Index to Back Issues of the TANK BULLETIN by Subject

Since its inception in 1988, a number of interesting and informative articles have appeared in the **Tank Bulletin**. This index to back issues has been compiled as a service to our readers. If you want to obtain a copy of a back issue, they are all available on the NYSDEC website, or you may call the Bulk Storage Helpline at (518) 402-9543.

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By Way of Introduction

The TANK BULLETIN is a new publication of the New York State Department of Environmental Conservation (DEC), Division of Water. TANK BULLETIN will be produced and published semiannually and distributed free of charge.

TANK BULLETIN is written for owners and operators of chemical and petroleum bulk storage facilities in New York State, public officials, and other related individuals such as tank installers and testers, or concerned and interested citizens.

Over the past five years, there have been many changes in government regulation and technology, which affect the cost and level of environmental protection at bulk storage facilities. TANK BULLETIN will serve to keep the reader abreast of current and developing regulatory requirements, technology, research, problems, and DEC services. It will also provide technical assistance to tank owners, and contain recommended practices for storing and handling petroleum and other hazardous substances.

In addition, reader response is welcomed and encouraged. If you have questions or comments, or you would like to see an article on a particular topic in tank technologies or other issues of interest to tank owners, please feel free to write or call us. You are also invited to submit news articles of interest, which may be summarized in a future issue of TANK BULLETIN.

Articles or questions can be directed to:

NYS Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-3520
(518) 457-4351

or

DEC Bulk Storage Help-Line
1-800-242-4351

NYS Bulk Storage Programs

Presently, DEC is involved in four (4) programs which help prevent petroleum and chemical leaks and spills to the environment.

They are:

- the Petroleum Bulk Storage Program (PBS),
- the Major Petroleum Storage Facility Program (MPSF),
- the Chemical Bulk Storage Program (CBS), and
- the Federal Underground Storage Tank Program (UST).

The Petroleum Bulk Storage Program (PBS) and the Major Petroleum Storage Facility Program (MPSF) are presently in operation, while the Chemical Bulk Storage Program (CBS) and the Federal Underground Storage Tank Program (UST) are currently being developed.

It is probable that New York will seek UST delegation from EPA. With that likehood, the Department will be working with the Federal EPA during the next two (2) years to merge the federal UST program with the State program, thus consolidating storage regulations and standards.
In Summary

Each year, thousands of petroleum and hazardous material leaks and spills are reported to the NYS Department of Environmental Conservation (DEC). Industry generally has a good record of reporting their spills to DEC hotline (1-800-457-7362). Reports are also made by the public who may have complaints about chemical odors, petroleum fumes in their basements, tainted water supplies, or who observe discharges to the ground or surface waters. Thousands of other leaks and spills go unreported mainly because they have not yet been discovered.

In some locations, wells have been abandoned or people have had to vacate their homes because even very small amounts of petroleum or hazardous material in the groundwater can cause health problems. For example, benzene, which is a known carcinogen, is a health concern in concentrations as small as 5 ppb (parts per billion); and 1 gallon of gasoline can foul the water supply for 10,000 people for 1 day, which translates to 1 ppm (part per million).

DEC estimates that there may be as many as 150,000 petroleum and 10,000 chemical storage tanks in NYS. Many of these tanks are bare steel tanks installed in the 50's and 60's which have been weakened by rust, and have a fifty percent chance of developing leaks. In an effort to prevent these leaks and spills, the NYS Legislature passed the Petroleum Bulk Storage Law, Article 12 of the Navigation Law, and the Hazardous Substances Bulk Storage Act. These laws require DEC to develop and enforce a State code for storing and handling petroleum and other hazardous substances so that leaks and spills can be minimized.

Petroleum Bulk Storage (PBS) Owners of petroleum bulk storage facilities must now comply with regulations regarding facility registration, petroleum handling and storage, and facility construction. As defined by the law, regulated facilities are those which store over 1100 gallons and less than 400,000 gallons of petroleum in stationary aboveground or underground tanks.

Under these regulations, owners must register their facilities, notify DEC of substantial tank modifications, re-register when facility ownership changes, and renew registration every five years. They must periodically test or inspect equipment and report test results to DEC, replace or repair leaking parts, close facilities properly, and comply with new construction standards.

The PBS regulations were enacted in December 1985, and the program has progressed rapidly since then. DEC has registered over 89,000 tanks at over 35,000 facilities. The program is proving itself to be a significant safeguard of the environment. Thousands of leaking tanks have been removed, thus protecting waters which otherwise might have been contaminated.

This program is now shifting from a reactive mode with emphasis on voluntary compliance to an enforcement mode in which legal action will be taken against those who have chosen not to comply with the regulations.

Major Petroleum Storage Facility The Major Petroleum Storage Facility Program (MPSF) regulates facilities with an aggregate storage capacity greater than or equal to 400,000 gallons of petroleum, and has been in operation since 1977. Under the laws and regulations governing major petroleum storage facilities, owners must obtain operating licenses and renew them annually, test and inspect equipment, retrofit facilities with spill prevention equipment and prepare a plan for preventing and responding to spills.

In the only program of its kind known to exist in the country, New York's DEC requires oil terminals to comply with inspection, testing, and construction standards (under the PBS program). They must undergo a thorough inspection by December 1990, including inspection of all operating equipment, and cleaning and internal inspection of large aboveground tanks to check structural integrity. Many underground tanks and pipes must be tested prior to 1990, depending on their age.

Chemical Bulk Storage (CBS) The first set of Chemical Bulk Storage regulations became effective July 15, 1988. These regulations contain the list of hazardous substances which are regulated, establish rules for spill reporting and response; and require the registration of all underground tanks, and of aboveground tanks with a storage capacity of 185 gallons or more. A second set addressing technical standards for preventing accidental releases is expected in 1989.
Petroleum Bulk Storage (PBS) Program

Improper storage and handling of petroleum are among the most serious threats to New York's water supplies. To reduce this danger, the Department adopted the Petroleum Bulk Storage (PBS) regulations, 6 NYCRR Parts 612, 613, & 614, which became effective on December 27, 1985. These regulations contain a broad range of technical requirements for preventing spills and leaks at both aboveground and underground storage facilities.

The main provisions of the PBS law and subsequent regulations, which are summarized below, require tank owners to:
- register storage facilities with the Department, and post the registration certificate;
- test underground tanks, inspect aboveground tanks, and monitor new or rehabilitated tanks;
- install overfill prevention devices including diking, and build new facilities per the DEC code.

Owners are encouraged to obtain a copy of these regulations from their local DEC regional office, and to read them carefully and in their entirety. Owners are responsible for complying with the full set of PBS requirements.

**FACILITY REGISTRATION**

Owners must have registered existing facilities by December 27, 1986, register new tanks before placed in service, re-register new ownership in 30 days, renew registration every five years, and notify DEC of substantial modification of tanks 30 days before work begins.

**What Must Be Registered?**
- Any facility with one or more stationary above or below ground tank systems at the same site, with combined capacity over 1,100 gallons but less than 400,000 gallons of petroleum.

**What Products Apply?**
- Any liquid non-waste petroleum-based oil suitable for use as a fuel to produce heat or energy, or as a motor fuel or lubricant, such as gasoline, heating oil, heavy residual fuel oils, kerosene or reprocessed waste oil.

**Where to Register?**
- At the DEC regional office having jurisdiction over the facility.

**HANDLING AND STORAGE**

- **Underground**
  Owners must keep inventory records, periodically test tanks and report results to DEC, report leaks and spills, repair or replace defective parts, and properly close storage facilities.
  Initial testing was required by December 27, 1987.

- **What Tanks Must be Tested?**
  - Underground tanks larger than 1,100 gallons, unless storing #5 or #6 fuel oil or new or substantially modified as set forth in 6 NYCRR Part 614.

- **When Must Tanks be Tested?**
  - After 10 years of service for unprotected (bare steel) tanks, after 15 years of service for corrosion protected tanks, and retested every five years thereafter.

- **How To Test A Tank?**
  - A copy of the tank tests and procedures meeting the regulation requirements can be obtained from DEC.

**HANDLING AND STORAGE**

- **Aboveground**
  Aboveground tanks must be periodically inspected, be retrofitted with overfill prevention and secondary containment equipment, have defective parts repaired or replaced, and be closed properly, in accordance with Part 613.

**CONSTRUCTION STANDARDS**

As of December 27, 1986, new or substantially modified underground tanks must be "state-of-the-art" tanks, have secondary containment, have a leak monitoring system and overfill prevention equipment, have non-corrodible or cathodically protected pipes, and be properly installed and monitored, in accordance with Part 614. The tank must be either cathodically protected steel such as the STI-P3 tank, or fiberglass (fiberglass reinforced plastic - FRP), or steel with a heavy fiberglass (FRP) coating, and all must have a life of 30 years.
Data Measures PBS Compliance

Since the enactment of the Petroleum Bulk Storage regulations just over two years ago, there has been much activity by the regulated community to comply with the requirements of this program. Indeed, a measure of program success has already resulted. But still more has to be done. Track down of tank owners who have failed to register is underway.

Major indicators of compliance include facility registration, testing of older underground tanks, and installation of new and replacement tanks in accordance with the new construction standards.

Of the estimated 50,000 facilities in the non-delegated areas of New York State, which consist of approximately 150,000 tanks, approximately 35,000 facilities (70%) have been registered with DEC to date. Delegated counties have their own PBS program approved by DEC; therefore, are not directly regulated by DEC. There are another 10,000 facilities registered in the delegated counties of Nassau, Suffolk, Cortland, and Rockland.

Initial testing of tanks was due by December 27, 1987. In September and October of 1987, tank test reminders were sent to owners of approximately 22,500 tanks, reminding these owners of the December 27th deadline. To date, approximately 6,000 of those tanks (25%) have been tested. More test reports are arriving daily.

Since the PBS program began, some 3,000 tank test failures have been reported to the Department. The graphs below show the dramatic increase of tank test failures over those reported in 1986, as the 1987 testing deadline approached, and test failures reported vs. total spills.

After December 27, 1986, all new and replacement tanks had to be installed in accordance with the new construction standards in the regulations. Since then, there have been approximately 5000 tanks replaced at 2600 existing facilities and approximately 55 new PBS facilities constructed.
Major Petroleum Storage Facility Program

Vessels used to transfer petroleum and on-shore facilities with a combined aboveground and underground storage capacity greater than or equal to 400,000 gallons, are regulated by the Major Petroleum Facility Program (MPSF) under Article 12 of the Navigation Law. Under the laws and regulations governing major facilities, owners must:
- license their facilities and renew operating licenses annually,
- test and inspect tanks and related equipment,
- retrofit facilities with spill prevention equipment (on-shore facilities only),
- prepare and implement a plan for preventing and responding to spills (on-shore only), and
- notify DEC of leaks and spills and of any major facility changes.

Non-compliance is subject to penalties by law.

The laws and regulations are summarized below:

What is regulated?
Article 12 of the Navigation Law gives DEC the authority to regulate major petroleum facilities. Under this law, a major facility includes but is not limited to any refinery, storage or transfer terminal, pipeline, deep water port, drilling platform or any equipment used to refine, produce, store, handle, transfer, process or transport petroleum and which has a combined capacity of 400,000 gallons or more. A vessel is considered a major facility only when petroleum is transferred between vessels on the navigable waters of NYS or to an on-shore facility. Presently, there are approximately 180 vessels and 330 major facilities licensed in New York State.

Licensing
Article 12 requires licensing of major facilities, and the submission of a monthly license fee and a surcharge which are based on the number of barrels transferred. On-shore facilities must show proof of having equipment to prevent, contain and remove discharges, as authorized by federal regulation 40 CFR 112, in an SPCC Plan. Licenses are issued on an annual basis and expire on March 31st. Major facilities are required to reapply for licenses 90 days before expiration, December 31st, each year.

License Fees
The license fee and surcharge paid by a facility is 4-1/2 cents per standard English barrel (42 gallons) received each month. The fees are due on the twentieth day of each month.

Spill Clean-up Fund
The license fee (1 cent per barrel) and penalties are credited to the New York Environmental Protection and Spill Compensation Fund used to clean-up leaks and spills where the responsible party is unknown or refuses responsibility. The surcharge (3-1/2 cents per barrel) is credited to the Hazardous Waste Remedial Fund which is used for remediation of inactive waste sites.

Testing, Inspecting, and Construction Standards
Under Section 191 of Article 12, Joint rules and regulations, major facilities must comply with Parts 613 and 614 of the Petroleum Bulk Storage regulations, regarding testing and inspections, and construction standards for new or substantially modified facilities. (See p. 4 of this newsletter.)

Notification and Removal of Discharges
Owners or operators must notify DEC of leaks or spills within 2 hours or be subject to a penalty.
Owners and operators must have an established plan for clean-up of a release, which would be implemented immediately to contain any discharge.

Chemical Bulk Storage (CBS) Program
Many modern industrial materials and products are hazardous to the environment or to human health. If released into air, water or soil, they may result in threats to human health from direct contact; in long-lasting damage to resources; or in immediate safety hazards, such as fire or explosion.

To prevent environmental contamination and protect public health and safety, hazardous materials must be kept under continuous control. Certain aspects of use, storage, transportation and handling are already subject to state or federal regulation.
DEC is now developing regulations to implement the state *Hazardous Substances Bulk Storage Act of 1986* (ECL Article 40). This law further regulates the sale, storage and handling of hazardous substances, as needed in NYS. A closely related law, ECL Article 57, requires DEC to issue a formal list of substances defined as hazardous.

Controls established by the new laws include: registering and inspecting storage and handling facilities; construction standards for facilities, requirements for reporting leaks and spills, and corrective action to be taken in response to such spills. The hazardous substance (chemical) bulk storage law applies to both underground and aboveground facilities, and prohibits sale of hazardous substances to unregistered facilities.

**REGULATING HAZARDOUS SUBSTANCES**

**Two-Phase Regulatory Development**

The regulations are being developed in two phases. During development, DEC has been seeking public comment on technical issues and regulations proposed to achieve maximum environmental protection without unnecessary cost to business and industry.

**Phase I**

Phase I of the CBS regulations, which became effective July 15, 1988, are enacted as part of New York Code of Rules and Regulations under Parts 595, 596, and 597 of Title 6. It includes a list of hazardous substances which are regulated; defines the minimum size of tank which is regulated; establishes registration procedures and a schedule of fees; identifies the amount of spilled material which must be reported to DEC; and identifies information which must be provided to customers by hazardous substance suppliers.

**Phase II**

Phase II of the regulations, which will be developed during 1988 and early 1989, will include standards for design, construction, operation, testing and inspection of hazardous material storage and handling facilities. Ten issue papers addressing regulatory alternatives are being prepared by DEC. These papers will be completed in early June 1988 and circulated to interested parties for review and comment. Public meetings on these issues will be held during summer and early fall 1988.

**FEDERAL U.S.T. PROGRAM**

**Summary and Update**

In order to control and prevent releases of petroleum and hazardous substances from underground storage tanks (USTs), Congress passed the 1984 amendments to the Resource Conservation and Recovery Act (RCRA). The federal government, through the Environmental Protection Agency (EPA), is now developing regulations for storing these substances. The proposed UST regulations were first published in the April 17, 1987 Federal Register, and final regulations are expected to be promulgated in the summer or fall of 1988. The federal UST regulations govern petroleum products including crude oil, and hazardous substances on the CERCLA list.

Federal UST regulations will include: (1) standards for new UST systems; (2) standards for upgrading existing UST systems; (3) general operating requirements; (4) release detection; (5) release reporting and investigation; (6) corrective action; (7) out-of-service or closed UST systems; and (8) financial responsibility. Some additional requirements which are being proposed by the EPA at this time include: (1) retrofitting of leak detection equipment on existing underground storage tanks within 3 to 5 years; (2) retrofitting of cathodic protection and overfill prevention devices within 10 years; and (3) financial responsibility requirements of at least $1 million to cover personal injuries and property damage caused by releases from underground tanks.

During the development of the federal UST regulations, New York and other states have had the opportunity to submit comments. States will also have the option of having their own program approved, or being subject to the federal program. The EPA will require that state programs be "no less stringent" than the federal program, considering regulations that are proposed or in effect and plans to administer and enforce them.

Most states, including New York, will probably submit their own program for approval. When the final UST regulations are enacted, states will have 3 years to make their program consistent with (no less stringent than) the federal program. This may cause some changes to the existing New York PBS program which will affect facility owners and operators.
Tank Testing

Estimates of the number of leaking tank systems range from 15 to 30% of all underground storage tanks. Owners of leaking tanks may face significant costs for clean-up, ranging from $10,000 to $1 million or more where environmental damage has occurred. Average clean-up costs are approximately $40,000. As illustrated by these numbers, it is economically advantageous for the tank owner to prevent leaks or at least to find a leak before significant damage has occurred.

Finding leaks early on is a major objective of the Petroleum Bulk Storage (PBS) program. The PBS regulations require that all unprotected steel tanks greater than 1100 gallons be tested when the tank is 10 years old and retested every 5 years thereafter. Corrosion-protected tanks, such as fiberglass or cathodically protected steel tanks, must be equipped with a monitoring system, or be tested at 15 years and retested every 5 years. The initial tank tests were due on December 27, 1987.

DEC accepts results from 10 commercially available test methods listed in the figure below, and reviews newly proposed tests regularly.

![Figure 1. DEC Accepted Tank Test Methods](image)

A list of contractors who perform these tests can be obtained from DEC. The number for the DEC Bulk Storage Help-Line is 1-800-222-4351.

A tank test measures level and temperature change to determine if an underground storage tank or its piping system is leaking. Due to test equipment limitations and numerous variables which affect test results, DEC requires tests which can detect a leak of 0.05 gallons per hour. Each of the accepted test methods is slightly different, but the following requirements for performing a tank test are basically the same:

- The tank is filled as full as possible at least 4 to 6 hours before a test is to be performed. (Some methods require the tank to be filled the night before to allow for stabilization of the tank and product.)

- Every test method requires direct access to the tank, i.e., an opening that drops directly into the tank and is not a remote fill.

- Generally, each test method requires a half to a full day to perform a test. If problems are encountered, longer time may be required to obtain conclusive results. If there is more than one tank to be tested at a facility, most contractors will have more than one set of test equipment and will be able to test several tanks at once to minimize the time the facility is out-of-service.

- For most test methods, the elevation of the ground water table is determined to properly compensate for the pressure it exerts on the tank. This is accomplished using an existing well or drilling a test well.

- Generally, vapor pockets in the tank, which often occur when one end of the tank is higher than the other or due to tank geometry, must be released before a valid tank test can be performed. A common way to eliminate vapor pockets is to excavate to the top of the tank, drill a hole to release the vapor, then plug the hole.

Manifolded tanks are sometimes difficult to test. As long as there is direct access into each tank, it is possible with most test methods to perform a test on two tanks manifolded together. However, the results of the test may be inconclusive due to the complexities of this testing situation. It is always best to separate manifolded tanks and test them individually.
Costs Can Vary Significantly

The cost of a tank test depends on many factors. Different contractors in different areas of the state will charge vastly different prices. Other factors to be considered include the size and number of the tanks, amount of preparatory work that must be done before testing, and amount of work required to overcome problems in obtaining a valid test. A straightforward, problem-free tank test will cost $300 to $1,000 with the average being $500-$600. If excavation is required, the cost rises substantially.

Buyer Beware

DEC maintains a list of tank testing contractors who have satisfied the minimum qualifications necessary to conduct tank testing. Minimum qualifications include attendance at a training course sponsored by the manufacturer of the test equipment and certification by the manufacturer to perform the test.

When looking for a tank testing contractor, it is important that several different contractors are contacted to find the one that will meet your needs. Questions should be asked about their method, training and certification by the manufacturer, and especially their experience in tank testing. Your particular situation should be described completely including the tank size and age, the product being stored, and any other pertinent information. Any required preparatory work should be discussed. Not taking the time to find a reputable tank tester could result in unnecessary costs and poor test results. When incomplete, inaccurate or incorrect tests are performed, retesting is necessary.

Where To Get Help

Questions on tank testing should be directed to the your regional DEC office. A help-line is available in each office. (See regional office addresses and phone numbers at end of bulletin.)

No Extensions for Tank Testing

When the Department promulgated the PBS regulations setting forth requirements for leak and spill prevention in New York State, a time period of two years was established for testing old underground tanks. These regulations do not contain provisions for extending the time period for tank testing or for granting a waiver of these requirements.

Small industry groups and business organizations have asked the Department for a delay in the deadline for tank testing. In response to these requests, Division Of Water Director Barolo responded, "No waivers are being granted. To do so would remove the incentive for testing and be unfair to those who have conscientiously tested or replaced their storage system. The Department is sympathetic to the impact of the Bulk Storage regulations on small businesses. We believe, however, that the investment in testing and remediation will provide significant savings in the long term. I encourage any owner having trouble finding a tester or otherwise meeting program requirements to contact their regional DEC office as soon as possible."
LEGAL TALK

Sale and Transfer of Property

When the ownership of a petroleum bulk storage facility changes, the new owner must re-register the facility with the Department, in accordance with 6 NYCRR Part 612.2 of the PBS regulations. This Section also states that PBS facilities can no longer be abandoned. The regulations require that facilities must either be registered or permanently closed in accordance with Part 613.9b of the regulations.

Anyone thinking of buying a piece of property should determine if petroleum storage tanks exist or if abandoned tanks are located at the site. If tanks do exist, the owner is responsible for registration of the facility, tank testing, or permanent closure of the facility. Buyers should inquire:

- Are tanks registered?
- Have tanks been tested?
- Do tanks meet DEC standards for new construction?
- Have the out-of-service tanks been closed properly?
- How long have the tanks been in service?
- Have there been spills or leaks on the property?
- Has a contamination survey been performed? Does the site have a clean bill of health?

An apparently great real estate deal might actually be a great environmental liability due to the condition of the site. If necessary, an environmental testing service should be contracted to examine the conditions of the site and the ground water.

BULK STORAGE STUDIES

Many studies are underway to learn more about safe storage and handling of petroleum and hazardous chemicals, equipment performance, and to better understand the environmental impacts of leaks and spills. This section of the newsletter summarizes the progress and results of recent studies. Contributions are welcomed. Please call theBulk Storage Help-Line: 1-800-242-4351.

Suffolk County Steel Tank Corrosion Study

The Suffolk County Department of Health Services is conducting a Tank Corrosion Study to determine the condition of tanks being removed from the ground. The study, which is sponsored by the EPA, was conceived as a means of gathering information about old steel tanks and the nature of the corrosion that plagues them, by observing them closely as they are removed from the ground for disposal.

Suffolk County was chosen for the study because a large number of tanks are being removed in a relatively short time to meet the requirements of a local replacement ordinance. The county is notified before a tank is removed or abandoned and an inspector is sent to the site to record the condition of the tank, type of backfill used, and any evidence of leakage or soil contamination.

Information is also collected about the size, location, and number of holes in a tank. Three hundred and twenty (320) of the five hundred (500) scheduled for inspection have been examined to date. Preliminary findings based on work completed to date shows that: 30% of the tanks examined had holes in them; smaller tanks (less than 4000 gallon capacity) had more holes than larger tanks; external corrosion is the cause of most holes; and most holes occur on the side or bottom, few along the top of the tank. For more information on this study, please contact James H. Piu, P.E., Suffolk County Study Director at 516-451-4534.

Given a corrosive environment, unprotected tanks made of steel, an unstable material, will ultimately decompose as the steel returns to its original oxidized state, iron oxide or as commonly known, rust.
LEARNING ABOUT BULK STORAGE

This section of the newsletter will provide descriptions, information, and noteworthy comments regarding educational conferences sponsored by DEC or other organizations.

Toxic Chemical Spills Conference

Title: Prevention and Containment of Toxic Chemical Spills
When: (originally scheduled June 23-24, 1988)
To be rescheduled for Fall 1988, information may be obtained by calling the Help-line.
Where: To be announced
Registration Fee: To be announced
Maximum # of Registrants: To be announced
How To Register: Registration forms will be available by calling the DEC Bulk Storage Help-Line: 1-800-242-4351.

This two-day symposium will bring industry, government, and academia together to present new technologies used for the prevention and containment of hazardous substance spills. Some of the topics planned are: geosynthetics for spill containment, materials selection for chemical storage tanks, fire and explosion hazard evaluation, and methods for improving safety at chemical storage facilities. Anyone involved in chemical storage is urged to attend.

The conference will be a cooperative effort between the Center for Environmental Research at Cornell University, the New York State Business Council and the New York State Department of Environmental Conservation.

Tank Installer Training Course

DEC has contracted Hudson Valley Community College to develop a training course on tank installation. This course is being designed to train installers of underground and aboveground storage tanks and operators of storage tank facilities on safe, reliable installation and operation practices, testing, relining and closure methods. Relevant State and Federal regulations will also be covered in the course. This course will be offered at various community colleges across the State in the fall of 1988.

READER RESPONSE

Questions and Answers

Q: How do I get bulk storage advice/information?
A: Contact your regional office or call the Help-line. (See map/ addresses/phone #’s, p.12)

Q: What if I have not registered?
A: Failure to register a petroleum storage facility with a combined capacity over 1100 gallons or a chemical storage tank over 185 gallons is subject to fines and penalties. If you have not yet registered, do so immediately.

Q: What information must be reported to DEC?
A: Leaks, spills or failed tank tests must be reported to the Spill Hotline (1-800-457-7382) within 2 hours, good test results sent to regional office within 30 days, unresolved inventory discrepancies reported within 48 hours, and substantial modifications 30 days prior.

NEWSWORTHY

Albany - A recent challenge by Consolidated Edison Co. to Department PBS and MPSF regulations, resulted in a 6-0 vote by the Court of Appeals, in favor of DEC. Under the ruling, the Court upheld the Department’s premise that it has the statutory authority to require major facilities to meet the same handling and storage requirements as minor facilities under the PBS program. Further that DEC has authority to require retrofitting of existing facilities.

Greece - Following the discovery of a gasoline leak, the owner of a Greece tire company has been charged by State environmental officials with a total of 527 misdemeanor counts which could result in fines over $5 million. The charges are for failing to register a storage facility with DEC and failing to have the facility tested for structural soundness. The operator also has been told he will be charged with an unspecified number of counts for failing to keep current daily inventory records. Clean-up costs for this spill of an estimated 3,000 or more gallons of gasoline may be as much as $50,000, including removal of the leaking tank and 2 of the remaining 3 at the service station, which also were found to have holes.

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New York State Department of Environmental Conservation
Mario M. Cuomo, Governor
Thomas C. Jorling, Commissioner
The U.S. Environmental Protection Agency (EPA) and the State of New York have agreed that the State's existing underground storage tank program will satisfy most of the essential federal regulations during the transition period before the State's Department of Environmental Conservation (DEC) receives complete delegation of the federal program.

"This will simplify compliance for the owners and operators of the estimated (123,000) underground tanks in the State storing petroleum and chemicals as they will not have to deal with two sets of regulations," said William J. Muszynski, EPA Region II. Both sets (of regulations) regulate certain aspects of tank upgrading, leak monitoring and proper closure at the end of a tank's useful life.

"Owners and operators are cautioned that they are subject to regulations for tanks down to 110 gallons in capacity, the broader federal coverage," Mr. Muszynski said. In addition, they must show financial responsibility, such as insurance, to cover cleanup of leaks and spills, to compensate third parties for damages, and to close the tanks. They may also need to modify their timetables regarding upgrading, leak detection and closure.

"New York has had an aggressive and sophisticated underground storage tank program for several years and we are pleased to define our roles formally through a Memorandum of Agreement (MOA) which EPA and the State signed (July 1989)," Mr. Muszynski said.

"We are carrying out Congressional regulatory requirements placed on the private sector by allowing states that are capable of assuming this responsibility to carry it out independently."

The MOA does not mean tank owners do not have to comply with Federal requirements. This is not the case. DEC is the primary enforcement agent but will be enforcing State law and regulations. Owners still must meet Federal requirements.

Information on the program and its requirements can be obtained from EPA at (212) 264-2301 and the State DEC. (The DEC Bulk Storage Help-line number is 1-(800)-242-4351.)

Memorandum of Agreement

To: Environmental Protection Agency (EPA)
From: New York State Dept. of Environmental Conservation (NYS DEC)

The purposes of this MOA are to:

• define EPA and DEC roles and responsibilities during the transition period;

• ensure that State and Federal UST regulations are administered in a coordinated manner without duplication of effort; and

• provide tank owners and operators with clear information on compliance requirements.

How Will the Federal UST Program Be Implemented?

Under the MOA, the Federal UST Program will be implemented through either DEC's bulk storage regulations or the EPA UST regulations, as described below:

State Regulated Tanks -

DEC's bulk storage regulations will be used where tanks are covered by both the Federal and State regulations. DEC is responsible for conducting compliance and enforcement activities, but may request back up from EPA.

Federally Regulated Tanks -

EPA's UST regulations will be used where no State jurisdiction exists, i.e., for tanks which are small and fall below the 1,100 gallon regulatory threshold of the State PBS regulations, for tanks which contain non-fuel/motor lubricant petroleum products, and for waste oil tanks.

Under the MOA, DEC is the operating arm for EPA and agrees to issue "notice of violation" letters to owners/operators for violations of the Federal regulations (40 CFR 280) for those tanks not covered by the State bulk storage regulations. DEC will notify EPA when "notices of violation" are issued and EPA Region II will be responsible for any further follow-up enforcement action that might be necessary should the owners/operators fail to comply.
CBS Compliance Update

The Chemical Bulk Storage (CBS) regulations set July 15, 1989 as the deadline for registering storage tanks containing any of the 1,023 listed hazardous substances. As of this time, nearly 7,000 tanks at over 1,600 facilities have been registered with DEC.

The CBS regulations make it illegal to deliver a listed substance to a storage tank unless the owner of the tank has registered with DEC. Registration certificates are good for two years and must be posted at the facility.

Owners must also label each storage tank at the facility. The label must show I.D. number of tank, chemical stored, and working capacity. Warning signs are also required by the N.Y.S. Uniform Fire Prevention and Building Code. Information about these warning signs can be obtained by calling your local fire code enforcement official.

Contractor Chosen for Technical Guidance Manual

DEC recently executed an agreement with Badger Engineers, Inc. to prepare a hazardous substances technical guidance manual for the Department. The manual will contain recommended practices which engineers and managers at storage sites can use to prevent leaks and spills of hazardous substances.

Information in the manual will complement the Chemical Bulk Storage Regulations (6 NYCRR Parts 595 to 599). Publication is planned for December of 1990.

If you have any comments or methods for preventing chemical leaks or accidents which should be included in the manual, or have questions regarding this manual, you can call Jacqueline Sibblies on the Bulk Storage Help-line at (800) 242-4351.

Chemical Bulk Storage (CBS) - Phase II

Review of comments on the first draft of the Phase II CBS regulations, the technical regulations for chemical storage, has been completed. A compilation of comments and a responsiveness summary was prepared and distributed to commenters in November. Input provided by the public has resulted in major changes which will be reflected in the final proposal. Our goal is to have flexible yet enforceable regulations which industry, concerned citizens, and DEC can agree will meet the intent of the CBS law to protect the environment.

Next, public notices of the proposed regulations will be issued; public hearings will be conducted, a final responsiveness summary will be prepared and finally, final regulations will be submitted to the Environmental Review Board for approval and publishing.

The following is the latest schedule for completing the regulations:

<table>
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<tr>
<th>Activity</th>
<th>Date</th>
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<tbody>
<tr>
<td>Mail Summary of Comments and Responsiveness Summary</td>
<td>November 1, 1989</td>
</tr>
<tr>
<td>Finish Final Proposal</td>
<td>December 1, 1989</td>
</tr>
<tr>
<td>Public Notices and Distribution</td>
<td>January 15, 1989</td>
</tr>
<tr>
<td>Conduct Formal Public Review and Public Hearings,</td>
<td>March 1, 1990</td>
</tr>
<tr>
<td>Distribute Responsiveness Summary,</td>
<td>thru</td>
</tr>
<tr>
<td>Conduct Environmental Board Review,</td>
<td>May 1, 1990</td>
</tr>
<tr>
<td>Filing - Final Regulations</td>
<td>Fall 1990</td>
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</table>

PBS Compliance Update

Petroleum Bulk Storage (PBS) regulations have been implemented by New York State DEC or the delegated counties for nearly four years. During this period owners have registered approximately 119,000 petroleum bulk storage tanks at over 50,000 facilities. DEC believes that another 16,000 facilities are still not registered. Many of these facilities are not in operation and may contain storage tanks that have not been properly closed. Enforcement actions are underway statewide to locate these unregistered or improperly closed storage tanks. Many owners have found themselves faced with legal proceedings and penalties. Examples of civil actions which have been taken include the following:

**Kingston, NY** - In January 1989, John Walker of Kingston, New York was fined $2500 for failing to register 3 petroleum storage facilities having a capacity of over 1100 gallons each and for depositing an "unwholesome substance" near a highway.

**Region 9, NY** - In February 1989, DEC's Region 9 office concluded enforcement action involving 473 East Delavan Incorporated. The company signed a consent order which imposed a $5000 penalty and required them to install monitoring wells and test or permanently close tanks at 14 locations. The case was initiated after the Region's spill response unit discovered that the 14 locations had avoided most of the requirements in the PBS regulations because of incorrect information that had been reported on the company's PBS applications.

Compliance with tank testing is improving. DEC recently sent overdue tank test notices to over 6,000 facilities statewide in an effort to bring facilities into compliance voluntarily before taking a more aggressive enforcement approach.

To avoid penalties, you should register your facility immediately and bring it into compliance with DEC standards. If you need assistance, call the nearest DEC Regional Office or call the Bulk Storage Help-line: 1-800-242-4351.
Vapor Recovery Required

Volatile Organic Compounds (VOC) in gasoline form ozone through a complex photochemical reaction. The New York City Metropolitan Area (NYCMA) and several upstate counties exceed the National Ambient Air Quality Standard for ozone. In order to meet this standard, the Department of Environmental Conservation (DEC) is currently implementing a regulation (6 NYCRR Part 230) requiring gasoline vapor collection systems in the NYCMA. These systems control gasoline vapor emissions from truck transfer during storage tank loading, and refueling of motor vehicles. The Department may require a reduction in VOC emissions in the upstate counties in the future.

Owners and/or operators of upstate gasoline dispensing sites are advised to consider installing the Stage I and Stage II underground piping when replacing underground storage tanks. The installation cost during tank replacement is less than $5,000. Retrofitting normally costs $25,000 to $50,000 and 2-4 days for installation and testing.

For further information regarding acceptable piping layouts and testing requirements, please contact the Bureau of Source Control in the Division of Air Resources at (518) 457-2044.

Notes

The staff administering the bulk storage regulations in Region 3 has moved from the White Plains sub-regional office to the main regional office in New Paltz. The new address and telephone number for Region 3 Bulk Storage Staff is: 21 South Putt Corners Rd., New Paltz, NY 12561; Telephone: (914) 255-5435.

There is also a new phone number for Bulk Storage and Spill Response Staff for Region 8: (716) 243-5640.

Manufacturer's Technical Submittals Required

Manufacturers and distributors are a primary and vital source of information on proper storage of hazardous substances which they produce and/or sell. Because each chemical or mixture has its own unique characteristics, the manufacturer may be the only authoritative source of chemical specific information and is in the best position to offer guidance on storage and handling practices.

The State's Hazardous Substance Bulk Storage Act requires manufacturers or distributors of hazardous substances to supply the owners and operators of bulk storage tanks with technical guidance and recommended practices (Best Management Practices) for the proper storage and handling of such substances. "Up-to-date" copies of the manufacturers guidance must also be filed with DEC, 50 Wolf Road, Room 326, Albany, New York 12233-3520.

The deadline for complying with this requirement was July 15, 1989.

The intent of DEC's submittal requirements of Section 596.5 is to stimulate manufacturers to develop storage and handling guidance where current guidance is incomplete or weakly developed and to promote communication on spill prevention practices between the manufacturer and buyers of bulk quantities of hazardous substances.

The Department encourages manufacturers and distributors to pool their knowledge and resources and to work with professional, industrial, and scientific organizations to develop industry standards and Best Management Practices (BMP's). Groups such as the American Institute of Chemical Engineers, Chemical Manufacturers Association, Center for Chemical Process Safety or New York State Chemical Alliance may play a role in coordinating or developing standards which are consistent and reflect the state-of-the-art in storage and handling.

Wherever appropriate, manufacturers should guide buyers to additional sources of information necessary for proper storage. Industry standards such as those developed by the American Petroleum Institute, the Chlorine Institute, and the American Society of Mechanical Engineers should be referenced.

If you have any comments or questions regarding these submittals, you may contact Jacqueline Sibblies on the Bulk Storage Help-line at 1-(800)-242-4351.

Effective July 15, 1989, manufacturers and distributors of hazardous substances regulated under Part 597 must supply their customers and DEC with technical guidance and recommended practices for safe and proper storage of these substances.

Required manufacturer and distributor technical guidance must cover:

1. Physical and Chemical Data;
2. Design and Construction of Storage System;
3. Conditions for Safe and Proper Substance Storage;
4. Recommended Storage Equipment;
5. Equipment Inspection and Maintenance Procedures;
6. Safety Precautions; and
7. Emergency Response
Aboveground Pros & Cons

With release of the federal UST regulations, many tank owners are considering moving tanks aboveground. Avoiding the UST requirements for leak detection, corrosion protection, and financial responsibility is foremost in the minds of many owners. However, Congress and EPA are working on similar regulations for aboveground tanks for sometime in the near future.

In addition, aboveground tanks have disadvantages. For example, they may pose a fire hazard if they store flammable or combustible liquids. In fact, aboveground storage of gasoline is not permitted at retail outlets under the National Fire Prevention Code, NFPA 30A, "Automotive and Marine Service Station Code." Some other things which must be considered include regulations, construction standards and maintenance.

DEC regulations and New York's fire code have requirements for construction, installation and operation of aboveground tanks. Such requirements include secondary containment; location of the tank relative to buildings, property lines and traffic areas; emergency shut-off valves, proper foundations, corrosion protection of underground piping and tank bottoms, overfill alarms or fill shut-off valves, and emergency relief vents.

Any aboveground tank used for flammable or combustible liquids must be built to an accepted standard, such as UL 142 or API 620. Using an underground tank aboveground is not recommended under any circumstances.

Fabrication for each varies in many ways, including metal thickness, venting capacity and piping connections.

Maintenance must also be considered. Aboveground tanks require special coating of outside surfaces to avoid external corrosion and high temperatures causing evaporation losses. Tank systems, piping, secondary containment, and corrosion protection must be periodically inspected.

Russ Brauksieck, DEC Bulk Storage Engineer says, "Both aboveground and underground tanks are a threat to the environment. The choice of locating a tank aboveground or underground should be based primarily on environmental considerations. However, other factors related to fire safety, building aesthetics, space needs, maintenance requirements and economics should also be considered."

Four New Tank Test Methods Accepted in New York State

Four new tank test methods have been accepted for use in New York State over the last year. This brings the total number of accepted tank test methods to (14) fourteen.

The four new tank tests are:

- Testronics by Environmental Equipment Corp.
- HTC Leak Detection System by United Detection System
- Tank Tech by JFW Development Inc.
- VacuTect Precision Tank Test System by Tanknology Corporation International.

The first three tests listed are volumetric tank tests and are similar in operation to the other volumetric tank tests that have been accepted.

The last test listed is the first non-volumetric tank test to be accepted in New York State for the testing of underground storage tanks. This method does not require the tank to be overfilled as for the volumetric tests, and operates on a vacuum principle allowing leaks to be detected without releasing additional product into the environment.

EPA Study Affects Tank Test Methods

In addition to the four new tank tests that have been accepted, there have been at least three companies that have revised their methodology based on a research project done by the EPA at its Edison, NJ lab. These methods are:

- Petro-Tite by Heath Consultants, Inc.
- EZY-Chek II by Horner Creative Products, Inc
- AES System II by Associated Environmental Services, Inc.

Six Major Findings of EPA Tank Test Study

Testing methods are now being revised or developed based on the following six major findings of the Edison, NJ lab study.

1. After filling the tank, a 6-hour waiting period is needed before the test may be begun to ensure that the tank and its contents are stable.
2. A 3-hour waiting time is needed after the tank is overfilled to minimize temperature instabilities.
3. An array of at least 5 temperature sensors need to be used to compensate for temperature variations, unless the product is circulated to achieve uniform temperature.
4. The test needs to be conducted at a nearly constant liquid level in order to minimize the pressure differences that will occur in the tank.
5. The test needs to use proper data collection techniques, and results from the test need to be verified using statistical methods, to ensure the data and results are reliable. The easiest way to accomplish this is to use a computer.
6. The equipment used needs to be properly maintained, installed, and calibrated.
How to Inspect an Aboveground Tank

by Richard Coriale, Chemical Engineer

According to section 613.6 of the Petroleum Bulk Storage Regulations, aboveground tanks greater than 10,000 gallons or smaller tanks which could contaminate groundwater or surface water, must be inspected when they reach age ten, or by December 27, 1990, whichever comes later; and they must be reinspected every ten years thereafter. Owners must perform a detailed inspection in accordance with accepted industry standards to ensure that these tanks are structurally sound and are not leaking. This article summarizes current standards. Exemptions for this type of inspection include tanks which are entirely aboveground such as tanks on racks, cradles or stilts; tanks which store No. 5 or No. 6 fuel oil; or tanks which meet all the performance standards set forth in the standards for new construction, sections 614.8 through 614.11.

The Department expects tank owners to drain the aboveground tank; remove all sludge and scale from the tank walls and floor; visually inspect all internal surfaces for corrosion, pitting, and cracking; and perform an accepted non-destructive testing method on the tank shell and floor to ensure structural soundness of all welds and seams.

The first step of this process involves emptying product from the tank from the lowest draw-off point. Since the piping system must also be tested, all lines connected to the tank should be drained and flushed with a few gallons of water. After this step is completed there will be a mixture of heavy sludge, product, and water left in the tank; this is called "tank bottoms" and must be properly removed.

Tank bottoms can be removed by a hand pump for smaller tanks, or with a vacuum truck for larger tanks. This material must be disposed of properly according to applicable local, state and federal laws. Such laws might require compliance with solid or hazardous waste disposal regulations. In no case should this material, or any fraction of it, be discharged directly on to the ground or into surface water. Once the tank is free of product, the tank should be vapor-free before entry is attempted.

Owners must inspect aboveground tanks to ensure they are structurally sound and are not leaking.

Once all connections to operating equipment, feed lines, product lines, and other piping, are disconnected and blinded, flammable vapors can be removed. Vapors can be removed by a low pressure blower or air mover. Adequate venting of the tank can be achieved, the tank may be entered and cleaned using a high pressure rinse, using as little water as possible to remove loose scale. Again any generated waste must be properly disposed of. Workers should also wear the necessary protective equipment and use intrinsically-safe equipment to meet OSHA requirements for confined-space entry.

When a safe work environment is achieved, the tank may be entered and cleaned using a high pressure rinse, using as little water as possible to remove loose scale. Again any generated waste must be properly disposed of. Workers should also wear the necessary protective equipment and use intrinsically-safe equipment to meet OSHA requirements for confined-space entry.

A confined-space entry permit should also be obtained from the facility owner or operator prior to entry. This permit should include a written procedure of all precautionary measures to be taken.

A preliminary visual inspection is the first step in the internal inspection. Strong, intrinsically-safe lights are necessary to conduct the visual inspection. To enhance worker safety, it is a good idea to inspect the roof or top head and any internal supports first. The shell and the bottom should then follow in that order. The inspector should look for any signs of corrosion, pitting or cracking. Generally, any area with pits deeper than 1/8" and larger than 1/4" in diameter, should be patched with a 1/4" steel plate. The tank shell is to be similarly inspected.

More thorough measurements should be taken to ensure that the tank shell and floor are structurally sound; this would mean performing a non-destructive test, such as ultrasonic, dye penetrant or magnetic particle tests. This type of testing should especially be performed on areas of the tank where severe corrosion is found. Excessive corrosion of either the tank shell or floor should prompt immediate replacement of the entire tank.

If the tank floor is lined with a fiberglass or epoxy coating, this coating should be inspected to ensure that it is in good condition and free of holes and cracks. In addition, a holiday detector should be used in conjunction with the visual inspection to ensure that the coating is protecting the tank from electric current.

Finally, a tightness test must be performed on all connecting above and below ground piping in accordance with generally accepted engineering practices. A method such as the PetroTite line tester, which tests the lines at 50 psi, can be employed.

If the inspection reveals a structural failure or leak, the tank and/or piping will have to be properly repaired before it is put back into service. Evidence or suspicion of leaks or spills during this inspection must be reported to the DEC Spill Hotline: (800) 457-7362. All inspection reports must be kept on site and made available to DEC upon request.

Reference

Companies Offer Pollution Liability Insurance for NY UST's

In the last issue of TANK BULLETIN, the federal financial responsibility requirements were discussed. One of the principal ways to meet EPA's financial responsibility requirements is to obtain insurance. Several options are available. Underground tanks that are part of a small facility may be able to be insured by the existing carriers. The following companies (arranged alphabetically) have indicated to DEC that they can meet some or all of the financial responsibility requirements in New York.*

Agricultural Excess and Surplus Insurance Company (AESIC)

Contact: Charles J Weisblum (212) 797-9600
MLW Services, Inc.
100 William Street
New York, New York 10038

American International Group (AIG)

AIG offered insurance for petroleum marketers that meets third party liability requirements, but not site cleanup requirements.

Marketers with 26 tanks or more should contact:
John Armore, President (212) 770-7000
Technical Insurance Division
American International Group
70 Pine Street
New York, New York 12070

Marketers with less than 26 tanks should contact:
Fred S. James Company (800) 255-7112
P. O. Box 1675
Harrisburg, Pennsylvania 17105
(717) 763-7261

Environmental Protection Insurance Company (EPIC)

Contact: Charles LaBarge, President/Mike DePaemelaere (214) 243-8284
Berkeley Risk Retention Group Managers
3010 LBJ Freeway, Suite 504
Dallas, Texas 75234

Oilmen's Insurance Plan

(Reinsured by Fireman's Fund)

Oilmen's Insurance expects to start writing policies in New York this Fall.

Contact: Jane Jachimezyk, Senior Vice President (212) 629-4290
Oilmen's Insurance
350 5th Avenue, Suite 6505
New York, New York 20018

Petroleum Marketers Mutual Insurance Company (Petromark)

Contact: Max Clay (703) 481-0200
The Planning Corporation
11347 Sunset Hills Road
Reston, VA 22090

UST Financial Responsibility Reporting Requirements Clarified

In the last TANK BULLETIN, there was an article on the Federal financial responsibility requirements for underground storage tanks (UST's) containing petroleum. This article is essentially correct, however, the need to report and file proof of financial responsibility with DEC is qualified as follows:

Records must be kept of the type of coverage, at the tank site or place of business, indicating that the financial responsibility requirements have been met. You only need to report and file copies of these records with DEC in the following cases: (1) You install a new tank system; (2) You have confirmed that a tank system is leaking; (3) You receive notice that a method of coverage will be cancelled or will not provide sufficient coverage, and you are unable to get other coverage; or (4) DEC or EPA request your records. In New York State, proof of financial responsibility should be sent to DEC at the following address:

NYS DEC
Data Systems Section
50 Wolf Road, Room 310
Albany, New York 12233-3530

*DEC does not endorse these firms. They are included for reader information. UST owners and operators should consult appropriate counsel or professional advice pertinent to their needs.

As we get word of other insurance companies entering this field, we will update this list in subsequent TANK BULLETIN's.
THE REQUIREMENTS FOR UPGRAADING AN EXISTING FACILITY ARE....

- Color Coding of Fill Ports
- Installation of Gauging / High Level Warning Alarms
- Installation of Shutoff, Operating and Check Valves
- Retrofitting Secondary Containment
- Monthly and 10-year Inspections of Aboveground Facilities

New York State's Department of Environmental Conservation has been developing and enforcing its Petroleum Bulk Storage (PBS) Program since the early 1980's in an effort to prevent leaks and spills of petroleum into the environment. The applicable regulations are 6 NYCRR Parts 612, 613, and 614.

Part 613 contains several important upgrading requirements for petroleum bulk storage facilities. The deadline for compliance is December 27, 1990.

Color Coding of Fill Ports

According to 613.3(b), the owner or operator of an above or below ground tank must permanently mark all fill ports to identify the product being stored in the tank. Monitoring wells must also be permanently marked and identified as such to prevent accidental deliveries. DEC also recommends painting and labeling of all aboveground piping (especially the fill and discharge lines.) These markings must be consistent with the color/symbol code of the American Petroleum Institute (API).

The main objective of this coding system is to positively identify the product transfer points for tank truck loading and unloading. This should help eliminate handling errors such as unloading product into an unidentified monitoring well.

Basically, this color coding system consists of two shapes - a circle and a hexagon. Circles represent gasoline while hexagons represent distillates. A border around either one indicates that the product contains an extender such as ethanol. The highest octane level gasoline is red, the one with the lowest level of octane is white, and anything in between is labeled blue. Vapor recovery connections and manholes are marked with orange circles. The symbol for kerosene is a brown hexagon; that for diesel fuel is a yellow hexagon. The symbols for grades of fuel oil beyond Nos. 1 and 2 are not yet identified. (See color-symbol chart on next page.)

For more information on this subject and a color symbol chart, write to API and request "API Recommended Practice 1637" at American Petroleum Institute, 1220 L Street, Northwest, Washington, D.C. 20005.

Installation of Gauging/High Level Warning Alarms

According to section 613.3(c)(3), all aboveground petroleum tanks must be equipped with a gauge which accurately shows the level of product in the tank. This gauge must be accessible to the carrier and be installed so it can be easily read. A high level warning alarm, a high level liquid pump cut-off controller or equivalent device may be used in lieu of this gauge.

In addition, the design capacity, working capacity and identification number of the tank must also be clearly marked on both the tank and at the gauge. This may be accomplished with a stencil or with a clearly printed sign or label.

Installation of Shutoff, Operating and Check Valves

A valve designed to close automatically in the event of the dislodging or overturining of a product dispenser is required for all motor fuel under pressure. This valve, termed an impact or shear valve, is located at the base of the dispenser. Upon impact, the top portion of the valve shears off immediately. This in turn causes the valve to close.

Also, any tank causing a gravity head on a dispenser of motor fuels, such as an aboveground tank which supplies a fuel dispenser, must be equipped with a device such as a solenoid valve. This electrically-operated valve must be installed and adjusted so that liquid cannot flow by gravity from the tank in the event of a piping or dispenser hose failure. The desired pressure differential across the valve is preset so that in the event of a pressure gain or loss, which indicates a failure or loss of product, the valve will automatically close.
Furthermore, each connection to an aboveground tank through which liquid can normally flow must be equipped with either an internal or external operating valve located as close as practical to the shell of the tank. These operating valves must be positioned adjacent to, and upstream from, the solenoid valves discussed in the previous paragraph.

Finally, all piping systems leading to a pump filled petroleum tank must be equipped with a properly functioning check valve or equivalent device which provides automatic protection against backflow.

Retrofitting Secondary Containment

Section 613.3(c)(6) of the PBS regulations requires tank owners to install secondary containment systems for all aboveground tanks with a capacity of 10,000 gallons or more and tanks with a capacity of less than 10,000 gallons which "could reasonably be expected to discharge petroleum to the waters of the State."

Secondary containment may consist of a combination of dikes, liners, pads, ponds, impoundments, curbs, ditches, sumps, receiving tanks, or other equipment capable of containing the product stored. The secondary containment system chosen must be constructed so that spills will not permeate, drain, infiltrate or otherwise escape to the groundwater or surface waters before cleanup occurs. If soil is chosen for the secondary containment system, it must be of such character that any spill onto the soil will be readily recoverable and will result in a minimal amount of soil contamination. The Department has developed permeability criteria for dikes and dike floors which satisfies this criteria. This information is included in a Technical Operating Guidance document, "Secondary Containment Systems for Aboveground Storage Tanks," which can be obtained by calling the DEC Bulk Storage Help-line.


The level of stormwater that collects inside the secondary containment system must be controlled by a manually-operated pump or siphon, or a gravity drain pipe which has a manually-controlled pipe valve located on the outside of the dike. The stormwater or any other discharge must be uncontaminated and free of sheen prior to discharge. Stormwater that is contaminated must be treated to reduce the petroleum concentration to 15 ppm or less.

Inspection of Aboveground Storage Facilities

Section 613.6(a) requires that owners or operators of aboveground storage facilities must inspect their facilities at least monthly. These inspections shall include:

1. inspection of exterior surfaces of the tanks, valves, piping network and any other auxiliary equipment for signs of leaks and maintenance deficiencies.
2. inspection of all leak detection and monitoring equipment to ensure that it is properly functioning.
3. identification of cracks, areas of wear, corrosion and thinning, excessive settlement of structures, structural and/or foundation weakness, separation or swelling of the tank insulation, and signs of malfunctioning equipment.
4. indications of poor maintenance and operating practices.

Although these inspections are required on a monthly basis, DEC recommends that general inspections be performed on a weekly if not daily basis. The reports for each monthly inspection must be retained for a period of at least 10 years and made available to the Department upon request.

Section 613.6(b) requires that the owner or operator of aboveground tanks which have a capacity of 10,000 gallons or more, perform a structural inspection every ten years. The initial inspection must be performed when the tank is ten (10) years old or by December 27, 1990, whichever comes later. For a detailed explanation on the schedules, exemptions and requirements for these inspections, see the article on page 6 in this issue, "How to Inspect an Aboveground Tank," by Richard Coriale.
LEARNING ABOUT BULK STORAGE

This section of the newsletter provides descriptions, information, and noteworthy comments regarding relevant educational conferences or other services.

DEC Offers Guidance On............

Secondary Containment

The Technical Operations Guidance (TOGS) "Secondary Containment Systems for Aboveground Storage Tanks" was recently issued by the Department. This document, which is based on Part 613 of the Petroleum Bulk Storage (PBS) regulations, discusses criteria for requiring secondary containment systems and includes design criteria for secondary containment.

Hazardous Substances Manufacturer Submittals

The Technical Operations Guidance (TOGS) "Chemical Bulk Storage Regulations - Technical Guidance for Spill Prevention" has just been completed by the Department. This document, which is based on section 596.5(b) of the Chemical Bulk Storage (CBS) regulations, discusses in detail the information specified to be included in the technical guidance and recommended practices which must be submitted by manufacturers or distributors of hazardous substances to customers and to DEC effective July 15, 1989.

DEC Trains Local CEO's

DEC and the Department of State Codes Division have been providing training to the Local Fire and Building Code Enforcement Officials (CEO's) on safe and proper bulk storage of petroleum and chemicals. This course, "Hazardous Substance Bulk Storage," satisfies 6 of 40 hrs. training required annually for CEO's. It has been conducted at four locations across the state and is currently scheduled to be offered monthly through the end of March.

This course teaches the CEO about the properties of hazardous materials and the fundamental design principles associated with these materials, as required by DEC regulations and the NYS Fire and Building Codes for the bulk storage of petroleum and chemicals. This course also addresses working relationships between DEC and the CEO's, overlap between DEC regulations and fire code, and authority for enforcement. For example, according to the PBS regulations, a CEO must be notified when an underground tank is added, removed, or repaired; and when an aboveground tank is added. With both DEC and CEO's knowledgeable of each other's regulations and knowing when to refer a problem to the proper agency for enforcement, their field presence can be more effective.

The overall effect of this course will be a safer environment and an increase in public health and safety. If you are a Code Enforcement Officer and would like to attend this course, call Ed Haber at (518) 474-4073.

Spill Plans In New York State

A one-day workshop on Spill Prevention Control and Countermeasure (SPCC) plans will be scheduled on a demand basis at several locations across the State. SPCC plans are required for major oil storage facilities (over 400,000 gallons), by DEC (6 NYCRR Part 610); and for any oil storage facility with aboveground storage greater than 1320 gallons or any aboveground tank greater than 660 gallons, or any underground tank 42,000 gallons or more, by the federal EPA (40 CFR 112).

This workshop is designed to address SPCC planning for most oil storage facilities in New York State. Current State and federal regulations and guidelines will be covered. The workshop will guide owners and engineers in preparing the SPCC plan and will include a site review process description. The role of the professional engineer, plan amendments, and future directions will also be discussed.

Title: Spill Plans in New York State

Coordinator: John Kruse, Ph.D., P.E.

Presenters: Representatives from
U.S. Environmental Protection Agency
NYS Dept. of Environmental Conservation
CSS Associates Consulting Engineers

Registration Information:

For information (such as Course Dates, Times, Locations, Fees, Registration Deadlines, Workshop Outline, etc.), call John F. Kruse, Ph.D., P.E., at (914) 462-7987 9 AM - 9 PM (Monday - Friday) or write to: CCS Associates Consulting Engineers, 6 Cabin Way, Poughkeepsie, New York 12603.

Tentative Schedule

The following is a tentative schedule for the course this fall:

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Location</th>
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<tbody>
<tr>
<td>November 9-10, 1989</td>
<td>Rensselaer Center of Applied Geology Troy, NY</td>
</tr>
<tr>
<td>December 8, 1989</td>
<td>Broome Community College Binghamton, NY</td>
</tr>
<tr>
<td>December 14-15,1989</td>
<td>Rensselaer Center of Applied Geology Troy, NY</td>
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Tank Installer Training Course
Update and Schedule

The Department requires that all new aboveground and underground petroleum storage systems be installed in accordance with strict standards for construction. To meet these standards, all newly installed storage tanks and pipes must be constructed of corrosion-resistant material or be provided with cathodic protection. Secondary containment and leak monitoring systems must also be included.

According to the new federal UST regulations, tank installers must either be certified, have their work inspected by a qualified licensed engineer or demonstrate through other means acceptable to DEC that the system has been properly installed.

A 2-day Tank Installer Training Course is being offered by the continuing education branch of the community college system in NYS. This course is designed to train installers of underground and aboveground storage tanks and operators of storage tank facilities on safe, reliable installation and operation practices, and testing, relining and closure methods. Relevant State and federal regulations will also be covered in the course.

A course completion certificate will be provided by DEC to those participating in the course who achieve a minimum score of 80% on the three-hour competency exam.

Certification is not currently required under New York State law. However, if certification becomes a State requirement, completion of this course will be considered towards fulfilling the requirements for certification.

The Tank Installer Training Course has been offered twice so far. It was taught at Hudson Valley Community College by Mike Farmer and at Onondaga Community College by instructors from O'Brien & Gere. Overall there have been 91 students who have taken the course. Of these 91 students, 75 have passed the Tank Installer Competency Exam given at the end of the course and have received a certificate of completion for the course.

It is anticipated that this course will be offered across the State as time progresses. Tentative plans are being made to offer the course in the areas of Buffalo, Poughkeepsie, Plattsburgh and Albany some time this fall or winter.

If you are interested in attending one of the courses and would like to be on the mailing list to receive information on the course offerings or would like to receive a course brochure and outline, please call the Bulk Storage Help-Line: 1-800-242-4351 or write to Russ Brauksieck, NYSDEC, 50 Wolf Road, Room 326, Albany, NY 12233-3520.

READER RESPONSE

Questions and Answers

Q: The new EPA regulations require a site assessment at the time of closure of an underground tank. What is required for such tanks?

A: DEC must be notified prior to a tank closure. If it is being removed from the ground, the soil and/or groundwater surrounding the tank, piping and the excavation zone must be inspected by the owner for the presence of a release from the tank system. This may be as simple as looking for a petroleum sheen or stain on the soil and smelling for petroleum odors. If there is any evidence of contamination, it must be reported to DEC on the Spill Hot-line: 1-(800)-457-7362 and soil samples need to be taken and analyzed at a laboratory.

If the tank is to be closed in place, then a more comprehensive assessment needs to be done. This would include one or more of the following: soil samples, groundwater samples or soil gas samples. Soil samples must be include below the bottom of the tank. All analysis results must be sent to the DEC Regional Spill Enginee prior to closure of the tank.

Plans to remediate contamination must be reviewed with the DEC Regional Spill Engineer. Records of the site assessment must be kept by the owner and made available to DEC or EPA upon request. Questions on site assessments should be directed to the DEC Regional Spill Engineer prior to commencement of work.

"READER COMMENTS"

This space is reserved for comments or constructive criticism from you, the reader.

News articles or articles of general interest to our readers are also requested.

Please send replies to: Sue Salo, Bureau of Information & Bulk Storage, 50 Wolf Road, Albany, N.Y. 12233-3520. Telephone: (518) 457-4351.

NEWSWORTHY

Flash Fire In Tank Removal

N. Chili - While preparing for the removal of leaking underground tanks at a Hess gas station, a local contractor caused a flash fire in the excavation. High groundwater with a floating layer of gasoline flashed when a cutting tool being used on the pump canopy sparked. In order to handle the slightly contaminated groundwater entering the excavation, an on-site treatment system using make-shift carbon filtration with discharge to the storm sewer was agreed upon by DEC, Monroe County Pure Waters, and the spiller.
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New York State Department of Environmental Conservation
Mario M. Cuomo, Governor

Thomas C. Jorling, Commissioner
Federal Underground Storage Tank (UST) Regulations became effective December 22, 1988. These regulations which were promulgated by the U.S. Environmental Protection Agency (EPA) are entitled:

40 CFR Part 280 - Underground Storage Tanks; Technical Requirements

40 CFR Part 281 - Underground Storage Tanks; State Program Approval

Approximately 700,000 facilities across the nation are affected by these regulations, with approximately 70,000 (or 10%) located in New York State. A large portion of the facilities are owned by small businesses with $500,000 or less in total assets.

In developing the regulations, EPA stated that "there are a variety of different approaches to ensuring sound UST management. Hence, the EPA's regulations provide a flexible national approach which uses a network of individual 'homegrown' State and local regulations to reach the goal of preventing underground tank leaks."

In New York State, EPA will be relying on DEC's Petroleum Bulk Storage (PBS) Regulations which were promulgated in December 1985 and the Chemical Bulk Storage (CBS) Regulations which became effective in July of 1988.

To comply with the EPA UST regulations, tank owners must first comply with the DEC bulk storage regulations. In addition, there are four new requirements of the EPA:

- Spill catchment basin at fill port

Four New EPA Requirements

Beginning December 22, 1988, EPA requires construction of all new underground tanks to include a spill catchment basin to capture spillage which may occur at the fill port.

Secondly, EPA requires unprotected bare steel tanks and underground pipes, which are still in-service at some locations in the State, to be upgraded within 10 years. By December 22, 1998, substandard systems must either be removed from service, replaced with state-of-the-art equipment, or relined and/or cathodically protected.

Thirdly, EPA is increasing the frequency of testing substandard underground tanks and pipes. Beginning December 21, 1993, all owners must perform annual tightness testing of existing unprotected tanks and pipes until upgrading of the system occurs.

Fourthly, EPA requires that when a tank is permanently closed, that a site assessment be conducted. Owners and operators must sample for the presence of a release where contamination is most likely to be present.

Note: This is a summary of the new federal requirements on underground tanks. For more information, call Dina Li of EPA at 212-264-2377.

To comply with the EPA UST regulations, tank owners must first comply with the DEC bulk storage regulations. In addition, there are four new requirements of the EPA: one for new tanks and three for existing tanks.

If you are installing a new underground storage system, you must meet the following requirements:

**DEC Requirements**

- Corrosion resistant tanks and pipes
- Secondary containment
- A leak monitoring system
- Overfill prevention equipment
- Fill port labels
- Cathodically protected underground piping with access ports

**EPA Requirements**

- Spill catchment basin at fill port
Aboveground Tank Deadline for Compliance Approaches

Underground tanks are not the only tanks covered by DEC's Petroleum Bulk Storage Regulations. Aboveground tanks are covered as well and must be brought into compliance with standards established by DEC, within two years.

If you own a facility which has more than 1,100 gallons of petroleum storage and some of your tanks are located aboveground, Part 613 contains several important requirements and deadlines which require your immediate attention.

Two requirements in particular require advance planning on your part if disruptions and inconveniences in the operation of your facility are to be avoided as the deadline approaches.

Beginning December 27, 1990, aboveground tanks must be equipped with a secondary containment system which prevents infiltration of petroleum into ground or surface waters. See requirements of Section 613.3(c)(6). If your secondary containment system is porous and jeopardizes ground or surface waters, it will be necessary to reconstruct the dikes and impoundment floor so they are impervious. You should discuss the adequacy of your system with the Regional Water Engineer in the DEC Regional Office nearest your facility as soon as possible.

Also, by December 27, 1990, aboveground tanks (10,000 gallon capacity or more) must be internally inspected for structural soundness and for corrosion. These and other inspection requirements are defined in Section 613.6(b)(3) of the regulations.

The API Guide for Inspection of Refinery Equipment is an excellent source of information on how to drain, clean and inspect storage equipment. For a copy, write to American Petroleum Institute, 2101 L Street Northwest Washington, D.C. 20037.

If you have any questions on the application of these regulations to your facility, please obtain a copy of the PBS Regulations and call Rich Coriale or Russ Brausiek at 1-800-242-4351 or a Regional Water Engineer.

Chemical Bulk Storage - Phase II

Phase II of the regulations, 6 NYCRR Parts 598 & 599, which will be developed during 1989 and early 1990, will contain a broad range of technical requirements for preventing spills and leaks at both aboveground and underground storage tanks. These regulations will include standards for design, construction, operation, testing and inspection of hazardous material storage and handling tanks. Ten issue papers addressing regulatory alternatives were prepared by DEC and circulated to interested parties for review and comment. Public meetings on these issues were held across the State during summer and early fall 1988. Comments generated during this review period and the public meetings, were compiled and used to develop the draft regulations. The schedule for developing these regulations is:

- Distribute First Draft To Interested Public: March 15, 1989
- Comments Due From Public: May 1, 1989
- Revisions Complete: July 1, 1989
- Public Notices and Distribution: August 1, 1989
- Public Hearings Complete: October 1, 1989
- Responsiveness Summary Distributed: January 1, 1990
- Environmental Board Review: March 1, 1990
- Filing - Final Regulations: May 1, 1990

PBS Compliance Update

The Petroleum Bulk Storage (PBS) regulations are now over three years old. Nearly 50,000 facilities containing over 120,000 storage tanks have been registered. However, a recent survey by DEC shows that approximately 35% of the facilities in the State (approximately 20,000 sites) are not in compliance with registration requirements.

To improve overall compliance, DEC is stepping up field inspections and taking enforcement action against tank owners who fail to comply. Department of Environmental Conservation Director for Region #4, Jane Magee, announced a systematic effort to enforce the Petroleum Bulk Storage Law. The initiative in the nine counties of the Capitol District area is part of a more intensive statewide effort to insure compliance with the Petroleum Bulk Storage Law.

The enforcement initiative will include unannounced inspections at tank facilities by Environmental Conservation Officers and DEC spill prevention and response staff. Enforcement guidelines specify civil, administrative and criminal penalties with fines up to $10,000 per day for non-compliance.

To avoid penalties, you should register your facility immediately and bring it into compliance with DEC standards. If you need assistance, call the nearest DEC Regional Office or call the Bulk Storage Help-line: 1-800-242-4351.

CBS Compliance Update

The Chemical Bulk Storage (CBS) Phase I regulations require registration of tanks containing any of 1,023 hazardous substances listed by DEC. Existing tanks must be registered by July 15, 1989. New tanks must be registered 3 days prior to installation. At this time, 135 tanks at 52 sites have been registered. Phase II regulations are expected in May 1990 and will contain the requirements for testing, inspection, operation, maintenance and construction of these tanks.
Compliance with New York's Petroleum Bulk Storage program helped set a record number of oil spills reported for 1987-88. For the two years, 4,300 out of 20,800 total spills reported (20%) were the result of testing tanks storing petroleum products. For 1986, before the PBS program, only 810 out of 7600 total spills (11%) were due to tank test failures.

The graphs below clearly show the trend of increased tank failure reports as the December 1987 registration deadline approached, and continued into the spring of 1988 as tank testing requirements were met. Based upon additional tanks being registered, and tank tests yet to be performed, an estimated 5,600 additional spills or leaks will be detected through compliance with the Bulk Storage program through 1990.

As old leaking tanks are replaced, and full compliance is achieved with the Petroleum Bulk Storage program, leaking underground storage tanks will be a decreasing proportion of the spills reported. The PBS program is achieving its purpose of detecting and preventing underground tank leaks, and protecting New York's groundwater resources.

Total Spills vs Tank Test Failures
(JANUARY 1987 - DECEMBER 1988)
Home Heating Oil Tanks Cause Spills

Home heating oil tanks less than 1100 gallons are not yet regulated by federal or state regulations. As a result, many homeowners are improperly storing home heating oil in aboveground tanks which are poorly constructed, used in a manner other than for which they were designed, or are improperly installed. Some typical examples include using tanks designed for indoor use outdoors, and placing bare steel tanks directly in contact with the ground. Poor construction and installation has resulted in spills caused by these tanks falling over due to inadequate support, or leaks due to accelerated corrosion caused by direct contact of metal with the ground. These leaks and spills can cause serious problems such as contamination of drinking water wells or seeping of petroleum vapors into basements of homes, which can be hazardous and a considerable expense to the homeowner.

This is a serious problem which homeowners should be aware of. According to Bill Blain, a Senior Spill Engineer at DEC's Region 4 Office, "Region 4 receives at least a dozen reports per year of these tanks tipping over and that is only the ones that we hear of. DEC advises homeowners to take precautions when installing aboveground heating oil tanks and advises them to use good installation practices such as tanks supported in cradles and tanks designed properly so that they won't tip over."

To assist homeowners, DEC offers the following guidelines:

- tanks designed for indoor use should not be used outside,
- tanks which are not on supports should be placed on a concrete pad, not wood or stones and not in direct contact with the ground (direct contact of steel with the ground accelerates corrosion),
- tanks should be coated and maintained with a rust-proof paint,
- tanks which are supported by legs should have steel supports including cross-braced legs and the legs should be placed on secure footings, and
- tanks should be supported on the side which has the largest dimensions (by distributing the load across the largest dimension, the tank is least likely to tip.)
Many modern industrial materials and products are hazardous to the environment or to human health. If released into air, water or soil, they may result in: threats to human health from direct contact; long-lasting damage to resources; or immediate safety hazards, such as fire or explosion. To prevent environmental contamination and protect public health and safety, DEC adopted Phase I of the Chemical Bulk Storage (CBS) regulations as required by the State Hazardous Substances Bulk Storage Act of 1986 (ECL Articles 37 & 40). These regulations, 6 NYCRR Parts 595, 596, & 597, became effective July 15, 1988 and apply to both underground and aboveground tanks.

The main provisions of the CBS law and the subsequent Phase I regulations, are summarized as follows:

- includes a list of hazardous substances which are regulated;
- defines the minimum size of tank which is regulated;
- requires registration of storage tanks and establishes a schedule of registration fees;
- requires posting of registration certificates and labelling of tanks;
- identifies the amount of spilled material which must be reported to DEC;
- specifies emergency response and corrective action;
- identifies information which must be provided to customers by hazardous substance suppliers; and
- prohibits delivery of hazardous substances to unregistered tanks.

Tank owners are encouraged to obtain a copy of these regulations from the DEC central office, and to read them carefully and in their entirety. Owners are responsible for complying with all of the CBS requirements. To obtain a copy of the regulations and a brochure on storage tank registration, call the Bulk Storage Help-line: 1-800-242-4351.

**FACILITY REGISTRATION**

If you store hazardous chemicals, you have until July 15, 1989 to register your storage tanks with the Department.

**What Must Be Registered?**

Only stationary tanks must be registered at this time. Owners must register all underground tanks regardless of size, and aboveground tanks with a capacity of 185 gallons (approximately 750 kilograms) or more. If a tank is temporarily out-of-service, it must be registered until it is permanently closed. Exemptions from registration at this time include:

- process and assembly line tanks;
- non-stationary tanks, e.g., 55 gallon drums;
- waste storage tanks;
- petroleum tanks;
- capacitors or transformers; and
- aboveground tanks storing substances used for agricultural purposes on a farm.

**What Substances Are Regulated?**

Any of the approximately 1000 substances on the List of Hazardous Substances found in Part 597 of the regulations, except for petroleum products and hazardous wastes.

**Where to Register?**

Registration forms should be sent to the DEC Central Office.

**HAZARDOUS SUBSTANCE SALE**

Commencing July 15, 1989, all of the manufacturers or distributors of hazardous substances must provide the owners or operators of storage tanks, who purchase such substances, with technical guidance and recommended practices for the storage and handling of such substances. In addition, delivery of hazardous substances to a regulated tank that is not properly registered will be prohibited.

**Who Must Provide Guidance?**

Any supplier (out-of-state as well as in-state) who provides hazardous substances to a regulated tank in NYS.

**Who Must Receive Guidance?**

Owners or operators of any regulated tank, that is, the owners or operators of any aboveground or underground stationary tank or any non-stationary tank storing 1000 kilograms or more for a period of 90 consecutive days or more, must be provided with technical guidance and recommended practices.

**What Information Is Required?**

The technical guidance and recommended practices include the name, CAS #, physical and chemical properties, material compatibility, criteria for safe storage, equipment requirements, inspection/maintenance requirements, safety precautions, and response procedures.

**RELEASE REPORTING/RESPONSE**

The new CBS regulations require reporting, immediate response and corrective action for all spills. This applies to all underground and aboveground stationary tanks and non-stationary tanks storing 1000 kilograms (2200 lbs.) or more for 90 consecutive days or more.

**What Quantity Requires Reporting?**

A spill or release, whether continuous or a single release, must be reported upon reaching the reportable quantity listed in the List of Hazardous Substances of Part 597.

**Who is Responsible for Reporting a Spill?**

The owner or anyone with an employee or contractual relationship with the owner must report releases to the DEC Spill Hotline (1-800-457-7362) within 2 hours. Suspected or probable spills must be reported by the owner or operator within 24 hours.

**What Action Must Be Taken?**

The owner must immediately stop the release or remove and properly store the contents of the tank during repair. Immediate action must be taken to protect human health, safety and the environment. The spill must be immediately investigated. Corrective action must be conducted by the owner.
Claims Deplete Spill Fund

In 1988, over 10,000 spills were reported on DEC's spill hotline, up from 6,000 reported in 1986. For DEC and the State Controller's Office who administer the Oil Spill Cleanup Fund, this growing number of spills is a cause for great concern.

On October 19, 1988, the State Controller's Office announced that the increasing number of spills and leaks being addressed in the State has depleted the Cleanup Fund. They reported, "Disbursements in August and September were almost double the previous monthly average for this fiscal year and three times those made in the identical two months of 1987. Due to these unprecedented disbursements in oil spill cleanup claims, the pending claims against the Fund presently exceed the Fund's balance, which cause an automatic increase in the license fee from the current 1 cent to 4 cents a barrel. These claims consist of costs for the cleanup and removal of spills and the appropriations made by the Legislature for the administration of the Oil Spill Program for the 1988-89 fiscal year. This substantial increase in cleanup costs was responsible for the accelerated depletion in the balance of the Oil Spill Fund.

Pursuant to Section 174(4)(a) of the Navigation Law, it is advised that the license fee shall be 4 cents/barrel transferred, effective October 1, 1988. In accordance with the legislation, notification of the fee increase could not be made until the Fund balance was depleted. Our recently reconciled financial records for September 1988 indicate claims will exceed the Fund balance as of that date. In light of present and expected Oil Spill Fund revenues and expenditures, the license fee of 4 cents will continue to be imposed until there is a change in the financial condition of the Fund."

In addition to the 4 cents/barrel imposed for the Oil Spill Cleanup Fund, there is an additional 3 1/2 cents imposed as a surcharge fee for the Hazardous Waste Remedial Fund, thus making a total fee of 7 1/2 cents/barrel.

These fees are due on the 20th day of each month. Facilities receive a Monthly License Fee Report from DEC's Oil Spill Revenue Unit. Facilities that are not receiving this report should call Barbara Barrell at (518) 457-5810.

FEDERAL UST PROGRAM

Financial Responsibility Requirements Finalized

On October 26, 1988, the Environmental Protection Agency (EPA) promulgated the final rule for financial responsibility for underground storage tanks (UST's) containing petroleum, under the federal UST Program. (40 CFR 280 & 281.) Under these rules, owners and operators of petroleum UST's must demonstrate financial responsibility for taking corrective action and for compensating third parties for bodily injury and property damage caused by sudden and nonsudden accidental releases from these tanks. The coverage required and effective date for compliance are based on the size of the facility.

COVERAGE REQUIRED

Owners and operators of petroleum UST's must demonstrate at least the following amounts of financial responsibility for taking corrective action and for compensating third parties for bodily injury and property damage caused by accidental release:

Coverage Required to Demonstrate Financial Responsibility

Per-Occurrence Amounts

- Per occurrence means the amount of money that must be available to pay the costs arising from one leak.
  - $1,000,000 - Marketing facilities which handle an average of more than 10,000 gallons per month based on annual throughput for the previous calendar year.
  - $500,000 - For all other owner and operators of petroleum UST's.

Annual Aggregate Amounts

- The annual aggregate amount is the total amount of money which must be available to cover all leaks that might occur in one year.
  - $2,000,000 - For owners or operators of 101 or more petroleum UST's.
  - $1,000,000 - For owners or operators of 100 or less petroleum UST's.

ALLOWABLE MECHANISMS

The owner or operator may demonstrate financial responsibility using one or more of the following mechanisms: obtaining liability insurance, joining a risk retention group, passing one of two financial resource tests, setting up a State fund or a trust fund, obtaining a surety bond, or obtaining a letter of credit for the required amount. New York's petroleum spill cleanup fund may meet the financial responsibility requirements of the EPA for cleanup and third party damages, but there is no mechanism for a private party to claim the Oil Spill Fund as providing the required financial surety.

Records must be kept of the type of coverage at the tank site or at the place of business, indicating that the financial responsibility requirements have been met. In New York State, proof of financial responsibility should be sent to the State Department of Environmental Conservation at the following address:

NYS Department of Environmental Conservation
Division of Water, Data Systems Section
50 Wolf Road, Room 310
Albany, New York 12233-3530

COMPLIANCE SCHEDULE

EPA is phasing-in financial responsibility requirements over a 2-year period. The compliance schedule is based on a marketer's ability to comply and is as follows:

Schedule for Compliance with EPA Financial Responsibility Requirements

- January 24, 1989 - Petroleum marketing firms with 1,000 or more UST's, or any owner with a tangible net worth of $20 million or more.
- October 26, 1989 - All petroleum marketing firms owning 100-999 UST's.
- April 26, 1990 - All petroleum marketing firms owning 13-99 UST's at more than one facility.
- October 26, 1990 - All petroleum UST owners not included above.
Chemical Properties Relate To Hazards

by Mark Klotz, Chemical Engineer

An increased concern and awareness to the environmental, health and safety hazards associated with chemical storage facilities has been the causetome of the much publicized chemical accidents in Henderson, Nevada and Bhopal, India. New York State is in no way immune to such problems and accidents. Last year there were nearly 1000 hazardous material spills reported to the Department of Environmental Conservation (DEC). This expresses the need for steps to reduce the number and effect of hazardous material spills, and the need to educate the public as to the properties of chemicals and their relationship to hazards.

In response to the growing concern over hazardous material spills, the State Legislature passed the Hazardous Substances Bulk Storage Act of 1986. This law requires DEC to establish a program for preventing the release chemicals to the environment. On July 15, 1988 DEC passed the Chemical Bulk Storage Regulations to implement this law. Included in the regulations is a list of 1025 hazardous chemicals to be regulated by the program. The DEC requires registration of above- and underground storage systems which store any of these hazardous substances, either singularly or in combination. The intent is to prevent spills and leaks from storage tanks through improved safeguards in storage and handling of hazardous substances. The regulations also require notification of any hazardous substance spill, and prompt remedial action to protect human health and the environment in the event of a released hazardous substance. Under the second phase of the Chemical Bulk Storage program, DEC is developing minimum requirements and schedules for design, construction, installation, operation, maintenance, repair, monitoring, testing and inspection of storage facilities. Promulgation of the Phase II regulations requires that many technical factors be considered and addressed in order to develop a set of practical standards for the safe storage and handling of hazardous substances and to provide a cost effective level of environmental protection. Completion of this phase is expected in 1990.

Table 1: Definitions of Typical Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
<td>The temperature of a liquid at which its vapor pressure equals atmospheric pressure. Chemicals with boiling points above room temperature are normally liquids; otherwise they are normally gases.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>The pressure exerted when a solid or liquid is in equilibrium with its own vapor. It is a function of the chemical and the temperature. Chemicals with vapor pressures &gt; 100 mm Hg evaporate quickly.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Measure of vapor density relative to air. If &gt; 1.0, fumes collect in low areas.</td>
</tr>
<tr>
<td>Viscoisty</td>
<td>The internal resistance to flow exhibited by a fluid.</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>The degree to which a substance will dissolve in water, usually reported as parts per million (ppm) or as a percentage (or grams/100 ml).</td>
</tr>
<tr>
<td>Flash Point</td>
<td>The temperature at which a liquid or volatile solid gives off vapor sufficient to form an ignitable mixture with air near the surface of the liquid or solid.</td>
</tr>
<tr>
<td>Volatility</td>
<td>The tendency of a solid or liquid to pass into the vapor state at a given temperature. Specifically, the vapor pressure of a component divided by its mole fraction in the liquid or solid.</td>
</tr>
<tr>
<td>Flammability</td>
<td>The ability of a chemical to burn.</td>
</tr>
<tr>
<td>Explosivity</td>
<td>The ability of a chemical to react rapidly enough with itself or other materials, including oxygen in ambient air, to cause an explosion.</td>
</tr>
<tr>
<td>Density</td>
<td>The mass per unit volume of a liquid. If &gt; 1.0 g/ml substance will sink in water.</td>
</tr>
<tr>
<td>Toxicity</td>
<td>The ability of a substance to cause damage to living tissue, impairment of the central nervous system, severe illness or, in extreme cases, death when ingested, inhaled, or absorbed by the skin.</td>
</tr>
</tbody>
</table>

There are thousands of known chemicals, but what is a chemical? Essentially, anything that has mass and occupies space is a chemical or a combination thereof. Everything we eat, drink and touch is made of chemicals, and so are people composed of many different combinations of chemical substances. Not only are we made of chemicals, but hundreds of chemical reactions are constantly taking place within our bodies to carry out the necessary processes of our life. We are surrounded by chemicals that without them, our existence would be gravely affected. Information concerning chemicals is often misinterpreted or taken out of context by the media, and in general, the public does not have an understanding of the basic principles necessary to comprehend the information they are given. People fear the unknown, and therefore need to be introduced to some of the basic concepts concerning chemicals and their respective hazards. In order to aid the understanding of chemical properties and hazards, some useful definitions are provided in Table 1.

Most important in this education is the understanding of the toxic hazard that a substance poses to the public, as differing from its general toxicity. A common misconception is that all synthetically produced chemicals are toxic hazards. Toxicity is a matter of the concentration or amount of a substance, as well as its ability to enter into the body. True, some of these chemicals are hazardous, but many are much less toxic than naturally occurring products or compounds. Many synthetic chemicals have adverse effects in large quantities, but they may actually be beneficial in lesser amounts. Vitamins exhibit this type of behavior.

Even the word "toxic" is meaningless unless the magnitude of the toxicity is defined. Materials of high toxicity do not necessarily pose a significant toxic hazard. For example, imagine that an extremely toxic solid material is spilled in the midst of a metropolitan area. Although the quantity of material spilled may be enough to prove fatal to millions of people if they somehow ingested it, there is little chance that it could poison members of the public because it lacks...
mobility. Alternatively, imagine the release of an equal amount of a moderately toxic compressed gas in the same densely populated area. This substance would rapidly vaporize and expand upon release, and quickly spread over downwind areas. Although only moderately toxic, this gas could prove fatal to people near the spill site and cause toxic effects among many others in the downwind direction.

In general, due to the mobility of a vapor, releases of gases or volatile liquids with relatively high vapor densities, low boiling points, and high vapor pressures present a substantial threat to the public. High vapor or gas densities hinder dispersion and result in low lying clouds which imperil people at ground level. A dense gas may also travel at low level for a considerable distance to a source of ignition, and flash back if it is flammable. A low boiling point and a high vapor pressure will greatly increase the quantity of the chemical emitted to the air during a release relative to the amount of the substance that remains in the liquid state or which reaches the land or water.

Water supplies are seriously threatened by chemicals that are water soluble and low in viscosity. A spilled or leaked chemical with a low viscosity will flow and spread more rapidly than a high viscosity material. If the substance is water soluble, any residual saturation remaining after removal of the surface spill may be picked up by water percolating through the ground, and will eventually reach the water table. The contact of a spilled substance with the water table usually is the most troublesome result of an on-land spill. This condition greatly increases the risk of a polluted water supply, and may increase the chance of propagation to some underground structure, such as a basement, sewer, or conduit. Underground water supplies are practically impossible to reclaim once they have been contaminated. To compound this, many hazardous substances do not biodegrade or decompose, and therefore, once the substance has been spilled it will remain a hazard unless it can be removed to below the level of harmful concentration. The solubility of a substance in water is a measure of the amount of contamination that will be present in a water supply as the result of a spill. However, very small amounts of contamination can create a water quality problem. For example, concentrations of some organic compounds (such as benzene, a common component of gasoline) in water of only 5 parts per billion exceed the health advisory limits of the NYS Department of Health.

The hazards of flammable materials are well characterized by several criteria. The most widely used criteria, flash point, is the temperature to which a substance must be heated to ignite when an external source of ignition is present. For various liquids, the flash point can vary from well below 0°F to several hundred degrees. The flash point tells how likely a fire is to start.

Another important criteria, volatility, is the tendency of a substance to pass into the vapor state. This is extremely important since once a flammable material is converted to a gas it ignites much more easily and burns much faster, approaching the violence of an explosion. A common measure of volatility is the boiling point of a substance. In general, a substance with a low boiling point is more volatile than a substance with a higher boiling point, and therefore, more hazardous.

Also significant in the hazard evaluation are the density and water solubility of flammable substances. Most flammable liquids are insoluble in and less dense than water. Flooding a fire involving a low density, insoluble flammable liquid, with water would tend only to spread the burning liquid, not extinguish it, and thereby create a greater problem. A very fine water fog or an alcohol foam is more effective in extinguishing a fire of this nature. However, flooding with water is effective when the burning liquid is more dense than water, or if it is soluble in water. In this case, the water will cover, cool and dilute the burning liquid to the point where it will no longer burn.

Among accidents involving chemicals, explosions present the greatest danger of causing fatalities. In addition to fatalities, fires and explosions present a threat to the environment as well as the risk of extensive damage to buildings or facilities near or adjacent to the site of the accident. Safety education has a very significant effect in reducing these accidents and their severity. Although they are normally perceived as being similar, explosives and flammable materials are quite different. Only a source of energy is necessary to begin the instantaneous reaction that explosives undergo. Flammable materials, on the other hand, require a source of ignition as well as an external source of oxygen in order to burn. A fire involving flammable materials will continue until the source of fuel is exhausted or it may be extinguished by excluding oxygen or cooling the material below its ignition temperature. However, when an explosion begins, nothing can be done to stop it, and it is over immediately.

Manufacturing and use of chemicals does create some risk. However, synthetic chemicals have created a new way of life by providing numerous benefits to society. These include soaps, pigments, cosmetics, perfumes, plastics, flavorings for foodstuffs, textiles for clothing, medicines, vaccination against diseases, and an increased life expectancy. So, unless we wish to return to life as it was nearly 200 years ago, we must learn to understand the risk associated with chemical substances and take steps to reduce this risk. Chemicals can be handled safely once their hazards are understood.
This section of the newsletter provides descriptions, information, and noteworthy comments regarding educational conferences or other services offered by DEC or other organizations.

Videos Guide Tank Owners

There are many videos available from various organizations such as the NEIWPCC, NFPA, PEI and API, which address different aspects of petroleum bulk storage in an attempt to give guidance on proper storage and handling of petroleum. DEC has copies of several of these videos, which are available for loan (and copying) by the public. The following is a list of these videos along with a brief summary of their contents:

1. **Tank Closure Without Tears: An Inspector’s Safety Guide** (30:00 minutes)

   This video identifies the dangers involved in the process of tank closure and provides information on how to offset these dangers. (This video does not provide a step-by-step procedure for tank closure.)

   This video and a companion booklet were produced by the New England Interstate Water Pollution Control Commission (NEIWPCC) with a grant from the federal EPA. They are also available for purchase for $25.00 from: NEIWPCC, 85 Merrimac St., Boston, MA 02114.

2. **Tank Installation for Inspectors, Owners, Public**
   a. **A Question of When (for Tank Inspectors)** (36:33 minutes)
   b. **In Your Own Backyard (for Tank Owners)** (26:02 minutes)
   c. **Close to Home (for the General Public)** (9:10 minutes)

   These videos explain the important elements of underground tank installation, for tank inspectors, tank owners, and the general public.

   These videos and a companion booklet were produced by the National Fire Protection Association under a cooperative agreement with the federal EPA. They are also available for purchase for $22.85 each from: NFPA - Videos, Battsymarch Park, Quincy, MA 02269-9101.

3. **Doing It Right! – Proper Installation of Underground Storage Systems** (40:00 minutes)

   This video is based on PEI RP/100 and API’s #1615, and is directed toward installation crews.

   This video was produced by the federal EPA and major tank manufacturing and gasoline marketing trade associations. It is also available for purchase for $16.00 from: API, Publications Department, 1220 L St. NW, Washington DC 20005 or PEI, Box 2380, Tulsa, OK 74101.

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**Spill Plans In New York State**

A one-day workshop on Spill Prevention Control and Countermeasure (SPCC) plans will be scheduled on a demand basis at several locations across the State. SPCC plans are required for major oil storage facilities (over 400,000 gallons), by DEC (6 NYCRR Part 610); and for any oil storage facility with aboveground storage greater than 1320 gallons or any aboveground tank greater than 660 gallons, by the federal EPA (40 CFR 112).

This workshop is designed to address SPCC planning for most oil storage facilities in New York State. Current State and federal regulations and guidelines will be covered. The workshop will guide owners and engineers in preparing the SPCC plan and will include a site review process description. The role of the professional engineer, plan amendments, and future directions will also be discussed.

**Registration Information:**
(Date, Time, Location, Fee, Registration Deadline, etc.)

Call the Office of Community Services, Dutchess County Community College: (914) 471-4500 Ext. 4700.

**Workshop Outline**

1. **Introduction**
   A. General
   B. Basis - EPA Welcome

2. **Federal Regulations and Guidelines**
   A. 40 CFR Part 112
   B. Other Key Sections of 40 CFR (i.e., Part 109)

3. **New York State Regulations**
   A. Basis - Article 12 of the Navigation Law
   B. Petroleum Bulk Storage (Non-major Facilities)
   C. Major Oil Storage Facilities

   **Break**

4. **Preparing the SPCC Plan**

   **Luncheon Break**

5. **Preparing the Oil Spill Contingency Plan**

6. **The Site Review Process**
   A. Meeting with Management
   B. Site Plan Review
   C. Potential Problems & Site Factors Analysis
   D. Site Inspection

   **Break**

7. **Class Exercise Period:** (Optional)
   Plan Development & Review by Workshop Participants
Tank Installer Training Course Now Available

The Department requires that all new aboveground and underground petroleum storage systems be installed in accordance with strict standards for construction. To meet these standards, all newly installed storage tanks and pipes must be constructed of corrosion-resistant materials or be provided with cathodic protection. Secondary containment and leak monitoring systems must also be included.

According to the new federal UST regulations, tank installers must either be certified, have their work inspected by a qualified licensed engineer or demonstrate through other means acceptable to DEC that the system has been properly installed.

A 2-day Tank Installer Training Course is being offered by the continuing education branch of the community college system in NYS. This course is designed to train installers of underground and aboveground storage tanks and operators of storage tank facilities on safe, reliable installation and operation practices, and testing, relining and closure methods. Relevant State and federal regulations will also be covered in the course.

A course completion certificate will be provided by DEC to those participating in the course who achieve a minimum score of 80% on the two-hour competency exam.

Certification is not currently required under New York State law. However, if certification becomes a State requirement, completion of this course will be considered towards fulfilling the requirements for certification.

Tank Installer Training Course Outline
I. Federal Regulations - 40 CFR Part 280
II. NYS Regulations - 6 NYCRR 612, 613, 614
III. Underground Tanks
A. Installation
   1. Installation Design Considerations
   2. Tank Installation Requirements and Procedures
B. Rehabilitation of Existing Tanks
C. Closure
IV. Aboveground Tanks
A. Installation
   1. Installation Design Considerations
   2. Tank Installation Requirements and Procedures
B. Inspection, Maintenance and Training
C. Closure
D. Spill Control

The first session of this course will be offered on April 3-4, 1989 at Hudson Valley Community College in Troy, NY. The course will be also be offered at various other community colleges across the State during 1989. For more information and registration material, call the Bulk Storage Help-line: 1-800-242-4351.

DEC Offers Guidance on Tank Closure

The guidance document “Permanent Closure for Petroleum Storage Tanks” has been updated recently to include safety procedures, and changes to the classification and disposal options of the wastes associated with closure. The document also includes the basic steps involved in tank closure to fulfill the requirements of the PBS regulations Section 613.9.

This document is intended to provide guidance and is not intended to be an instruction manual on tank closure. Tank closures need to be done by contractors who are competent in the work to be performed.

READER RESPONSE

Questions and Answers

Q: Are home heating oil tanks regulated under NYS CBS or PBS, or the federal UST program?
A: All petroleum products are exempt under CBS. Home heating oil is only regulated by PBS if you have more than 1,100 gallons stored on 1 site. The federal UST program also exempts home heating oil.

Q: Is waste oil regulated?
A: Waste oil is regulated under the federal UST program and under 6 NYCRR 360 of the NYS Solid Waste regulations. If it has been reprocessed or re-refined and is stored for consumption or sale, it is regulated and registered under the PBS regulations.

Q: Are drums/cylinders (non-stationary tanks) regulated under CBS? Do they have to be registered?
A: Non-stationary tanks with a capacity of 1000 kilograms (2200 lbs.) or more and used for 90 consecutive days or more, are subject to the spill reporting and response, and sale of hazardous substances sections of the CBS regulations. However, at this time, they do not need to be registered.

NEWSWORTHY

Tank Cleaning Can Be Dangerous

Syracuse - While standing on top of a 5,000-gallon petroleum tanker, preparing to clean it with a high-pressure water system, a man was killed when the vapors from petroleum products exploded. The force of the explosion threw him about 7 feet into the air through a layer of insulation and a gaping hole blown in the sheet metal roof. The blast also crumpled the aluminum garage door, smashed the windows of the single-story building and shook neighboring houses. A contributing factor to this accident was the fact that the company did not ventilate the trucks outside the building before bringing them inside for cleaning because the management wanted to keep a "low profile" in the neighborhood. Numerous investigations were conducted, including one by OSHA.
CBS Registration Renewal Packages Sent

According to the Chemical Bulk Storage (CBS) regulations, 6 NYCRR Parts 595-597, owners of sites with chemical tanks storing a substance listed in Part 597 were required to register these tanks with DEC by July 15, 1989 for a 2-year period.

As this 2-year period has ended for some owners, the Department began monthly mailings of registration renewal packages in October 1990. These packages are being mailed to chemical tank owners approximately two months before the expiration date of their existing registration certificates. The renewal fee schedule is the same schedule used for the initial registration, as found in section 596.4 of the CBS regulations, which is on a per tank basis for all in-service and temporarily out-of-service tanks.

It is important that owners thoroughly review and complete the renewal forms that they receive. The completed renewal form and the registration fee must be mailed to DEC, 50 Wolf Road, Rm. 326, Albany, NY 12233-3530 before the expiration date of the site's existing (continued on page 3)

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New York State Department of Environmental Conservation
Mario M. Cuomo, Governor

Thomas C. Jorling, Commissioner
Petroleum Bulk Storage Registration Renewal in Progress

According to the Petroleum Bulk Storage (PBS) regulations, 6 NYCRR Parts 612-614, owners of facilities with an aggregate petroleum storage capacity over 1100 gallons or more were required to register these tanks with DEC by December 27, 1986 for a 5-year period. (Exception: Facilities storing 400,000 gallons or more are licensed under Article 12 of the Navigation Law and are exempt from PBS registration.) As this 5-year period is ending, the Department will begin monthly mailings of renewal packages in February 1991.

These packages will be mailed to petroleum tank owners approximately two months before the expiration date of their existing registration certificates (printed in the bottom left hand corner). Approximately 40,000 packages will be mailed out between February 1991 and February 1995. Facilities in the four delegated counties (Nassau, Suffolk, Rockland and Cortland) will be notified by the appropriate county when renewal is due.

The renewal fee schedule is the same fee schedule used for the initial registration, as found in Section 612.3 of the PBS regulations, and is on a per facility basis. To calculate the aggregate capacity and determine the appropriate fee, owners must sum the capacity of all in-service and temporarily out-of-service PBS tanks at the facility.

It is important that owners thoroughly review and complete the renewal forms they receive. The completed renewal form and the registration fee must be mailed to the appropriate DEC Regional Office before the expiration date of the facility’s existing registration certificate. Any owner who has not received a pre-printed renewal package one month before the expiration date should call the Bulk Storage Data Section at 1-800-242-4351 to request a PBS renewal package.

Upon receipt and review of the package, the Department will process the completed renewal package by updating the computer files, depositing the fee, and printing a new 5-year registration certificate based on the current data provided. Finally, the new certificate will be mailed to the name and address provided on the renewal form, and the owner must sign the certificate and post it at the facility.

Questions on PBS renewal, registration and/or transfers should be directed to the appropriate DEC regional office.

Owners Respond to Financial Responsibility Survey

NYS DEC has recently completed a survey to assess compliance with the Financial Responsibility Rule (40 CFR Part 280). EPA asked DEC to target owners of 100 or more tanks, as these owners were required to have proof of financial responsibility (PFR) by October 1989. Seventy-two (72) responses were received from the 97 survey packages sent to owners of 50 or more UST's in New York State (50 was chosen in case an owner has 50 additional tanks in other states).

The majority of owners requiring PFR by October 1989 had complied (43/45). Also, the majority of respondents not yet required to have PFR did not (18/22). We cannot be sure of the situation of the 25 non-respondents. EPA is conducting a compliance follow-up on this group and some legal actions may be taken.

Many owners added comments concerning liability insurance, i.e., it is a preferred mechanism, but is expensive and the number of companies providing coverage is very limited. The next compliance date is April of 1991 for owners of 13-99 tanks. This should prove interesting.
The Petroleum Bulk Storage (PBS) program evolved from the need to prevent groundwater contamination. Groundwater contamination is a major environmental issue, due in part to the fact that over 116 million people in the United States depend on groundwater as their primary source of drinking water. With the PBS program in place for 5 years, DEC still estimates that approximately 19 percent of its 120,000 active underground petroleum storage tanks are now leaking, and that approximately 28,000 petroleum storage tanks remain unregistered.

CBS Renewal Time
(continued from page 1)

registration certificate (printed in the bottom left hand corner). Any owner who has not received a pre-printed renewal package one month before the expiration date should call the Bulk Storage Data Section at 1-800-242-4351 to request a CBS renewal package.

Upon receipt and review of the package, the Department will process the completed renewal package by updating the computer files, depositing the fee, and printing a new 2-year registration certificate based on the current data provided. Finally, the new certificate will be mailed to the name and address provided on the renewal form, and the owner must sign the certificate and post it at the site.

Questions on CBS renewal, registration and/or transfers should be directed to the Bulk Storage Data Section at 1-800-242-4351.

Petroleum Bulk Storage Enforcement Sweeps Underway

In an effort to improve compliance, enforcement of the petroleum storage regulations is now underway throughout New York State. In a typical enforcement sweep in DEC's Region #4, covering the 9 counties surrounding the Albany-Schenectady-Troy area, over 100 storage facilities were found to be unregistered. Department records indicated that 65% of those suspected to be in violation had actually been tested but the results were not sent to the DEC Regional Office. Four-hundred and eight (408) tanks were in violation of the Department's regulations which require testing of bare steel tanks over 10 years old.

A number of enforcement actions have been taken including theissuing of tickets by DEC's Environmental Conservation Officers and the imposition of fines and penalties. In Region 4 alone, over 200 consent orders were drafted as proposed settlements regarding tanks suspected to be in violation of testing requirements. These consent orders contained civil penalties of $500 for each tank in violation and require that the tanks either be tested or permanently closed within 60 days.

Similar inspection and enforcement sweeps are underway throughout the rest of the State. In Region 9, inspections of over 300 registered facilities in Wyoming and Allegheny Counties were conducted this Summer and Fall in two separate one-week inspection sweeps. Inspectors checked for compliance with PBS and federal UST (if applicable) regulations. Each facility received a copy of the inspection report with a letter listing any deficiencies requiring correction. These deficiencies ranged from not posting a registration certificate to requiring spill clean-up.

Supplementing this enforcement effort, EPA has announced its intention to pursue violations at the federal level. In a recent EPA announcement, Ron Brand, EPA Underground Tank Program Director has asked the EPA Regional Office covering New York State to stimulate compliance in three ways: 1) encourage New York State to strengthen enforcement activities, 2) ask the State to refer violations to EPA for follow-up, and 3) carry out enforcement under federal law. These activities Brand said, "will demonstrate to the regulated community that EPA takes enforcement seriously and that federal requirements will be enforced nationally."

Federal regulations require that either testing of underground tanks must be done in conjunction with inventory monitoring; monitoring wells must be installed and monitored for soil or groundwater contamination; or an automatic tank gauge be installed.

Tank owners are urged to bring their facilities into compliance with the State's petroleum storage regulations or face stiff penalties for non-compliance. If you need a copy of the regulations or need assistance, you should call your nearest DEC regional office or contact the Bulk Storage Helpline at 1-800-242-4351.
Contractors and Owners Beware of Unprotected Galvanized Piping!

DEC has recently received several reports that unprotected galvanized steel pipes are being installed on new underground storage tank systems. This practice has been outlawed since 1986 when the EPA declared that the galvanizing found on galvanized pipe was not sufficient to protect the pipe for a service life of 30 years. Also in 1986, the NYS PBS regulations began requiring that the cathodic protection system for product piping be capable of providing protection for 30 years (6 NYCRR Part 614.14 (b)(2)).

Based on these two regulations, galvanized pipe cannot be used by itself for product piping. If galvanized is used, it must be wrapped and cathodically protected with anodes. In other words, galvanized piping should not be installed any differently than bare steel piping.

Owners who have installed galvanized piping must retrofit cathodic protection to the piping and monitor the cathodic protection every year to make sure that the piping is protected.

Installers of new piping systems must install piping systems made of a corrosion-resistant material (such as FRP) or cathodically protected steel. Secondary containment for piping systems, in the form of double-walled pipe or a trench liner, is also recommended. This secondary containment must be sloped to a catch basin that can be monitored for leaks from the piping system. While secondary containment is not currently mandated, it does provide owners with easy and economical leak monitoring to meet the EPA regulations.

FEDERAL UST PROGRAM

EPA Makes Change to UST Regs. for Spill/Overfill Equipment

Spill/overfill prevention equipment is required for new underground petroleum storage tanks by NYS Petroleum Bulk Storage (PBS) regulations. The federal UST regulations require spill/overfill prevention equipment at installation for new petroleum or hazardous substance underground storage tanks (USTs) or by December 1998 for existing tanks.

The American Petroleum Institute, API, recently submitted a rulemaking petition to EPA requesting that the agency make some changes to the Federal Underground Storage Tank (UST) regulations in six technical requirements believed impractical and unworkable including overfill protection, definition of "corrosion expert," wrapping and coating of steel fittings for piping as acceptable alternatives to cathodic protection, allowing manual tank gauging as the exclusive method of release detection for used oil tanks of up to 1100 gallons capacity, use of soil/clay liners as an allowable excavation liner material, and the use of groundwater monitoring wells for release detection when the groundwater is within 40 feet of the surface. The only proposed change that EPA has accepted is that which applies to overfill protection.

The EPA's response to the rulemaking petition on each of these issues, as well as the proposed amendment regarding overfill protection equipment, are found in the Federal Register, Vol. 55, No. 82, Friday, April 27, 1990, FRL 3752-5 on page 17763, and FRL 3752-4 on page 17767, respectively. For further information, call the RCRA/Superfund Hotline at (800) 424-9346 or 382-3000 (in Washington, DC). The petition and amendment regarding overfill prevent equipment is summarized as follows.

Section 280.20(c)(ii) of the Federal UST regulations requires that owners or operators prevent overfills by installing equipment that complies with either of the following two design standards: a device that will alert the transfer operator when the tank is no more than 90 percent full by restricting the flow into the tank or triggering a high level alarm; or a device that will automatically shut off flow into the tank when the tank is no more than 95 percent full; or an approved alternative.

API stated that for larger tanks (over 4,000 gallons) these requirements might be too restrictive, leaving an excessive empty space in the tank. The amount of excess space depends on the size of the tank, the rate of fill and the rate of flow reduction by a flow restrictor or the response of the operator filling the tank. EPA has agreed with API, and in order to alleviate this restrictiveness, EPA is proposing to add a new Subsection [280.20(c)(1)(ii)(C)] to the regulations, which is a performance standard intended to clarify how different types of overfill equipment can be used and still achieve the level of protection necessary to protect human health and the environment.

(continued on page 5)
EPA Deadlines for Piping Leak Detection

by Russ Brauksteck, Central Office Environmental Engineer

Pressurized Piping

Pressurized piping has the ability to move a lot of product quickly. If a pressurized system were to leak without any controls, much petroleum would escape to the environment very quickly. For this reason, all pressurized piping systems, which are commonly found at high volume gas stations, must have two forms of leak detection by December 22, 1990, according to the federal Underground Storage Tank (UST) regulations, 40 CFR Sections 280.40(c) and 281.41(b)(1).

Leak detection requirements for piping include retrofitting a mechanical line leak detector to the housing of the submersible pump, and either beginning monthly monitoring or annual line testing. An alternative is to install an electrical line leak detector which has the ability to serve as a leak detector and a line tester simultaneously. Monthly monitoring could include retrofitting of monitoring wells around the piping system or monitoring the interstitial space of double wall pipe.

Suction Piping

Suction piping may also require leak detection depending on how its controls are installed. Suction piping dispenses product by drawing a suction (vacuum) on the piping system. If a suction piping system were to leak, there would likely be less product released to the environment than for pressurized piping, and the dispensing system may not work at all because the pump would not be able to draw a vacuum. However, suction systems require a check valve to hold the prime for the pump.

The safest installation for suction systems is to place only one check valve in the piping system, directly underneath the suction pump and to have the piping sloped downward toward the tank. With this configuration, any liquid accumulation will flow into the tank when the pump is not in use. The alternative location for the check valve is at the top of the tank. If the piping system develops a leak with the check valve in that location, the product from the pump to the leak would escape into the environment. For this reason, suction piping systems which have the check valve located at a place other than under the pump must either be tested every three years, or be monitored monthly using monitoring wells or monitoring the interstitial space of double wall pipe. This federal UST leak detection requirement is being phased in from December 1989 to December 1993.

Suction piping system with check valve

Federal UST Spill/Overfill Equipment Requirements Change
(continued from page 4)

The addition to this section reads:

Restrict flow 30 minutes prior to overfilling, alert the operator with a high level alarm one minute before overfilling, or automatically shut off flow into the tank so that none of the fittings located on top of the tank are exposed to product due to overfilling.

EPA Issues Clarification for Chemical Piping Requirements

The EPA recently issued a clarification of the leak detection requirements for underground pressurized chemical piping systems. According to section 280.40 (c), the regulations require that these piping systems have secondary containment and interstitial monitoring by December 22, 1990. According to EPA, the requirements for retrofitting secondary containment to both tank and piping systems containing chemicals is actually December 22, 1998 NOT December 22, 1990. Only leak detection is required for pressurized piping systems by December 22, 1990.

This clarification is published in the Federal Register, Vol. 55, No. 82, Friday, April 27, 1990, FRL 3752-6 on page 17753. A copy of the Federal Register can be obtained by calling the RCRA/Superfund Hotline at 1-800-424-9346.
Spray-On Liners Offer Options for Secondary Containment

NYS DEC staff have been bombarded with questions on secondary containment liners. In response to the deadline for upgrading of secondary containment, i.e., compliance with Section 613.3 (c) (6) by December 27, 1990, many new systems for meeting the regulations are being installed.

DEC has been working to identify some of the generic designs which will meet the intent of the regulations, and to provide guidance to tank owners on good engineering practices. Secondary containment systems can be upgraded using a variety of materials such as steel, concrete, natural clays, and membrane liners. The following article includes some of DEC's observations of some of the new liner systems.

Spray-applied elastomers are being introduced in New York State for use as liners for secondary containment systems. Spray-on elastomers have been used for approximately 20 years in a number of applications such as industrial roofing, ponds and lagoons, and at chemical and oil storage facilities.

For use in secondary containment systems, the elastomer is sprayed-on over a fabric or directly on soil, in layers approximately 40-60 mils thick (50 mils = 1/20"), creating a liner which is flexible and can be cleaned and reused. However, it is recommended that these liners be applied over a smooth surface such as compacted sand or cement dust/stone rather than larger stones which could puncture the liner from underneath while walking on the liner. In addition, elastomer spray must be applied over a dry surface since moisture will react with the urethane to cause weak spots in the liner.

These impermeable liners allow spilled products to be recovered before entering the soil or the ground or surface waters. The manufacturers claim the UV (ultraviolet) resistance allows installation without protective cover.

These liners are repairable in the event of physical damage and damage is easily identified in this thin surface material. A tough, rubber-like product, this material appears to be elastic and tear-resistant at low and high temperatures. An advantage of the elasticity of these liners is the tight seal which can be attained around protruding supports and pipe lines.

These liners can be installed with minimal site preparation, at temperatures as low as 30 degrees. However it is recommended that a contractor be selected who has more than one-day of manufacturer training on proper installation, as a strict quality assurance program is required to assure uniform thickness.

Spray-applied elastomer liners must be installed by contractors who have been properly trained to assure that strict quality assurance standards are met.

To be acceptable for use in New York State, a product must satisfy the secondary containment upgrading requirements of the Petroleum Bulk Storage regulations as well as being fire-resistant to satisfy requirements of the National Fire Protection Agency (NFPA).

Two products currently being offered in NYS which seem to meet these requirements are GEOTHANE 5020 FR, which is manufactured by Futura Coatings, Inc. of St. Louis, MO; and RLP-2078 (polysulfide) is manufactured by Morton International of Chicago, IL. GEOTHANE is a urethane sprayed at a thickness of 50-60 mils over a thin fabric material. The Morton membrane coating is made of 25 mils polysulfide polymer sprayed over a 15 mil precoated material.

The cost of installation for these two types of liners is approximately $2 - $3 per sq. ft. However, installation costs can easily be doubled depending on the degree of site preparation such as moving pipe lines, grading the area and adding drainage.
Use of a Concrete Basin for Secondary Containment

A secondary containment basin, which generally consists of an impermeable floor and a dike (or curbing), is frequently installed around a tank, at a truck loading/unloading station, or under pumps and valves to catch leaks from equipment, to contain overfills and to isolate tanks and valves from vehicular traffic and fire hazards.

Anyone handling petroleum or a hazardous substance should seriously consider the use of secondary containment basins for protecting the environment. Basins are regarded by most chemical manufacturers as "good engineering practice" and may be needed to obtain insurance coverage or to qualify for lower insurance fees.

In addition, the National Fire Protection Association (NFPA), the U.S. Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (DEC) have standards or regulations which require the use of secondary containment systems under certain circumstances. These requirements are mandated in the following standards or regulations:

- National Fire Protection Association (NFPA) Flammable and Combustible Liquids Code #30
- Code of Federal Regulations (40 CFR 112), Oil Pollution Prevention

Several building materials are normally used for constructing a secondary containment basin: native or bentonite clay, synthetic (plastic) liners, and concrete. Under some circumstances metal, asphalt, or soil cement may also be used successfully. Clay and synthetic liners are commonly used for large containment areas, such as at oil storage terminals. Concrete is used at many smaller structures such as at chemical storage depots, pump pits and transfer stations. This article will address the use of concrete for secondary containment. Advantages, disadvantages, design, chemical compatibility, cost, use of coatings, and concrete repair will be discussed. The suitability of other building materials will be the subject of future "Tank Bulletin" articles.

Advantages and Disadvantages

On the whole, concrete is a good material for constructing a secondary containment basin. It has high compressive strength, and is watertight, weather resistant, and fire resistant. Its chief disadvantages are that it is subject to cracking (due to low tensile strength), transmits heat easily, is permeable to gases, and is very expensive. These may be offset, respectively, by using steel reinforcement, insulation, and a vapor barrier material.

One of the chief advantages of using concrete is that spilled material can usually be cleaned up without destroying the secondary containment basin unlike clay materials which must be removed if contaminated.

Good quality concrete has a low liquid permeability (typically 1 X 10^-6 cm/sec for water) if constructed properly. However, liquids with a high vapor pressure, such as gasoline, alcohols, and chlorinated solvents, can permeate in the vapor phase, through a concrete structure, and thus escape to surrounding soil and groundwater. If the concrete is frequently exposed to chemicals which have a high vapor pressure, a vapor barrier should be installed. A surface coating provides an excellent vapor barrier. Alternatively, a chemically compatible plastic sheet sandwiched within the concrete will provide a good vapor barrier. (A sandwich design is preferable to installing the barrier beneath the
slab, to prevent permeation of the liquid which condenses at the plastic sheet.)

Poor tensile strength, which yields cracking, is a chief disadvantage of using concrete for secondary containment systems. Leaks in the system may occur at cracks formed by concrete expansion, or at expansion joints, which are deliberately installed to control cracking. Cracks can be deterred and expansion joints eliminated, by the proper placement of steel reinforcement within the concrete. Where expansion joints are used to control cracking, protective coatings and joint seals, as shown in Figure #1, can be used to prevent leaks.

**Designing for Tightness**

A common source of leaks through the concrete is at "cold joints", joints resulting when the concrete is not poured in a continuous operation. If the concrete cannot be poured in a continuous operation, new concrete can be bonded to old concrete by wetting the old surface, plastering it with cement, and then placing the new concrete before the cement has set. For best results, a low-volume-change cement should be used with a concrete of a quaking consistency, and the new concrete should be placed carefully so as to leave no stone pockets at the interface between the new and the old concrete.

Liquids can also permeate through the pores in the concrete if the concrete is not mixed properly. Concrete can be made practically impervious to liquids by proper mixing and proportioning of water, cement, sand and stone. Increasing the proportion of cement in the mix and decreasing the amount of water produces excellent watertight structures. The concrete should contain not less than six bags of cement per cubic yard. For maximum water tightness, the mix may require more fine material than would be used for maximum strength. Gravel produces a more watertight concrete than broken stone under similar conditions. Patented compounds are on the market for producing watertight concrete, but under most conditions, equally acceptable results can be obtained for less cost by maintaining a water/cement ratio of 0.3 or less.

Concrete block and masonry secondary containment basins can also be used to successfully contain a hazardous substance spill under many circumstances provided that the cells are filled and the joints are properly sealed. Although not normally recommended for floors, masonry curbs and sidewalls can be constructed and made tight by filling the cells of the blocks with concrete. Firmly parging (troweling) mortar onto the surface of the blocks and to the joints, or applying sealant (coatings), as discussed later, will further improve tightness of the system.

**Chemical Compatibility**

Concrete is compatible with a wide variety of substances, but concrete structures may deteriorate from regular exposure to many salts, alkali solutions, and acids. The following table shows the degree of compatibility with several of the most common substances stored in New York State.

<table>
<thead>
<tr>
<th>Substance</th>
<th>No Disintegration</th>
<th>Slow Disintegration</th>
<th>Rapid Disintegration</th>
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</thead>
<tbody>
<tr>
<td>Petroleum Products</td>
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<tr>
<td>Toluene</td>
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<tr>
<td>Alcohol</td>
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<td></td>
</tr>
<tr>
<td>Trichloroethylene (tri)</td>
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<td>Alcohol</td>
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<td></td>
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<tr>
<td>Trichloroethylene (tri)</td>
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</tbody>
</table>

The Portland Cement Association has published an excellent paper on the compatibility of concrete with various chemicals, "Effects of Substances On Concrete And Guide To Protective Treatments".

![Figure 2. Deteriorated Concrete, Restored and Protected with Polymer Concrete](image-url)
Concrete holds up quite well when exposed to gasoline, fuel oil, and other petroleum products. It also resists deterioration when exposed to acetone, methylene chloride, and many other chlorinated solvents. However, impervious concrete or concrete with a surface coating must be used to prevent penetration of these products into the concrete and possible permeation through the structure into the environment.

**Cost**

The material and delivery costs for concrete in New York State is about $55 per cubic yard. Installation costs, including placement, surface finishing, foundation preparation and reinforcement, are approximately $85 per cubic yard. This is equivalent to approximately $2.50 to $3.00 per sq. ft. total cost for a typical concrete secondary containment system for a new facility in New York State. Installation costs at existing facilities will be higher depending on site conditions.

**Protective Coatings**

Protective coatings for concrete are available for almost any type of service. If properly selected, installed, and maintained, they provide "state-of-the-art" environmental protection for either new secondary containment systems or for old concrete structures which are in sound condition. They range from thin films of paint (such as latex) to high performance polymer concrete surface overlays.

Coating thickness depends on:
1. the type of exposure, whether continuous or intermittent;
2. the resistance of the coating to the chemical involved; and
3. the ability to form a continuous, pinhole-free surface.

As a rule, thin coatings (1/500 to 1/40 inches thick), which are more cosmetic than functional in protecting against chemical attack, are not as durable nor as protective as heavier coatings (1/20 to 1/8 inches thick). The polymer concrete surface overlays, which are suitable for sumps and process trenches continuously exposed to aggressive chemicals, are typically 1/2 to 2 inches thick. The polymer concrete coatings are not only capable of containing the hazardous liquid, but they prevent vapor phase migration and they seal cracks and joints as well when properly designed.

Paul Kennington, Regional Sales Manager with Sentry Polymers in Freeport, Texas, said in an interview, "Anyone buying a coating for his concrete secondary containment system should ask the coating supplier the following questions:

1. Is the coating compatible with both concrete and the hazardous substance being stored? Are immersion samples available for testing?
2. Is it resistant to cracking and thermal shock?
3. Will it bond securely, yet expand and contract to seal cracks and expansion joints under all temperature conditions?
4. Will it withstand wear and impact?
5. Is it easy to apply?
6. Is it economical?

Any reputable supplier will be able to answer these and other important questions."

Expansion joints and cracks are the biggest sources of leaks from concrete secondary containment structures. These sources can be sealed with one of several coatings on the market. Usually, deteriorated concrete is chiseled out to a firm base, then layers of plastic tape and scrim reinforcement (fabric) are embedded in base coatings. A finish coating is then applied to the top for a tight surface. (See Figure #1.) If an extensive area of the concrete has deteriorated, a polymer concrete topping, 1" to 2" in thickness, can be installed to restore the concrete surface. (See Figure #2.)
Increasing awareness and concern about environmental pollution has prompted earnest action by environmentalists, both from the public and private sectors, to find immediate means of curtailing pollution. One of the first kinds of pollutants to be singled out for minimization were the products and by-products of motor fuel combustion. This triggered research into the viability of creating clean fuels and more efficient motors.

This research resulted in the development of alternate fuels (such as methanol) and oxygenated fuels (such as gasohol, a mixture of 90% gasoline and 10% ethanol by volume). After these fuels were authorized for widespread consumer use, the questions arose as to how to properly store and handle these new types of fuels and how they would be regulated by federal and state agencies.

NYS DEC has two sets of bulk storage regulations which could apply to these new fuels. An interpretation of DEC’s regulation of existing fuels is found in a Technical and Operational Guidance Series (TOGS) memorandum, TOGS 4.1.13, "Regulation of the Storage of Oxygenated Motor Fuels and Alternate Fuels," addressing this issue. According to the TOGS, petroleum blended with up to 16% by volume of oxygen-containing additives (oxygenates) will be regulated under the Petroleum Bulk Storage (PBS) regulations because these mixtures essentially exhibit the characteristics of petroleum. Methanol and mixtures of methanol with up to 30% by volume of gasoline will be regulated under the Chemical Bulk Storage (CBS) regulations because they exhibit the characteristics of methanol.

No other kind of fuel mixture is being considered for approval at this time. DEC’s position is based on the U.S. Environmental Protection Agency’s (EPA’s) designation of these fuels. All subsequent alternate fuels and fuel mixtures will be addressed by the DEC after being authorized by the U.S. EPA.

<table>
<thead>
<tr>
<th>Motor Fuel Type</th>
<th>Composition</th>
<th>NYS Bulk Storage Regulations</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTBE</td>
<td>Gasoline with 11% methyl-t-butyl ether blend</td>
<td>PBS regulations</td>
<td>EPA-approved for marketing</td>
</tr>
<tr>
<td>Sun</td>
<td>Gasoline with 15% methyl-t-butyl ether blend</td>
<td>PBS regulations</td>
<td>EPA-approved for marketing</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Gasohol (Gasoline with 10% ethanol)</td>
<td>PBS regulations</td>
<td>EPA-approved for marketing</td>
</tr>
<tr>
<td>TBA</td>
<td>Gasoline with 16% t-butyl alcohol</td>
<td>PBS regulations</td>
<td>EPA-approved for marketing</td>
</tr>
<tr>
<td>Oxinol</td>
<td>Gasoline with 9% methanol and t-butyl alcohol</td>
<td>PBS regulations</td>
<td>EPA-approved for marketing</td>
</tr>
<tr>
<td>Dupont</td>
<td>Blend of gasoline with 8% methanol and C₂ to C₄ alcohols</td>
<td>CBS regulations</td>
<td>EPA-approved for marketing</td>
</tr>
<tr>
<td>Octanix</td>
<td>Gasoline with 8% mix of methanol and C₂ to C₄ alcohols</td>
<td>CBS regulations</td>
<td>EPA-approved for marketing</td>
</tr>
<tr>
<td>M-100</td>
<td>100% methanol</td>
<td>CBS regulations</td>
<td>Approved for limited experimental use</td>
</tr>
<tr>
<td>M-90</td>
<td>Methanol with 10% gasoline blended-in</td>
<td>CBS regulations</td>
<td>Being considered for EPA approval</td>
</tr>
<tr>
<td>M-85</td>
<td>Methanol with 15% gasoline blended-in</td>
<td>CBS regulations</td>
<td>Approved for limited experimental use</td>
</tr>
<tr>
<td>M-80</td>
<td>Methanol with 20% gasoline blended-in</td>
<td>CBS regulations</td>
<td>Being considered for EPA approval</td>
</tr>
<tr>
<td>M-70</td>
<td>Methanol with 30% gasoline blended-in</td>
<td>CBS regulations</td>
<td>Being considered for EPA approval</td>
</tr>
</tbody>
</table>
**SPCC Inspections & Personnel Training Workshop**

This half day workshop will address proper site inspections and personnel training as required for oil Spill Prevention Control and Countermeasures (SPCC) plans. This workshop will guide owners in the tasks of proper testing and inspections of facilities, maintaining adequate records of facility testing and inspections, and providing appropriate training to facility personnel in all aspects of spill prevention and control used at the facility. The types of records which must be kept on file at the facility and the lengths of time that these records must be maintained will be covered. A typical facility recordkeeping and personnel training scenario will be developed and discussed. Current State and federal regulations and guidelines which have impacted all New York State oil storage facilities will be covered.

**SPCC Secondary Containment Planning Workshop**

This half day workshop will address proper design of secondary containment systems for most oil storage facilities as required for oil Spill Prevention Control and Countermeasure (SPCC) plans. This workshop will guide owners and engineers in the task of selection and specification of secondary containment systems including size and lay-out, and materials of construction. A cost estimate will be developed for a typical facility, using alternative means of secondary containment. Current State and federal regulations and guidelines which have impacted all New York State oil storage facilities will be covered.

**SPCC Courses**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Tentative Dates</th>
<th>for 1991:</th>
</tr>
</thead>
<tbody>
<tr>
<td>E6021</td>
<td>SPCC Plans Workshop</td>
<td>April 3, April 10, June 19,</td>
<td>October 9, October</td>
</tr>
<tr>
<td></td>
<td></td>
<td>June 26, August 21,</td>
<td>16, and December 3.</td>
</tr>
<tr>
<td>E6025</td>
<td>SPCC Inspections &amp; Personnel Training Workshop</td>
<td>April 4, April 11, June 20,</td>
<td>October 10, October</td>
</tr>
<tr>
<td></td>
<td></td>
<td>June 27, August 22,</td>
<td>17, and December 4.</td>
</tr>
<tr>
<td>E6022</td>
<td>SPCC Secondary Containment Planning Workshop</td>
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<td>Tentative Dates</td>
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<td></td>
<td></td>
<td>June 27, August 22,</td>
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</tbody>
</table>

**SPCC Plans Workshop**

SPCC plans are required for any oil storage facility with aboveground storage greater than 1320 gallons or any aboveground tank greater than 660 gallons, or any underground tank 42,000 gallons or more, by the federal EPA (40 CFR 112). SPCC plan certification requires a site review and inspection in addition to the plan review. Every SPCC plan and major plan amendment must be certified by a licensed Professional Engineer.

This one-day workshop is designed to address Oil Spill Prevention Control and Countermeasure (SPCC) plans for most oil storage facilities in New York State. Current State and federal regulations and guidelines, including proposed changes to the federal SPCC regulations, will be covered. The workshop will guide owners and engineers in preparing the SPCC plan and will include a site review process description. The role of the professional engineer, SPCC plan amendments, and future regulatory directions will also be discussed.

**Next Tank Installer Course:**

January, February, March, 1991

The DEC Tank Installer Course will be offered in Syracuse on January 9 and 10, Albany on February 6 and 7, and Rochester on March 13 and 14. This two-day course will cover the State and federal regulations, the installation of underground and aboveground storage tanks, and tank closure.

If you would like more information about the course content or would like to sign-up to attend one of these courses, you can call the Bulk Storage Helpline (1-800-242-4351) to request the course brochure. If you have any questions on this course you may ask for Russ Brauksieck when you call the helpline.

**Disclaimer:** DEC does not endorse any particular product or system. The mention of specific company, product or trade names in this newsletter is for informational purposes only.
Final Two UST Financial Responsibility Deadlines Postponed

Under the federal Underground Storage Tank (UST) regulations, owners and operators of UST's are required to demonstrate financial responsibility for cleanup and third-party damages resulting from leaks that may occur. These requirements were to be phased in over a two-year period. Petroleum marketers owning 1,000 or more UST's and non-marketers with more than $20 million in tangible net worth were required to comply by January 1989. Petroleum marketers owning between 100 and 999 UST's were required to comply by October 1989.

Upon recognizing that financial assurance is not readily available to the remaining groups of owners/operators, the U.S. EPA has extended the final two compliance dates for petroleum marketers owning between 13 and 99 UST's, who were required to comply by April 26, 1990, and all other owners, including local governments, who were required to comply by October 26, 1990.

On May 3, 1990, EPA published a regulation extending these compliance dates for one year each to April 26, 1991 and October 26, 1991, respectively.

In extending the third and fourth compliance dates, the EPA is providing short-term regulatory relief to UST owners and operators to whom methods of financial assurance are presently not available. The EPA does not believe that this postponement will significantly adversely affect human health or the environment since the technical requirements of the federal UST regulations will remain in effect.
DEC Surveys Owners on Financial Responsibility

In response to a request from EPA, NYS DEC is conducting a survey to assess compliance with the Financial Responsibility Rule (40 CFR Part 280). EPA asked state agencies to target owners of 100 or more tanks. These owners were required to have proof of financial responsibility by October 1989. Survey packages were mailed out on April 27, 1990 to owners of 50 or more USTs in New York State (50 was chosen so that in case an owner has 50 or more tanks in other states, he would be surveyed). The survey form allows the owner to indicate whether he owns 100 tanks or more. Results of the survey will be tabulated, summarized and then forwarded to the EPA.

Tank Leasing Option

by Michele Domiano, Central Office Assistant Engineer

If you don't want the responsibility of owning an underground tank but need one for your business, leasing just may be the answer. Last Fall, Buffalo Tank Corporation unveiled the idea of a tank leasing program, at the Petroleum Equipment Institute (PEI) convention held in Nashville, Tennessee. With its leasing package, Buffalo Tank Corp. will remove the existing underground tank system, install and maintain their new state-of-the-art system, monitor for leaks, and provide the liability insurance for underground storage tanks as required by EPA.

EPA requires that either the owner or the operator of the tank, but not both, must show financial responsibility. The responsibility is with the owner and operator to decide which of them will show financial responsibility. By leasing the tank system, Buffalo Tank retains the financial responsibility should a problem arise. Since the financial responsibility requirements have been difficult to meet by many small gasoline retailing companies, Buffalo Tank believes its leasing program will serve this need, thus preventing many business closures.

Buffalo Tank Corp. leases the entire tank and piping network, from under the dispenser island right to the tanks. Buffhide fiberglass-coated steel tanks are used with a state-of-the-art, flexible piping system. This piping system has no mechanical joints in the ground and features a removable inner pipe. This removable inner pipe facilitates replacement from aboveground without having to break the concrete.

Buffalo Tank Corp. expects to provide details of its leasing program, complete with lease rates, early in 1990. If you have any other questions regarding the contents of this article, please feel free to contact Ed Guertin, a representative for Buffalo Tanks, at 1-800-874-5446.

Amendments to Bulk Storage Laws Proposed

Amendments to the Petroleum Bulk Storage (PBS) Law and to the Chemical Bulk Storage (CBS) Law (Article 17, Title 10 and Article 40 of the Environmental Conservation Law) are being considered by the State legislature. (NYS Legislative Proposal DEC# 90-57R) These amendments would give New York State the legislative foundation to receive EPA delegation of the federal underground storage tank program, thus eliminating the confusing and cumbersome regulatory overlap currently existing in the State.

If the amendments pass, DEC will revise its Petroleum and Chemical Bulk Storage regulations to achieve federal equivalency, and may apply for program delegation from the EPA. Once this process is completed, tank owners will have to comply with only the State regulations, and will deal only with DEC on matters of compliance.

Petroleum Transfer Fee Increased

Effective February 1, 1990, the licensing fee and surcharge for major oil storage facilities (storage terminals with a capacity greater than 400,000 gallons) is 8-1/4 cents per barrel transferred into the terminal. This represents a 3/4 cent increase in the surcharge rate. License fees, established under Article 12 of the NYS Navigation Law, are deposited into the NYS Environmental Protection and Spill Compensation Fund for cleanup of petroleum spills. The surcharge is deposited into the Hazardous Waste Remedial Fund for hazardous waste site remediation.
Updates and Summaries

CBS Phase II Update

The proposed Chemical Bulk Storage regulations are in the final stages of internal review. Our goal, to have flexible yet enforceable regulations which industry, concerned citizens, and DEC can agree will meet the intent of the CBS law to protect the environment, is a difficult and time consuming task.

Once the proposal has been finalized, expected sometime early Summer 1990, public notices will be issued, public hearings will be conducted, a responsiveness summary will be prepared and then the final regulations will be submitted to the Environmental Review Board for approval and publishing. Filing of these regulations is expected Summer, 1991.

New Contractor for CBS Manual

O’Brien and Gere Engineer’s Inc. has recently signed a contract with the Department to prepare a hazardous substances technical guidance manual. The expected publication date is Spring, 1991.

This manual, written to complement the Chemical Bulk Storage regulations (6 NYCCR Parts 595 to 599), will contain recommended practices which engineers and managers at storage sites can use to prevent leaks and spills of hazardous substances.

If you have any questions regarding the manual or suggestions for preventing chemical leaks or accidents which should be included in the manual, you can call Jacqueline Sibblies on the Bulk Storage Help-line: 1-800-242-4351.

New Region 8 Phone Number

The staff administering the bulk storage regulations in Region 8 has returned to the Region 8 main office in Avon. The Telephone Number for the Region 8 Bulk Storage Staff is 716-226-2466.

PBS Tank Testing Compliance Update

by Jack Aversa, Central Office Senior Engineer

Tightness testing of underground tanks is one component of the PBS regulations designed to identify tank and piping systems that should be repaired or replaced. Over 20,000 test reports have been submitted to the Department since the PBS regulations became effective over 4 years ago (December 27, 1985). Exact totals on the number of tanks repaired or replaced due to tank test failures is unknown; however, it is estimated that a majority of the over 12,000 permanent tank closures reported since the regulations became effective was related to the tank testing program.

Currently, approximately 10,000 tanks at over 5,700 sites are overdue for tightness testing. Based on the registration data and tank testing data supplied to the Regional Offices.

Region 8 has the best regional compliance rate for tank testing - 88% vs. 68% Statewide. Wendy Walker, DEC’s Region 8 Bulk Storage Inspector, said, “Not all tanks are actually overdue for testing. Some tanks were tested but results were not sent to the DEC regional office; others were permanently closed but the regional office was not notified.” According to the statistics for January - March 1990 for Region 8, sixty (60) facilities with overdue tests have closed or tested their overdue tanks during that period. Twenty (20) sites did it voluntarily. The remaining forty (40) were contacted by Region 8 personnel and were given 30 days to either test or permanently close the overdue tanks. At these 40 sites about half of the tanks were tested, the remaining were permanently closed.

To avoid penalties, you should bring your facility into compliance with DEC standards immediately, including properly registering tanks and testing tanks when they are due. If you need assistance, call the nearest DEC Regional Office or call the Bulk Storage Help-line: 1-800-242-4351.

Tank owners are required to forward data on tank closures and testing to the DEC regional offices. Tanks overdue for testing must be tested or permanently closed - to protect the environment - and to protect the owner from potential enforcement actions. If an owner is unsure whether he has submitted his tank closure notice or test results, he should call the appropriate DEC Regional Office.

Tank closures should be reported by submitting a completed PBS application which lists the closed tanks, within 30 days prior to permanent closure, to the DEC regional office (per Section 612.[d] of the PBS Regulations). Tank test reports should include facility and test information, including all tester’s calculations, as specified in clause 613.5(a)(4)(ii). All data on testing and closure should include the PBS registration number and the tank number from the PBS registration certificate.

The Department periodically mails reminder notices to tank owners, listing tanks overdue and tanks due for testing in the upcoming months. However, owners should not wait for a reminder notice before they determine if their tanks are due for testing. They should refer to Section 613.5 of the PBS regulations for the schedule of required tests. The testing due date is also printed on the PBS registration certificate.

The Department has issued guidance documents on tank testing and tank closure. The guidance on tank testing lists the current test methods which the Department accepts. These documents can be obtained by calling the Bulk Storage Help-line: 1-800-242-4351.

* Numbers do not reflect tanks in Delegated Counties.
Kodak Undertakes Extensive Program to Upgrade Its Tanks

The Eastman Kodak Company, well known for the manufacture of photographic products, has begun an aggressive tank improvement project at its largest plant in Rochester, New York. Over the next five to seven years, 600 of the Company's 950 underground and aboveground tanks will be replaced or upgraded. The remaining 350 tanks will be eliminated.

Kodak Park is a large industrial complex covering 2,200 acres with over 200 major buildings. The Park is seven miles long and up to one mile wide. Tanks which were installed at the site as early as the 1920's contain large quantities of petroleum products, and industrial chemicals such as methylene chloride, acetone, and methanol. Some of these tanks are believed to be a source of chemical contamination of groundwater beneath the industrial complex.

Ron Freese, Kodak's Program Manager for the Storage Tank Improvement Program, said that the program has two basic goals: "We want to prevent future losses of chemicals from our storage tank systems, and, secondly, to provide the storage capacity to meet our business needs. Storage tank systems will be state-of-the-art and meet or exceed the regulatory requirements of the DEC and EPA." Even tanks storing substances not currently regulated by the State, such as ethylene glycol, will be upgraded, Freese said.

Although the goals of the program are relatively straight-forward and simple, the actual process of carrying it out is extraordinarily complex. In one area of the Park, nearly 150 underground tanks, the size of railroad tank cars, are buried side-by-side. These tanks are connected by many miles of pipes which carry chemicals through the manufacturing and recovery processes. Freese said, "The task of digging them up and replacing them without interrupting production is, in itself, an engineering challenge of extraordinary proportions."

One of Kodak's three basic designs for replacement tanks is the ground-level tank used for nonflammable substances.

After months of review and discussion State environmental officials gave Kodak the go-ahead on their tank program. Agreement was formalized in a consent order signed by Kodak and DEC in June 1989. The comprehensive review was necessary to ensure that the implementation of the Kodak Storage Tank Improvement Program Master Plan is consistent with the State Petroleum and Chemical Bulk Storage (PBS & CBS) regulations and the federal Underground Storage Tank (UST) rules.

The Master Plan is the foundation for the massive tank upgrading program. It addresses the schedule and priority for storage tank removal, upgrading or replacement, disposal of storm water, tank closure, and designs for tanks and secondary containment systems. The Plan also requires each operator to develop written procedures describing the system equipment, emergency response procedures, loading/unloading procedures, inspection criteria, and schedule for preventative maintenance.

Replacement tanks fall into three basic design categories: underground for flammable materials, ground-level for nonflammable, and elevated tanks for use in high risk situations. Much attention has been given to Kodak's innovative design for elevated tanks. In this new design, double-walled, stainless steel tanks will be buried in crushed stone, in elevated concrete bunkers, to make leak detection easier.

Underground tanks are used for flammable substances.
Salvatore Pagano, Director of NYSDEC's Water Division and Chairman of the DEC task force on Kodak's Tank Program said, "Buried aboveground tanks sound like an incongruity, but it's a very clever concept. They're buried aboveground so you can see if they leak, but there's still fire and explosion protection."

Tanks are not the only concern of Eastman Kodak. Several other state-of-the-art practices are being followed at the plant. Flanged, welded piping will be the standard for new construction. Underground pipes will be eliminated wherever possible. Any remaining underground lines will have secondary containment. Storage tank transfer pumps will be sealless or fitted with secondary containment chambers. Storage tanks will be equipped with overfill prevention equipment such as high level alarms and automatic shutoff.

At a time when companies across the country are being forced to bring their storage tanks into compliance with new regulations, DEC Commissioner Thomas C. Jorling has stated, "Kodak's plan to improve the entire chemical storage tank system is a significant effort to enhance safety and environmental protection at its Kodak Park facility in Rochester."

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**Visual Inspections of Tanks - Low Cost, High Return**

by Joe McDonald, Central Office MOSF Coordinator

The federal Oil Pollution Prevention regulations, 40 CFR 112, and the NYS PBS regulations, 6 NYCRR Part 613, require that owners of Major Oil Storage Facilities (greater than 400,000 gallon capacity) regularly inspect their aboveground storage tank areas for leaks due to faulty equipment or even vandalism, and immediately clean-up any product which may have been lost. Most facility owners include daily walk-through inspections in their Spill Prevention, Control and Countermeasure (SPCC) Plans. They realize that early detection of a spill will greatly reduce the loss of valuable product and costly cleanup.

One employee working for Getty Oil and Refining, Rensselaer, found out just why these routine inspections are required. On Sunday, February 26, 1988 at 5:00 a.m. while performing a routine inspection, he discovered that a recently filled tank containing two million gallons of #2 fuel oil had a leaking bottom.

*Because of this facility owner's aggressive attitude of daily walk-through inspections, this facility has an excellent spill prevention history.*

Quick response by the employee included pumping water into the tank to float the product above the hole in the tank. This action prevented a major loss of product, and limited the spillage to 20,000 gallons, which was successfully contained in the secondary containment and pumped into another tank.

On August 29, 1988, the same employee was performing his inspections and found another two million gallon tank leaking. Again, his early detection and rapid response limited this spillage to less than 5,000 gallons of #2 fuel oil and required only a minor amount of cleanup effort to restore the site.

And, since events appear to occur in threes, on December 15, 1988, a pipeline used to off-load a barge was found to be leaking through a flange with a ruptured gasket. This spill was detected early by the same employee. Spillage was limited to 300 gallons of #2 fuel oil and was again easily cleaned up.

Because of this facility owner's aggressive attitude of daily walk-through inspections, this facility has an excellent spill prevention history. Frequent visual inspections and the implementation of leak detection equipment will clearly reduce the loss of product and the economic burden caused by the necessary clean-up to protect the environment.
Tank Upgrade Loans Available

Owners and operators who need capital to upgrade tanks can apply for loans guaranteed by the Small Business Administration (SBA) for up to $1 million per borrower.

SBA's guaranteed loans are available for "the planning, design or installation of a pollution control facility."

To be eligible, the borrower must:
- be independently owned and operated and not dominant in its field,
- meet SBA's generally applicable loan policy eligibility requirements, and
- qualify as a small business under SBA's definition.

SBA is notauthorized to provide direct financing. Loans may be made only through lenders under the administration's guaranty loan program.

To apply for a loan, submit plans or specs, cost estimates, copies of any applicable local, state or federal environmental regulations, and an SBA application form. For further information, contact Charles Hertzberg, Acting Associate Administrator, Finance and Investment, 1441 L Street, N.W., Washington, D.C. 20416, (202) 653-6574.

More Tanks Passing Tests

Data from the Rockland County Department of Health suggests that the percentage of underground tanks passing tightness tests has been steadily increasing over the past two years.

<table>
<thead>
<tr>
<th>Year</th>
<th>1987</th>
<th>1988</th>
<th>1989</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>67%</td>
<td>75%</td>
<td>77%</td>
</tr>
</tbody>
</table>

While this trend is encouraging, progress on eliminating leaking underground tanks is not being made as rapidly as expected. Twenty-three (23) percent of the tanks tested are leaking. Costs for cleaning up the contaminated soil and groundwater from spills statewide are estimated to have exceeded $50 million in 1989.

Financial Responsibility Mechanisms for Local Governments

The EPA is expected to publish new rules to help local governments which own or operate UST's to comply with the financial responsibility requirements of the Federal UST regulations. Local government entities include general purpose and special purpose organizations such as school districts. Proposed mechanisms include a bond rating test, a financial worksheet test, a guarantee by the State or other government entity, and a locally administered UST response fund. After publication in the Federal Register, there will be a sixty-day comment period.

Insurance Updates

We have been informed recently that Petromark, an UST risk retention group, received an unfavorable financial audit this Spring. As a result, Petromark will not be able to renew or issue additional UST insurance policies. Petromark's parent company, The Planning Corporation, expects to make available a new pollution liability program for USTs which will be underwritten by Lloyd's of London. Most Petromark insureds will be offered the option of purchasing the Lloyd's policy when their existing policies expire. Coverage will also be available to new applicants. For more information, call or write to Max Clay, President, The Planning Corporation at (703) 481-0200, 11347 Sunset Hills Road, Reston, Virginia 22090.

More Companies Offer Pollution Liability Insurance for NY UST's

The following is an update of insurance companies (arranged alphabetically) who have indicated to DEC that they can meet some or all of the financial responsibility requirements in New York. (DEC does not endorse these firms. They are included for reader information. UST owners and operators should consult appropriate counsel or professional advice pertinent to their needs.)

Front Royal Insurance Co. of Mclean

Contact: Mr. Kurt Bingerman, Environmental Liability Managers, Inc., 866 Ellicott Square Bldg., Buffalo, NY 14203-2545, 1-800-677-6779 OR Mr. Mark Smith, Smith Special Risk Assocs., Inc., P.O. Box 1745, Pearl River, NY 10965, (914) 735-8004.

General Star Management Co.

Contact: Dan McDonald, Bryson & Assoc., P.O. 545, Bever Hill South, Jeukintown, PA 19046, (215) 576-1500.

The following listing includes corrections to information on providers included in the last issue of the TANK BULLETIN.

Agricultural Excess and Surplus Insurance Company (AESIC)

Contact: Charles J. Weisblum, MLW Services, Inc., 100 William St., New York, NY 10038, (212) 697-4220.

American International Group (AIG)

Marketers with 26 tanks or more should contact: John Armore, President, Technical Insurance Division, American International Group, 70 Pine Street, New York, NY 12070, (212) 770-3148.

Oilmen's Insurance Plan

Contact: Peter Gerken, Oilmen's Insurance, 350 5th Ave., Suite 6805, New York, NY 10018.
What is a Site Assessment?

In December 1988, the EPA passed the federal Underground Storage Tank (UST) regulations (40 CFR Part 280). These regulations set forth strict rules for the underground storage of petroleum and hazardous substances including requirements that tank owners perform a site assessment to determine if any leaks or spills have occurred at their storage facility.

What Constitutes a Proper Site Assessment?

An assessment begins with a review of existing information, records and other documents which help to identify potential problems. The documents which should be reviewed include inventory records and records of water pump-outs. If records show that there have been unexplained inventory losses or if there have been frequent water pump-outs, there may be a leak. Geologic maps, soil reports, ground water maps and well records should be reviewed to determine permeability of soil, depth to water and direction of ground water movement. The types of product stored in the tanks over the years of operation should also be identified.

The next step is to visually inspect the site for contamination, monitor for volatile substances with field instruments, and collect and analyze soil and/or groundwater samples. The number and type of samples are site specific and, if a closure is being done, also depends on the closure method. For a tank removal, 3 to 5 sampling points may be sufficient to determine if the site is contaminated. If a tank is closed in-place and visual inspection of the soil beneath the tank cannot be made, more sampling points may be needed. A reputable firm with expertise in performing a site assessment should be consulted to conduct the site assessment, including collecting and analyzing samples.

It is much easier to collect soil samples from a tank excavation (i.e., a tank removal) than it is to drill or dig holes around a tank closed in-place. This is one of the reasons why tank removal is preferred to tanks closed in-place.

It is important to investigate the area around both the tank and piping system. Studies show that 70% of all leaks occur in the piping system.

If soil or water contamination is discovered during the investigation it must be reported to the DEC Spill Hot-line at 1-800-457-7362.

The final step of the investigation is to prepare a site assessment report. The report should include all monitoring data, location of samples, and results. This should be kept in your files for proof of compliance with the Federal Underground Tank Regulations and to demonstrate to your insurance company, bank or future buyer of the property that the site is clean.

"What Do We Have Here?" - Site Assessment Video Now Available

For further information on site assessments, there is a new video tape by the New England Interstate Water Pollution Control Commission (NEIWPCC), "What Do We Have Here?: An Inspector's Guide to Site Assessment at Tank Closure." Part 1 of this video describes the procedure on how to do a site assessment from beginning to end, including the field observation and analysis, documentation, and decisions to be made based on the site assessment. Part 2 describes the use and limitations of field testing instruments and Part 3 describes soil and water sampling techniques. This video can be borrowed from DEC by calling the Bulk Storage Help-line or can be purchased for $45 from NEIWPCC, 85 Merrimac St., Boston, MA 02114.

The federal UST regulations require in Subpart 280.72 that:

"...owners and operators must measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurements methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to ground water, and other factors appropriate for identifying the presence of a release."

When is a Site Assessment Required?

An assessment is required for any of the following situations:

- the tank is taken out-of-service permanently, or temporarily for more than one (1) year; or

- product stored within the tank is switched from a regulated to an unregulated substance.

In addition, EPA may require an assessment of tanks closed prior to December 1988 if there is reason to believe that contamination exists at the site.

Many insurance companies require a site assessment before they will write a pollution liability insurance policy. Banks may also require an assessment before granting a mortgage on properties.
When most people think of environmental spills, they visualize the Exxon Valdez sending out a miles-long oil slick or a tank truck overturned and leaking gasoline. Some may even bring to mind oil seeping from beneath a pile of burning tires, or pools of pesticide-contaminated water in the smoldering remains of a garden store. But environmental spills are occurring continually with approximately 10,500 spills from petroleum and chemical tanks alone being reported to DEC annually.

New York State has approximately 190,000 tanks which must meet minimum standards to operate in the State in order to combat against the problems associated with environmental spills. These tanks are regulated by the State Petroleum or Chemical Bulk Storage regulations and/or the federal Underground Storage Tank (UST) regulations. But what about the thousands of residential home heating oil storage tanks that are not regulated by the State because their total storage capacity is less than 1,100 gallons and are not regulated by federal UST regulations because home heating oil is exempt?

Home heating fuel oil storage tanks are usually 275 to 1,000 gallons in capacity and do not fall under the State or federal regulations. The number of residential storage tanks has been estimated to exceed 3 million in New York State alone.

Bare steel tanks like the ones used to store home heating oil probably pose a greater overall environmental risk than most spills that make headlines, according to Tom Quinn, chief of DEC's Bureau of Spill Prevention and Response. Many tanks are buried, making corrosion likely and leaks hard to spot. Even a small tank can leak surprisingly large amounts of oil into the ground - and into the groundwater, irreplaceable drinking water for more than one in every three New Yorkers.

In a recent survey of petroleum spills which occurred in Levittown, Nassau County in 1989, 54% of the petroleum spills reported to the NYS Emergency Spill Hotline: 1-800-457-7362, were caused by leaking residential fuel oil tanks or lines. State-wide, over 1,500 residential spills (12% of the spills reported across the State) were reported and investigated by DEC.

The number of spills that actually occurred from residential tanks is much higher. Many homeowners and some local fuel oil dealers are reluctant to notify State or local authorities until a spill has affected a private water supply or is creating an odor problem.

The most serious and immediate threat from a leaking residential oil tank is the fuel oil smell. Long term exposure to even low levels of petroleum vapors in a house is hazardous to human health. Short term reaction to petroleum vapors is generally noted by a sore throat, headaches and/or skin rashes.

In the majority of these spills, nearby private wells, public utilities, streams or cellars are impacted. A large number of private wells that do become contaminated are either replaced or require treatment with an activated carbon filter.

If the amount of fuel oil you use has increased recently, there may be a leak in your oil tank.

DEC recommends that tanks be checked periodically. Underground tanks which are over 20 years old are probably rusted and should be replaced.

Why are these tanks leaking?

During the 1950's and 60's, a large number of homeowners had their coal-fired furnaces converted to fuel oil. This required the bulk storage of fuel oil at their homes. Most of the 275 gallon steel tanks were installed in the cellars or outside next to buildings. The larger 550 and 1,000 gallon tanks were installed underground.

The Tank Corrosion Study conducted by Suffolk County Health Department in 1988 states, "In general, small tanks are much more likely to perforate than large tanks due to the thinner tank walls found in small tanks." Home heating oil tanks are constructed of lightweight and unprotected steel of 0.067 to 0.123 inches in thickness. Since most cellars are damp, the 275-gallon tanks will usually develop a leak in the bottom portion of the tank where moisture will collect and enhance corrosion of the thin steel. Also, tanks installed underground are exposed to corrosive soils and will eventually corrode and leak. Underground tanks that are over 17 years of age have a 50% chance of leaking, and many of the home heating oil tanks in the State were installed over 30 years ago.

Another source of leaks in home oil systems is the copper fuel oil feed line from the tank to the furnace. If when installed it comes in contact with a concrete cellar floor, it may develop a leak, since concrete appears to enhance corrosion of copper lines.

Who Pays for the Cleanup?

State law requires that the spiller pay for any cleanup that is required. "There are some horror stories out there," says Quinn. "Most homeowners do not know that they are responsible if their oil tanks or lines leak. So if the Department has to hire a cleanup contractor, owners are surprised to get billed for 8-, 10-, or 12-thousand dollars. And it is even worse when they later find out that their insurance policy has a pollution exclusion clause and will not pay the bill," he says.

Buried steel tanks are the riskiest, but costly damage can happen even when the tank is in a cellar.
A frequent cause of such spills is overfilling. "We had one spill that ran into the sump hole, and the sump pump picked it up and dumped it in the nearest stream. That cleanup was more than $40,000," Quinn recalls.

Quinn advised homeowners: "A bare steel home heating oil tank is a potential disastrous liability." Any bare steel tank is a spill waiting to happen and a lot of the tanks are already leaking.

Possible Solutions

Prevention of spills can be achieved without a large economic burden to the homeowner. A visual inspection by a fuel oil service personnel can usually detect some causes of a spill from an aboveground tank.

The likely problem areas are:

1) Storage tank is not structurally stable and may tip over.
2) Steel tank appears to be structurally sound, but the inside and bottom of the tank may be severely corroded and develop a leak or sudden rupture.
3) Overfill of a tank during a delivery, may be caused due to the lack of an inexpensive vent whistle, which acts as an overfill alarm.
4) Tank rupture during a delivery, caused by a restriction in the vent line due to a clogged vent screen.
5) Vent and fill pipes are constructed of PVC rather than steel. PVC joints may become disconnected during a delivery.
6) An abandoned fill line (with tank removed) is filled with oil by the oil distributor, filling the basement with fuel oil.

Inspection of a buried tank and fuel lines will be almost impossible to perform visually. Replacement of any tank and lines that are underground and over 20 years of age is highly recommended and is a wise investment for homeowners in the long run. Precision testing of tanks and lines is available, but may prove to be costly for the average homeowner.

Parts of the above article were excerpted from "Environmental Perspective," conducted by Mary Kadlec for DEC's The Conservationist, September-October 1989.

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**LEGAL TALK**

**Compliance Required for NY and Federal UST Regulations**

**Question:** I own an underground tank which is covered by both the New York State Petroleum Bulk Storage (PBS) regulations, 6 NYCRR 612-614, and the federal Underground Storage Tank (UST) regulations, 40 CFR 280 and 281. Do I have to comply with both regulations?

**Answer:** Yes. First, be sure your facility is in compliance with the State regulations. This will bring you to 90% compliance with federal requirements. To bring your facility into full compliance, follow these additional federal requirements as specified in 40 CFR 280 and 281.

- Conduct a leak detection program for tanks and pipes. This involves monthly monitoring of the tank and pipe for leaks or annual tank testing, phased in over the next three (3) years;
- Upgrade existing systems with cathodic protection and with spill and overfill prevention devices, by December 1998;
- Perform a site assessment at the time of tank removal or closure; and
- Install a spill catchment basin on fill ports (new systems);
- Be financially able to clean up a spill and pay for damages.

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**Summary of EPA’s UST Regulations Available**

The EPA’s UST regulations impose several important deadlines and offer alternative methods for compliance. To be in full compliance, you should read these regulations.

Two summary brochures which are also available are "Musts for UST’s," which covers technical requirements, and "Dollars and Sense," which covers financial responsibility. These are available from the U.S. Government Printing Office.

Ordering information is as follows:

"Musts for USTs"
A Summary of the New Regulations for Underground Storage Tank Systems
Stock No. 055-000-00294-1
$2.50 each (includes postage and handling)

"Dollars and Sense"
A Summary of the Financial Responsibility Regulations for Underground Storage Tank Systems
Stock No. 055-000-00293-2
$1.25 each (includes postage and handling)

Address to: Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
(202) 783-3238

Methods of Payment:
Visa or MasterCard by phone or mail (include account no. and expiration date). Prepay by check or money order.
SPCC plans are required for major oil storage facilities (over 400,000 gallons), by DEC (6 NYCRR Part 610); and for any oil storage facility with aboveground storage greater than 1320 gallons or any aboveground tank greater than 660 gallons, or any underground tank 42,000 gallons or more, by the federal EPA (40 CFR 112). In addition to the plan review, SPCC plan certification requires a site review and inspection. Every SPCC plan and major plan amendment must be certified by a licensed Professional Engineer.

This one-day workshop is designed to address Oil Spill Prevention Control and Countermeasure (SPCC) plans for most oil storage facilities in New York State. Current State and federal regulations and guidelines, including the NYS DEC December 1990 deadlines and proposed changes to the federal SPCC regulations will be covered. The workshop will guide owners and engineers in preparing the SPCC plan and will include a site review process description. The role of the professional engineer, SPCC plan amendments, and future regulatory directions will also be discussed.

Title: Oil Spill Plans in New York State
Coordinator: John Kruse, Ph.D., P.E., CCS Associates Consulting Engineers
Schedule: The course dates for the remainder of 1990 are July 20, September 14, October 12, November 9 & 16, and December 6 & 7. Call for other possible dates.
Time: 9:00 a.m. - 4:00 p.m.
Location: Rensselaer Center of Applied Geology, 15 Third Street, Troy, NY
Fee: $165.00

The Department requires that all new aboveground and underground petroleum storage systems be installed in accordance with strict standards for construction. To meet these standards, all newly installed storage tanks and pipes must be constructed of corrosion-resistant material or be provided with cathodic protection. Secondary containment and leak monitoring systems must also be included.

A 2-day Tank Installer Training Course is being offered by DEC and O'Brien & Gere, Inc. This course is designed to train installers of underground and aboveground storage tanks and operators of storage tank facilities on safe, reliable installation and operation practices, and testing, relining and closure methods. Relevant State and federal regulations will also be covered in the course. A course completion certificate will be provided by DEC to those participating in the course who achieve a minimum score of 80% on the three-hour competency exam.

According to the new federal UST regulations, tank installers must either be certified, have their work inspected by a qualified licensed engineer or demonstrate through other means acceptable to DEC that the system has been properly installed. This course does not certify tank installers at this time. The NYS Petroleum Bulk Storage (PBS) regulations will be revised as soon as the proposed amendments to the PBS Law are passed by Legislature. At that time this course is expected to become part of the requirement for certification.

The Tank Installer Course has now been offered 5 times at various locations across the State. Since the last edition of the TANK BULLETIN, this course was offered in Buffalo, Binghamton, and Newburgh by Russ Braaksieck of DEC and instructors from O'Brien & Gere. A total of 169 students attended these sessions. Of these, 82% passed the exam given at the end of the course, with 80% or better, and have received a certificate of completion for the course.

The course is now being revised to divide it into two segments to allow more time for discussion on underground storage tank installation and to allow contractors the option to omit the aboveground segment. There will be a two-day course on underground storage followed by a one-day course on aboveground storage. At the end of each segment, there will be an exam pertinent to the material of that segment.

The next series of courses will be starting in January 1991, after construction season is over. Locations for the course have not been selected yet.
Can a Tank Test Satisfy 10-Year Inspection Requirements?

The article on inspecting aboveground tanks which appeared in the last issue of the TANK BULLETIN seemed to imply that all aboveground tanks must be cleaned, entered and internally inspected. According to Part 612 of the regulations, any tank that is not completely covered is considered an aboveground tank. Therefore, the many partially filled fuel oil tanks in basements etc. are not considered underground tanks and would seem to require internal inspections. Technically, these tanks could be tested using only approved tightness test methods for tanks and piping just as for underground tanks. Such tanks should not need draining, cleaning, entering and non-destructive testing since these procedures are not required for underground tanks. Does DEC require internal inspection for all tanks considered aboveground according to the definition in Part 612?

Response: According to paragraph 613.6(b)(3), a tightness test may satisfy 10-year inspection requirements; however, a tightness test may not always be technically feasible. A tightness test will only be accepted if it can detect a leak of 0.05 gph, as required in paragraph 613.5(a)(6). Partially buried tanks with a capacity of 10,000 gallons or less may meet this criteria. However, for partially buried tanks larger than 10,000 gallons and all tanks entirely aboveground, most tightness tests cannot meet this criteria, due to the effects of thermal expansion, end deflection, etc. If a tightness test is not feasible, then an internal inspection must be conducted. The nearest DEC Regional Office should be consulted before conducting tightness tests for these tanks.

submitted by John Leddy, Pro-test Co., North Babylon

Lessons To Be Learned

Two main lessons can be learned from this spill. The first is that careful design, intensive facility inspections, and regular maintenance are needed if accidents are to be prevented. Equipment designs should be reviewed. If inadequate, reconstruction may be necessary. Measures should be taken to prevent frost heaving and for improving the integrity of the dikes especially where there is penetration of pipelines. Whenever possible, pipe collars should be used. Preferably, pipes should not be installed through a dike or over a dike where releases can occur from gravity or siphon flow.

The second lesson to be learned is that emergency response plans should be kept current; a spill can occur at any time, regardless of the condition of the facility. An up-to-date plan will facilitate prompt and effective action to prevent the initial spread of the spill. Plans should address any possible situations as how spills should be handled in cold weather, how containment areas will be sealed-off, and how oil supplies can be maintained in an emergency. A firm commitment from all parties involved must be reached regarding the cleanup procedures prior to commencement of work, to facilitate a prompt, orderly cleanup.

At approximately 8:45 a.m. on December 24, 1989, when most people's thoughts were on Christmas, a major accident was reported on DEC's Spill Hotline. A pipe had ruptured at the West Vernon Energy Terminal in Southern Westchester County, NY and No. 2 fuel was spilling into the dike.

Within a half hour of notification, DEC's Region 3 spill response team was at the scene. About 68,000 gallons had spilled. Nearly 40,000 gallons had already leaked through the dike into the ice-choked Eastchester Creek leading to Long Island Sound.

The Emergency Response Spill Plan kept at the terminal was pulled from the file to find the name and phone number of the company's standby cleanup contractor. Valuable time was lost when it was discovered that the plan was outdated and the contractor was not available for emergency response service. Because the spill was spreading with each minute of delay, DEC's emergency response contractor was mobilized.

At 11:40 a.m. nearly 4 hours after the spill, DEC's spill cleanup contractor: Emergency Environmental Services Inc. of White Plains, the US Coast Guard, and the Mount Vernon Fire Department were at the site beginning the long arduous task of plugging the leak in the dike and deploying containment booms.

The spill could not have happened at a worse time. Besides being Christmas, temperatures were sub-zero, making working conditions difficult for cleanup crew members. Chunks of oil-soaked ice floated in Eastchester Creek, making navigation and placement of containment booms a difficult task.

On Christmas day, a new problem emerged. The long cold spell which had plagued the East Coast during the month of December had created a heating oil shortage. Barges were now waiting to navigate through the contaminated area of Eastchester Creek to restock four upstream storage terminals. Granting passage of the barges would mean booms containing the oil would have to be breached. Spreading of the oil would result. The Coast Guard which had responsibility for cleanup activities had no choice. Supplies had to be delivered or thousands of people might go without oil to heat their homes.

For days, crews worked around the clock skimming and cleaning all ships passing through the boomed areas. Oil-soaked ice was corralled and pushed into a dead-end embayment, out of the traffic, where it could be removed, or melted with hot water to extract the oil. By January 4, approximately 60,000 of the 68,000 gallons released had been recovered.

As this newsletter goes to press, some contamination still exists. Cleanup continues at a cost expected to exceed $450,000 when work is complete.

Investigation into the cause showed that a pipe weld had broken, probably due to expansion of the oil within the pipe in the -12 °C cold weather. Frost which had caused the ground to heave beneath the pipe joint is also believed to have contributed to the problem.

Regarding the question of how the oil escaped from the secondary containment system, the study showed that the dike failed due to a leak where the pipe passed through the dike wall.

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Wanted: Unregistered Tanks

DEC is in the midst of a full-scale accelerated enforcement program to ensure that owners and operators of petroleum bulk storage tanks are in compliance with New York’s bulk storage laws.

Many of the more than 13,000 oil spills reported in the State in 1990 were caused by corroded underground tanks, poorly equipped facilities and operator errors. About 50,000 facilities are registered, but it is believed that as many as 20,000 additional facilities are not registered.

Eight enforcement teams of four to six people each are inspecting facilities across the State to verify that underground and aboveground tanks have been registered, inspected for leakage, and have the required overfill prevention equipment and secondary containment. Owners in violation could be subject to penalties of up to $25,000 per day.

"Tank owners and operators should be aware that compliance enforcement is an on-going program, not one that is limited to periodic sweeps, and they are urged to comply voluntarily before they are caught," Commissioner Jorling said. Call the nearest DEC regional office or the Bulk Storage Help-Line (1-800-242-4351) for assistance, registration forms and spill prevention requirements.

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New York State Department of Environmental Conservation

Mario M. Cuomo, Governor

Thomas C. Jorling, Commissioner
**PBS Fee Increase Proposed**

The NYS Department of Environmental Conservation (DEC) is proposing to increase Petroleum Bulk Storage (PBS) registration fees. The need for this fee increase is due largely to inflation which occurred since the program went into effect 5 years ago. With the existing fee structure, the PBS program will experience a revenue shortfall at the end of the next 5-year registration period (1996).

The existing and proposed fee schedules, 6 NYCRR subdivision 612.3(a), are as follows:

**Existing 5-Year Fee Schedule**

- $50/facility for capacities 1,100 < capacity (gal.) ≤ 5,000
- $150/facility for capacities 5,000 < capacity (gal.) ≤ 10,000
- $250/facility for capacities 10,000 < capacity (gal.) ≤ 40,000

**Proposed 5-Year Fee Schedule**

- $50/facility for capacities 1,100 < capacity (gal.) ≤ 2,000
- $150/facility for capacities 2,000 < capacity (gal.) ≤ 5,000
- $250/facility for capacities 5,000 < capacity (gal.) ≤ 10,000
- $350/facility for capacities 10,000 < capacity (gal.) ≤ 40,000

The fee increase is expected to be effective in January 1992.

The expected regulatory impact of this change is outlined in the Regulatory Impact Statement (RIS). The expected effect of this change on small business is discussed in the Regulatory Flexibility Analysis (RFA). A copy of the proposed change, the RIS, and the RFA are available upon request.

Any comments or questions should be directed to Angela Chieco or Dick Cowan at NYS DEC, 50 Wolf Rd., Albany, NY 12233-3520, 1-800-242-4351.

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**Aboveground Tanks Subject to National Oil Spill Bill**

Comprehensive oil pollution legislation, which includes the regulation of on-shore aboveground storage tanks (ASTs), was signed by President Bush on August 18, 1990. Owners and operators of on-shore ASTs which discharge oil, or pose the threat of a release, are liable for all removal costs and damages. Damages are defined to include injury, or loss of the use, of natural resources; the loss of real or personal property; loss of income, profits or impairment of earning capacity; and loss of revenue by the federal government, states or localities.

The "Oil Pollution Act" limits liability for on-shore facilities to $350 million. But in certain cases, the President may reduce liability limits for on-shore facilities to not less than $8 million. There is no limit on liability in cases where there is willful misconduct, gross negligence, or a violation of federal laws concerning safety, construction or operating standards.

The legislation, which was spurred by the Exxon Valdez spill, includes several provisions relating to ASTs. For example, the President is directed to report to Congress on the effectiveness of liners or other forms of secondary containment to prevent leaks or spills from on-land storage tanks. This provision was added in the wake of the Ashland Oil Spill disaster. No later than six months after the report is submitted, the President is required to implement any recommendations made. Both the Coast Guard and the Environmental Protection Agency are directed to implement any necessary regulations.

Other sections of the bill relating to ASTs are:

**Contingency Plans:** Based on criteria to be developed by the President, owners and operators of ASTs which "could cause both significant and substantial harm to the environment" in the event of a discharge of oil, are required to prepare detailed contingency plans to be reviewed by the President. Nationwide criteria will be developed by regulation under the Administrative Procedure Act to determine which on-shore facilities are required to submit contingency plans.

The national criteria to be developed should take into account: oil storage capacity, location of environmentally sensitive areas, and location of potable water supplies. The legislation emphasizes that the

(continued on page 11)
New Storm Water Regulations Affect 100,000 Industrial Plants

The federal EPA finalized regulations governing permit application regulations for storm water discharges on November 16, 1990. These regulations, 40 CFR 122 - National Pollution Discharge Elimination System (NPDES) Regulations for Storm Water Discharge, which went into effect on December 17, 1990, describe who must apply for a permit and what kinds of information must be submitted with an application. More than 100,000 industrial plants will be subject to these regulations.

The storm water regulations stem from the EPA's assessment that storm drains often discharge contaminated runoff directly into rivers, streams, lakes, and wetlands. The runoff often contains a host of pollutants, including oil and grease, toxics, and hazardous materials from industrial facilities.

These new regulations establish permitting standards for facilities discharging storm water, including storm water runoff, snow melt runoff, and surface runoff and drainage, associated with industrial activities. They require industries who operate petroleum storage facilities, perform vehicle repair, painting, lubrication, cleaning or fueling on premises to obtain a permit to discharge storm water that is mixed with chemical or industrial wastes.

New York industries which discharge waste waters into surface or groundwater have been required to obtain permits under the State Pollution Discharge Elimination System (SPDES) since 1973. The SPDES permit will satisfy the EPA requirements and there is no need to take additional action at this time.

Oftentimes, the waste water will require treatment in order to meet the discharge permit requirements. One of the allowable options for treatment of the storm water is an oil/water separator.

A paper, "New Regulations and Oil/Water Separators - How Are They Impacting Industry," was recently presented to the American Society of Plumbing Engineers, Central New York Chapter, by Gregory G. Aymong. The paper is available from the Highland Tank Company by calling John Phillabin at 814-893-5701.

EPA Extends Financial Responsibility Deadline

The U.S. Environmental Protection Agency has proposed an extension of the compliance deadline for financial responsibility for underground storage tank (UST) owners. The proposed extension affects those owners with 12 or fewer tanks at more than one facility, fewer than 100 tanks at a single facility and non-marketers with a net worth of less than $20 million. This group generally includes small gas stations and convenience stores.

The Agency has proposed an extension of the compliance date from October 26, 1991 to December 31, 1992. The extension is part of a broader effort by the Agency to reduce the cost of Federal regulations on small businesses, while at the same time ensuring the protection of human health and the environment.

New State Law Authorizes Environmental Liens

The New York State Navigation Law has been amended (by Senate Bill S2260-B and Assembly Bill A3399-B) to allow the Oil Spill Fund Administrator to file a lien on property when the owner fails to reimburse the State for monies spent for oil spill cleanup.

The lien may be imposed if the landowner fails to pay costs within ninety (90) days of a request by the State for payment.

The environmental lien must be imposed within six (6) years from the date of disbursement by the State for oil spill cleanup and removal costs and damages.

The lien against the real property shall continue until the claim against the property owner has been satisfied, becomes unenforceable or the lien is vacated by court order.

New State Law Authorizes Third-Party Recovery

The New York State Navigation Law has been amended (by Assembly Bill 8466-A) to authorize persons injured by a petroleum discharge to seek recovery from the discharger for the costs of cleanup and for direct and indirect damages. This legislation is an attempt to reduce the litigation time for third party claims which has typically exceeded five years.
How to Handle Storm Water Problems at Aboveground Storage Facilities

Tank Owners BEWARE!!! Sloppy housekeeping, drips and seemingly small and inconsequential spills can add up to a big problem at your site. If soil or equipment becomes contaminated, it follows that storm water (which effectively cleanses your site), will also be contaminated.

Discharges of contaminated storm water can be avoided or minimized by using best management practices (BMP’s), such as the following:
- practicing good housekeeping;
- installing storm shelters (roof canopies);
- segregating storm water; and/or
- treating storm water.

Tank owners who must take steps to eliminate discharges to the ground by installing secondary containment, must also properly dispose of surface water which collects within the containment basin. For these situations, the need to use “best management practices” is very important.

Avoid Trapping Flammable Vapors Beneath Roof Canopies

Gasoline is a very dangerous product because it readily generates vapors in the flammable range at ambient temperatures. It is this vapor, not liquid gasoline itself, which burns or explodes when mixed with air and an ignition source. In addition, gasoline has a very low flash point which means even the smallest source of ignition could cause an explosion.

The flammable limits of gasoline are 1.4 to 7.6%. Explosions may occur if gasoline is mixed with air within this range.

Good Housekeeping

Keeping diked areas, loading racks and areas around pumps and valves clean is an excellent way of preventing storm water contamination. Visual inspections for sloppy practices or leaking equipment seals should be done daily. A preventive maintenance program which includes rebuilding pumps and valves on a regular basis will help to ensure that they are reliable and leak-free.

Training of personnel and written operating procedures designed to help reduce accidental spillage are also cost effective measures which can be taken. Full compliance with DEC’s Petroleum Bulk Storage (PBS) regulations which require spill and overfill prevention equipment, regular testing, inspection and maintenance and other practices will limit the likelihood of spills.

If despite your best efforts, leaks continue to occur - as sometimes is the case at valves and pumps, it may be possible to rearrange the piping so that leaks are contained in a drip pan and sheltered from rain or snow.

Storm Shelters

Many tank owners are installing roof canopies over their secondary containment basin and equipment. For small areas, such roofs may be an economical way of preventing precipitation from entering the diked area and eliminating storm water problems altogether. When evaluating the cost of roofing, thought should be given to the cost...
of treating and disposing of storm water in the absence of roofing.

If you decide to use a roof, be sure it will effectively eliminate storm water. Also, it should be designed so that it does not trap flammable vapors beneath the peak. Vapor concentrations within the flammable limits can be explosive. Make sure you talk with your local fire and building code enforcement official(s) about requirements for building and venting before starting construction.

**Storm Water Segregation**

Storm water problems can be reduced by minimizing areas of contamination, by diverting it away from contaminated areas or by installing collection networks which separate clean storm water from contaminated water. Grading of the site, installing diversion ditches and berms are all economical ways of channeling water away from the site.

Treatment costs and cleanup expenses can be reduced by segregating storm water collected from valves, pumps and transfer stations from the storm water running off clean areas. It is easier to treat the smaller quantities of contaminated storm water from these areas than to handle a diluted and larger volume of water that results from mixing it with clean storm water from other areas of the facility.

**Storm Water Treatment**

Federal and State laws require that wastewater, including contaminated stormwater, be treated prior to being discharged to ground or surface waters. A SPDES permit is required from DEC.

Contaminated storm water must be either discharged to a municipal or industrial sewer (where it undergoes treatment) or it must be treated on-site. Discharges to a municipal or industrial sewer require the approval of the appropriate sewer authority.

If an on-site treatment method is used, the Department’s SPDES permit will require that discharges be within prescribed limits.

Treatment can be accomplished in several ways: with settling tanks, oil/water separators and in some cases carbon filtration, air strippers, and other techniques. The method of treatment depends on the concentration and type of contaminants in question and the location of the discharge.

Storm water contaminated with petroleum must be treated to reduce concentrations of oil and grease to 15 parts per million or less and to prevent a visible sheen. This is normally accomplished with a simple oil/water separator. If volatile chemicals are mixed into the storm water, the chemicals may vaporize without treatment if air temperatures are high and sufficient detention time exists.

In some cases, removal may be accomplished by air stripping. If contaminants cannot be discharged to the air or if dissolved organics are present, more sophisticated and expensive treatment methods such as carbon filtration may be needed.

A useful guidance manual on treatment technology entitled "Model NPDES Permit For Discharge Resulting From The Clean-up Of Gasoline Releases From Underground Storage Tanks," June 1989 is available from the EPA's Office of Waste Enforcement and Compliance. Their phone number is (202) 475-8488.

Monitoring of treated discharges must be performed to ensure that contaminants are equal to or lower than the permitted values. For petroleum storage facilities, sampling for oil and grease is usually done monthly and for benzene, toluene and xylene, quarterly.

If you suspect your facility has contaminated storm water, sampling and testing of the discharge should be done. Call your local DEC regional office for guidance on monitoring and for information on SPDES permits.
New Tank Can Leak, What’s New?

Editor's Note: The following article came from the notes of DEC's field inspector, Tom Lane. This account is typical of many investigations conducted each year throughout New York State.

What Happened?

In early January of this year, the Arkville Country Store in Delaware County discovered through its daily inventory measurements that water was accumulating in a 4,000 gallon bare steel tank. The tank had been installed in October 1985. It was connected with galvanized steel pipe to an existing 2,000 gallon tank of unknown age.

The top of the tank was uncovered, and a mised threaded vent line was found. Because the tank was located in an area of high groundwater and high surface water runoff, a mised threaded vent line could allow water to enter the tank. Consequently, the vent line was repaired, and the product and water levels in the tank were closely monitored. After a couple days, it was evident that water was still accumulating in the tank. The owners of the store notified DEC.

Whys: Cause Corrosion?

Corrosion of underground tanks and pipes is caused by electrical currents which develop between the steel tank/pipe and other metals which may be buried nearby. Currents may also develop on a tank which is buried in varying materials such as sand and clay, or which is partially buried in groundwater. In addition, corrosion may be caused by direct current entering and leaving a metal. Sources of direct current for underground tanks include stray current from railways or machinery.

The direction of the current determines whether the tank corrodes or not. For example, if a new tank is exposed to an old steel structure, copper, varying soil or groundwater, the electrical current will flow away from the new tank, and the new tank will corrode. When current leaves from a single point on the tank, corrosion will be concentrated at this one location, forming a hole which looks very much like a "bullet hole".

If the steel tank is buried next to a magnesium or zinc metal, the electrical current will flow toward the tank and no tank corrosion will occur. This is the principle behind cathodic protection of new underground tanks and pipes.
that they would remove the tank the next day.

Upon removal from the ground, the tank appeared to be in very good condition. The black coating appeared to be intact except for a few scratches on one end, and the scratched areas were not very rusty. Clean sand had been used for backfill around the tank. The level of the groundwater was about halfway up the side of the tank.

As the tank was pulled out of the ground and was being set on a trailer, water was running off its sides and dripping from the bottom. One of the owners found a hole. It was not readily apparent, but from one spot on the very bottom, the water continued to drip. There was a pinhole approximately one-tenth of an inch in diameter. However, there was no rust visible on the outside of the tank.

This occurrence was curious because, in addition to pinholes, most leaking tanks are severely rusted and pitted. Also, corrosion leaks usually take 15 - 20 years to develop.

What Does it All Mean?

In order to understand what happened, the process of corrosion needs to be understood. For an explanation of corrosion, see "What Causes Corrosion?" on the previous page.

In this case, the new tank was connected to an old tank. (Tanks can be connected by connecting vent pipes, or touching product piping or electrical conduit.) Because the electrical current developed between these two dissimilar metals will flow away from the new tank, the new tank will corrode leaving a hole in the new tank and rust on the old tank. Corrosion experts sometimes call this bimetallic corrosion. Corrosion occurs at an accelerated rate whenever two different metals come in contact, whether it be a new tank and an old tank, new tank and old pipe, or two different metals such as steel and copper. In fact, the average life of an independent bare steel tank is 18 years whereas the life of this tank was only 6 years.

It seems that many owners installed bare steel tanks in the ground just a few months prior to the effective date of New York's Petroleum Bulk Storage (PBS) regulations in December 1985, to avoid the requirements for using state-of-the art equipment and practices. Had the regulations for new installations been followed, this owner would have installed cathodic protection on the new tank and isolation bushings between areas of differing metals to prevent the corrosion process from occurring between the new tank and the old tank.

Fortunately, the hydrostatic pressure caused by the high groundwater seemed to prevent a large loss of gasoline. In addition, the maintenance of daily inventory records, as required by the PBS regulations, and prompt action by the owner of the Arkville Country Store, minimized the environmental damage in this sensitive situation.

Small Business Administration Loans for Tank Replacement

Owners and operators who need capital to upgrade tanks can apply for loans guaranteed by the Small Business Administration (SBA) for up to $1 million per borrower. These loans are available for the "planning, design or installation of a pollution control facility." Financing is provided through lenders under SBA's guaranty loan program.

A borrower must be independently owned and operated and not dominant in its field, meet generally applicable loan eligibility requirements and be considered a small business under SBA's definition.

To apply for a loan, submit plans or specs, cost estimates, copies of all applicable regulations, and an SBA application form.

For information on these loans, contact: Charles Hertzberg, Assistant Associate Administrator for Financial Assistance, Small Business Administration, 409 3rd Street S.W., Washington, D.C. 20416, phone: (202) 205-6490.
Improper Disposal of Used Motor Oil - An Environmental Dilemma

by Joseph McDonald, DEC Central Office

An estimated 120 million gallons of used motor oil are improperly dumped annually in the United States by "do-it-yourselfers" changing their automotive oil. The New York State Legislative Commission on Toxic Substances and Hazardous Waste has estimated that six million gallons of used motor oil is dumped each year in New York State alone.

Such practices can diminish surface water and groundwater quality. As an example, a single gallon of used motor oil from an oil change can ruin a million gallon water supply. Just a film of oil on the surface of a lake or stream will prevent the replenishment of dissolved oxygen, impair photosynthetic processes, and block sunlight, causing damage to freshwater and marine organisms with long term effects on many fish species.

Each year over 95 million gallons of vehicle lubricating oil are sold to service approximately 11,000,000 vehicles registered in New York State. Only 29 percent of this, or 28 million gallons of used motor oil, is collected for recycling each year.

Waste oil generators include government and private industrial fleet operators, service stations, auto dealers, quick oil change franchises and "do-it-yourselfers".

Oil generators store waste oil in their waste oil storage tanks. Waste oil transporters, who are properly permitted by this Department, will pick up this waste oil, charging the facility owner up to $0.30 per gallon. The transporter then delivers the waste oil to a fuel storage facility where it is blended with virgin oil and burned for heating, or it is brought to processing plants for re-refining. This re-refined oil then enters into the oil market again to be used as a lubricant.

Since 1978, this Department recognized that "do-it-yourselfers" need a place to dispose of waste oil in order to prevent "dumping" and to encourage recycling. Since then, the Department required any retailer selling over 500 gallons of motor oil annually and having an on-premises oil changing operation, to accept up to 5 gallons per person per day of waste oil at no cost, provided that their used oil tank is not temporarily filled to capacity. Those who change their own oil should dispose of used motor oil at any one of the thousands of service stations, auto dealerships and quick oil change franchises required to accept the oil.

The New York State legislature passed legislation in March 1991 which removed the requirement that the facility must perform oil changes, adding retail establishments which retail over 1,000 gallons of motor oil.

The public has been rather hesitant to take advantage of this disposal method. One possible reason is the ease of filling plastic bottles and placing them out for the trash. The public may also be discouraged by some retailers who have either not accepted waste oil or have posted signs indicating that their waste oil tank is full.

Retailers have had problems accepting the waste oil from some "do-it-yourselfers" because they have brought in waste oil contaminated with other liquids such as gasoline, anti-freeze, and household chemicals. Once the waste oil in the tank becomes contaminated, the retailer may then have to pay a transporter up to $1.00 per gallon for disposal.

Do-it-yourselfers must dispose of used motor oil properly. DEC requires large oil changing operations and retailers which retail motor oil to accept used oil at no charge.
Of the 13,317 spills reported to the Department in 1990, over 1,000 were directly related to the improper disposal of waste oil. The actual number of waste oil spills is much higher since Department notification is usually made only after someone is directly affected by the spill. Many of these spills were by people who, rather than dispose of the waste oil properly, decided to dump the oil into a sewer or onto the ground.

Proper Disposal - Solution to an Environmental Dilemma

Proper disposal of used motor oil should be the first step in the recycling chain rather than an environmental dilemma caused by unwarranted dumping. The estimated six million gallons of waste oil dumped annually in NYS should enter the recycling chain, be reclaimed, and become an asset rather than a liability.

Dropping off waste oil need not be a hassle. The "do-it-yourselfer" should realize a service or retail facility owner has the right to make some drop-off restrictions to limit delivery of contaminated waste oil. A facility owner's refusal to accept waste oil may be reported to the appropriate DEC regional office for investigation. Individuals should first attempt to resolve any problems by discussing the owner's policy before contacting the Department.

Small amounts of motor oil can be accidently spilled during an oil change. This waste oil that has been spilled on the ground should be absorbed with an absorbent material such as kitty litter, newspaper, paper towels or rags, and may be placed in the trash. This disposal method is acceptable for a limited quantity of this type of contaminated material.

API Issues New Standards


This recommended practice describes the corrosion problems characteristic in aboveground steel storage tanks and associated piping systems and provides a general description of the two methods currently used to provide cathodic protection against corrosion.


This recommended practice describes the procedures and practices for achieving effective corrosion control in aboveground storage tanks by application of tank bottom linings to existing and new storage tanks.


This standard is based on the accumulated knowledge and experience of owners, operators, manufacturers and repairers of steel storage tanks. The object of this publication is to provide guidance on the inspection, repair, alteration and reconstruction of steel storage tanks used in the petroleum and chemical industries.

Order requests can be mailed to: American Petroleum Institute, Publications and Distribution Section, 1220 L Street Northwest, Washington D.C. 20005. Phone orders are accepted from 9:00 to 5:00 EST by calling (202) 682-8375.

Help Us Update Our Mailing Lists and Cut TANK BULLETIN Costs

Some tank owners receive many copies of each issue of the TANK BULLETIN because they have facilities registered at a number of addresses. We hope that the extra copies are shared with others who may benefit from them. If extra copies are being discarded or if your mailing address has changed, please send us a change of address form indicating where we should send any correspondence, along with copies of the mailing labels from the TANK BULLETINS which you currently receive. Also, to help us determine which mailing list needs to be updated, the change of address form now allows a subscriber to indicate if he has a regulated facility.
Reader Asks about Responsibility for Antifreeze, Home Heating Oil, and Motor Oil

questions submitted by Robert A. Spence Jr., Vestal, NY

What are the laws regarding homeowners' responsibilities if a leak or spill occurs from heating oil tanks or lines?

According to Article 12 of the Navigation Law - Oil Spill Prevention, Control and Compensation, any person responsible for causing a discharge (of petroleum) shall immediately notify (DEC) ... no later than two hours after the discharge (and) ... shall immediately undertake to contain such discharge. Therefore, a homeowner would be responsible for a leaking home heating oil tank; although, an oil deliverer may be responsible for a delivery spill or overfill. The 24-hour Spill Hotline number is 1-800-457-7362.

What is the environmental classification of antifreeze? How should it be handled?

Although antifreeze is hazardous, it is not currently regulated as a hazardous substance by DEC. However, car and truck owners and service station operators are urged to dispose of used antifreeze safely and should be aware that improper disposal is dangerous to the environment.

The primary ingredient of antifreeze is ethylene glycol, a chemical which is toxic to humans and animals; therefore, the improper disposal of antifreeze can have serious consequences.

Ethylene glycol is a clear, syrupy liquid that lowers the freezing point of water. Its sweet taste may attract household pets to surface water and puddles containing used or spilled antifreeze. If drunk in sufficient quantity, it could result in an animal's injury or death.

DEC strongly recommends recycling antifreeze into a usable product. Many commercial establishments are developing programs to recycle used antifreeze, and growing numbers of service stations are using recycling equipment on-site. Car and truck owners who drain and flush the radiators themselves can bring the used antifreeze to community-sponsored household hazardous waste collection days.

However, if disposal is the only option available, then disposal in a public sewage treatment system with the prior approval of the treatment plant operator is the recommended practice. Most properly operated treatment facilities are equipped to treat and detoxify the ethylene glycol. However, no other automotive waste product should be mixed with the antifreeze prior to disposal because such wastes as used oil, brake fluid and gasoline cannot be treated at wastewater treatment facilities.

In addition, antifreeze should never be discharged to a septic system, storm drain or drywell. Doing so could destroy the septic system's operation and will contaminate groundwater.

DEC's Pollution Prevention Hotline is available to individuals and businesses with questions about the safe management and disposal of a wide range of commercial and household hazardous substances and wastes. Assistance from DEC experts can be obtained through the hotline weekdays from 9 a.m. to 4 p.m. Call 1-800-462-6553 (New York State only) or 1-518-457-4105 (outside New York State).

Who is responsible for the antifreeze, gasoline, and oil leaked at an automobile accident? What about the oil from a blown motor on highway or road shoulder?

According to Article 12 of the Navigation Law - Oil Spill Prevention, Control and Compensation, any person responsible for causing a discharge ... shall immediately undertake to contain such discharge. Therefore, the car owner would be responsible for cleanup.

Is kitty litter adequate for absorbing materials spilled at an automobile accident? If kitty litter is used, how is it disposed of?

Kitty litter is adequate for the cleanup of small spills of gasoline, antifreeze and motor oil. Disposal requirements exist when 220 lbs. of hazardous waste is generated and when 500 lbs. of non-hazardous waste is generated. Therefore, small quantities of contaminated kitty litter generated by a homeowner or car owner can be disposed of with household trash.
criteria should neither rely solely on the size or age of tanks nor should it omit smaller facilities that are near major drinking water supplies. Any criteria developed to select on-shore facility response plans will not preempt Superfund regulation or the regulation of ASTs under the Resource Conservation and Recovery Act, the Solid Waste Disposal Act, or the Federal Water Pollution Control Act.

Terminal Operations. The bill establishes two environmental advisory committees that would monitor oil terminal and tanker operations in Cook Inlet and Prince William Sound, Alaska. It also creates a presidential task force on the Trans-Alaska Pipeline System to conduct an audit and review of pipeline and terminal operations.

Oil Pollution Research and Development. The legislation creates an interagency coordinating committee to oversee federal research and development on oil pollution. The research program is to examine: technologies to prevent and clean up oil spills; ways to improve industry and government responses to spills; how to restore damaged natural resources; and long-term research on the environmental effects of spills.

Available Publications

The following information is available to the public by calling the Bulk Storage Help-line or writing to the DEC Central Office. There is a fee for the Spill Prevention Operations Technology Series (SPOTS).


- **Brochures**: PBS and CBS Registration: Underground & Aboveground Tanks, PBS Underground Tank Testing, PBS Aboveground and Underground Tank Installation; and PBS Upgrading Requirements.

- **List**: Petroleum and Chemical Bulk Storage Contractors and Services.


- **Guidance papers**: testing and closure.

Videos for Loan

The following videotapes are available for loan for a 2-week period.


- **Cathodic Protection Monitoring**: Steel Tank Institute (STI), 1988.

Important Dates

- **Summer 1992**: CBS Phase II regulations expected.


Bulk Storage Application Forms Revised

The Hazardous Substance Bulk Storage (HSBS) and the Petroleum Bulk Storage (PBS) application forms and instruction sheets have been revised. The revised forms must be used for any new transactions submitted to the Department, including new registration, ownership transfers, renewals, tank closures, new tank installations or information corrections.

The administrative procedure of submitting HSBS forms to the Central Office and the PBS applications to the appropriate regional office is still in effect. Anyone (i.e., consultants, contractors, management agents, operators, owners, etc.) with an inventory of blank obsolete forms should discard them at once and contact their regional office or the Bulk Storage Helpline to obtain copies of the new form(s) and instruction sheet(s).

To determine whether you have the correct form, refer to the upper left hand corner for the form number. For HSBS, the number is 93-19-4 (10/90)-26c. For PBS, the number is 93-19-1 (12/90)-26c. Also,
OSHA May Levy Big Fines in Inspections

The Labor Department’s Occupational Safety and Health Administration (OSHA), alarmed by the growing number of fires and explosions at petrochemical plants, has launched an intensive inspection program that could mean hefty fines - up to $10,000 for each violation - for companies that knowingly violate OSHA’s safety rules.

OSHA’s new inspection program targets big petrochemical companies with over 2,500 workers and includes oil refineries (SIC code 2821), manufacturers of plastics, synthetic resins and nonvulcanizable elastomers (SIC code 2869), and other industrial organic chemicals (SIC code 2911).

OSHA’s action comes on the heels of a flurry of petrochemical accidents like the one last July at an Arco Chemical Co. plant in Channelview, Texas that killed 17 workers and destroyed 2 steel tanks.

But OSHA’s new beefed up inspection program is limited to 18 states and is slated to end on September 30, 1991, according to an August 27 directive by Gerard Scannell, assistant secretary of OSHA.

By October 31, 1991, OSHA’s regional offices will be required to complete detailed reports evaluating the inspection program. The reports are to include information on facility hazards and will be made available to the public, says Sanjeeza Kanth, an OSHA safety engineer.

Big petrochemical companies in New Jersey, New York, Pennsylvania, West Virginia, Illinois, Ohio, Wisconsin, Texas, Louisiana, Oklahoma and Arkansas can expect visits by OSHA investigators. Other states like Virginia, Maryland, Indiana, Michigan, New Mexico, and the territory of Puerto Rico, have OSHA-approved programs and therefore have the option to participate in the inspections, or to develop their own plans.

OSHA investigators will inspect and evaluate safety operations at chemical production processes in addition to maintenance, servicing, construction and repair. The inspections will consist of interviews with management and employees, reviews of documentation, and evaluations of the standard operating procedures of at least one process safety unit to verify that the systems are implemented.

Investigators will be required to complete a detailed case file of the inspection, including answers to more than 100 questions covering a broad range of topics. For example, OSHA investigators will seek information on: the safety and health history of the plant; management and health systems; whether there are plant controls in place to detect deficiencies in fire prevention and response systems, atmospheric and low pressure tanks, etc.; plant labor/management safety and health committees; accident investigations and corrective actions; work place air monitoring programs; scheduled shutdowns for comprehensive maintenance; design considerations for reductions of hazards; the evaluation of safety personnel; worker safety training programs; chemicals used at the plant; environmental controls to prevent chemical releases; and written emergency evacuation procedures.

Also, investigators will be asked to give their "overall impression" of the plant as to its potential for a catastrophic accident. Factors to be weighed in formulating that opinion will be the results of interviews, information gathered, company controls and safeguards for contract workers, evidence of equipment or structural corrosion, and general maintenance of the plant.
PBS Upgrading Deadline Being Enforced

Malone, NY - In March 1991, DEC's Region 5 office signed a consent order with Malone Oil Company, Inc. for the unlawful storage of petroleum at their facility in Malone, New York. The company was penalized $5,000 for its failure to install a secondary containment system around its aboveground storage tanks, in violation of DEC's Petroleum Bulk Storage regulations.

The company is under order to empty all of its aboveground petroleum storage tanks as of March 1, 1991. By August 1, 1991, the company must either install a secondary containment system around its aboveground petroleum storage tanks or permanently close these tanks in accordance with the regulations.

Following a 5-year grace period, the Department is stepping-up enforcement of requirements for secondary containment. The enforcement order against the Malone Oil Company, Inc. is one of several actions underway as part of an intensified statewide compliance program.

New Bulk Storage Forms
(continued from page 1)

the old forms were 8-1/2 X 14 and the new ones are 8-1/2 X 11.

Renewals for HSBS and PBS will be pre-printed in the Central Office, using the new forms. (See the Fall/Winter 1990 issue of the Tank Bulletin for more details.)

Anyone with questions on completing the new form should call the appropriate regional office, or Bulk Storage Helpline and request to speak to someone in the Data Systems Section.

December 27, 1990 Deadline for Upgrading

Color Coding of Fill Ports // Gauging/Warning Alarms // Shutoff, Operating and Check Valves // Adding or Upgrading Secondary Containment

When adding or upgrading secondary containment, remember that a well designed diking system should:

- provide a barrier against fires and vehicular traffic;
- contain leaks from valves, pumps, and loose connections;
- contain overfills (usually product discharges from the vent lines);
- contain flow from valves left open by accident or by vandals.

To the fullest extent possible, all equipment and handling activities should be within the diking system.

FEDERAL UST PROGRAM

EPA Expected to Extend Financial Responsibility Deadlines

The U.S. EPA intends to extend the October 26, 1991 deadline for petroleum underground storage tank (UST) owners/operators who face financial responsibility requirements. The proposed extension affects marketers with 1-12 USTs, or with less than 100 USTs at one site; nonmarketers with net worth less than $20 million; and local governments.

The extension provides relief to small gas stations, convenience stores and other small businesses who are unable to obtain insurance or achieve compliance through other mechanisms. No new date for compliance has been set.

Cities, counties and other local public entities will have 1 year from the date which the EPA issues its final rule on additional mechanisms for local government financial responsibility. EPA expects to issue the rule in Fall 1991.

The remaining deadlines continue to be in effect.

January 24, 1989. Marketers with 1,000 or more USTs; and nonmarketers with a tangible net worth of $20 million or more.

October 26, 1989. Marketers with 100-999 USTs.

April 26, 1991. Marketers with 13-99 USTs at more than one facility.
Federal UST Regulations Require Leak Detection

The following article summarizes the federal leak detection requirements for storing underground petroleum and chemical products. Petroleum tank owners should be aware that in addition to the federal requirements, they must also perform a tightness test on tanks and pipes every 5 years, in accordance with the New York State Petroleum Bulk Storage regulations.

Tanks and piping must have a leak detection system acceptable to EPA.

The federal Underground Storage Tank regulations require storage tank owners/operators to check tanks and piping systems for leaks using one of several leak detection methods which are acceptable to the EPA. This requirement is being phased in from December 1989 to December 1993, depending on tank age. New tanks and piping have been subject to release detection requirements since December 22, 1988.

The acceptable methods for tank leak detection include monthly monitoring, or monthly inventory control with annual tank tightness testing for existing unprotected tanks or with 5-year testing for new/corrosion-resistant tanks. Monthly monitoring methods include automatic tank gauging, vapor monitoring, interstitial monitoring, groundwater monitoring, manual tank gauging, or other approved methods. The only "other approved method" to date is Statistical Inventory Reconciliation (SIR).

Manual tank gauging can be used by itself for monthly monitoring of tanks with a capacity of 1000 gallons or less. For tanks between 1000 and 2000 gallons, manual tank gauging will only satisfy the monthly inventory control requirements; therefore, tank testing must also be done to satisfy leak detection requirements.

The acceptable methods for leak detection for pressurized piping include automatic line leak detectors with annual line tightness testing or with monthly monitoring.

\[\text{EPA-Accepted Leak Detection Alternatives}\]

Source:
EPA
Musts for USTs
September 1988
The acceptable methods for suction piping include monthly monitoring methods or line tightness testing. According to 40 CFR 280.41(b)(2) of the regulations, suction piping is exempt from leak detection requirements if the below-grade piping is sloped so that the contents of the pipe will drain back into the tank when the suction is released.

Acceptable monthly monitoring methods for piping include the same methods as for tanks except automatic tank gauging.

Several of these tank and piping leak detection options must meet a probability of detection and a probability of false alarm if permanently installed after December 1990. All tightness tests performed after December 1990 must also meet the detection/false alarm probabilities. (Those leak detection methods permanently installed prior to December 1990 do not need to meet these criteria.)

Automatic line leak detectors must be installed by December 1990. However, only those installed after September 1991 must meet the detection/false alarm probabilities.

The deadline for automatic line leak detectors to meet the probabilities of detection/false alarm has been extended from December 1990 to September 1991.

According to the requirements established by the EPA, leak detection systems must be able to detect leaks with a probability of detection of at least 95%, with a probability of false alarm of 5% or less.

Table 1 lists the leak detection methods and the performance criteria which must meet the detection/false alarm probabilities.

In order to determine which equipment and methods meet the established detection criteria, the EPA has developed a test series, "Standard Test Procedures for Evaluating Leak Detection Methods." This series contains a procedure for testing the performance of each of the leak detection methods listed in Table 1 (except manual tank gauging which by its nature is not testable.) The EPA has also developed test procedures for Liquid-Phase Out-of-Tank Product Detectors, and Vapor-Phase Out-of-Tank Product Detectors. These are allowable methods which do not need to meet the detection criteria. The EPA test procedures for these methods were designed to ensure that these leak detection methods and related equipment perform adequately.

Owners/operators should verify that the leak detection equipment or method used on their tanks has been tested using EPA procedures and that it meets the detection/false alarm probabilities.

There are at least 10 independent firms in the U.S. which can perform these test procedures for manufacturers of leak detection equipment. These firms have not been reviewed or evaluated in any way. However, use of the same test procedures by each firm should yield uniform results regardless of the testing firm used. A list of these testing firms can be obtained by calling the DEC Bulk Storage Help-line.

When contractors or owners/operators are buying leak detection equipment or are having lines or tanks tested, they should

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### TABLE 1

<table>
<thead>
<tr>
<th>Leak Detection Method</th>
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<tr>
<td>Manual Tank Gauging</td>
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<tr>
<td>Tank Tightness Testing</td>
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<tr>
<td>Automatic Tank Gauging</td>
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<tr>
<td>Automatic Line Leak Detectors</td>
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<tr>
<td>Line Tightness Tests</td>
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</tr>
<tr>
<td>Statistical Inventory Reconciliation (SIR)</td>
<td>.2 gph</td>
</tr>
</tbody>
</table>

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(continued on page 9)
Complying with New York State’s Regulations for Secondary Containment

Existing Aboveground Storage Tanks Must Have Proper Secondary Containment Systems by December 27, 1990.

An important requirement of New York State’s Petroleum Bulk Storage (PBS) regulations is the upgrading or installation of secondary containment systems. Beginning December 27, 1990, tanks with a capacity of 10,000 gallons or more, or any smaller tank that could reasonably be expected to discharge petroleum to the waters of the State must have proper secondary containment. It must be constructed so that spills of petroleum will not contaminate groundwater or surface waters before a cleanup occurs.

The following are answers to questions frequently asked of DEC’s field inspectors about secondary containment.

What is Secondary Containment? Why is it Required?

Secondary containment usually consists of an impoundment floor and a dike around a storage tank for: 1) containing spills from tank overfills and equipment failure; 2) preventing the spread of fire to the tank; and 3) separating the tank from traffic and other hazards.

An alternative to the impoundment floor and dike is a diversion channel leading to a second tank or basin capable of containing a spill.

Industrial engineers have long recognized the benefits of installing secondary containment. Many of the national "consensus standards" which address the storage of petroleum products (NFPA, API, etc.) recommend secondary containment for aboveground storage. It has been a requirement of law and regulation in New York State since December 27, 1985.

Is Secondary Containment Required Around Small Tanks as Well as Large Ones?

Yes, secondary containment is required wherever there exists a chance of ground or surface water contamination as well as for any aboveground tank with a capacity of 10,000 gallons or more.

Will On-Site Soil Meet DEC’s Standards for Secondary Containment?

Historically, dikes constructed with on-site soils were primarily used as fire brake walls. Many of these
dike walls and floors have little retention capabilities. Petroleum spills would simply permeate into the ground and contaminate the groundwater or cause other environmental problems. The design standards for secondary containment are found in 6 NYCRR subsection 613.3(c)(6) of the PBS regulations.

According to subparagraph (ii) of this subsection of the regulations, if soil is used for the secondary containment system, it must be of such character that any spill onto the soil will be readily recoverable and will result in a minimal amount of soil contamination.

To determine the adequacy of an existing diking system, an owner or operator should first perform a permeability test of the soil. DEC recommends that you seek professional advice and obtain assurances that the existing system provides protection of the environment and is in compliance with the regulations.

If the soil is found to be impermeable to the product stored, then no upgrading is necessary. If not, upgrading is needed. Upgrading can be accomplished using impermeable liners or cores composed of materials such as polymers or clay as shown in Figures 1 and 2.

How Impermeable Should My Secondary Containment Be?

A secondary containment system must be able to contain petroleum long enough so that clean-up will prevent the petroleum from reaching surface or groundwater, and a spill would result in minimal soil contamination. Sand and gravel which have a permeability of 1 X 10⁻² cm/sec offer poor protection for the environment. Clay offers better protection. It typically has a permeability of 1 X 10⁻⁶ cm/sec.

Other materials which offer good protection are steel, concrete, plastic membranes and commercial clay products.

Just how impermeable to make your system depends on the product stored and the threat which exists at your site. Gasoline, which travels much faster than heavy fuel oil, should be contained in a more impermeable system. Extra precautions should also be taken if a water supply is nearby. It is usually a good practice to seek the advice of an engineer, geologist, or other expert.

What Documentation is Needed to Show that the System is Adequately Impermeable?

A soil permeability evaluation report by a qualified person will demonstrate compliance with the secondary containment requirements of the regulations. This report should be kept on file and made available to the DEC inspector when he or she visits your site.

If a Spill Occurs at My Facility, Will the Transporter, My Insurance Company or the State Clean It Up?

Transporters usually will take responsibility for spills that they cause. However, as the operator of
Design Criteria for a Secondary Containment System

Secondary containment systems are normally constructed of one or a combination of petroleum-resistant materials such as:
- steel;
- masonry or reinforced concrete;
- natural or sodium bentonite clay;
- native soils;
- liners made of polyvinyl chloride (PVC), Hypalon, HDPE;
- spray-on polymer coatings such as urethane or polysulfide; or
- asphalt with a spray-on liner.

The secondary containment system must also be in accordance with the National Fire Prevention Association (NFPA) #30.

It is recommended that the system be designed for a minimum of 10-15 years before repairs are needed.

Design criteria for secondary containment should also take the following characteristics into consideration:
- resistance to deterioration and cracking caused by freezing, thawing, and UV light;
- resistance to damage from vehicle traffic that may need to enter the area;
- can be installed with minimum disturbance to operations;
- ease of inspection and repair;
- resistance to damage during a spill cleanup;
- enhances cleanup capabilities;
- compatibility with petroleum;
- provides a good seal around protruding lines and supports;
- proper collection and discharge of rain water collected in the containment area is achieved;
- availability of resources for installation;
- provides long term protection;
- access to the facility for installation; and
- can be installed economically.

Will the State Inspect My Facility for Compliance with the Regulations?

Yes. One of DEC’s regional bulk storage engineers will assist you with the inspection of your secondary containment system and provide guidance for upgrading. For guidance on concrete or liner systems, see the articles in the Fall/Winter 1990 issue of the TANK BULLETIN. DEC does not, however, have the resources available for testing the permeability of the dikes and floors or for designing the system.

What is the Cost of Secondary Containment?

The cost is estimated at $0.70 to $1.50 per square foot for material and an additional $0.50 to $1.00 per square foot for installation. With such high initial installation costs, owners and operators should carefully review secondary containment needs and should seek professional assistance when necessary.

Where Can I Get More Information?

For information about the petroleum or hazardous substance bulk storage program, call the local DEC regional office or the DEC Bulk Storage Help-Line at 1-800-242-4351.

About the Author

Joe McDonald is the Department's Central Office Coordinator of the Major Oil Storage Facility (MOSF) licensing program. Joe began his career with DEC 17 years ago and has over a decade of experience as an MOSF field inspector and oil spill responder in DEC’s Region 4 Office.

the facility, you may have some liability if you have failed to comply with the regulations.

As for the responsibility of insurance companies, read your policy carefully. Pollution liability coverage may not be included for storage facilities lacking adequate secondary containment.

Regarding State funds for clean-up, none are currently available except for orphan spills or emergency response. As the facility owner, clean-up is your responsibility. If it becomes necessary for DEC to use the spill fund for corrective action, the spiller is billed for all direct and indirect cleanup costs plus interest, penalties, and administrative charges.
verify that the equipment and method used has been tested by the manufacturer in accordance with the EPA procedures, by a qualified independent firm, and that the equipment and method meet the detection criteria. The report which is generated upon completion of the testing, is commonly referred to as third party certification.

A video describing the leak detection methods acceptable to EPA is available for loan or purchase.

For more information about leak detection methods which are acceptable to EPA, a new video, "Straight Talk on Leak Detection," has been produced by Environmental Media Center for the EPA. This video covers internal methods (i.e., inventory control, manual tank gauging and automatic tank gauging), external methods (i.e., vapor monitoring and groundwater monitoring), interstitial methods (i.e., monitoring of double walls, jackets, bladders and liners) and piping leak detection (i.e., pressure and suction systems).

This video tape can be borrowed from NYS DEC by calling the Bulk Storage Help-line. It can be purchased by calling 800-522-0362 or sending $40 to: Environmental Media Center, 1050 17th Street, N.W., Suite 770, Washington, D.C. 20036.

Announcing: SPOTS

New York State DEC has undergone organizational changes resulting in the move of the Bureau of Spill Prevention and Response from the Division of Water (DOW) to the Division of Construction Management (DCM). As a result, the Bureau has renamed its technical guidance series. TOGS (Technical Operations Guidance Series) which was part of DOW, is now SPOTS (Spill Prevention Operations Technology Series).

DEC Offers Guidance on Site Assessments

The Spill Prevention Operations Technology Series (SPOTS) memo, "Site Assessments at Bulk Storage Facilities," SPOTS 14, will be available shortly. This document describes the steps that should be taken in performing a site assessment in order to fulfill the requirements set forth by the federal EPA in the Underground Storage Tank regulations (40 CFR Part 280). These steps include review of background information, field observations, field measurements and analyses, possibly lab measurements and analyses, and an exposure assessment. Proper reporting and record keeping are also discussed in this SPOTS.

Petroleum and Chemical Bulk Storage Contractors List Now Available

The Department now has available a list of contractors who provide various services for the bulk storage of petroleum and chemicals. This list was compiled from responses to a survey that was conducted by DEC during the summer and fall of 1990.

The list provides information on the services which these contractors provide, including:
1. tank installation type (aboveground or underground),
2. testing of cathodic protection systems,
3. tightness testing of underground tanks,
4. internal inspection and non-destructive testing of aboveground tanks,
5. tank closure, and
6. site assessments.

The list also indicates those DEC regions where the contractors would be willing to provide services.

This list is available for public information and is not an endorsement of the qualifications of the company or of the quality of the services that will be provided. A company does not need to appear on this list in order to qualify to do work in New York State.
Reader Asks about Color Coding and Secondary Containment for Tanks in Basements

If a tank is wrapped with, or enclosed in, cinder or concrete block or poured concrete materials, as is specified in New York City Building Code for oil tanks, does this satisfy PBS requirements for secondary containment of aboveground tanks or is it necessary to apply a coating?

Submitted by Precision Combustion Consultants, Bronx, NY

Wrapped Tanks

Because weep holes are provided along the bottom of wrapped tanks for purposes of detecting a tank leak, the tank wrap is breached and cannot, by itself, be considered as meeting the secondary containment requirements of the NYS PBS regulations. In such cases, another means must be used to satisfy secondary containment requirements. This may include a product-tight room or basement, or structures such as curbs, impoundments or dikes. Drains should be covered and door sills should be high enough to contain the capacity of the largest tank in the room.

Vaulted Tanks

An enclosure (vault or tank room) which conforms to the New York City Building Code for aboveground fuel oil tanks with a capacity greater than 1,100 gallons, can be used as secondary containment provided that it meets the secondary containment requirements of the PBS regulations, i.e., that it will contain a petroleum spill or leak until cleanup occurs.

Tank owners/operators or preferably, their consultants, should inspect the condition of the vault or tank room, including the floors, walls, pads, access, etc., for general system deterioration, cracks or other breaches in the floor or wall structure, floor drains which lead to storm sewers, pipe penetrations, sumps, or any other site-specific factor that would adversely affect the integrity of the secondary containment system. The length of time for a release to be discovered and cleaned up should also be considered. The longer it takes for a release to be discovered and corrected, the greater must be the integrity of the secondary containment.

If the integrity of the secondary containment is not adequate, then repair or upgrading is necessary. Repair or upgrading might include repair of brick or block work, patching concrete, caulking or sealing floor drains or other openings, or coating the floor and wall to make it impermeable. Applying a coating to the entire structure makes cleanup easier and quicker, but it is not a requirement of the PBS regulations provided that the enclosure is capable of containing any spilled petroleum.

In the absence of an API designation of fill port color coding for #4 and #6 grades of petroleum, what means should be used for the color coding of these fill ports? Would stenciling of proper wording on the sidewalk or pavement adjacent to the fill port be considered acceptable?

Submitted by Precision Combustion Consultants, Bronx, NY

In the absence of an API color code for #4 and #6 fuel, it is recommended that the words "#4 fuel oil" or "#6 fuel oil" be stenciled on the fill port or on the sidewalk, pavement, or wall next to the fill port. An alternative recommendation is to use a green hexagon with the fuel oil grade number stenciled inside the hexagon in a contrasting color.
Secondary Containment Could Have Saved Big Cleanup

Moreau - A spill of No. 2 fuel oil occurred at a facility in Moreau on March 4, 1991 when an aboveground 17,000 gallon tank was overfilled. Due to the lack of secondary containment, the spill ran down an embankment and onto stagnant water in the parking lot. A vacuum truck was used to collect the free product, and the tanks were moved so that contaminated soil underneath the tanks could be removed. Secondary containment is also being installed at this time.

Oil Deliverers: Know Your Tanks!

Truthville - On March 14, 1991, the Warrensburg office received a call regarding a 275-gallon tank overfill in Truthville. The overfill occurred because the bung in the top tank had been removed. The driver could not see the tank which is located in the cellar of a private residence. Evidently, he did not listen for the tank's "whistle" either. Approximately 560 gallons of oil was delivered, 285 of which escaped into the cellar which is outfitted with a drainage pipe. This pipe terminates in the back of the residence, approximately 700 feet above the Mettowee River. Fortunately, the fuel puddled primarily in the cellar and the Mettowee was not threatened.

Available Publications

The following information is available to the public by calling the Bulk Storage Help-line or writing to the DEC Central Office. There is a fee for the Spill Prevention Operations Technology Series (SPOTS).

- PBS Law, Regulations and Applications.
- MOSF Laws, Regulations, and Applications.
- Federal UST Law, Regulations and Notification Form.
- Brochures: PBS and CBS registration, PBS testing, PBS aboveground and underground tank installation, PBS upgrading requirements, and MOSF licensing.
- List of Petroleum and Chemical Bulk Storage Contractors and Services.
- Spill Prevention Operations Technology Series (SPOTS): testing of underground petroleum tanks, secondary containment for underground tanks, inventory control for underground petroleum tanks, inspection of aboveground petroleum tanks, overfill prevention equipment for petroleum tanks, underground petroleum piping systems, manufacturer's technical guidance for hazardous substances, and alternate fuels regulation.
- Guidance papers: testing and closure.

Videos for Loan

The following videotapes are available for loan for a 2-week period.

Tank Closure:

Tank Installation:

Leak Detection:

Important Dates

December 27, 1985 - PBS regulations in effect.
December 27, 1986 - Initial PBS facility registration deadline, and construction standards in effect.
December 27, 1987 - PBS initial testing due.
July 15, 1988 - CBS Phase I regulations effective.
December 22, 1988 - Federal UST regulations effective.
July 15, 1989 - Initial registration of chemical storage CBS tanks due.
December 27, 1990 - PBS & MOSF upgrading requirements and initial 10-year aboveground tank inspections due.
Summer 1992 - CBS Phase II regulations expected.
December 31 - Applications due for MOSF licenses.
March 31 - Major facility MOSF licenses expire.
Spill Cleanup Technologies Researched at DEC

A Note From the Editor:

An industrial society such as ours faces many political, social, economic and environmental problems. Petroleum products and other chemicals are widely used by industry for manufacturing and fuels. Because we are all human, accidents will occur and chemicals will be released to the environment. It is imperative for us to strive toward eliminating releases, and to remove and recover spills when they occur.

This issue is dedicated to innovative treatment technologies which can be used to diminish the environmental impacts of spills. The treatment of contaminated soil and groundwater, for example, has evolved greatly in just the past five years. Simple excavation and disposal options have become less desirable since this approach merely moves the contaminated material from the original spill location to a new location. By treating the contaminated material, the petroleum products and other chemicals can be removed, rendering the materials environmentally-safe.

As society prudently strives toward safer construction and handling procedures and more effective spill cleanups, treatment technologies will continue to be developed to achieve those objectives. DEC continues to encourage the treatment of contaminated material rather relocation, and to work towards achieving a permanent solution to the problem of petroleum and chemical releases.

Sue Lasdin, P.E., Editor
The NYS Department of Environmental Conservation (DEC) issued the final Petroleum-Contaminated Soil Guidance Policy in August 1992. The Policy has been issued as DRAFT for the past two years. The final document presents the first soil guidance levels of any kind issued by the Department.

The primary purpose of the Policy is to provide guidance in the remediation of petroleum-contaminated soil. The policy establishes contamination limits for soil remediation, when total removal of the petroleum products is not achievable. The Policy identifies guidance values for petroleum contaminant levels which provide protection of groundwater quality, human health, and the environment, and reuse options for contaminated soil which satisfies these guidance values.

Groundwater quality protection is determined by analyzing the leachability of the contaminants in the soil using the Toxicity Characteristic Leaching Procedure (TCLP). The leaching procedure is used to extract petroleum products which may be "locked into" the soil. The "leachate" is analyzed for the contaminants of interest. The concentrations found in the extract are compared to the corresponding groundwater or drinking water standards, whichever is more stringent, to determine acceptable levels of leachability.

Satisfactory protection of human health is determined by measuring the contaminant concentrations in the contaminated soil. The soil concentrations are compared to Human Health Guidance Values established by the USEPA. These guidance values are derived from tests which examine the health effects related to the ingestion of contaminated soil by humans.

The main nuisance characteristic to be prevented is petroleum odors. Since there is no reliable odor detection instrument, odor detection is performed by a person’s nose. Therefore, an odor determination is made by the DEC spill investigator when at a spill scene.

The Policy establishes a 10,000 parts per billion (ppb) maximum concentration for any individual contaminant, in an effort to minimize or eliminate odor detection issues. The 10,000 ppb limit may also force treatment of soil if contaminants are present at high concentrations but satisfy all other guidance criteria. The absence of petroleum odors and having all individual contaminants at concentrations below 10,000 ppb satisfies the nuisance protection criterion.

The Policy identifies two primary testing methods for analyzing soil and TCLP extracts. The two methods are EPA Method 8021 for volatile compounds, and EPA Method 8270 for semi-volatile compounds. Alternative testing methods are allowed with prior approval from the DEC spill investigator.

The Policy contains several changes from previous drafts which have been used informally during the past two years. Everyone must now conform to the final Policy.

DEC believes that the Policy establishes achievable guidance values that are protective of groundwater, human health and the environment. By utilizing the Policy, on-site treatment of petroleum-contaminated soil is a more viable option to a spiller, and hopefully will minimize the dumping of contaminated soil at landfills.

A copy of the Policy can be obtained by writing to:

NYSDEC Petroleum-Contaminated Soil Guidance Policy
50 Wolf Road, Room 340
Albany, NY 12233-3520
Tank Testers Can Save Time and Money

by George May, DEC Central Office Spill Hotline Operator

Time is one of many elements which have an affect on every business. A strong temptation to save a tank tester time is to have the client call the NYS DEC Spill Hotline to report a tank test failure instead of calling himself. Historically, information received directly from the technically-oriented, professional tank tester with first-hand information has been excellent. Yet oftentimes, a clerical person gets "stuck in the middle" and is told to..."call it in to the Hotline." This often leads to many phone calls and lots of frustration while attempting to communicate all necessary information.

Tank test failures are considered suspected leaks; therefore, they must be reported to the NYS Spill Hotline within 2 hours of determining a failed test.

As we strive to improve the quantity and quality of information derived from these reports, and to keep costs down by responding promptly, we are asking that all tank test notifiers become familiar with the information required when reporting a spill.

The information required for the operator to complete the initial spill response form includes the spiller's name, the notifier and caller's name(s) and address(es), the spill date and time, the type of petroleum spilled, the quantity spilled or the size of tank(s), the spill location information; owner name, address, and phone number, the spill cause (i.e., tank test failure,) the spill source (e.g., gas station, commercial building, private dwelling, etc.,) the resource affected (e.g., a leak from an underground tank could affect the groundwater,) what was tested (i.e., the tank system, the tank alone or the piping alone,) the leak rate, and the test method used.

Storm Water Discharge Permit Applications Due October 1, 1992

Permit applications for "storm water discharges associated with an industrial activity" are due to DEC on October 1, 1992. DEC has already contacted operators of "municipal separate storm sewer systems," defined in the regulations, about permitting requirements.

These requirements resulted when the scope of the federal NPDES regulations was broadened to include storm water, and are the responsibility of DEC to implement through its SPDES program. The regulations are complex and should be consulted for a complete listing of activities requiring a permit.

What is covered?

There are eleven types of industrial activities defined in 40 CFR section 122.26(b)(14) for which storm water permits are required. Petroleum bulk storage facilities which are included are those whose primary purpose is to store and dispense petroleum, such as terminals which wholesale petroleum to retailers.

What Action Must Dischargers Take?

According to the federal regulations, applications for storm water discharges associated with industrial activity, which do not have an effective SPDES permit covering the storm water outfalls, must be submitted for either: (a) an individual permit; (b) a permit through a group application; or (c) coverage under an issued General Permit, by October 1, 1992.

For a new or existing discharge from a facility which does not require a SPDES permit for process, cooling, or sanitary wastewater or any other DEC permit, DEC is issuing two General Permits, one for construction activities and one for all other activities. You must file a Notice of Intent with DEC to be (continued on page 9)
TC Rule Updated

It has been almost two years (September 1990) since the US EPA Toxicity Characteristic (TC) Rule, 40 CFR 261, went into effect. The rule identified twenty-five new compounds which, if found in sufficient quantity in a Toxicity Characteristic Leachate Procedure (TCLP) extract, would render petroleum-contaminated soil (PCS) a hazardous waste. The rule caused quite a stir in both the industrial and regulatory community. The cause for concern centered around the compound benzene, which was identified in the list of twenty-five new compounds. If the soil contained concentrations of benzene in a TCLP extract exceeding 0.5 parts per million (ppm), the soil would be considered a hazardous waste.

The ramifications of the rule appeared ominous. There was no appreciation by the New York State Department of Environmental Conservation (NYSDEC) or by EPA as to how frequently PCS material would fail. The cost of conducting TCLP extractions was also very high. Adding to the confusion, the TC Rule exempted petroleum-contaminated soil from underground storage tanks (UST) regulated by the EPA's UST program. Soil from some underground petroleum storage tanks, regardless of the amount of benzene in the material, could be handled differently than the same type of material which came from other sources. Many landfills which had previously accepted petroleum-contaminated soil now either refused to accept any more or required expensive testing to prove that the material was non-hazardous.

The NYSDEC immediately petitioned the EPA to exempt all petroleum-contaminated soil, regardless of its origin, from the TC Rule. Much of the unexempted PCS material would have to be taken to a limited number of permitted hazardous waste treatment facilities at significantly higher costs since much of the soil would be a hazardous waste.

Promising new treatment technologies, such as mobile soil treatment units would require having a permit to treat hazardous waste, which is an arduous task.

The treatment and handling of petroleum-contaminated soil and groundwater would become much more expensive and complicated since the material would be classified as hazardous waste.

The NYSDEC petition was gradually supported by many other states and private industry as the impacts of the Rule became more apparent.

The EPA is working on changes which would provide for a suspension of the Rule in states that demonstrate they have adequate pollution response programs in place. To demonstrate an adequate program, a state may have to have statutory authority to require cleanups, an effective cleanup program in place, and enforcement capability.

The EPA is considering a three-year suspension to further complete appropriate changes. They may also ask for comments on whether to limit the size of petroleum spills that could be exempt from the regulation rather than exempting all spills.

The rule-changing proposal was expected to be published during summer, 1992. Until the new rule is published, it is business as usual. All petroleum-contaminated soil should be tested for benzene content using TCLP. Any soil from a non-UST source, which is determined to have greater than 0.5 ppm benzene should be handled as a hazardous waste.

Hazardous Substances Manual Now Available

Storing and Handling Hazardous Substances, a guidebook prepared by NYS DEC and O'Brien and Gere Engineers has recently been published. The manual offers guidance on acceptable management practices in storing and handling hazardous substances. It also references standards offered by technical and professional societies.

The Department will be distributing about one-hundred copies of the manual to members of the regulated community on a first come - first serve basis. Additional copies may be obtained from:

The Health Education Services
P.O. Box 7126
Albany, NY 12224
or by calling (518-439-7286). These copies will be available a cost of $15 per copy.
Sparging Can Reduce VOC Remediation Costs and Time Frames up to 50%

submitted by Groundwater Technology, Inc.

Air sparging used in conjunction with vapor extraction is now a primary treatment method for soils and groundwater contaminated with volatile chemicals.

According to Richard Brown, Ph.D., director of remediation technology for Groundwater Technology, Inc., sparging extends the principles applied in soil vapor extraction (venting) to adsorbed chemicals below the water table, which are inaccessible to venting. Sparging often makes it possible to reduce the typical cost of treatment as well as the treatment period for sites contaminated with volatile chemicals.

Air sparging is the highly controlled injection of air into the groundwater. Air bubbles travel horizontally and vertically through the soil creating air pockets in which volatilization can occur.

Air is injected and flows through the groundwater and soil particles.

Air bubbles that contact contaminants in the aquifer will collect the volatile chemical contamination.

The volatilized chemicals are carried by the air bubbles into the soil layer above the groundwater table where they can be captured by a venting system. Moreover, the sparged air contains a level of oxygen which enhances natural biodegradation.

Air sparging also creates turbulence and increases mixing in the groundwater. This will stimulate volatilization of chemicals in the groundwater, which can also be recovered.

One of the first commercial air sparging/venting systems to be employed was used to treat groundwater contaminated with dry cleaning solvent and heating oil. After 125 days of operating the treatment system, soil and groundwater contamination was reduced by 98%.

One concern regarding sparging is that the accelerated vapor movement created by sparging may cause contaminant vapors to migrate into nearby basements and sewers. This problem is resolved by using venting systems to intercept the vapors.

A second concern is that a misused sparge system could actually push the contamination away from the site. Therefore, geological conditions and optimal pressures must be determined by meticulous testing prior to system implementation. Groundwater pumping may be necessary along with sparging to prevent the spread of contamination.

While the equipment required for sparging is often quite simple, compact, and low in cost compared to previous generations of treatment systems, the evaluation criteria, design tolerances and engineering are far more exacting.

The most common method for groundwater and soil clean-ups has been groundwater pumping and treating. Pump and treat technology removes water from the ground and then treats the water to remove the contamination. Pump and treat operations typically take over 5 years to clean up a site. With the development of air sparging technology, the groundwater and soil are treated in the ground. Air sparging technology may reduce clean-up timeframes to less than 1 year.
Bugs Eat Oil Spills

by Christopher O’Neill, P.E., Central Office Environmental Engineer

Bioremediation puts Mother Nature to work for a spiller, to degrade petroleum products spilled or leaked into the soil and/or groundwater.

Bioremediation utilizes naturally-occurring bacteria, fungi and yeast, to degrade petroleum into less harmful compounds, such as carbon dioxide and water. The petroleum is used as food by the microorganisms, "bugs," to obtain energy to grow. Like all living things, microbes need nutrients, such as nitrogen and phosphorous, to survive and grow.

Aerobic bacteria are most often used to degrade petroleum products because they can convert hydrocarbons to carbon dioxide and water when supplied with sufficient nutrients and oxygen. Anaerobic bacteria do not require oxygen to degrade petroleum products; however, they convert hydrocarbons to methane and hydrogen sulfide. Anaerobic bioremediation, therefore, must address the production of odors and potentially explosive gases.

Biodegradation is a naturally-occurring process, but a number of environmental conditions can slow down or stop the process. By careful control of environmental factors, it is possible to optimize the degradation rates. For example:

- The concentration of the petroleum hydrocarbons may be so high that it is toxic to the "bugs." Other chemicals, contaminated soil, or wood chips are used sometimes to reduce toxicity so that biodegradation can occur.

- The number or type of "bugs" may be inadequate for degradation. Naturally-occurring microorganisms which are proven to be efficient petroleum degraders are often introduced to the soil or groundwater to boost the existing microbial populations to consume the contamination.

- Conditions may be too acidic or alkaline. Fertilizers and lime can be used to control the pH of contaminated soil.

- The microbes may lack sufficient nutrients, such as nitrogen, phosphorus, potassium and sulfur, to utilize the petroleum as a food source. Commercial fertilizer blends can be used to optimize the availability of nutrients for the "bugs."

- Moisture conditions may be unfavorable. Water is generally used to distribute microorganisms, nutrients, oxygen and other chemicals to the contaminated soil or groundwater. However, dry nutrients, for example, can be used if a contaminated soil is too wet already.

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Figure 1. In-Place (In-Situ) Bioremediation Treatment Area
The microbes may lack the oxygen they need for aerobic bioremediation to occur. Oxygen can be supplied through aeration or hydrogen peroxide solution addition.

The basic principles of bioremediation are used in two primary approaches, depending on whether contaminated soil is excavated and treated aboveground (ex-situ bioremediation) or contaminated soil and groundwater are treated in-place (in-situ bioremediation).

For aboveground treatment, the contaminated soil is spread out within a lined, bermed treatment area, establishing control of the factors which affect degradation. Nutrients and microorganisms can be added to boost the existing microbial population. The six-inch to twenty-inch contaminated soil layer is tilled to provide oxygen to the microbes, to mix the soil and nutrients, and to break up soil clumps which may be present. A leachate collection system inside the bermed area provides control of moisture and runoff of added nutrients and microbes. The leachate can often be recycled and re-added to the soil.

For in-ground treatment, the addition of nutrients and microorganisms depends heavily on the soil conditions. Sandy, uniform soil provides more effective distribution of the added nutrients and microbes through the subsurface to the water table. Clay-rich soil can hinder satisfactory nutrient supplies to the microbes. Oxygen can be supplied by injecting hydrogen peroxide solution or air, which is also highly dependent on the soil conditions. Pumping wells are used to control the groundwater flow, and to establish a recycling effect between the withdrawn groundwater and the injected water for nutrient, microbial, and oxygen addition.

Microorganisms used for aerobic bioremediation require a food source (the contaminant), nutrients and oxygen. A supply of sufficient nutrients and oxygen will enable the microbes to use the contaminants as food for microbial population growth. The microorganism population will tend to increase dramatically until the contaminant concentration level decreases to the point that it cannot support the food source requirements of the microorganisms. The microbial population level will decrease slowly with a slow decrease in contaminant concentration. Generally, bioremediation can quickly reduce contamination levels to hundreds of parts per billion. Further reduction to low parts per billion levels are generally achievable but more slowly reached. Once the nutrients and oxygen are no longer supplied to the microbes, the microbial population will decrease dramatically to the levels present prior to the bioremediation project start-up.

The costs of bioremediation can vary widely. Aboveground treatment projects can cost $30-$50 per cubic yard of contaminated soil. In-ground projects can cost less than $1 per cubic yard per year of operation.

These projects often take between 1 and 3 years to achieve low parts per billion levels of contamination. This is favorable compared to pump-and-treat technology which may take over 15 years to achieve the same cleanup level.

Bioremediation is a cost-effective method of treating contaminated soil or water. It can convert harmful petroleum products to harmless substances like carbon dioxide and water, and restore the quality of soil so that it can be used for fill or other purposes. Bioremediation is a proven approach with great potential to decontaminate petroleum-contaminated soil and groundwater safely and permanently.
Thermal Treatment Effectively Cleans Soil

by Christopher O’Neil, P.E., Central Office Engineer

New York State responds to over 10,000 petroleum leaks and spills each year, generating approximately one million tons of contaminated soil each year. The Department of Environmental Conservation (DEC) is encouraging the use of technologies which can provide spillers with an environmentally sound and cost-effective way to remediate contaminated soil from petroleum leaks and spills.

Low temperature thermal treatment (LT3) is capable of turning petroleum-contaminated soil into satisfactorily-cleaned soil, which can be reused as fill or other purposes. Since thermal treatment renders contaminated soil reusable, it presents a significant alternative to depositing contaminated soil in landfills. Thermal treatment also supports the DEC Draft Cleanup Standards goal of providing permanent solutions to remediate a site.

The LT3 technology utilizes a rotary kiln to heat petroleum-contaminated soil to 400-700°F, volatilizing the contaminants from the surface of the soil particles. The petroleum hydrocarbon vapors and contaminated dust-size particles are subjected to 1400-1600°F in an afterburner oxidizing unit, converting the hydrocarbons to carbon dioxide and water. The cleaned dust particles are removed from the superheated vapor stream by a baghouse filled with fabric filters. The vapor stream is emitted to the atmosphere through an elevated stack. The baghouse dust is combined with the cleaned soil from the rotary kiln, the combination is cooled, and cleaned soil and dust are transported to a stockpile for later reuse.

Owners of LT3 units generally are restricted to treat only non-hazardous petroleum-contaminated soil. The owners must demonstrate the satisfactory operation of the units in a "test burn" prior to receiving a permit to operate. In addition, stationary units must satisfy more extensive permit conditions as a solid waste management facility.

The LT3 units must remediate the petroleum-contaminated soil to concentration levels, established by the Petroleum-Contaminated Soil Guidance Policy. The air emissions must satisfy New York State limits for volatile organics, benzene, particulates and opacity. Extensive sampling and laboratory analyses are performed during the "test burns". Follow-up sampling and analyses are required for each site being remediated, to ensure continued satisfactory operation of the treatment units.

The cost of treating soil with this technology ranges from $40-$100 per ton, depending on the amount of soil to be treated, the size of the treatment unit, the location of the site generating the contaminated soil, the type of contamination, the type of soil, and other factors.

As with many other technologies, the cost of LT3 technology decreases as the amount of soil being treated increases. The LT3 units range in size from smaller mobile units, capable of treating up to about 40 tons of soil per hour, to larger stationary units, capable of treating over 100 tons per hour. The cost of moving and setting-up a mobile unit will affect the overall treatment costs. The greater capital investment associated with a stationary unit will also affect overall costs. The location of the site generating the contaminated soil essentially determines transportation costs, whether transporting the mobile unit to the site, or transporting the soil to the stationary unit. The contaminants present in the soil and the type of soil determine the rate

(continued on page 9)
Storm Water Discharge Permits (continued from page 3)

covered by a General Permit. The process for filing a Notice of Intent is explained in the General Permit.

If you have an existing SPDES permit, DEC intends to eventually incorporate all storm water permit requirements into your individual permit. In the interim, you may be covered by a General Permit.

For a new discharge which will require any other DEC permit, you must file an application for an individual storm water permit in accordance with the Department's Uniform Procedures regulations.

Applications for new storm water discharges associated with industrial activity must be submitted 180 days before such activity commences or 90 days before a new construction commences. Different submittal dates may be required under the terms of applicable General Permits. There is no application fee for a General Permit; however, DEC will bill the permit holder $50 annually.

For More Information
These regulations were published in the Federal Register on November 16, 1990 and have been revised (55 FR 47990, 56 FR 12098, 56 FR 56548, and 57 FR 11394).

The Federal Register can be found in any public libraries and state libraries. Your municipal attorney, engineer or environmental consultant should have access to the register. Also, you can request a copy of the regulations through EPA's storm water hotline. Call (703) 821-4823, Monday through Friday, 8:00 a.m. to 5:00 p.m.

For copies of the two draft General Permits or more information about the program, call 1-800-952-2490.

General Diagram of Low Temperature Thermal Treatment Technology

LT: Newest Cleanup Technology (continued from page 8)

at which contaminated soil can be treated and the time needed to complete the project. Generally, fuel oils are more difficult to treat than gasolines, since fuel oils contain heavier, less volatile compounds than gasolines. The treatment rate can be reduced, creating longer heating times, to achieve satisfactory removal and destruction of fuel oil contaminated soil. Sandy soil is easier to remediate than clay-rich soil, since the contaminants are more tightly bound to the soil particles of clayey soil. The soil treatment rate is typically reduced when clay-rich soil is being remediated. In addition, rocks and debris greater than four inches in diameter are screened out of the contaminated soil before treatment, and these over-sized materials must be disposed of separately.

Currently, there are three mobile and no stationary LT units permitted to operate in New York State. Mobile units, even though they are transportable, require a certain amount of space, and are subject to site size constraints. Therefore, fixed-based facilities such as stationary LT units, are needed in New York State to eliminate the need for landfilling as a final disposal option for petroleum-contaminated soil.

The DEC encourages the expanded use of low temperature thermal treatment, for remediating non-hazardous petroleum-contaminated soil, because LT technology cleans petroleum-contaminated soil for reuse as fill or other purposes, reserves scarce landfill space for materials which can not be handled in other ways, returns a spill site to normal operations in a short period of time, and protects the environment from petroleum contamination.
Jobs Bond Act on the November Ballot as Proposal One

This November, New Yorkers will vote on PROPOSAL ONE - The Jobs for the New, New York Bond Act. The Jobs Bond Act is part of Governor Cuomo's "New, New York" economic development agenda. The Jobs Bond Act will fund matching grants to finance infrastructure improvement projects that will create productive, private sector jobs. The Jobs Bond Act would authorize New York State to raise $800 million through the sale of general obligation bonds to fund projects in every county of the State.

To be eligible for Jobs Bond Act funding, all projects must support economic activity that creates or retains permanent, private sector jobs, and all projects must constitute capital improvements to publicly-owned property such as site clearance, access roads, water supply, and sewer and drainage systems which will support or promote business development.

An economic impact analysis shows that the Jobs Bond Act would:
- Create nearly 24,000 immediate jobs in construction and related industries; and thousands more construction and related jobs as businesses are built or expanded.
- Generate up to 106,000 permanent, private sector jobs.
- Generate up to $3.1 billion in State tax revenues over the 25 year average life of the bonds while incurring a cumulative debt of $1.7 billion.
- Continue generating up to $155 million in annual State tax revenues after the bonds are paid off.

The Jobs Bond Act is one tool in Governor Cuomo's "New, New York" economic development strategy; a strategy that can create thousands of jobs and stimulate billions of dollars in economic activity statewide through programs like Regional Economic Development Partnerships, the Job Development Partnerships, the Job Development Authority, and the new Thruway Development Program.

For more information on "New, New York" and the Jobs for the "New, New York" Bond Act, contact:
New York State Department of Economic Development
One Commerce Plaza
Albany, NY 12245
(518) 474-2576

LEARNING ABOUT BULK STORAGE

OUST Releases Video on Subsurface Petroleum Leaks

The U.S. Environmental Protection Agency's (EPA) Office of Underground Storage Tanks has released a new video that provides a basic introduction to the behavior of petroleum contamination underground.

Petroleum Leaks Underground highlights factors that affect the movement of liquids and vapors in the subsurface and shows why early detection is important.

Part one of the video describes how soil type, soil porosity, product volatility, climate and water content in the subsurface affect the spread of petroleum contamination. Also discussed are how fluctuating water tables and trapped product can compound removal problems.

Factors affecting the movement of vapors are described in the second part of the video. Topics covered include vapor pressure and detection, measurement and the effects of temperature and surface area, compounds most often found in vapors, and the fate of vapors.

The 31-minute video is intended to provide education and training to environmental professionals and other interested parties. Copies also will be distributed to EPA regional offices and state underground storage tank program offices.

Copies are available for $75 (includes postage and handling) from: Environmental Media Center, P.O. Box 30212, Bethesda, MD 20814; (800) 522-0362. Copies are also available for 2-week loans by calling DEC at 1-800-242-4351.
Forty-five Substances Added to Federal UST Regulations

The federal Underground Storage Tank regulations (40 CFR 280) now apply to 45 additional hazardous chemicals. These 45 additional substances became subject to regulation through statutory reference when the Clean Air Act was passed in 1990. Note that ethylene glycol is now on the list.

The EPA says there is no formal "grace period" for tanks storing these substances. Such tanks must comply with all applicable UST regulations, including leak detection, upgrade and replacement, closure, and corrective action. In addition, secondary containment and interstitial monitoring are required for new tanks. There are currently no federal financial responsibility requirements for hazardous substance USTs.

Except for the 1990 Clean Air Act amendments, the 1989 list of hazardous substances (CERCLA) has not changed.

Our plans are to add these 45 substances to the State list under the chemical bulk storage regulations. These regulations appear to be moving again. It is possible that public hearings will be held in late fall.

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Clean Air Act Section 112 Hazardous Air Pollutants that were not CERCLA Hazardous Substances Prior to 1990 Clean Air Act Amendments

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<tr>
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<th>CAS NUMBER</th>
<th>CHEMICAL NAME</th>
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<td>Polycyclic organic matter</td>
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Publications and Videos

DEC publications and videos available to the public by calling the Bulk Storage Help-line (a list of these is also available):

- Regulations and Applications
- Summary Brochures
- Contractor List
- Guidance papers
- Videos (2-week loan) (closure, installation, and leak detection)
- Spill Prevention Operations Technology Series (SPOTS) (fee)
Commissioner Speaks on Bulk Storage Regulations

Dear Tank Owner:

Many tank owners have asked DEC if it would be possible to eliminate the overlapping federal and State regulatory jurisdiction over underground storage tanks (USTs). Currently, EPA is enforcing federal requirements which are very similar (but not identical) to the New York State Petroleum Bulk Storage (PBS) Regulations.

Our answer is yes, it is possible to eliminate this regulatory overlap with a change in the State law. That change would require an act by the Legislature to pave the way for DEC to apply to EPA for program delegation, with the following advantages:

- Tank owners will find it easier to comply with 1 set of regulations.
- Many owners will save money when overlapping requirements are eliminated.
- Government administration will be streamlined.

Once delegation occurs, the State will operate the federal program in New York and EPA will relinquish primary enforcement responsibility.

A bill to make this happen has been introduced in the Senate (S.4340) at the request of the Department. This bill, called the Omnibus Bulk Storage Bill, would greatly simplify the regulations which are facing New York's tank owners today. You may contact DEC or your State legislator for a copy of this proposal.

We hope that the Omnibus Bulk Storage Bill will pass this year. When this happens, DEC is prepared to seek federal program delegation from EPA.

Until then, we must advise you that tanks must be in compliance with both the federal UST Regulations and the State PBS regulations. Failure to comply with both sets of regulations could result in enforcement action from both the State and federal government.

If my staff can help you in any way or if you would like a summary of the federal UST requirements, please call DEC's Bulk Storage section at 1-800-242-4351.

Sincerely,

[Signature]

Thomas C. Jorling, Commissioner

New York State Department of Environmental Conservation

Mario M. Cuomo, Governor
EPA Steps-Up Enforcement of UST Regulations

EPA Issues Complaint and Compliance Order Against Cortland Glass, Inc.; Penalty of $28,000 is Assessed.

NEW YORK -- The U.S. Environmental Protection Agency (EPA), Region 2, working in consultation with the New York State Department of Environmental Conservation and the Cortland County Health Department, has issued its first complaint and compliance order in New York State for violations of federal underground storage tank notification, leak detection and closure regulations. The complaint, which includes assessed penalties of $28,000, cites Cortland Glass, Inc. of Cortland, NY, for violations of the underground storage tank requirements of the federal Solid Waste Disposal Act (RCRA Subtitle I).

The Complaint cites Cortland Glass, Inc. on three counts. The first is for failure to notify the Cortland County Health Department and/or the New York State Department of Environmental Conservation, as designated agents for the EPA, of the age, size, type, location and uses of the underground storage tank located at its facility. Cortland Glass, Inc. is also cited for failure to provide a method for detecting fuel leaks from its storage tank and failure to close the storage tank within one year of its being taken out of service.

"EPA is committed to the enforcement of underground storage tank regulations and will act to ensure that Federal requirements are enforced throughout the region," said EPA Regional Administrator Constantine Sidamon-Eristoff. "EPA will continue to work with New York State to build a program that protects drinking water sources from contamination by leaking underground tanks."

The EPA underground storage tank regulations are intended to prevent contamination of drinking water supplies. Cortland County is located on a sole source aquifer. In the event that toxic substances are released from an underground storage tank, there could be catastrophic effects to the Cortland aquifer. Contamination of the aquifer could render its water unfit for drinking and force residents who obtain drinking water from the aquifer to seek alternative water supplies.

Compliance with the regulations for underground storage tanks is the responsibility of UST owners and operators. New York State underground storage tank owners and operators must comply with both State and federal regulations. Differences exist between State and federal regulations in several areas including but not limited to: 1) federal leak detection upgrade requirements; 2) federal closure requirements, including a site assessment at all tank closures; and 3) applicability of the federal UST regulations to all petroleum and hazardous substance tanks larger than 110 gallons (fuel oil tanks for on-site consumption are exempt).

Additional EPA enforcement cases are pending.
Many Tanks Due for Retesting

Unprotected tanks and piping systems greater than 1100 gallons must be tested when 10 years old, and corrosion-resistant tanks without leak monitoring must be tested when 15 years old. These tanks must be retested every 5 years. Though DEC has mailed tank test reminder notices in the past, owners should not wait for a notice before testing their tanks.

Owners are required to send their test reports to DEC within 30 days after testing is complete (except for test failures, which must be reported within 2 hours to the Spill Hotline.) Owners can verify if DEC received the test report(s) by checking the last test date on Section B of the PBS renewal application. (For more information on PBS renewal, see the Fall/Winter 1990 issue of the TANK BULLETIN.) The 5-year registration certificate, issued after a renewal is processed, will list the last test date(s) and testing due date(s), if applicable.

As of April 1991, when a test report is received by DEC, a new PBS registration certificate is printed with the next testing due date and mailed to the owner. Receipt of credit for tank tests can be verified by checking the last test date(s) printed on the PBS registration renewal form. If credit was not given, a copy of the test report should be sent with the completed renewal form.

Valid Registration Certificates Must Be Displayed on Site

Not displaying your bulk storage registration certificate is a simple, easily avoidable violation of the petroleum and chemical bulk storage regulations. In addition to violating the chemical bulk storage regulations, owners of such facilities may jeopardize their chemical deliveries. Subdivision 596.5(d) of the Chemical Bulk Storage (CBS) regulations prohibits delivery of hazardous substances to a regulated CBS tank which is not currently registered with the Department. Due to the 2-year renewal cycle for CBS sites, some sites may have an expired CBS registration certificate. The first deadline for registration was July 1989.

To ensure that deliveries are not made to unregistered sites, DEC is encouraging chemical suppliers to check the CBS registration certificate posted at the site before delivery. Specific attention should be given to the expiration date printed in the lower left-hand corner of the certificate. If the certificate has expired, then delivery cannot be made until the tanks have been re-registered with the Department.

Financial Responsibility Deadline for Small Business Owners Extended

On Monday, December 23, 1991, the U.S. EPA finalized an extension of the compliance deadline for financial responsibility of the fourth compliance group, from October 26, 1991 to December 31, 1993. This compliance group includes petroleum marketers owning fewer than 13 underground storage tanks at more than one facility or fewer than 100 USTs at one facility, as well as non-marketers with net worth of less than $20 million. The EPA desires to provide short-term relief to owners and operators of the smallest gasoline and service stations who are generally most in need of an effective financial responsibility mechanism. The Agency continues to work with its Regions and the states to enable small businesses to remain economically viable, while at the same time, ensuring that mechanisms exist to pay for the cleanup of leaking tanks.

Leak Detection Reminder

Under EPA's underground storage tank regulations, all petroleum and hazardous substance tanks installed between the years 1970-1974 must have been equipped with an approved form of leak detection by December 22, 1991 unless proper testing is done.

All tanks installed before 1970 already should be equipped with leak detection systems and all pressurized piping already should have automatic line leak detectors installed.
EPA Proposes Changes to Oil Pollution Prevention Regulations

After several notable oil spills in the U.S. over the last decade, including the collapse of a four million gallon tank at the Ashland Oil Company in Floreffe, PA, spilling 3.8 million gallons of diesel fuel and releasing approximately 750,000 gallons into the Monongahela River in January 1988, the EPA organized an interagency SPCC Task Force to investigate this incident. An inspection revealed that Ashland had not maintained a complete SPCC plan. Their plan only paraphrased the SPCC regulations and did not adequately address site specific conditions.

The Task Force subsequently examined the SPCC program and recommended changes to improve its effectiveness. In addition, the General Accounting Office (GAO) conducted an independent investigation of the Ashland spill and also determined that the federal regulations should be revised to include more stringent requirements. In response to both the SPCC Task Force and GAO reports, the EPA planned a two-phased approach to review and update this program.

In Phase One, EPA will strengthen the regulatory language to clarify that compliance with the detailed SPCC Plan requirements is mandatory, not optional. Four significant changes in the proposed rule include notification requirements, additional SPCC Plan requirements, revised secondary containment requirements, and several new EPA recommendations.

Finally, the current 40 CFR Part 112.7 is being divided into five separate sections based on facility type. The proposed section 112.7 provides general requirements for preparing SPCC Plans. Sections 112.8, 112.9, 112.10 and 112.11 address detailed Plan requirements for onshore non-production facilities; onshore oil production facilities; onshore oil drilling and workover facilities; and offshore oil drilling, production, and workover facilities, respectively. The revisions were published in the Federal Register on October 22, 1991. The final rule is expected in Summer 1992.

Phase Two, which will be the subject of a later rulemaking, will address facility-specific response planning, other recommendations of the Task Force, and applicable requirements of the Oil Pollution Act of 1990, including leak test and tank lining recommendations.

The proposed rulemaking exempts underground storage tanks that are now subject to the technical requirements of EPA's Underground Storage Tank (UST) program (40 CFR 280). However, bunkered tanks, partially buried tanks and tanks inside subterranean vaults are considered aboveground tanks for the purposes of these regulations.

Notification Requirements

Among the newly proposed requirements is a one-time mandatory notification. Each SPCC-regulated facility will be required to file the notification form (attached as Appendix B to the Phase One rule) with EPA. Owners and operators must complete this form within 60 days of the date of the final rulemaking. The notification provision is intended to fulfill the EPA's goal of obtaining more accurate and complete information on the facilities and tanks subject to the SPCC regulations. The EPA
plans to develop a database for approximately 435,000 regulated facilities which currently exist nationwide.

**SPCC Plan Requirements**

Other changes in the Phase One rule address SPCC planning for new and existing facilities. In the proposed rule, the owner or operator of a new facility must prepare and fully implement a Plan before beginning operations. The six-month lag time currently permissible between the start of operations and implementation of an SPCC Plan will be eliminated.

Under the proposed revisions, the Plan must be amended before any major change is made at a facility. Such changes include commission or decommission of tanks; replacement, reconstruction or movement of tanks; reconstruction, replacement or installation of piping systems; or construction or demolition that might alter the secondary containment structure.

The SPCC Plan would have to be certified by a Registered Professional Engineer (PE) and the PE would have visited a new facility prior to certifying the plan. The language regarding Plan certification has not changed, but EPA seeks comments on whether the PE should be registered in the same State that the facility is located and whether the PE should be financially independent of the facility.

**Secondary Containment**

Under the proposed rules, the secondary containment requirement will not be optional, except as described below. To emphasize the mandatory nature of this requirement, the EPA will replace the word "should" with the word "shall". All aboveground tanks shall have a secondary containment system (dikes, containment curbs, pits, etc.) which is large enough to contain the capacity of the largest single tank and sufficient freeboard to allow for precipitation. Owners and operators will continue to have the option of not providing secondary containment only if they can demonstrate that it is impracticable. In this case, they must prepare a strong oil spill contingency plan and a written commitment of personnel, equipment, and materials for spill control and removal.

Also, facilities without secondary containment structures will be required to conduct tank integrity testing every five years, compared with a ten-year interval required for facilities with appropriate containment structures.

In addition, the EPA is proposing to clarify the impermeability requirement, by stating that the entire containment structure, including the walls and floor, must be impervious to oil for a 72-hour period.

**Overfill Prevention**

New and old tanks shall, as far as practical, be "fail-safe engineered" or updated by providing a high liquid level alarm or pump cutoff device; direct audible or code signal communication between the tank gauger and the pumping station; and/or a fast response system for determining the liquid level of each tank, such as digital computers.

**EPA Recommendations**

In addition to establishing the above mentioned requirements, the EPA has proposed several significant recommendations for tank owners which it believes will decrease the likelihood of oil discharge and mitigate those spills which occur. However, these recommendations do not apply to production facilities.

The first recommendation suggests that piping be placed aboveground. Buried piping shall have cathodic protection and be tested annually or monitored monthly for integrity and leaks. The Agency also recommends that records be kept of the testing or monitoring for five years. The EPA also suggests that facility owners post vehicle weight restrictions to prevent damage to underground piping, and that plants be fully fenced and lighted in such a way as to locate spills at night and to prevent releases occurring through acts of vandalism. The EPA specifically requests comments regarding the extent to which these provisions would further improve the effectiveness of these regulations.

**SPCC Information Line**

Over the next year, the EPA will conduct a comprehensive outreach program to ensure that all members of the regulated community are aware of the proposed revisions. This includes the SPCC information line, (202) 260-2342, for answers to questions regarding the program and proposed changes.
Tank Overfills Can Be Prevented

by Russ Braudeck, Central Office Environmental Engineer

Approximately 6% (519/8138) of the petroleum spills reported to the New York State Department of Environmental Conservation (NYS DEC) Spill Hotline between April 1 and December 31, 1991 was due to tank overfills. This problem can be easily solved using proper spill and overfill prevention equipment.

Subdivision 613.3(c) of the NYS DEC Petroleum Bulk Storage (PBS) regulations (6 NYCRR Parts 612 - 614) required that all aboveground storage tanks (ASTs) be equipped with overfill prevention devices by December 27, 1990. The U.S. Environmental Protection Agency's (EPA's) Underground Storage Tank (UST) regulations require that this equipment be retrofitted to existing USTs by December 1998. Both DEC and the EPA require the use of this equipment for new USTs.

Three Steps to Prevent Spills and Overfills

When a tank truck delivery person arrives on site, the delivery hose is attached to the fillpipe and the tank is filled. Without spill and overfill prevention equipment or knowing how much product is in the tank, the delivery person has a good chance of causing a spill by over-filling the tank. Once the tank is full and the delivery is stopped, the hose between the truck and the fillport is full of product; hence, there is another chance for a spill when the hose is disconnected.

Step #1

A first step in preventing spills due to overfilling the tank, is to ensure that the delivery person is using overfill prevention devices. High level alarms, float vent valves, and automatic shutoff equipment satisfy the requirements for USTs; and level gauges or high level alarms can be used for aboveground tanks.

Step #2

The next step in preventing spills is using spill prevention equipment. Tight-fill connections should be used when possible, to prevent the product from spilling from the hose onto the ground if the tank is overfilled. In addition, a spill catchment basin must be used for USTs to contain any spills which may occur when the hose is disconnected from the tank.

Overfill Prevention Equipment

High level alarms are alarms which have a set point programmed to sound to alert the delivery person when the tank is almost full. Then the delivery is stopped. The problem with these alarms is that if the delivery person is not present to stop the delivery, then an overfill will occur.

Environmental Protection Agency's (EPA's) Underground Storage Tank (UST) regulations require that the transfer operator determine that the receiving tank has the capacity to receive the volume of product to be transferred. This is generally done by measuring the level of the product in the tank using a gauging stick or by reading an easily accessible product level gauge.

Step #3

A third step in eliminating spills is using spill prevention equipment. Tight-fill connections should be used when possible, to prevent the product from spilling from the hose onto the ground if the tank is overfilled. In addition, a spill catchment basin must be used for
Float vent valves are ball float valves located in the portion of the vent that is inside the tank. The ball float will rise with the product and restrict the flow of air from the tank by plugging the vent when the tank is almost full. When this occurs, product flow into the tank is slowed and delivery is stopped.

Using a float vent valve is only applicable to a gravity-drop delivery with a submersible pumping system at the tank. If a float vent valve was to be used in a situation where the product is pumped into the tank, the ball float would plug the vent, cutting off the venting of the air; however, the flow of product would not slow because it is being pumped into the tank. Instead, the tank would be overpressurized due to the pumping and would be in danger of catastrophically rupturing. This scenario has, in fact, already occurred on Long Island and the tank did rupture, losing all of its product.

If the float vent valve was to be used in a situation where there was a suction pump, the product would flow through the product piping to the dispenser before being slowed, hence product could be lost at the air eliminator.

Another problem with the float vent valves is that it again requires operator awareness to realize when the flow of product has slowed in order to stop the delivery. If the operator is not present, the tank can still be overfilled.

The two types of automatic shutoff equipment devices are both installed in the fillpipe. In the one type, as product is being delivered, the float rises and the flow of product is shut off by a flapper valve when the level of the product nears the top of the tank. If there is no tight-fill connection, product will flow all over the ground.

The other automatic shutoff device is a venturi type shutoff, which works on the same principle that retail gasoline dispensing nozzles use. When liquid covers a venturi opening, the valve snaps shut stopping delivery at the top of the fillpipe; the valve on the truck is closed; then the valve in the tank is reopened; and the liquid remaining in the hose is drained into the space purposely remaining in the tank.

Automatic shutoff equipment typically cannot be used for a pump-filled tank because it cannot withstand the pumping pressure.

Although level gauges are used on USTs and ASTs for determining the product amount to be delivered, they satisfy overfill prevention requirements only for ASTs.

EPA Overfill Device-Setting Limits

The EPA UST regulations require that high level alarms and float vent valves alert the transfer operator when the tank is no more than 90% full and that automatic shutoff equipment stop the flow of product to the tank when the tank is no more than 95% full. Any facilities in NYS which are subject to the UST regulations must comply with these requirements.

For tanks up to 4000 gallons these percentages are satisfactory. However, in the larger tanks these percentages leave excess volume in the tank that cannot be used. The American Petroleum Institute (API) petitioned EPA to change (continued on page 10)
Continuous Release Reporting of Hazardous Substances: An EPA Requirement

by Jacqueline Sibblies, Central Office Environmental Engineer

Users of industrial chemicals frequently ask if continuous releases (routine emissions such as those from tank venting, processing or machinery) should be reported to environmental agencies. Often, these releases have low leak rates, but over a 24-hour period may exceed the threshold for reporting (reportable quantity) established by the U.S. Environmental Protection Agency (EPA).

New York State (NYS) does not require reporting of such releases, but the EPA does as part of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) Title III.

On July 24, 1990, the EPA published its final rule on reporting continuous releases of hazardous substances, in the Federal Register (55 FR 30166). The new rule (40 CFR 302.8 and 355.40) allows continuous releases to be reported less frequently than on a per occurrence basis. To qualify for this reduced reporting, releases must be shown to be continuous and stable in quantity and rates. These conditions apply to routine and anticipated releases during regular operations, and not to abnormal releases such as during equipment malfunctions.

Continuous Release Reporting Requirements

Upon establishing the continuity and stability of a release at or above the reportable quantity in any given 24-hour period, as defined in the regulations, the reporting requirements in NYS consist of:

1. Initial telephone call to the National Response Center (NRC); New York State Department of Environmental Conservation (DEC), and the local emergency planning committee (LEPC).
2. Initial written report, within thirty (30) days, to the EPA Region #2 Office, DEC, and the LEPC;
3. Written follow-up report to the EPA one year after submittal of the initial written report; and
4. Notification of changes in the release to the EPA.

For More Information

The EPA’s Office of Emergency Remedial Response has published (in October, 1990) a series of manuals explaining, in detail, the CERCLA and SARA Title III reporting requirements for continuous releases of hazardous substances and extremely hazardous substances. Included is a user’s manual for computer reporting and samples of written reporting formats and continuous release calculations.

Further information on these regulations may be obtained from the following sources:

- National Response Center (NRC). Toll-free telephone number: (800) 424-8802; Washington, DC area: (202) 267-2675
- RCRA/Superfund Hotline. Toll-free telephone number: (800) 424-9346; Washington, DC area: (202) 382-3000
- Project Officer for the Continuous Release Reporting Regulation: Mr. Hubert Watters, U.S. Environmental Protection Agency, 401 M Street, S.W., Mail Code: OS-210, Washington, DC 20460, (202) 382-2463
- Bill Miner, Environmental Emergency Coordinator, New York State Emergency Response Commission, c/o New York State Department of Environmental Conservation, 50 Wolf Road, Room 326, Albany, New York 12233-3510, (518) 457-4107

Statistically Significant Increases (SSI’s) must be reported to the NRC, DEC and LEPC as soon as the facility operator determines that a previously reported continuous release exceeds the normal range. Release of a new substance or from a new source does not constitute an SSI. These must be reported on a per occurrence basis (40 CFR 302.6), unless established as a continuous release.

In addition, releases must be evaluated annually and the records must be maintained at the facility. This information need not be sent to any authority, though changes in information previously submitted may require notification of the appropriate authority.

For SARA Title III extremely hazardous substances (EHS’s) not covered by CERCLA, continuous release reporting requirements are similar to those above, except that the EPA and NRC do not have to be notified.

Definitions

Continuous Release. A release which occurs without interruption or abatement, or that is routine, anticipated, intermittent, and incidental to normal operations.

Routine Release. A release which occurs during normal operating procedures or processes.

Stable in quantity and rate. A release which is predictable and regular in the amount and rate of emission.
Spill Reporting - It's the Law!

Phone calls, phone calls, the Department receives many phone calls. One of the most frequent questions relates to reporting of spills. Questions usually go like this...

"If I spill a hazardous substance or petroleum, do I have to report it to government authorities?"

As a general rule, all spills which get out of your control must be reported. There are more than a dozen federal and State laws governing reporting of releases. Transportation laws govern spills from trucks and rail cars. Air laws govern certain gaseous chemical emissions. Water laws require reporting of discharges to ground or surface water. Emergency response rules address releases of toxic, and so on. If you are a student of laws and regulations you will want to review the specific requirements outlined in Table 1. Specific chemicals, reportable quantities and rules for reporting can be found in these laws and regulations. If you are unfamiliar with these laws, Table 2 contains guidance to follow.

DEC recommends that you immediately report health, fire or emergency situations to the local emergency response unit (fire, police, rescue, etc.). Next, report the spill to DEC on the spill hotline 1-800-457-7362. DEC requires most spills to be reported within two (2) hours. Even small spills (such as a gallon or two of gasoline) which escape into the environment must be reported. Seek advice from DEC on other reporting requirements which may be necessary.

PBS Fee Increase Finalized

The new PBS registration fees (as proposed in the last issue of the TANK BULLETIN) are effective February 12, 1992, the day the notice of adoption and responsive summary were published in the State Register.

If you have a copy of the PBS regulations dated December 27, 1985 (on the cover) or a copy of the PBS application instruction sheet, you are encouraged to note this change.

Any new or renewal PBS applications received at a DEC regional office on or after February 12 require the new fee. This applies to those which were due before February 12 but delinquent to DEC.

Note that the fee increase does not affect facilities in the four delegated counties (Nassau, Suffolk, Cortland and Rockland), which are regulated by county regulations.

Questions or requests for PBS regulations or application forms should be directed to your DEC regional office.

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**TABLE 1**

<table>
<thead>
<tr>
<th>New York State Laws/Regulations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Conservation Laws: 40-0113(c), 17-1743, 17-001, 27-0305; and environmental regulations: 6 NYCRR 595, 597, 613, 680; and 381.16</td>
</tr>
<tr>
<td>Navigation Law: Article 12, and regulations: 17 NYCRR 32.3</td>
</tr>
<tr>
<td>Transportation Law: Section 14(f), and regulation: 17 NYCRR 507.4(b)</td>
</tr>
</tbody>
</table>

**Federal Laws/Regulations:**

- U.S. Department of Transportation Regulations: 49 CFR 171.15, 171.17, 171.50, 171.52 and 195.54
- Federal Water Pollution Control Regulations: 40 CFR 117.21
- Resource Conservation and Recovery Act (RCRA) Regulations: 40 CFR 263.30(a)
- Clean Air Regulations: 40 CFR 61.64
- Superfund Amendments And Reauthorization (SARA) Regulations: 40 CFR 305.40
- Clean Water Regulations: 33 CFR 153.203, 40 CFR 117.9
- Ports And Water Safety Regulations: 33 CFR 126.20

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**TABLE 2**

<table>
<thead>
<tr>
<th>Spill Reporting Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spill Category</strong></td>
</tr>
<tr>
<td>1st: Spills which could cause fire, injury or property damage</td>
</tr>
<tr>
<td>2nd: Any leak or spill onto land, into water, or underground</td>
</tr>
<tr>
<td>If necessary:</td>
</tr>
<tr>
<td>Spills affecting public health or water supplies</td>
</tr>
<tr>
<td>Transportation related spills involving injury, fire, property damage or hazardous waste</td>
</tr>
<tr>
<td>Spills to navigable waters and shoreline</td>
</tr>
</tbody>
</table>

* Usually DEC must be notified of all spills. In addition, spillers must contact other agencies as shown in this table.
Spill/Overfill Prevention Required
(continued from page 7)

this requirement for the larger tanks so that tanks could be filled to a greater extent while still protecting the environment. The EPA agreed with API and amended that portion of the regulations for larger tanks.

The regulations now require that float vent valves restrict flow 30 minutes prior to the tank being full, high level alarms alert the operator 1 minute before being full, and automatic shutoff equipment shut off flow into the tank before the fittings located on the top of the tank are exposed to product.

Spill Prevention Equipment

Once the driver realizes that the product is near the top of the tank, the valve on the truck must be closed so that no more product can flow into the hose. This still leaves upwards of 30 gallons of product in the hose which must be put in the tank, not emptied on the ground. The tank shutoff valve must be reopened so that the driver can empty his hose into the tank. However, the tank may be too full to allow all of the product to drain back into the tank.

An important device to have is a spill catchment basin around the fillpipe. These basins range in size from 5 gallons to 35 gallons. If automatic overfill equipment has been installed, a 5 gallon basin should be sufficient to catch the small drips from the hose. If it is possible for a tank to be overfilled, such as with a high level alarm or a float vent valve, it would be wiser to use the larger size basin.

Use of common sense and spill and overfill prevention equipment can virtually eliminate this common source of spills.

LEARNING ABOUT BULK STORAGE

Site Assessment Guidance Finalized

The Spill Prevention Operations Technology Series (SPOTS) memo, SPOTS 14, "Site Assessment at Bulk Storage Facilities," has been finalized. This document describes the steps needed in performing a site assessment to fulfill the requirements set forth by the federal EPA in the Underground Storage Tank regulations (40 CFR Part 280).

NEWSWORTHY

Tanker Truck Used as Storage Tank Collapses
submitted by Mark Sorgi, Spill Response Unit, Region 9, Buffalo

On January 18, 1992 at 0430 hours, the Region 9 DEC office was notified of a kerosene spill of an unknown amount. The source of the release was reported to be a 7,000 gallon tanker owned by Goetz Energy Corporation of Tonawanda, NY, a local fuel supplier. At the time of the incident, the tanker was fully loaded and standing on its support legs.

DEC arrived on site at 0500 hours, approximately four hours after the spill had occurred, and found that the tanker was rolled completely over and was leaking kerosene from both ends. Goetz Energy transferred most of the load to another tanker to prevent further spillage. A dike was built around the spill area by the Town of Tonawanda Highway Department and the local fire department to prevent further runoff of product. Additional product was pumped from puddles of kerosene within the diked area.

The spill was caused by structural failure of one of the support legs. The tanker was also situated on an uneven crushed stone base where settling may have acted as an additional factor in this incident, causing the tanker to roll. Further investigation and questioning revealed that the tanker was also being used as an aboveground storage tank for kerosene, in violation of the Petroleum Bulk Storage (PBS) regulations.

On January 21, 1992, Goetz Energy determined that 2,000 gallons had soaked into the soil and was not recovered. Goetz Energy installed a trench system encircling the entire spill area to collect leaching product. Additional measures such as groundwater treatment, bioremediation, soil venting, and soil disposal are being discussed and may be needed in order to complete the site cleanup.

Cleanup of this spill site will prove very costly when compared to the cost of a well-designed storage tank system which combines spill and overfill prevention and secondary containment.
READER RESPONSE

Readers Ask about PBS Registration Renewal Requirements

When is my PBS registration renewal due?

The expiration date of your existing registration certificate has been printed in the upper right-hand corner of Section B of your renewal form. It can also be found on your current registration certificate, in the lower left-hand corner. The completed renewal application and fee should be received by the Regional Office on or before this expiration date. Renewal packages are mailed to the owner’s address approximately two months prior to the expiration date.

What if I have not received my PBS renewal application and I cannot find my registration certificate?

If you have not received your renewal application yet and are unable to locate your current registration certificate (which should be displayed on the premises of the facility), call or write to your DEC Regional Office, giving the facility name and address. The Regional Office will search the files for your registration. If your registration is located, you will receive a duplicate copy of the certificate.

If this certificate indicates that your renewal is overdue or due within one month, call the Bulk Storage Help-Line to request a renewal package. Make sure you give your PBS number, facility name and address, and where you would like the package mailed. If your registration is not in DEC files, then a registration package will be mailed to you.

How do I complete my PBS registration renewal application form adequately?

First, make any necessary changes to the pre-printed information on the application form mailed to you for renewal. The pre-printed information is the latest information in our files and was provided to the Department by your organization during the past five years. Changes can be made by crossing-out the printed information and writing the correct information above it. Second, complete all blanks on the form. The application has been revised and it includes several new items that were not on the original form five years ago. Third, sign and date the form. Fourth, include a check or money order payable to NYS DEC for the correct NEW 5-year registration fee (found on the instruction sheet.) Lastly, mail the completed application and fee to your DEC Regional Office. That address is printed on the top right-hand corner of Section A of the application.

Reader Asks about 10-Year Inspections

I own a one million gallon tank which, according to DEC’s bulk storage regulations, must be inspected every 10 years. Following the guidelines of API 653, “Tank Inspection, Repair, Alteration, and Reconstruction,” the tank was inspected and a weld on the tank bottom failed a vacuum box test (a non-destructive test). The weld was repaired and then passed a second vacuum box test.

Since API 653 requires a hydrostatic test for any tank that has undergone major repairs or alterations, is a full hydrostatic test required in this case?

Referring to API 653: Table 10-1, Conditions for Exemption from Tank Hydrostatic Test for Major Repairs and Alterations, Basic Condition #3 applies to this situation. Basic Condition #3, "Tank repair limited to bottom plates," requires two things:

1. the repair method must be reviewed and approved by an engineer, familiar in this field, that the repair meets the requirements of API 650; and
2. the repair materials must meet the requirements of API 650.

Therefore, a hydrostatic test would not be required in this case. It is suggested, however, that a Professional Engineer certify that the above requirements were met and that the weld had passed the second vacuum box test.

The bottom line is: companies must refer to standard accepted methods such as API 650 and 653, as well as API’s “Inspection of Refinery Equipment,” Chapter XIII, Internal Inspections, when performing 10-year inspections.

KNOWLEDGE NETWORK

Publications and Videos

DEC publications and videos available to the public by calling the Bulk Storage Help-line (a list of these is also available):

- Regulations and Applications;
- Summary Brochures;
- Contractor List;
- Spill Prevention Operations Technology Series (SPOTS) (fee);
- Guidance papers; and
- Videos (2-week loan) (closure, installation, and leak detection).
In May of this year, a reorganized Division of Spills Management was approved by Commissioner Jorling to improve efficiency and service to the public in the areas of spill prevention, response and remediation for petroleum and hazardous substances. The Division's activities are in the following areas:

**Spill Prevention**
- Petroleum Bulk Storage (PBS) Program;
- Chemical Bulk Storage (CBS) Program;
- Major Oil Storage Facility (MOSF) Program;
- Federal Underground Storage Tank (UST) Program; and
- Bulk Storage Helpline.

**Spill Response and Remediation**
- Emergency Response Program;
- Remediation Program; and
- Spill Hotline.

**A Brief Explanation of Programs**

Under the **Petroleum Bulk Storage Program**, the Department regulates about 40,000 facilities (100,000 tanks) statewide with aggregate petroleum storage capacities between 1,101 and 399,999 gallons. It is administered and enforced regionally except in Region 1. On Long Island, the program has been delegated to Nassau and Suffolk Counties, while Rockland and Cortland Counties have been delegated upstate.

Under the **Chemical Bulk Storage Program**, the Department regulates 2,000 facilities (7,000 tanks) storing one or more of 1,000 hazardous substances. Both aboveground tanks of 185 gallons or greater and underground tanks of any size are covered. Owners of tanks storing hazardous substances must register their tanks with DEC’s Registration Section, Room 340, 50 Wolf Rd, Albany, NY 12233-3520.

Under the **Major Oil Storage Facility Program**, the Department regulates 260 onshore facilities (6,300 tanks) with petroleum storage capacity of 400,000 gallons or more. Also under this program, DEC regulates 180 vessels used to transport petroleum in bulk.
Under the Federal Underground Storage Tank Program, EPA regulates tanks storing petroleum and hazardous substances stored underground. Regulated tanks include those with capacities over 110 gallons used to store petroleum (gasoline, diesel fuel, waste oil collection tanks, crude oil and cutting oils) and CERCLA* hazardous substances. Major exemptions from regulation include tanks used to store heating oil for on-premises consumption and farm and residential motor fuel tanks that are 1,100 gallons or less used non-commercially. The UST Program is administered by DEC, but enforced by EPA under a State/EPA agreement.

The Bulk Storage Helpline is available if you have questions about the applicability and/or interpretation of the four (4) programs listed above. You are encouraged to call the regional contact first, but you may call the helpline if you choose. It is available during normal business hours. The toll free helpline number is 1-800-242-4351.

The Remediation Program oversees the remediation of hundreds of spills and releases by the responsible party or by a standby contractors hired by the Department.

The Spill Hotline is available 24 hours per day, 7 days per week only to report spills, leaks or releases of petroleum and other hazardous substances. In 1992, there were 14,500 call made to the hotline. The Spill Hotline number is 1-800-457-7362 within New York State and (518) 457-7362 from outside New York.


**EPA COMING DOWN HARD ON VIOLATORS**

Region 2 of the U.S. Environmental Protection Agency (EPA) is stepping up enforcement of the Federal Underground Storage Tank (UST) regulations which were promulgated in December of 1988. In a special operation, dozens of field inspectors are checking gas stations, fleet operations and other UST owners for compliance with the federal rules. The federal UST regulations (40 CFR 280) regulate UST's with capacities over 110 gallons used to store gasoline, diesel fuel, cutting oil, waste oil collection tanks and CERCLA hazardous substances.

The federal regulations require upgrading of existing UST's and piping systems with leak detection, spill and overfill prevention, and cathodic protection. The most immediate requirement is leak detection which must be in place no later than December 22, 1993 or the tank must be precision tightness tested annually until 1998 when all upgrading devices must be physically installed.

One June 24, 1993, EPA issued a news release in which they are citing 6 service station owners in the New York Metropolitan area with failure to monitor underground storage tanks for leaks, and failure to keep proper inventory records. EPA is seeking a total of $197,442 in penalties for these violations.

"The monitoring requirements for underground tanks are very important", said William J. Muszynski, Acting EPA Region 2 Administrator. "We require this information to assure that gasoline and other fuels are not being released to the environment, where they pose significant risks to human health."

**DEC COURSE OFFERING**

In early 1994, DEC will offer educational courses on tank installation and closure for contractors involved in this line of work and for other interested people. Included with these courses is the opportunity to take an examination that may be used if there is a contractor certification requirement in the future. This course has been tentatively scheduled for the following dates:

- February 3 and 4, 1994;
- February 7 and 8, 1994; and

The locations have yet to be decided. If you are interested in attending this course, please contact the Bulk Storage Helpline at 1-800-242-4351, or (518) 457-4351 to receive a brochure on the course and on registration.
WHERE CAN I GET HELP WHEN I NEED IT?

The map below gives the names of the bulk storage and spill response contact for each region. Also provided are the contacts in the 4 delegated counties of Nassau, Suffolk, Rockland and Cortland. Should you have a question, comment or suggestion, please contact the person whose name is listed below.

ABBREVIATION KEY
PBS - Petroleum Bulk Storage
CBS - Chemical Bulk Storage
MOSF - Major Oil Storage Facility
RSE - Regional Spill Engineer

REGION 8
Wendy Stevenson - PBS, CBS,
Mike Zamiarski - MOSF
Bruce Finster - RSE
6274 E. Avon-Lima Road
Avon, NY 14414-5519
(716) 226-2466
(Chemung, Genessee, Livingston,
Monroe, Ontario, Orleans, Schuyler,
Seneca, Steuben, Wayne, Yates)

REGION 9
Jim Stack - PBS, CBS
Sal Calandra - MOSF
Bob Leary - RSE
207 Michigan Avenue
Buffalo, NY 14203-2999
(716) 851-7220
( Allegany, Cattaraugus,
Chautauqua, Erie, Niagara,
Wyoming)

REGION 6
Don Johnson - PBS, CBS
Neil Carrier - MOSF
Jack Marsch - RSE
State Office Building
207 Genessee Street
Utica, NY 13501
(315) 793-2554
(Herkimer, Jefferson, Lewis,
Oneida, St. Lawrence)

REGION 5
Shaun Lalonde - PBS, CBS, MOSF
Rich Wagner - RSE
2176 Guiderland Avenue
Schenectady, NY 12306
(518) 382-0680
(Albany, Columbia, Eastern Greene,
Montgomery, Rensselaer, Schenectady)

REGION 4 Sub-Office (Stamford)
Tom Lane - PBS, CBS, Spill Response
(607) 652-7364
(Delaware, Otsego, Western Greene, Schoharie)

REGION 3
Wayne Wadsworth - PBS, CBS
Mike Murthy - MOSF
21 South Putt Comers
New Patz, NY 12561-1696
(914) 255-5453
(Dutchess, Orange, Putnam, Rockland*,
Sullivan, Ulster, Westchester)

REGION 1
Tony Leung - MOSF
Paul John - RSE
SUNY Campus
Building 40
Stony Brook, NY 11794
(516) 751-7900
(Nassau**, Suffolk*)

DELEGATED COUNTY CONTACTS

Nassau County DOH - Marlena Hamann (516) 571-2288
Nassau Fire Commission - Thomas Reed (516) 566-5275
Suffolk County DHS - James Pim (516) 854-2536

Rockland County DOH - Cathy Quinn (914) 364-2617
Cortland County DOH - Joan Guard (607) 753-5035
ABOVEGROUND OR UNDERGROUND TANKS - WHICH WAY TO GO?

by A.D. Young, Consultant - Petroleum Distributors and Marketing Operations

Many people are switching from underground tanks to aboveground tanks under the premise that tanks aboveground are cheaper; avoid federal underground tank regulations; have lower insurance costs; are accessible so pollution problems can be quickly discovered and attended to; do not require extensive leak and spill prevention equipment; and are cheaper to install because no excavation is required.

Nothing is as simple as it may seem. Let’s examine each premise.

Regulatory Controls

While it is true that aboveground storage systems are not uniformly regulated under federal law, there are nevertheless federal regulations requiring spill prevention and response plans. When an aboveground system operates within range of "navigable waterways", a Spill Prevention, Control and Countermeasures (SPCC) Plan must be prepared and implemented. This federal rule, promulgated by EPA under the Clean Water Act, affects any facility with the potential to pollute waterways. This can include a discharge to a community drainage ditch, if the discharge eventually could reach a navigable waterway.

Most aboveground facilities are required to have an SPCC Plan. An SPCC Plan can be expensive to develop, implement and administer, and requires continual review and periodic updating. Currently, underground facilities under 42,000 gallons are not subject to SPCC regulations.

EPA is revising the existing SPCC rule and expects to have new regulations in place in the near future. EPA has proposed to exempt all federally regulated underground tanks from SPCC Plan requirements. These new rules can be expected to impose stringent conditions similar to those already in-place in New York. Aboveground tanks will be required to undergo periodic inspection and testing, to have effective corrosion protection and leak detection capability, and to meet certain design and operating criteria not unlike that specified by federal underground tank rules.

Aboveground tank owners and operators also need to be concerned with provisions in the Oil Pollution Act of 1990 (see issues #8 and #10 of the Bulletin), which are supplemental to the SPCC rules. Of particular concern is the requirement to have an approved discharge response plan in effect by August 1993, for responding to a “worst case” discharge or threat of such a discharge. The costs of developing, implementing and administering such a plan can be substantial. Failure to have an approved plan will be grounds for denying the facility the ability to store oil.

Aboveground tanks are also widely regulated under various fire, safety and local zoning codes.

At the State level, regulations governing aboveground tanks have been in-place since 1985. New York’s Petroleum Bulk Storage Regulations require that new aboveground petroleum tanks be:

- designed to UL or API standards.
- bottoms in contact with soil be cathodically protected;
- painted to prevent rusting;
- built with impermeable barriers under tank;
- diked or impounded;
- equipped with check valve, solenoid and operating valves; and a gauge or high level alarm.

Operating criteria governing installations for many years.

Underwriters Laboratories (UL) and American Petroleum Institute (API) design standards have been adopted by DEC in the State bulk storage regulations.

Given the current climate for stringent oversight of storage tank matters, most local fire marshals now exercise tight control over the construction and use of aboveground tanks in their jurisdictions. Obtaining their
approval, for which they have wide discretionary authority, is an absolute requirement. In addition, building officials, zoning officials, and other local boards or commissions may approve plans, concepts and layout and exercise oversight of the proposed installation.

Each of these official groups can suggest or require a variety of ancillary equipment to be added for safety or aesthetic reasons.

The net cost of satisfying reviewing authority to obtain permits can push the installation cost of an aboveground system beyond that of a similar capacity underground storage tank (UST) system.

Community Considerations

Local concerns and pressures also come into play. After installation, an aboveground tank remains highly visible, subject to a number of hazards because of its exposure. Vandalism, community criticism, product mishandling constraints and safety are heightened operating concerns. The aesthetic effect on the surrounding community as a result of highly visible tankage may pose public relations problems.

Tank Overfilling

Because aboveground tanks are situated above the level of the delivering vehicle, product always must be pumped into them under pressure. Thus, the potential for spills from overfilling is far greater than with underground storage, which normally is served by gravity flow.

When a spill occurs, the facility immediately is subject to all federal and state environmental regulations. The fine distinction between an aboveground and underground installation, its operational regulation, is no longer an issue.

Vapors emitted from the tank during filling operations can also be a fire hazard. Methods for capturing the vapors may be required by air quality regulations. The proper vapor control equipment often is more expensive than that used with underground facilities.

Aboveground tanks storing products affected by seasonal temperature changes may require insulation, heating or cooling equipment - which is not necessary in underground systems.

Fire Protection

Fire protection is a major concern at facilities storing flammable or combustible liquids. Underground tanks have a proven record of safety and effective defense against serious fire or explosion. AST systems clearly are exposed to fire hazard.

Public safety officials naturally prefer storing dangerous liquids in the safest manner - underground. Some environmental officials, on the other hand, concerned with the effects of pollution, may prefer to remove storage from the ground and tend to favor aboveground designs. Thus, the tank owner is caught in the middle.

Installation Costs

An underground tank requires excavation, product containment, leak control and properly engineered backfill and flotation protection. But an aboveground tank also must include a number of added cost features.

Secondary containment in the form of an impervious layer under and around the tank is required for tanks resting on the ground. Diking, which always has been required for fire protection, now must meet newer, more stringent environmental rules for spill containment. Emergency venting systems are required. The piping and handling controls must be designed to prevent product release while pumping. In some cases, roofing many be required over the diked area to reduce treatment of contaminated stormwater (See Tank Bulletin Issues #7 and #9 for more information on stormwater control). Special pumping and handling equipment for surface water collection and small spill containment, retention and storage may be necessary.

Insurance

An incentive frequently cited...
by underground tank owners switching to AST's is lower cost of insurance and limited financial responsibility obligation. This may have been true in the past, but there appears to be a narrowing of the cost difference.

For pollution liability coverage, insurers are requiring ground condition assessments at both AST and UST sites, at considerable cost to the tank owner for hiring qualified environmental consultants.

Insurers also are looking carefully at such matters as product flammability, exposure for damage to surrounding structures, compliance with NFPA and UFC standards, and pollution history to date. Premium rates may be affected by the findings. Having learned about environmental exposure from underwriting underground systems, insurers are applying many of the same acceptance principles to AST’s, and will be basing acceptance and premium cost accordingly.

Proposed federal legislation is now under consideration by Congress includes requiring financial responsibility plans similar to those in-place for underground tanks.

With the federal UST regulations mandating upgrading all existing underground facilities by 1998, tank owners have been searching for reasonable, cost-effective, efficient avenues to operate their liquid storage facilities. Certainly, aboveground designs offer one approach to solving that puzzle.

However, the decision to use aboveground storage should not be made solely on the basis of avoiding UST regulations. The upgrade question really is how to get the best long-term value from the investment in equipment for storing bulk quantities of liquids. Whether spending for new UST facilities or for similar storage above the ground, the tank owner is faced with a major cost. Rather than simply choosing an aboveground system to escape UST rules, the tank owner should examine the benefits and liabilities of each method of storage to determine which may suit his own long-term needs.

NOTE: The views expressed in this article are those of Mr. Young and not necessarily those of DEC.

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**AST/UST Comparison**

Today's state-of-the-art UST system if properly designed and installed, offers a design with much lower risks of serious undetected pollution than tanks installed a decade ago. Similarly, a properly designed and installed aboveground system also offers a high degree of protection against pollution.

- better fire protection
- better vapor suppression
- better resistance to overfilling
- more efficient use of land area
- better temperature control
- better protection from lightening, flood or wind damage
- reduced exposure to vandalism
- minimum requirement for SPCC oversight

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**AST VERSES UST LIABILITY COMPARISON**

<table>
<thead>
<tr>
<th>Concerns</th>
<th>AST's</th>
<th>UST's</th>
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<tr>
<td>Safety</td>
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OIL SPILL REMEDIATION AND STIPULATION AGREEMENTS (STIP's)

by Frank Peduto, P.E., Chief, Technology Evaluation Section

On November 2, 1992, Commissioner Jorling signed Organization and Delegation Memorandum #92-31 which authorized oil spill site remediations to be conducted under Departmental order in a pilot program. The purpose of the memorandum was to establish authority for regional spill personnel to negotiate a short-form consent order, otherwise known as a stipulation agreement (STIP), between the Department and the potential responsible party (PRP) to conduct the clean-up. The STIP serves two primary functions. First, if a party signs the STIP, no separate discharge or emission permits are needed as the discharge or emission limits would be incorporated into the agreement. Second, it serves as a legally binding agreement under which the PRP agrees to clean up an oil spill in accordance with a remediation plan and schedule.

Over the past two years, the Department of Environmental Conservation (DEC) has looked for ways to streamline the oil spill remediation process. Many cleanup projects are delayed awaiting a discharge permit or operating without one. It is believed that if discharge limits could be established in an expeditious manner, site cleanups could begin as soon as remediation plans were approved, thus benefitting the PRP and the environment.

The Navigation Law holds the spiller accountable for the cleanup of an oil spill and assigns the DEC oversight responsibility to ensure the site is returned to it's pre-spill condition. In satisfying this responsibility, regional spill investigators review and approve remediation plans and schedules. Until now, this review has been largely an informal process. While this process worked well in some cases, there were situations where it did not. Enforcement actions against these persons is hindered by the absence of formal schedules, workplans and results, without which unacceptable performance can be subject to individual interpretation. The STIP removes the subjectivity from a remediation plan and schedule by having the PRP agree in writing to a negotiated plan and schedule.

Not all spill cleanups will require a STIP. STIP's are intended for any site which will require a discharge permit (air or water) or which will require an extended period of time to remediate. They are not necessary for quick cleanups, where in the opinion of the regional spill engineer, work will be completed in a relatively short period of time.

The STIP is intended to support the PRP as well as DEC. It does not require the PRP to admit responsibility for the spill; it does require the PRP to agree to cleanup the spill in accordance with an agreed upon schedule. The PRP will, in fact, develop the schedule along with DEC. The schedule will identify milestone activities such as, when the site investigation will begin, when the report will be submitted, when the remediation plan will be submitted and when the clean up will begin, etc. All this information is typically not available at one time. The more complex sites also require more investigative time and remediation plans may need to be adjusted to reflect site conditions. Therefore, the schedule is adjustable subject to approval of the regional spill engineer and should not affect the signing of the STIP by the PRP. Having a schedule of required activities will eliminate any confusion between the PRP and DEC as to what should have taken place and when it should have occurred. It will also save the PRP time and money by not having to apply for and obtain any required discharge permit as the STIP will include all discharge limits which must be achieved.

How It Works

Within a short time after a spill has occurred, the PRP will receive a "letter of responsibility" and a stipulation agreement from the regional director. The letter informs the PRP that upon investigation, DEC believes that the party is responsible for the spill. The PRP is asked to sign the STIP agreeing to undertake the required remediation. Work can and usually will begin prior to the STIP being signed. Any milestone already completed will be identified in the schedule. The PRP can discuss a proposed schedule and the schedule will become part of the signed STIP. As stated above, the schedule need not be totally complete at this time. As more information becomes
STIP's Continued

available, amendments to the schedule can be made with the approval of the regional spill engineer. A copy of the STIP signed by the PRP and the Regional Director will be returned to the PRP.

What Will Happen If the PRP Refuses to sign the STIP?

If the PRP refuses to sign the STIP, the Department will hire its own contractor, remediate the site and bill the PRP. While this is not a preferred alternative, it is necessary because it is critical that remediation be initiated as soon as possible and an authorization to discharge cannot be issued without a STIP. It should be emphasized that the DEC is also responsible by law to ensure an appropriate and effective cleanup takes place.

Why Should a PRP Sign a STIP?

By signing a STIP, the PRP is protected by ensuring that there is no misunderstanding over what must be accomplished. Remediation plans and schedules, which prior to the order were informally agreed upon, will now be specific and protect both parties.

Is There Any Increased Liability to the PRP in Signing a STIP?

No. The PRP is responsible for the cleanup regardless of whether or not they sign the STIP. By signing the STIP, the PRP expresses a desire to cooperate with the DEC to clean up the spill. Cooperation of the PRP is one of the more significant issues considered by the DEC when deciding on potential fines and/or penalties.

What If the PRP Is Not Responsible for the Spill?

If further investigation proves that the PRP was not responsible for the spill, the PRP may seek reimbursement from the Oil Spill Compensation Fund for appropriate cleanup costs.

When Will STIP's Begin?

A pilot project was initiated on May 1, 1993, in Regions #3 and #7 and will run through October. The purpose of the pilot project is to identify any problems with the process and resolve them before the program is implemented statewide early next year.

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**LEGAL NEWS Continued**

**Tank Removal - Don't Forget the Pipes**

When doing a tank closure, it is important to remember that you are doing a tank system closure. The tank system includes all the piping attached to the tank. Tank removal contractors frequently forget about distribution pipes, vent pipes, and fill pipes.

The problems that can be encountered are many. If the piping is to be left in the ground, it should be cleaned out and capped. If it is just abandoned (not cleaned and capped), it could be a source of continuing contamination.

Fill pipes not only can be a source of contamination, but if not properly closed, could be mistaken for a fill pipe of an active tank. Delivery operators that are not properly trained, may try to deliver to the abandoned fill pipe. Such accidental releases of petroleum have been well documented and have resulted in incidents of very costly cleanups.

Residential fuel oil tanks have remote fills outside to make delivery easier. When these tanks are closed, the remote fill must be removed or securely capped to prevent delivery. To illustrate this point, several years ago a man converted his home from oil to gas heat. He removed the tank from the basement, but left the fill pipe in place. The oil company was notified to stop delivering, but the driver didn’t get the word. As a result, 500 gallons of fuel oil were delivered into the soil of his basement floor. This resulted in his family having to vacate the house for a period of five years, extensive cleanup of the basement by the oil company, litigation and a cash settlement of over $60,000.

When a piping system associated with a tank regulated under the federal UST program is left in place at tank closure, a site assessment must include the piping system. Borings must be taken periodically along the system to make the determination if contamination is present. Statistics indicate that 70% of leakage problems associated with UST’s are actually in the piping system.

So, when doing a tank closure, be sure to get it all.... Close the tank and piping system properly so that delivery cannot be made, product piping has been cleaned out and securely capped or removed, and the site assessment has included the most likely source of contamination - the piping system.

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With the increased number of environmental laws, fines levied for noncompliance, high remediation costs and public concern, many facility owners are choosing audits to identify, reduce and eliminate environmental exposures and associated liabilities.

Audits not only measure compliance with regulations, they are being used by businesses to evaluate their performance in meeting environmental goals. The primary driving force behind audit initiatives is a demand by upper management that environmental responsibilities and expectations be met, that contamination of the air, land and water be prevented, and that liabilities and associated costs be avoided or minimized.

Audit Benefits

Given the environmental and safety concerns related to the storage and handling petroleum and hazardous chemicals, businesses should be sure that their facility not only complies with government regulations, but is designed and operated in accordance with recognized engineering standards and industry practices. Auditing should be performed for each of the following practices used at the storage facility:

- monitoring
- secondary containment
- testing and inspection
- loading and unloading operations
- tank and equipment
- maintenance and repair
- waste treatment and disposal
- training
- spill and emergency response
- facility management and organization
- regulatory compliance
- closure

Environmental auditing of each of these practices can help:

- Establish performance baselines;
- Identify problems and correct deficiencies;
- Reduce agency enforcement actions, fines and lawsuits;
- Prioritize and plan for future investments.
- Increase employee awareness of environmental responsibility; and
- Improve community image.

Three Steps to an Audit

Auditing involves 3 steps: preplanning, the site visit and a post-audit. The first step in the auditing process is to prepare for the audit to ensure that it is conducted as thoroughly and efficiently as possible. This step includes prioritizing and scheduling facilities, selecting and training audit team members, gathering background information, determining the scope and standards, developing necessary protocols and forms, determining who will be responsible for implementing recommendations, and developing reporting and tracking systems.

Step Two involves the site visit which implements the audit plan. This includes a kickoff meeting with facility staff; walk-through and orientation tour; examination of permits, records and reports; detailed interview with the plant manager, environmental coordinator and others with environmental responsibilities; detailed inspection of the facility property and physical plant to determine regulatory applicability and compliance in accordance with audit checklists and protocols; and identification of compliance deficiencies and problems. Periodic briefing of the plant manager, environmental coordinator and legal counsel is important as is a close-out briefing to discuss findings and alternative courses of action.

The Third Step, the post-audit, involves developing a written assessment of the facility’s compliance status and often includes recommendations to correct deficiencies. Modifications in equipment may be needed, standard operating procedures may need to be developed, training may need to be improved and policies may need to be written out. In this phase, the auditors confirm information gathered during the site visit; resolve outstanding compliance issues; prepare a draft and subsequent final report of the audit findings and recommendations; and track and review progress in closing out items requiring action.

While the nature of audit programs varies widely between companies, successful programs share some characteristics, such as:

- Clearly defined scope and objective;
- Well-documented audit procedures, assessment criteria, protocols, audit program manuals and other audit tools;
- Reflect corporate culture and operating philosophy;
- Support from top-level management, with buy-in from all parties involved in the audit process;
- Periodic reviews;
- Adequate resources, staff and audit tools;
- Focus on turning audit results and recommendations into corrective action; and
- Coordination and reinforcement by other management systems, programs and initiatives.

In Conclusion

Auditing is a necessary component of a business' compliance and risk management strategy. An audit can help a company pro-actively manage its environmental exposures, avoid or reduce unnecessary accidents, and costly cleanup projects and legal suits.

Although basic techniques are relatively straightforward, the real challenge for corporations is in the design and implementation of facility audit programs that are appropriate to their specific management goals and objectives. Most importantly, building an effective auditing program demands careful and deliberate planning, implementation and follow through.

10 Steps To An Effective Audit Program

1. Establish the foundation - develop program goals, policies and procedures.
2. Solicit corporate/facility participation - obtain buy-in and commitment.
3. Develop the program - secure resources, develop audit tools and train personnel.
4. Select facilities - inventory and prioritize facilities, and develop schedules.
5. Prepare facility staff - conduct periodic awareness sessions, and distribute pre-audit questionnaire and self-assessment tools.
6. Conduct the audits - pre-audit, on-site and post-audit activities.
7. Convene status briefing - communicate status, findings, problems, needs and next steps to corporate/division/plant staff.
8. Plan and implement corrective actions - be realistic, but diligent.
10. Implement management programs - make changes in environmental management programs(s) to address systemic weaknesses.

- This article first appeared in the April 1993 issue of ENVIRONMENTAL PROTECTION Magazine.

Short Form Consent Orders - A Key to Enforcement Flexibility

DEC has developed a short form enforcement order for certain petroleum bulk storage violations. A goal of this enforcement approach is to allow program staff in each of the regional offices to negotiate settlements of cases that are integral to the success of DEC's regulatory program, but due to other priorities, might otherwise not be attended to on the regional attorney docket. This enables DEC to commence and resolve an enforcement action and establish compliance in a timely and effective manner.

Cases that can be resolved using the short form involve one or more violations of the State Petroleum Bulk Storage Regulations:
- Failure to register or re-register storage tanks (Section 612.1(a));
- Failure to color code fill ports (Section 613.3(b));
- Failure to install product level or other required gauges (Section 613.3 (c));
- Failure to maintain inventory records; or
- Failure to perform tightness tests (Section 613.5).

The short form is seen as a way for regional staff to efficiently and expeditiously enforce routine and straightforward violations of petroleum bulk storage regulations. It also relieves some of the pressure on regional attorneys, allowing them to pursue serious cases.

Checking with Wendy Stevenson who heads up the Petroleum Bulk Storage staff in DEC's Region 8 Office, in April of this year, 150 letters were sent out alerting owners/operators of tank tests that were overdue. On July 1, 50 notices of violation were issued by certified mail to non-respondents, allowing them 30 days to comply and specifying a potential monetary penalty. Those not responding to these notices will be given a short form order of compliance and a penalty will be imposed. Failure to sign the short form order will result in the non-responding party being sent a Notice of Hearing and Complaint to appear before an Administrative Law Judge with potentially stiffer penalties.
Among many different video tapes available from DEC, there is one discussing how to make a safe delivery of petroleum. This video which is entitled, "Keeping It Clean: Making Safe and Spill-Free Motor Fuel Deliveries". It is designed to familiarize delivery drivers and facility owners/operators with equipment required to prevent air pollution as well as soil and water contamination. It addresses the following cases:

- Spill Containment Devices
  - Purpose and Capacities
  - Drain Mechanisms
  - Maintenance Issues

Drivers of motor fuel delivery trucks are the most important factor in assuring pollution free fuel deliveries to either underground or aboveground storage tanks. Today’s drivers face many types of equipment required to prevent air pollution and soil and water contamination. This 25-minute video illustrates key steps of a safe, clean delivery and the variety of equipment drivers will find at various motor fuel facilities.

Any facility owner/operator who is interested in watching this video is welcome to borrow it for a limited time on a first come, first served basis. It can be obtained by calling the Bulk Storage Helpline - 1-800-242-4351. This video can be ordered by calling the EPA RCRA/Superfund Hotline at 800 424-9346.

The Phase II Chemical Bulk Storage Regulations (modified 6 NYCRR Parts 595 - 597 and new 6 NYCRR Parts 598 and 599 are progressing through the regulatory process. Four Public Hearings were held in July. The Division of Spills Management is currently reviewing and evaluating the comments received.

It is expected that the regulatory package will be sent to the State Environmental Board in April of 1994. The regulatory package consists of the regulations, the hearing officer’s report, the responsiveness summary, the regulatory impact statement and the regulatory flexibility analysis.

It is anticipated that the Phase II Chemical Bulk Storage Regulations will be promulgated in June of 1994.

The American Society for Testing and Materials (ASTM) has recently issued two new practices that define good commercial and customary practice for conducting an environmental site assessment of commercial real estate with respect to chemicals and petroleum products.

These two standards deal with appropriate Phase I Site Assessment procedures. The Phase I process includes 4 components: a review of records, a site reconnaissance, interviews with current owners/occupants and with local government officials, and an evaluation and report.

The two standards are E 1527 - 93, “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” and E 1528 - 93, “Standard Practice for Environmental Site Assessments: Transaction Screen Process.” They are available from the ASTM at a cost of $23 each. The address of the ASTM is 1916 Race Street, Philadelphia, PA 19103. The telephone number is (215) 299-5400.

On August 10, 1993, EPA proposed extending the financial responsibility compliance deadline to December 31, 1993 for certain members of Group 4 (i.e., small petroleum marketers, local governments, and Indian Tribes) if they meet certain criteria which include:
Financial Responsibility Cont'd

- Compliance with all applicable technical requirements to date (e.g. leak detection), and
- Location in rural areas,
- "Hardship" for petroleum marketers, or
- "Essential services" for local governments.

The proposed rule is published in the Federal Register of August 17, 1993.

For more information, call EPA's RCRA/Superfund Hotline - 800 424-9346, Monday through Friday, 8:30 a.m. to 7:30 p.m. EST. The toll-free number for the hearing impaired is TDD 800 553-7672.

The Technology Evaluation Section of the Division of Spills Management is currently engaged in a research project funded by a LUST Trust Grant from U.S. EPA. It involves the remediation of petroleum-contaminated sites using alternatives to landfilling. This is important because the number of such sites have increased over the years while the and more landfills have closed, especially to petroleum-contaminated media.

Alternatives to soil disposal include reuse or on-site treatment of soils. On-site treatment options which are being used in New York include thermal treatment, soil venting, hot and cold-mix asphalt manufacturing, and bioremediation (See Issue #9 of the Tank Bulletin for more information on these technologies).

In this study, which is being done in Saratoga County, New York, DEC is developing a generic design standard for bioremediation which will apply to soils of between 30 - 100 yd$^3$. This quantity is typical of the removal of an underground storage tank. Development of generic design standards will reduce time lag and the overall cost of a spill cleanup and provide preliminary design work for the responsible party or contractor.

The draft report on this project is entitled, "Generic Biocell and Biopile Designs for Small-Scale Petroleum-Contaminated Soil Projects." A copy can be obtained by contacting the Division of Spills Management at 800-242-4351, or by writing to NYSDEC, Division of Spill Management, 50 Wolf Road, Rm. 340, Albany, New York 12233-3510.

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