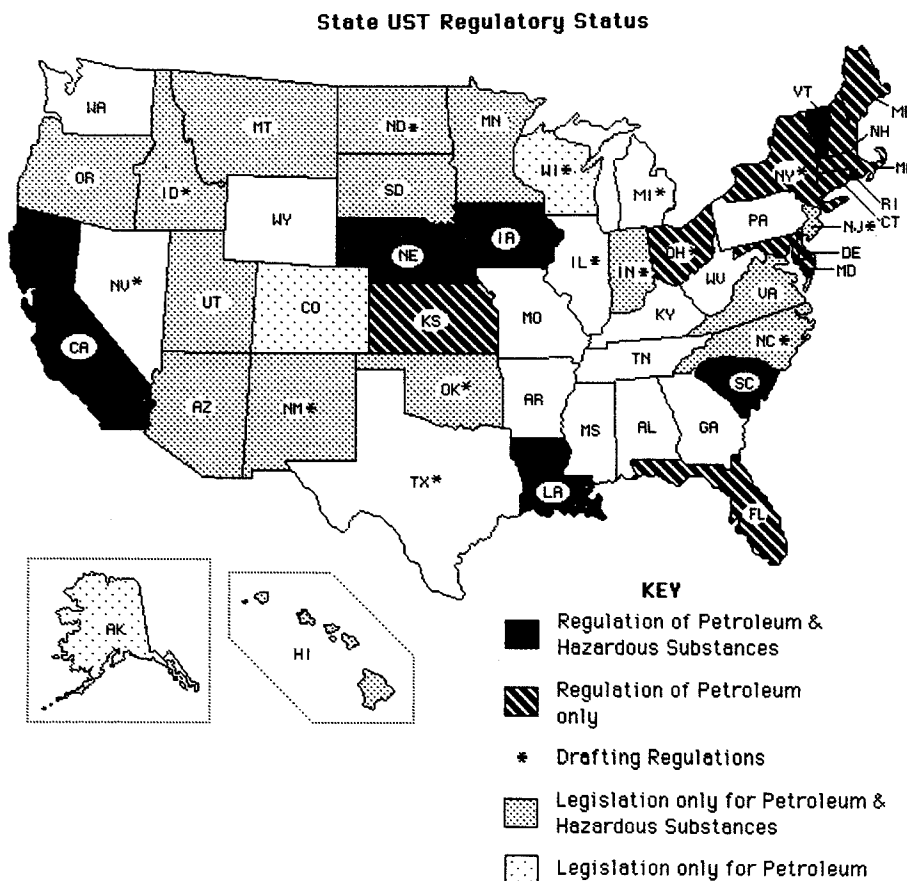
vendors and testers. Many state and local commenters advocated different approaches.

- design and construction
 - there was an outcry that flexible connectors and swing joints should not be used at every turn of piping
 - some commenters felt that tanks need interior protection because of internal corrosion as well as external protection
 - there was discussion on how to define a corrosion "expert", and the requirement for an "independent corrosion expert" was thought to be too restrictive.
- groundwater classification approach to tank regulation - larger petroleum associations advocated a class approach to tank replacement and upgrading which would identify sensitive groundwater areas for secondary containment and more rigid phase-in requirements.

• definitions - EPA is still "sitting on the fence" on the subject of regulating used oil. At the hearings there were comments both for and against regulating used oil.

• unusual tanks - such as airport tanks have some unique characteristics like miles of piping that would be tough to test for tightness.

The comment period for the proposed rules closed on July 16. As of July 28, EPA had received 700 comments on technical standards, 300 on financial responsibility, and about 40 on state programs. EPA is studying all of the comments which have been entered into the docket, bringing in experts on the different subjects, and organizing special work groups to hash out the issues. The OUST staff plans to present a revised proposal to the EPA Administrator for approval in October. Final regulations are expected to be issued late next spring. ■



This map summarizes a July 1987 national survey of state UST regulations by Jennie Bridge of NEIWPCC. Note: many of the states which are blank currently rely on existing fire codes for UST regulation.

The survey also helped verify NEIWPCC's list of state and federal UST contacts. For a copy of this list write NEIWPCC at the LUSTLine address or call (617) 861-8088.

First LUST Trust Cooperative Agreements Signed

The first LUST Trust cooperative agreement was signed in EPA Region V on July 10th. **Minnesota's** \$1 million agreement will be used in their cleanup and emergency response programs to be administered by the Minnesota Pollution Control Agency. The State has over 48,000 UST's. They have identified 120 possible cleanup sites.

In EPA Region I, cooperative agreements have been signed with **Rhode Island, Maine, New Hampshire** and **Vermont**. Region I states will use their Trust Fund money primarily for staff to enhance enforcement and response capabilities. New Hampshire plans to devote a significant portion of its initial trust fund money to provide temporary alternate drinking water supplies to households whose on-site wells have been affected by leaking tanks.

Here is how some of the other states expect to use their Trust Fund money: **New York State** plans to address the issue of groundwater contamination, they want a better quality solution to the more than 8000 spills and releases that have been reported in that State. They say that clean up sometimes can't go as fast as it should because of limited resources. The program will provide the State with more resources to respond to projects that currently have the greatest impact on the public.

In the Southwest, Region VI, **New**

Mexico has been a leader in leaking UST responses since they depend heavily on groundwater in urbanized areas. They have identified about 100 areas with suspected leaks and have responded to 45, including a major leak which threatens a municipal drinking water supply. They also need alternative water supplies in at least 2 areas. **Texas** has identified at least 12 locations where leaking tanks may force relocations and the need for alternative water supplies.

Besides Minnesota, Region V states have identified a number of sites they intend to address with their funds; this number ranges from over 400 in **Michigan** to about 100 in **Wisconsin**. States are still concerned about how all the potential releases can be addressed once the program is fully in place.

"The states are using these agreements to tackle UST leaks in a variety of different ways, and in many cases these initial amounts of money are small compared to the jobs that need to be done," says Joe Retzer, Director of the OUST Implementation Division. "We expect the states will need to apply substantially more money to cleaning up sites. As new releases are discovered states will be facing more and more cleanups. We expect to be able to fund these tasks more realistically in the future." ■

Fund. Four of our States have identified sites where corrective action is necessary. Wisconsin has developed a list of over 90 sites, and there are 408 locations in Michigan. All States currently estimate that the number of sites will quickly increase soon after they begin looking for sites. This fiscal year (ends September 30, 1987) will be used to establish the Trust Fund program with actions occurring in Indiana, Michigan and Minnesota. Next year we hope to have corrective actions underway in all States.

Indian Lands

Most people do not think of the Midwest as Indian country, yet Region V has 29 Indian Tribes and 4 tribal governments. The Region has met with our tribes and as a part of a conference on environmental issues. We are currently planning a conference to present the proposed UST Technical Regulations published on April 17, 1987, and to discuss how the tribes can implement the Subtitle I program.

Regions IX, X and V, in conjunction with headquarters, are also developing an Indian lands policy for national use. Some preliminary discussions have been held and the first meeting to write the policy was held in Region V's office in Chicago on May 22, 1987. We hope to have a completed policy by the end of this fiscal year.

Technical Tank Newsletter

The first issue of the *Underground Tank Technology Update* has been published by the University of Wisconsin-Engineering Extension. The Newsletter is funded as a special project through Region V and will cover engineering issues as well as other technical tank concerns. The Newsletter will be published bi-monthly and is currently funded for one year, or six issues. We are pleased with the first issue and hope that it will provide the type of technical information needed by the federal, state and local regulators it is intended to help. To receive this newsletter write to Philip O'Leary, Project Director, 432 N. Lake St., Madison, WI, 53706.

Meeting on the Proposed Technical Standards

Region V has made 13 presentations on the proposed technical standards in all six States. The in-

Continued on page 10

REGIONAL UPDATE

This Regional Update focuses on Region V and is written by Gerald Phillips, Region V UST Coordinator, (312/886-6159)

UST and LUST in the Mid-West

Three of Region V's six States are implementing their tank programs through the State Fire Marshal's Office. These States (Illinois, Ohio, and Wisconsin) bring many years of experience in dealing with petroleum tanks to the UST program. The remaining three States (Indiana, Michigan, and Minnesota) are implementing their tank programs through the agency responsible for environmental programs. This mix of traditional and non-traditional approaches to the implementation of an environmental program has

generated many new perspectives on how to provide environmental protection. No matter where the responsibility is lodged, all the States in the Region are actively involved in the UST program.

Passage of the LUST Trust Fund on October 17, 1986, established a new emphasis, and another tool for the implementation of the tank program. The LUST Trust Fund is being implemented by the environmental agencies in five States in the Region. The environmental agencies were selected because of their extensive experience with corrective actions in the Superfund program. Ohio is the one State where the Fire Marshal's Office was designated to manage the Trust Fund.

The Region is negotiating cooperative agreements with all States to establish funding for the Trust

Having Vapors . . . Assessing the Risks

Gasoline vapors in homes and businesses — the condition is becoming more persistent as homeowners, in particular, become victims of leaks from underground storage systems that were detected too late. Some of these homes have been evacuated and some continue to be co-inhabited by both people and vapors. Health and environmental agencies across the country are trying to develop environmental and public health protection regulatory programs and policies for gasoline/gasoline vapor exposure, but there are some tough problems that need to be resolved.

Gasoline/gasoline vapors refer to a complex mixture of more than 150 hydrocarbons and additives including benzene, toluene, xylene and ethylene dibromide (EDB). These compounds have varying degrees of volatility and solubility. When exposed to air, most components of gasoline rapidly volatilize. The soluble components, especially aromatics, have the potential to migrate in water.

Health Effects

There is considerable controversy about how to evaluate health effects from exposure to this complex mixture of compounds, primarily, because it is difficult to determine what components of the mixture people are exposed to and what the health effects are from concurrent exposure to several of the highly volatile compounds.

Acute exposure (extremely high levels) to vapors can result in irritation of the eyes, nose and throat, narcotic and anesthetic effects, nausea, dizziness, and loss of consciousness. Also, neurological and psychological symptoms, muscle weakness and cramps, and liver and kidney damage have been reported following chronic exposure to gasoline vapors. It is important to note that these toxic effects normally do not occur as a result of intermittent exposure to low levels of gasoline vapor. However, there is a lack of data on the potential toxic effects from chronic exposure to low levels of gasoline vapors.

Kidney toxicity is the primary effect reported in animal experiments after chronic exposure to gasoline vapors. A 1984 study sponsored by the American Petroleum Institute (MacFarland, H.N., et al.) reported a statistically significant increase in kidney tumors in male rats and a

slight increase in liver tumors in female mice. The extrapolation of the effects observed in male rats is controversial because of what appears to be a species-specific effect which may or may not occur in humans. Epidemiological, or human studies, provide limited evidence of carcinogenicity in humans exposed to gasoline vapor.

Risk Roulette

A recent survey by NEIWPC indicates that only a few states have developed guidance and/or set action levels for making evacuation and/or remediation judgements. A few states said they handle these evaluations on a case by case site specific basis.

Currently, when a gasoline odor is detected in a home or business, state agencies will measure for xylene, toluene and, especially benzene to determine that they are, in fact, dealing with gasoline. Even without UST leaks, background levels of benzene can sometimes be detected in and around the home or business, especially in urban areas, because of other benzene sources such as paints, cleaning solvents or gasoline. Depending on the kinds of businesses or activities in a neighborhood (e.g. a local autobody shop or removal of an UST from a nearby gas station), state agencies have observed a range of background benzene levels.

The bottom line is that the agencies want to be sure that they are monitoring for the right product, that if an underground gasoline tank has leaked they are measuring benzene from that source and not from some stored substances in the basement, for example. Once the presence of gasoline is established, health departments can begin to look at the health risk. This is generally evaluated on the basis of chronic versus acute exposure. Vapor exposure in the home is of particular concern because of the amount of time a family spends in that confined space and because they can also be exposed to vapors through bathing, showering, and cooking.

Nancy Kim, Director of Environmental Health for the New York State Health Department, says her department does not use a specific benzene level to determine whether or not people living in gasoline impacted homes should be evacuated. If people are exposed to increased

levels of benzene, they are exposed to some increased risk. "We don't want to say that above a certain number you are at risk and below that number you are not," she says.

"We can try to make people aware of the health risks associated with benzene and show them what can be done right away to reduce those risks, like installing fans or filters. It is a tricky situation when you are dealing with an individual's private home. The individual must make the decision about whether to live with the vapors — it's like choosing whether to smoke or not, it depends on a lot of things."

If vapors are at explosive levels, of course you will evacuate. However, it is more difficult to make a personal risk assessment if you are told you are being exposed to benzene at 2 times background level and that this represents an increased health risk. Is that any more dangerous than driving a car, eating peanut butter, or living next to an interstate highway?

From a regulatory standpoint, Nancy Kim says her department works toward remediating to a "no impact level" which would be back to background levels. "We don't want homes impacted any more than if there had been no spill."

NESCAUM Vapor Study Underway

The Air Toxics Workgroup of the Northeast States for Coordinated Air Use Management (NESCAUM) has received a grant from the EPA Office of Underground Storage Tanks to prepare a document, an **Evaluation of the Health Effects from Exposure to Gasoline/Gasoline Vapors**, which will include a risk assessment for short-term and chronic exposures to gasoline vapors. The document, which should be available early next year, should provide state health and environmental agencies with useful data for determining what action to take when people are exposed to highly volatile gasoline compounds which have been detected in the ambient air or groundwater.

In order to characterize exposure to ambient levels of gasoline/gasoline vapors, the NESCAUM study will assess 7 exposure scenarios:

- 1) inhalation exposure to self service customers,
- 2) inhalation exposure to service station attendants,
- 3) inhala-

continued next page

Maine's Search For The Perfect Vapor Purge

After the 1986 tank removal accident in Portland, Maine the State legislature and the Department of Environmental Protection (DEP) decided it was important to try to find safer ways of removing gasoline tanks. The DEP's first response was to issue guidelines on the use of vacuum trucks in removing product from the tank and for moving air through the tanks to vent the tanks (see LUSTline #4). They also set forth guidance on transporting vapor-rich tanks off-site. Since then, the DEP has delved into the issue of inerting procedures for use prior to the removal of gasoline and other class I liquid tanks. With some effort, the Agency did arrive at an approach to the problem which ended up being a refinement of the regulations they already had in place. But the "why's and wherefore's" of this approach are worth sharing.

Existing DEP regulations specify either the use of dry ice for on-site tank inerting or removal of the tank from the site, as is, on the assumption that it is over-rich, or above the explosive limit. In the latter case all openings, including corrosion holes must be plugged or capped (except for an 1/8" vent hole) before the tank is transported to a remote site where it can be vented without endangering the public.

To improve upon this approach DEP tried to identify other options such as inerting with CO₂ gas, nitrogen, or air purging. They also wanted to find ways to insure that tanks were over-rich. The Agency formed an advisory board made up of local fire officials, the State Fire Marshal's office, industry and environmental groups. The board offered what turned out to be a lot of conflicting advice. DEP officials also checked with experts around the country, in hopes of finding some guidance, but they were unable to find any proven approaches to the problem . . . from API, NFPA, or others currently researching the subject. They did get some helpful information from marine chemists

involved in de-gassing and cleaning oil tankers.

The DEP proposed several options in their draft regulations which included the use of inert gases to vent the tank. However, at the public hearing installers said they wouldn't feel comfortable using any technique that would result in large volumes of gasoline vapors being vented on-site. This ruled out the use of any of the inert gases . . . including CO₂.

As it stands now, DEP is proposing purging with dry ice because it minimizes the volume of gasoline vapor released. The vent pipe should also remain attached to the tank while purging. If the vent pipe is removed, a mistake made by a lot of people doing this work, fumes are pushed out of the tank at ground level rather than 12' up in the air . . . which is why gas stations have 12' vent pipes. One drawback to using dry ice is that it is not locally available throughout the entire State.

The other proposed alternative is to plug all openings and remove the tank, but to first check the internal tank environment with an explosion meter to be certain that the vapors are in an over-rich condition. Fire officials have expressed concern about the threat of these tanks on the highway. However, any truck that transports gasoline has the same problem. DEP points out that transporters must comply with Department of Transportation placarding requirements. Because of safety concerns, some local fire chiefs may further refine the requirements for this plug and remove alternative.

Though these requirements have not been officially adopted in Maine, the DEP's efforts are noteworthy for other UST regulators. The Agency had to rely on refining techniques which they found had worked best in the past. ■

George Seel, Maine DEP
(207)289-2651

TANK TALK

Florida has recently amended its SUPER Act to require **licensing of tank removers** as well as tank installers (already mandated). The amendment gives the Construction Industry Licensing Board until July 1, 1988, to amend their certification rules to include removers of pollutant storage tanks. Furthermore, the same amendment requires the Licensing Board to "adopt rules providing standards for **registration of precision tank testers** who precision test a pollutant storage tank," by January 1, 1988.

California has a bill in the legislature to require **licensing of tank testers** by the State Water Resources Control Board. The proposed law would require the Board to write regulations and a testers' test. Individuals would be tested and licensed based on the testing technique and equipment they use.

If you don't need an underground tank get it out of the ground!

. . . the new philosophy on owning UST's. More and more UST owners are asking themselves if they really need their tank(s). End users such as small fleet operators are dispensing with LUST liability and liability insurance costs by digging up their tanks and filling up at the local retailer's.

Environment and Public Health Effects of Soils Contaminated with Petroleum Products conference on September 28, 29 and 30 at the University of Massachusetts, Amherst.

Treatment and/or disposal of soils contaminated by petroleum from leaking UST's or surface spills has become an important environmental issue. Understanding the chemical processes involved in petroleum/soil interactions, public and environmental health issues, engineering technologies, risk assessment and management, and government regulations is central to finding solutions. This conference will bring together researchers and regulatory scientists who will present state-of-the-art findings on present and potential approaches toward resolving this multi-disciplinary problem.

The conference is sponsored in part by the Northeast Regional Environmental Public Health Center along with such groups as the

Continued on page 10

Vapors *continued*

tion exposure to residents downwind of service stations, 4) inhalation exposure to households affected by LUST's whereby gasoline vapors have infiltrated basements from the ground, 5) exposure from consumption of gasoline contami-

nated groundwater, 6) inhalation from household use of contaminated water, and 7) exposure to gasoline contaminated soils.

The NESCAUM evaluation will specifically address the effects of vapors on sensitive populations such as children or people with kidney problems. ■

Tanks A Poppin', Tanks Afloat

Lessons To Be Learned From The April Fool's Day Flooding In Maine

The New England States, mainly Maine, got walloped with water this Spring. In eastern Maine, the flood peaked 'round about April Fools Day . . . but "'tweren't no joke." There was just enough rain and snow melt to muster up a once-in-a-lifetime flood event — creating havoc, upsetting the status quo, and leaving unforgettable memories in its wake. Henceforth, many Maine folk will be associating April Fools Day with water, oil, gasoline, and passing flotsam . . . and take note LUSTLine readers, some of this flotsam included aboveground and underground storage tanks, which hadn't been anchored!

Here are some of the statistics gathered by the Maine Department of Environmental Protection (DEP) Oil and Hazardous Materials Response people who worked around the clock during the worst of the flooding:

- the Augusta regional office received 32 reports of spills during the flood, resulting in the release of approximately 130,000 gallons of various products into the environment . . . about 126,000 into the Kennebec River, and 4,000 gallons into the Androscoggin. In addition, 3 UST's popped up and floated away;
- the South Portland office responded to 21 spill reports which released an estimated 17,000 gallons of product into the Androscoggin, Saco and Penobscot rivers and Mirror and Sebago lakes. Six UST's were also lost;
- the Bangor response team answered calls on 10 spills which released an estimated 15,000 gallons into the Penobscot River. Two UST's escaped down the river.

In addition to these spills the DEP worked with local fire departments on numerous other spills, such as incidents where home heating oil tanks were floating in basements, fuel lines were broken, and spilled product sloshed around basements and living rooms. Much of this oil eventually escaped down the floor drains and was piped to municipal treatment facilities.

Unable to cope with the flooding conditions, many treatment facilities were not functional during the flood. But they did supply an avenue to the river and, ultimately to the ocean, for large volumes of wastewater. From a cleanup standpoint, it was better to have these petroleum substances flushing into the ocean rather than soaking into

the groundwater. The problem was overwhelming as it was. The raw sewage bypassing the treatment plants was an environmental concern, but it was secondary to the damage from petroleum product and hazardous substance releases.

Jack Schuback from the Federal Emergency Management Agency (FEMA) in Washington, D.C., surveyed the damage, "I didn't see a single tank that was anchored. Even the tanks in home basements were tipping over. There are no gas lines up there (in Maine), everything is in tanks. When this fuel oil got into the flood waters . . . you looked around and all you could see was oil . . . on the trees, the streets, in homes."

"The Kennebec River was covered with sheen," recalls David Sait, Director of the Maine DEP Response Services. "The odor was overpowering." He also observed that some UST's lost product because the fill pipes were not properly capped. Also, piping systems failed and vent lines were broken and/or not high enough.

In the draft 15 day report, FEMA recommended that in Maine appropriate State regulations be re-

vised to require the anchoring of underground and aboveground tanks located in the floodplain. The State now wants to require anchoring in the 100 year floodplain.

In the draft 15 day report, FEMA recommended that in Maine appropriate State regulations be revised to require the anchoring of underground and aboveground tanks located in the floodplain. The State now wants to require anchoring in the 100 year floodplain.

Jack Schuback noted that the most ideal scenario would be to avoid storing hazardous substances in floodplains. But, since this isn't always possible, it is important that state and local governments be aware of the seriousness of these flood hazards and adopt more stringent storage regulations in these vulnerable areas.

Floods happen to the best of families. In the Northeast, this flood caused well over \$100 million in public and private property damages. Nationally, destruction from floods run from \$3 to \$4 billion each year. Thus, as the boy scouts say, "Be Prepared! . . . or as a LUSTbuster would say, "where waters may rise, anchor your tank!" ■



Photo Credit Waterville Morning Sentinel

Well hello there! Member of DEP Response Team examines out-of-service unanchored underground storage tank which emerged from the ground in Belgrade, Maine.

Buffalo Tank Takes On BUFFHIDE-LT Cleanup Assurance

Buffalo Tank Corporation of Baltimore, Md., has made a move that should generate some lively discussion in the underground tank industry. Effective immediately, all of Buffalo's BUFFHIDE-LT double wall tanks will include, in addition to their life-of-installation warranty, a **Zero Product Release Certification**.

"Tank manufacturers have traditionally warranted their tanks for repairs or replacement for the length of the warranty period," General Manager Keith Osborne reported. "But in the case of a tank failure, the repair or replacement of the tank is the least of the owner's worries. The real issue is the cleanup. We're addressing that with our Zero Product Release Certification. The owners of our double wall BUFFHIDE-LT tanks will be afforded the assurance that, should their tank ever cause a product release under normal operating conditions, we will not only repair or replace the tank, but we will also

cover any consequential damages up to a limit of \$2,000,000 per occurrence."

The design features of the double wall LT include full 360 degree double containment, a single penetration of the tank shell by an engineered manway, a system by which precision testers will be able to immediately eliminate any vapor pockets, and the 100 mil minimum BUFFHIDE cladding. While a requirement of the Zero Product Release Certification will be the installation and maintenance of interstitial monitoring equipment, the owner will be allowed to choose from a group of several approved monitoring systems.

"This development represents an effort on the part of Buffalo Tank to respond to the liability aspects of the new EPA regulations," said Osborne. "We feel this commitment on our part will afford our customers an opportunity to obtain the most favorable liability insurance rates possible." ■

Amnesty Fever in the Southeast?

The term "amnesty" is a misnomer, but it is a convenient way of referring to an approach Florida has already adopted which encourages early leak detection reporting and cleanup of contamination from leaking UST's. Florida began with a 15 month "grace period" during which tank owners could report a petroleum leak and have the State pay for the cleanup. As of May 27th, the State had received almost 1,700 applications from tank owners or operators wanting to enroll in the program. In an effort to bring even more sites into the program, the Florida Legislature has extended the "grace period" for one year.

The advantage to the "amnesty" approach is that tank owners are encouraged to find leaks before they become bigger problems. Theoretically, the tank universe has the opportunity to purge itself of aging, decadent tanks and piping and start with a clean up-graded, removed and/or replaced slate. The disadvantage is that tank owners could get the wrong idea that liability is no longer their problem.

The "amnesty" approach seems to be attractive to a number of states in the southeast and in California. Cleanup and insurance bills have been introduced in Alabama, North Carolina, and South Carolina. California has an "amnesty" bill before the legislature. These bills are currently in different legislative phases. ■

Vermont Program To Help Small Businesses Pay Tank Replacement Costs

On June 10, Vermont Governor Madeleine Kunin signed a bill establishing the **Underground Storage Tank Incentive Program**. The Program will provide grants of up to \$5,000 per site to help small businesses and small towns with the cost of tank replacement. An estimated 500 sites would qualify for funding, including many of the "mom and pop" groceries located in most rural parts of the State. The Program will be funded with \$500,000 of the "stripper well oil overcharge money", which is part of a settlement states received from Exxon for oil overcharges during the oil shortage.

Vermont UST regulations, adopted in January of this year, require statewide secondary containment of tanks and piping. Grants will be limited to the "added costs" of tank replacement associated with the new tank construction standards. Thus, the awards can be used to finance the cost differential between single-wall and double-wall tanks or piping, overfill protection devices,

state-of-the-art leak detection equipment and stage I vapor controls, although stage I controls are not currently required by Vermont regulation.

Eligible owners must submit an application which will be assigned a priority for funding by the Department of Environmental Conservation (DEC). Highest priority will be given to confirmed or suspected leaking tanks, old tanks located near water supplies and where owners are able to demonstrate a clear financial need.

The goal of the program is to help "mom and pops" and other targeted participants with the cost of upgrading so that as few as possible are forced to terminate their retail gasoline service, while achieving the overall objective of protecting public health and the environment.

"We are trying to find ways to facilitate compliance rather than to demand it," says Tex LaRosa, Chief of Operations at DEC. "Many of these small operators are not used

to the complicated stuff that goes along with a lot of environmental regulations. We want to apply the maximum amount of assistance to help the regulated community come into compliance with the law . . . but we expect compliance." The Department hopes to begin distributing grant monies before the end of summer.

For more information, call Paul Van Hollebeke, (802)244-8702, or write the UST Program, Waste Management Division, Department of Environmental Conservation, 103 South Main Street, Waterbury, Vermont 05676. ■

LUST(s) Heavily Implicated In Fatal Auto-Dealership Blast In Pennsylvania

If you smell gasoline fumes inside a building, contact the local fire department . . . immediately! Unfortunately, at an Essington, Pennsylvania imported luxury car dealership this lesson was learned too late. On June 4th, employees smelled fumes and discovered an inch deep mixture of water and gasoline in the basement following some heavy rains. Then, unaware of the explosive atmosphere, employee Water Mazur, 74, went to the basement with an electric sump pump to pump out the mixture. When the pump was plugged in or turned on, the building exploded. Mazur was killed, 10 people were injured, two firefighters were hurt and Alfa Romeos, Lamborghinis, and Jaguars lay in ruins.

Enforcement and corrective action is underway. Authorities are exploring the possibility of leaks from more than a dozen pipelines and older tanks in the area to determine potential responsible parties. Tanks at an adjacent service station were immediately tested and after a 5-hour pressure test a one gallon per hour leak was revealed in a 15 to 20 year old tank at this site. Investigators have since found a problem with the seal around one of the fill pipes and some loose piping connections. Also, one witness had observed an overflow spill at the service station at an earlier date. A few employees at the dealership mentioned that they had noticed a problem with fumes in the past.

Wayne Naylor, EPA Region 3 UST Coordinator, noted that the local authorities were very effective

in handling the situation. He said that State and local police, the State Fire Marshal, the local fire department, and the state Department of Environmental Resources all worked together very well. When Naylor arrived at the site on the morning after the explosion, tank tests were already underway by order of the State Fire Marshal. By the end of the day two leakers were drained and taken out of service. "All the right steps were taken," he said.

These **cooperative efforts among safety and environmental authorities** are essential to the successful implementation of LUST cleanup and prevention. More and more, firefighters throughout the country are incorporating environmental protection considerations into their response strategies. For example, until recently it was a common practice to wash down spilled gasoline . . . usually to the nearest storm drain. Now the more common practice is to contain a spill with sand or some absorbent barrier until the product can be safely removed.

Cooperation is a two way street, however, and environmental personnel need to be aware of the safety considerations tied in with underground storage system removal, installation and product releases. After all, fire personnel are the established home plate emergency response people throughout the country. The UST program will be at a distinct advantage in those communities where a cooperative safety/environmental spirit is firmly planted and the chain of command is not up for debate in the field. ■

Tank Talk *continued*

American Petroleum Institute, Southern California Edison, Boston Edison, Edison Electric Institute, Electric Power Research Institute, The Environmental Institute at the University of Massachusetts, and the Association of American Railroads. Proceedings from this conference will be published in open literature.

For further information contact Dr. Paul Kostecki (413) 545-4610.

Management of Underground Storage Tanks, October 12-14, 1987 - East Brunswick, New Jersey.

A 3-day intensive course on the technology and regulations applicable to installation, monitoring, testing and retrofitting of UST's and clean-up of leaking tanks. The course is sponsored by the Center for Professional Advancement. For further information call (201) 238-1600.

Florida's draft **Petroleum Contamination Site Cleanup Criteria**, a proposed "how clean is clean?" rule is available from Todd Allen at (904) 487-3299. The proposed rule gives groundwater cleanup levels for the gasoline analytical group (benzene, total VOA, lead, EDB, and 1,2-dichloroethane) and the kerosene analytical group. The rule provides the option of performing a risk assessment to justify other standards. There is also a relief mechanism if cleanup efforts reach a point of diminishing returns. Under Florida's SUPER Act legislation the Department of Environmental Regulation is required to write such a rule to determine, "on a case by case basis, the point at which a petroleum or petroleum product contamination site rehabilitation program is complete."

Regional Update *continued*

Interest in the meetings increased as word got out that the meetings were being held. The questions being raised range from simple clarifications of the proposed regulations, to those that are much more difficult to address such as: how to dispose of tank sludges that could be hazardous wastes. The largest turnout (over 200 attendees) was in Chicago.

Notification Results

We are somewhat disappointed in the number of notification forms

that have been submitted. Wisconsin, which has licensed petroleum tanks for a number of years, has the best data and has received about 60,000 tank notifications. Illinois, Indiana, Michigan and Ohio have had a poor response and estimate that only about 50-60 percent of owners/operators have notified. We are currently estimating approximately 450,000 regulated tanks.

All four States which have had under-reporting, are working to identify their non-notifiers and to bring them into compliance. Their efforts should demonstrate results by the end of 1987. ■

For the past 8 months Florida has been using **asphalt plant dryers to decontaminate soils** at some LUST sites. At the asphalt facilities the soil is baked at about 350 degrees F. While this heat treated soil is not recommended for wellfield areas, it can be used selectively as fill rather than being carted to a landfill or hazardous waste disposal site. Also, truck mounted mobile incinerators, which can be moved to cleanup sites, are expected to be used soon in Florida. These will bake the soil at about 800 degrees F.

Continued on page 12

INSPECTION TIPS

The New England Interstate Water Pollution Control Commission (NEIWPCC) is working on an EPA OUST-funded video for state and local UST inspectors to help visually point out some keys to effective new installation inspections and to help heighten inspector super-sensory powers. The video should begin to spread itself across the country by the end of the year.

We are so charged up about the subject of inspection that we feel the necessity to spew forth dribs and drabs of inspection tips that we have wrenched from seasoned tank inspectors, as a regular feature of LUSTline. So take note inspectors (and installers) . . . and remember if these tips aren't news to you, send us some good tips of your own!

Tank Anchoring — While it is understood that tanks should be anchored under high groundwater conditions so that they do not float upwards due to buoyant forces, there are more subtle aspects to determining whether or not a tank should be anchored. If, for example, the excavation appears dry, it may be "seasonally dry" or the region may be undergoing a "dry spell". If soil around the excavation wall appears mottled, this indicates that water is present at that depth periodically. In a tight clay soil, even if the water table is down 50', a tank set in porous, more permeable backfill is subject to the "bathtub effect" whereby infiltrating surface water fills up the voids of the backfill. The excavation fills faster than it can drain and tank flotation can occur.

Of course, it is important that a tank be **anchored properly** either by using ballast weight on the top of the tank or by using properly sized metallic or non-metallic anchor straps. FRP anchor straps are designed to be placed over specified ribs of the FRP tanks according to manufacturer instructions.

If a steel strap is used to anchor a steel tank, it is essential that the strap be electrically isolated from the tank so that sacrificial anodes on the tank are not sacrificed to the strap. The Steel Tank Institute recommends an insulating mound of no less than 1/2" thickness between the tank and the strap. The inert insulating material should be at least 2" wider than the strap, leaving about 1" on either side of the strap. Felt expansion joint material is the most recommended insulation. Rubber tires or layers of heavy tar paper are

also used but they must be applied effectively. The insulation should come down far enough on both sides so that the strap and tank never come into contact.

Protecting the anchor strap cathodically is impractical because the strap is electrically continuous with the rebar in the bottom concrete. An extra heavy coated strap should do its job for years to come.

Finally, the inspector should check to see that at least a 12" bedding of backfill separates the tank from the concrete anchoring pad. **PEI Recommended Practices 100-86** warns that the "bottom hold-down pad should never be shorter than the full length of the tank; otherwise uneven stresses can develop, leading to structural failure."

Is The Backfill Homogeneous? — Okay, a McDonald's wrapper now and then is one thing, but the tank excavation should not be a waste and rock receptacle. If rocks and pieces of piping are lying around the edges of the excavation, there is a tendency for workers on the site to kick it all in before covering. In this business neatness counts. Also, chunks of frozen soil should not be in the backfill . . . they hinder good compaction.

Is The Tank Round? — Before a tank is covered the inspector should measure the internal diameter to assure that the deflection is not in excess of the manufacturer's instructions. Excessive de-

Continued on page 12

New Updated API Recommended Practices

The following American Petroleum Institute (API) Recommended Practices have been recently revised. With the exception of RP 1635, the documents listed below have been referenced in EPA's proposed UST rules. All of these RP's should be available from API by the end of the summer. To obtain copies call or write API at 1220 L. St., NW, Washington, D.C. 20005 (202) 682-8000.

Recommended Practice 1604: Removal and Disposal of Used Underground Petroleum Storage Tanks. The basic practices outlined in the previous edition of 1604 have been retained, although some have been modified slightly. Additional methods and precautions for vapor-freeing an UST have been added, and in general, a greater emphasis has been placed on providing information to insure that proper safety practices are employed during the removal/disposal processes.

Recommended Practice 1615: Installation of Underground Petroleum Storage Systems. This new edition substantially expands the previous edition in its content and illustrations. Additionally, new sections have been added that address preinstallation site analysis, secondary containment, vapor recovery and fill pipe marking security.

Recommended Practice 1621: Bulk Liquid Stock Control at Retail Outlets. Besides providing improved procedures for inventory control accuracy, the new edition of 1621 incorporates a full month's sample inventory record sheet, and provides more detail regarding how to actually calculate inventory control records.

Recommended Practice 1631: Interior Lining of Underground Storage Tanks. Modifications of the previous edition have been made in order to emphasize the fire and safety aspects of tank lining. Other minor procedural changes have been made to the process of assessment of tank suitability for lining, tank surface preparation and lining application methods.

Recommended Practice 1632: Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems. Only minor formatting and editorial changes were made to this document.

Recommended Practice 1635: Management of Underground Petroleum Product Storage Systems at Marketing and Distribution Facilities. The new edition represents a major revision of this API UST management guide. Included are detailed recommendations on leak verification and investigation procedures. A new section on corrective action response has also been added. ■

Inspection Tips *continued*

flection can cause structural failure and may void the manufacturer's warranty.

Backfill Compaction — Backfill along the bottom edge of the tank should be hand tamped to be sure that any voids are filled.

Repair of Coatings— Inspectors should check to see that any damaged coatings have been field repaired.

Monitoring Wells— Because leak detection methods are newly emerging and essentially unproven, inspectors have the opportunity to be observers on the frontlines of LUST technology. When inspecting any leak detection system inspectors can note what is working well, what is not working, and even suggest possible modifications to manufacturers.

The monitoring wells, especially in gas stations, should have some kind of runoff protection to keep tainted surface water or overflow spills from draining into the monitoring well which, of course, is a direct conduit to the groundwater. The well should be distinctly marked or color coded so that deliveries cannot be made into the monitoring well!

One inspector noted that it is a good idea to be sure that the tank owner has the tools or keys for opening his monitoring wells so that when the inspector arrives to look at the well, someone at the facility is able to open it. ■

Tank Talk *continued*

In response to EPA's growing emphasis on the importance of proper UST installation, Franklin Associates, Ltd. and Mike Farmer, president of M.W. Farmer & Co., and Chairman of the Petroleum Equipment Institute Committee on Certification and Licensing are preparing a **two-day UST installation seminar** which will include an optional exam and a certificate for those who pass the exam.

Notices on the availability of the course will be mailed in the fall to state agencies and trade associations nationwide. Kris Cavoie of Franklin Associates says the course can be used in cooperation with individual states to set up state-run certification programs. The course closely follows model state legislation for certifying tank installers developed by the PEI Committee, and established guidelines such as those found in PEI/RP100-86, API 1615, and NFPA-30. State and/or local UST program officials and other groups or individuals interested in sponsoring or offering such a seminar, or in receiving more information may contact Kris Cavoie at (913) 649-2225.

The Petroleum Equipment Institute's **Recommended Practices for Installation of Underground Liquid Storage Systems** has been revised and, as we go to press, we are told it will be available by August 7th. The new PEI/RP100-87 has changes in 18 of its 108 sections and in 17 of its 40 drawings. Copies of the manual can be ordered prepaid from PEI,

(PEI members \$8.00 and non-members \$10.00) Box 2380, Tulsa, Oklahoma 74101.

Also, PEI's model installer licensing act and review test will be ready in early September. For more information call (918) 743-9941. ■

If you would like to add your name to the LUSTLine Mailing List, contact NEIWPCC at (617)861-8088.

New York Above-Ground Tank Recommended Practices Available

The New York State Department of Environmental Conservation has published an excellent new guide, **Recommended Practices For Above-ground Storage of Petroleum Products**, which comprehensively addresses the design, installation and repair or up-grading of above-ground petroleum storage systems. This 150-page book was prepared by the Division of Water, Bureau of Spill Prevention and Response, with the assistance of Fred C. Hart Associates under an EPA grant. Single copies can be ordered from Marilyn Metz, NYS Department of Environmental Conservation, 50 Wolf Rd., Albany, NY 12233-3520.

L.U.S.T. Buster T-Shirts & Sweatshirts!

Tee's: S,M,L,XL \$9.00pp
Sweats: M,L,XL \$15.50pp



Send check or money order to: NEIWPCC
85 Merrimac St., Boston, MA 02114

L.U.S.T. LINE

New England Interstate Water
Pollution Control Commission
85 Merrimac Street
Boston, MA 02114

First Class Mail
U.S. Postage Paid
Boston, MA
Permit # 14551