Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

DEVAL L. PATRICK
Governor

RICHARD K. SULLIVAN JR.
Secretary

KENNETH L. KIMMELL
Commissioner

DRAFT
310 CMR 80.00: THE MASSACHUSETTS UNDERGROUND STORAGE TANK PROGRAM

Background Document for Public Comment

February, 2014

Statutory Authority: Massachusetts General Law, Chapter 21O

This information is available in alternate format. Call Michelle Waters-Ekanem, Diversity Director, at 617-292-5751. TDD# 1-866-539-7622 or 1-617-574-6868
MassDEP Website: www.mass.gov/dep
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I. INTRODUCTION

Underground storage tanks (USTs) have been used for many years to store hazardous substances and petroleum products used by a wide variety of businesses. In addition to the tank itself, an "UST system" includes the underground piping that is used to fill the tank and draw product from it; this piping can also leak if not properly installed and maintained.

In Massachusetts, approximately 4,500 facilities use 9,700 UST systems to store the hazardous substances and petroleum products that they sell or use in their industrial processes and to fuel their vehicles and equipment. More than 3,000 of these facilities are retail gasoline stations or intermediate distributers of petroleum fuels. UST systems are also found at airports, hospitals, schools, military bases, golf courses, and federal, state, and local government facilities, as well as large and small businesses that need to store hazardous substances and fuel. Most (90%) of Massachusetts USTs hold petroleum products such as gasoline, diesel, and other petroleum fuels. Another 4% hold hazardous materials – most commonly acids, bases, and solvents. The rest of Massachusetts tanks hold other substances such as hazardous waste or waste oil.

Until the mid-1980s, most USTs were made of bare steel, which is likely to corrode and leak over time, allowing the contents of the tank to spread into the surrounding soil and groundwater, which supplies drinking water for many Massachusetts cities and towns. While modern tanks are double-walled and made of fiberglass or cathodically protected steel[1], they can still leak if they are not properly installed, operated, and maintained. Modern UST systems include features that provide early detection of leaks; these features also need to be properly installed, operated, and maintained to function properly over time.

Leaking underground storage tanks have caused considerable environmental damage in Massachusetts, affecting public and private water supplies, wetlands, and soil. In some cases, vapors from contaminated soil and water have permeated into homes and businesses where people can breathe contaminated air. Many millions of dollars have already been spent on clean up, but much can be done to protect public health and the environment from these releases.

A. Early Massachusetts Regulation

USTs have been recognized in Massachusetts as a potential threat to groundwater and surface water quality since 1919, when the Legislature authorized the Department of Fire Services (DFS) to oversee some aspects of USTs, and to promulgate rules and regulations regarding the construction, use and maintenance of USTs. In 1968, the Legislature authorized the Division of Water Pollution Control (which was then under the Massachusetts Water Resources Commission, and is now part of the Department of Environmental Protection, "MassDEP" or "the Department") to address releases of oil into Massachusetts waters, including leaks from underground storage tanks. DFS issued its first regulations

[1] Cathodic protection (CP) is a technique used to control the corrosion of a metal surface by making the surface the cathode of an electrochemical cell. The simplest method to apply CP is by connecting the metal to be protected with a piece of another more easily corroded "sacrificial metal", which acts as the anode of the electrochemical cell. The sacrificial metal then corrodes instead of the protected metal. (Source: Wikipedia: http://en.wikipedia.org/wiki/Cathodic_protection)

governing installation of USTs in 1975. These regulations required UST system Owners to obtain a permit from the Commissioner of Public Safety before installing an UST of more than 10,000 gallons. The regulations also established standards for the materials, construction and location of tanks. DFS's regulations were amended 38 times after they were initially promulgated to comply with federal requirements and to improve regulatory oversight.

Since 1983, the Massachusetts Superfund Law (M.G.L. c. 21E) has required that leaking USTs be reported to MassDEP. In 1988, the Massachusetts Contingency Plan (MCP) established requirements for reporting, assessing, and cleaning up releases of oil and hazardous materials. Since 1983, more than 6,280 leaking USTs have been reported to MassDEP's Bureau of Waste Site Cleanup[2].

DFS's requirements for tank installation, operation and maintenance, together with the clear liability scheme and requirements to report, assess, and clean up environmental releases of the Massachusetts Superfund Law, have provided powerful incentives for UST Owners and Operators to properly install, operate and maintain their UST systems. Since 1985, 2,490 UST systems have been reported to have released oil or hazardous substances in quantities that exceed MassDEP's reporting requirements. The Commonwealth has spent approximately $16 million in public funds to assess releases and in some cases to conduct cleanups at 54 of these sites (funding has been drawn from federal grants as well as Commonwealth capital funds). At most (77%) of these sites, the UST system Owners and Operators were unable to pay for assessment and cleanup, resulting in a net cost to the Commonwealth of $13.8 million.

In recent years, the number of tanks reported to have leaked annually has declined significantly: over the last decade, the number of leaking tanks reported annually has declined from 124 reports in 2001 to 38 in 2012. However, the existing regulatory requirements have not been sufficient to prevent USTs from leaking and from posing significant risks to public health and the environment. Over the last five years, an average of 45 confirmed releases related to UST systems have been reported to MassDEP's Bureau of Waste Site Cleanup each year[3], which indicates that leaks are still occurring, despite existing leak prevention and detection requirements.

Releases from UST systems can be expensive to assess and clean up. Before the U.S. Environmental Protection Agency (EPA) and the Commonwealth adopted requirements for leak detection, releases were primarily discovered when an Owner or Operator realized that a significant amount of product in a tank was missing. Other releases were (and continue to be) found when a tank is removed and product is found in the underlying soil, or when neighbors complain of odors in their buildings or problems with their drinking water. If a release is discovered quickly, it can be cleaned up by excavating the contaminated soil and arranging for proper disposal. However, if leaked product reaches groundwater, cleanup can be very expensive and may continue over many years.

Examples of reported releases from UST systems illustrate how improper operation and maintenance and lack of leak detection and collection equipment can lead to serious public safety and environmental situations:

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[2] A searchable list of all oil and hazardous materials releases that have been reported to MassDEP is available at: http://public.dep.state.ma.us/SearchableSites2/Search.aspx.

[3] Ibid.

- In 1990, petroleum-contaminated soil and groundwater were discovered in underlying soil when old UST systems were being replaced at two busy rest stops on the east-bound and west-bound sides of the Massachusetts Turnpike in Charlton, a town that relied entirely on private wells for drinking water supplies. Over the next 15 years, UST systems at several other gas stations in this area of Charlton were also found to have released gasoline and other contaminants into the fractured bedrock that underlies the town. MassDEP has found that wells serving more than 100 single family homes and an apartment building were affected or threatened by these releases (and assessments of private wells are continuing). Examples of some of the measures that have been taken to keep residents from being exposed to contaminated groundwater include:
    - Purchase and demolition of two houses that abutted one of the Turnpike rest stops by the MA Turnpike Authority,
    - Provision of bottled water and "point of entry" treatment systems on individual wells by the company that operated the Turnpike gas stations when the releases were initially discovered, and by the owners of three other gas stations whose leaking UST systems have contributed to contamination in the aquifer, and
    - Construction of several new water lines to bring in water from a clean supply in a neighboring town (the cost for this has been shared by the municipality and gas station owners). Associated costs have included construction to connect each affected home and business to the new line and decommissioning private wells.

  MassDEP is continuing to work with the owners of all of the gas stations that have contributed to the drinking water problems to monitor well water quality in the affected area, which is expanding as additional wells are found to be affected by contamination. At least one of the gas station owners does not have the resources to construct a new water supply line for the homes that have been affected by that UST system. These homes will need to continue to rely on bottled water and "point of entry" treatment systems for their wells until a new public water supply line can be built and a condition of "No Significant Risk" can be reached for the source of contamination and the affected wells.

- In February 2004, MassDEP was notified that concentrations of methyl tertiary butyl ether (MTBE), an organic chemical that was added to gasoline until 2009 to increase oxygen levels and boost engine performance, was found in a well in Rutland that supplied drinking water to a convenience store. A gasoline station, a liquor store, and a seasonal restaurant were also located on the property. Between February and October 2004, MTBE was discovered in nine additional private water supply wells on neighboring properties, at concentrations that posed an "Imminent Hazard" to people who might drink the water or cook with it.

  The original gas station at this location had shared a drinking water supply well with the neighboring restaurant. As part of a renovation of the gas station in 2001, the old UST system was replaced with three underground double-walled fiberglass tanks. An assessment of the property conducted as part of the station renovation did not find any releases of oil or hazardous material that required reporting to MassDEP, and the UST system's vapor recovery lines and tank containment sumps were found to be tight. Leaks in the station's gasoline vapor return lines and faulty seals on tank spill buckets were identified as the likely sources of the releases identified in 2004.

The owner of the gas station provided bottled water to residents and the affected businesses, and treatment systems were installed in 2004 on six of the nine private drinking water wells and the public drinking water well while source of the contamination was investigated. The gas station owner also paid for the installation of a new public water supply well (located at a significant distance from the gas station), and the conversion of the original shared well at the property to a groundwater recovery and treatment well with a shallow tray air stripper that removed contaminants before the water was re-injected into the aquifer. The site cleanup was considered to be finished in 2009.

- In April 2012, MassDEP Emergency Response staff, the local Fire Department, and the Board of Health were all called to a home in Marlborough, where gasoline was found in a basement sump. MassDEP's investigation found that the release was caused by a loose fitting in the hose assembly at a neighboring gasoline station, where agency staff observed premium grade gasoline leaking from the hose assembly when the system was pressurized. The station had not installed a dispenser sump beneath the dispenser to collect leaking gasoline. Since the dispenser pump was rarely used, the small leakage was not noticed by the station Owner or Operator. The leaked gasoline moved through soil into underlying groundwater, and subsequently flowed into the basement sumps in two abutting homes.

  Gasoline in the basement sumps contaminated the air inside these abutting homes. Levels were high enough to have the potential to explode. The station Owner is now paying to recover gasoline from soil and groundwater at the station, and has installed vapor recovery systems in the two affected homes.

- Another reported release was from a UST system in Weymouth that held heating oil for a large apartment complex at its site (these tanks are known as "consumptive use tanks"). In February 2011, oil and an oil sheen were observed in a wetland near the apartment complex, and were tracked back to the building's heating oil tank, which had no leak detection equipment on either the tank or its piping. It is not known how long the tank had been leaking or how much oil was released. If the oil had not been observed in the wetland, it could have remained undiscovered until it reached Weymouth's public water supply, endangering the water supply for the town's approximately 50,000 citizens.

To assist expedited cleanups of leaking tanks used to store petroleum products, the Massachusetts Legislature enacted the Underground Storage Tank Petroleum Product Clean-Up Fund Program (M.G.L. c. 21J, "the 21J Program") in 1990. The 21J Program, which is administered by the Massachusetts Department of Revenue, reimburses Owners or Operators of petroleum UST systems for expenses and other obligations incurred in responding to releases of petroleum products from their UST systems (reimbursements are limited by caps established for different sizes of tanks and different types of owners). The 21J Program also reimburses some claims for bodily injury, property damage, and damage to natural resources that are assessed against a covered Owner or Operator of a UST system. To finance these reimbursements, Chapter 21J established two fees: an annual tank registration fee and a "per gallon" fee imposed on the delivery of petroleum products to USTs. Currently, these fees are set at $250.00 and 2.5 cents, respectively.

While the 21J Program has enabled many petroleum UST Owners to assess and clean up releases from their tanks, reimbursement claims exceed the funds that are available. Between 2007 and 2011, the

Fund paid $132.3 million to reimburse claims for expenses at 953 facilities. However, during these years, the Fund received claims that totaled more than $159 million.

The 21J Program does not cover:

- Participating Owners/Operators who cannot qualify for a Certificate of Compliance ("COC"). In March 2013, there were 352 active facilities that did not have a COC. Of these, 111 facilities had a COC at one point or had applied for one, but the COC may have expired and was not renewed, was revoked, or was never approved.

- Costs that exceed reimbursement limits and deductibles at Fund-eligible cleanups (estimates of the number of facilities or total costs are not available to MassDEP).

- Petroleum marketers who choose not to participate in 21J (number not available to MassDEP).

- Petroleum UST systems that are not used by petroleum marketers, e.g., local, state, and federal government agencies. Municipalities own 441 active UST facilities holding 743 UST systems or tanks.

- Tanks holding non-petroleum regulated substances (475 active UST systems).

B. Federal Regulation

In the late 1970's and early 1980's, the threats posed by USTs to soil and groundwater (which supplies drinking water for nearly half of all Americans) began to be recognized nationally. To address this nationwide problem, Congress passed a series of laws to protect human health and the environment:

- In 1984, Subtitle I was added to the Solid Waste Disposal Act through the Hazardous and Solid Waste Amendments, which created a federal program to regulate USTs containing petroleum and hazardous chemicals. This law focused on limiting corrosion and structural defects to minimize future tank leaks, and directed the EPA to establish operating requirements and technical standards for tank design and installation, leak detection, spill and overfill control, corrective action, and tank closure.

- In 1986, Subtitle I was amended through the Superfund Amendments Reauthorization Act. These amendments:
    - Authorized EPA to respond to petroleum spills and leaks,
    - Directed EPA to establish financial responsibility requirements for UST Owners and Operators to cover the cost of taking corrective actions and to compensate third parties for injury and property damage caused by leaking tanks, and
    - Created a Leaking Underground Storage Tank (LUST) Trust Fund, which is used to oversee cleanups by responsible parties, enforce cleanups by recalcitrant parties, and pay for cleanups at sites where the Owner or Operator is unknown, unwilling, or unable to respond, or where emergency action is required.
- The Energy Policy Act of 2005 amended Subtitle I of the Solid Waste Disposal Act again to:
    - Add new leak detection and enforcement provisions to the program,
    - Require that all regulated USTs be inspected every three years,

- Expand the use of the LUST Trust Fund, and
- Require EPA to develop guidelines for state programs that are supported by financial grants from EPA, covering operator training, inspections, delivery prohibition, secondary containment, financial responsibility, public records, and state compliance reports on government USTs.

The federal UST program is implemented through regulations that establish technical and financial responsibility requirements for tank Owners and Operators and Grant Guidelines that establish minimum standards for state programs where states choose to run their own programs in lieu of the federal program.[4] Delegated states must implement their programs in compliance with all applicable federal statutes, regulations and Grant Guidelines. A delegated state must submit its UST program rules to EPA, which reviews them to ensure that state requirements are at least as stringent as the rules adopted by the federal government. EPA is currently developing amendments to its regulations, in part to comply with requirements of the 2005 U.S. Energy Policy Act. When those amendments become final, delegated states will have to update their regulations to comply with EPA's revised rules. Thirty-seven states in addition to Massachusetts have been delegated authority by EPA to implement the federal program.

In order for states to receive federal funding for their UST program, they must comply with Grant Guidelines[5] established by EPA. DFS updated its regulations to comply with these Grant Guidelines. These regulations will remain in effect until MassDEP promulgates new regulations (proposals for which are explained in this document).

The Grant Guidelines most relevant to the regulations that MassDEP is proposing are:

Delivery Prohibition:

- By August 8, 2007, states had to promulgate a delivery prohibition program that prohibits the delivery of petroleum to an UST that is ineligible/out of compliance.

[4] The statutory authority for the federal UST program is at 42 U.S.C. §§6991-6991m, as amended by the Energy Policy Act of 2005, 42 U.S.C. 15801 (2005). The implementing regulations are found at 40 CFR 280. The Energy Policy Act amendments to the UST program are enforced by the EPA through Grant Guidelines that were issued in 2006 and 2007.

[5] U.S. Environmental Protection Agency, Office of Underground Storage Tanks, Grant Guidelines to States Implementing the Delivery Prohibition Provision of the Energy Policy Act of 2005 (EPA-510-R-06-003, August 2006); U.S. Environmental Protection Agency, Office of Underground Storage Tanks, Grant Guidelines to States Implementing the Financial Responsibility and Installer Certification of the Energy Policy Act of 2005 (EPA 510-R-07-002, January 2007); U.S. Environmental Protection Agency, Office of Underground Storage Tanks, Grant Guidelines to States Implementing the Inspection Provisions of the Energy Policy Act of 2005 (EPA 510-R-07-004 (April 2007); U.S. Environmental Protection Agency, Office of Underground Storage Tanks, Grant Guidelines to States Implementing the Operator Training Provision of the Energy Policy Act of 2005 (EPA 510-R-005, August 2007): U.S. Environmental Protection Agency, Office of Underground Storage Tanks, Grant Guidelines to States Implementing the Secondary Containment Provision of the Energy Act of 2005 (EPA 510-R-06-001, November 2006); U.S. Environmental Protection Agency, Office of Underground Storage Tanks, Grant Guidelines to States Implementing the Public Records Provision of the Energy Act of 2005 (EPA 510-R-07-001, January 2007); U.S. Environmental Protection Agency, Office of Underground Storage Tanks, Grant Guidelines Requiring States to Report on the Compliance of Government Underground Storage Tanks (EPA 510 R-07-003, April 2007).

- The delivery prohibition regulations must contain criteria to determine ineligibility, mechanisms for identifying the ineligible tanks, and processes to ensure adequate notice to Owners.
- EPA identified certain violations for which delivery prohibition is mandatory.

Inspections:

- By August 8, 2007, states were required to conduct an inspection of every UST that has not been inspected since December 22, 1998.
- By August 8, 2007, states had to set up an inspection program whereby every UST is inspected every three years.
- States may use a third-party inspection program in lieu of using state inspectors. DFS took this approach, and MassDEP is proposing to continue to use it.

Financial Responsibility and Installer Certification Guidelines:

By February 8, 2007, state regulations had to include one of the following provisions:

- A person who manufactures an UST or piping, or installs UST systems, shall maintain evidence of financial responsibility to provide cost for corrective actions for improper manufacturing or installation. Installers shall also be certified or licensed, have the installation certified or approved, or install the UST in accordance with a code of practice; OR
- Every new or replacement UST or piping that is installed within 1,000 feet of an existing community water system or existing potable drinking well shall have a system for secondary containment and monitor for leaks. (DFS's regulation requires this option.)

The Grant Guidelines also establish requirements for Operator Training, which MassDEP addressed in regulations that were promulgated on February 3, 2012. In this regulatory proposal, MassDEP is not proposing to modify the Operator Training requirements, although the agency is proposing to move the Operator Training regulation (which is currently in 310 CMR 80.01 and 80.02) to 310 CMR 80.03, 310 CMR 80.04, and 310 CMR 80.36.

C. The Existing Massachusetts Underground Storage Tank Program

In 1993, EPA delegated authority to implement the federal UST program in Massachusetts to the Commonwealth, which split authority between DFS and MassDEP. DFS had responsibility for the part of the program that was designed to prevent USTs from leaking, which included oversight of installation, operation and maintenance of UST systems. MassDEP was responsible for ensuring that leaks from USTs into the environment were reported, assessed, and cleaned up properly. EPA has provided funding through grants to both agencies to support this work.

In 2009, the Massachusetts Legislature enacted Chapter 4 of the Acts of 2009, which introduced a new chapter of the Massachusetts General Laws: Operation and Removal of Underground Storage Tanks (M.G.L. c. 21O). M.G.L. c. 21O established that underground tanks holding "regulated substances" would be covered by the UST Program. The law defines "regulated substance" very broadly to include any substance listed in the U.S. Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and petroleum. The law also defines "Underground Storage Tank" as a tank, including piping,

which is 10% or more below the surface of the ground. M.G.L. c. 21O also lists types of containers that are not regulated as "underground storage tanks"[6].

Section 7 of Chapter 4 of the Acts of 2009 transferred responsibility for oversight of the leak prevention program from DFS to MassDEP (the "transfer legislation"). Section 5 of this law also repealed M.G.L. c. 148, §§ 38A-38I, which gave DFS authority to implement an UST Program, but the statute maintained DFS's authority to permit UST closures.

The law authorized MassDEP to administer the prevention program under the regulations adopted by DFS (regulations governing gasoline/motor fuel inventory at 527 CMR 5.06 and tank/container regulations at 527 CMR 9.00), until MassDEP establishes its own regulations. With the publication of this draft regulation, MassDEP is proposing to establish its own regulations governing UST system installation, operation and maintenance. Once final regulations are promulgated, the DFS regulations will be rescinded.

Since the transfer legislation was enacted, MassDEP has been regulating UST systems under DFS's regulations (527 CMR 9.00 and 527 CMR 5.06). As noted above, on February 3, 2012, MassDEP promulgated a regulation to implement the operator training portion of the federal UST program so that UST system Owners could comply with the federal requirement for the use of operators with specific types of training to operate and maintain their UST systems by August 8, 2012. While MassDEP is not proposing to "re-open" this regulation for public comment, the agency is proposing to move the substance of this section (without amendment) to a new section, 310 CMR 80.36. The current applicability and definition section for the operator training program at 310 CMR 80.01 would be folded into the proposed applicability and definition sections at 310 CMR 80.03 and 310 CMR 80.04. The UST Operator Certification regulation that is currently in effect is available on MassDEP's web site: http://www.mass.gov/eea/agencies/massdep/toxics/ust/underground-storage-tank-ust-regulations-and-policies.html.

D. Current Compliance Status of Massachusetts UST Systems

Shortly after the Legislature transferred the UST program to MassDEP, the agency undertook two major program initiatives. First, between March and November 2010, it conducted a Compliance Assistance Initiative, in which MassDEP staff visited all of the 4457 UST facilities that were known to it at the time. During these visits, MassDEP staff provided program information and compliance assistance to the UST system Owners and Operators. Second, between August 1, 2009 and September 30, 2010 (federal fiscal years 2009 and 2010), MassDEP inspected 231 UST systems selected randomly to assess their compliance with EPA's key compliance measures, called "Significant Operational Compliance" measures or "SOCs." These inspections continued in Federal Fiscal Years 2011 and 2012, in which 60 facilities were selected at random each year to assess their compliance with SOCs. Please note that, in addition to these random inspections, MassDEP also inspects many additional UST systems each year as part of its compliance assurance and enforcement program.

EPA requires that all UST systems be inspected to assess their compliance with federal (and state) requirements every three years and allows states to require UST system Owners to hire third parties to perform these inspections. State programs that require third-party inspections must have the capacity

[6] These include septic tanks, natural gas pipelines, surface water impoundments, flow-through product tanks, storage tanks located in basements, cellars or mines if the tank is situated on or above a floor and all of its sides are accessible and visible.

to verify compliance assessments, and all states must report their findings about compliance with EPA's SOCs to EPA. The SOCs measure compliance with requirements for:

- Release prevention, which include installation of equipment designed to prevent releases of regulated substances from UST systems to the environment via rusting tanks and piping (cathodic protection), spills, and overfills, and equipment that will contain leaks when they occur. These SOCs also address the proper operation and maintenance of this equipment.

- Release detection, which includes installation of leak detection equipment and the proper operation and maintenance of this equipment.

Both sets of SOCs address whether required equipment has been installed, and whether documentation is available to demonstrate that the equipment is being properly operated and maintained. The *release prevention* measures focus primarily on having and maintaining the equipment necessary to keep leaks from occurring during filling operations and to prevent leakage due to corrosion. The *release detection* measures also require the installation of specific types of equipment (e.g., monitors and alarms) or procedures that make UST system Owners and Operators aware that a leak is occurring. The operability of most leak detection equipment is verified through readouts from an electronic leak detection system, or from records showing that the equipment has been tested at the intervals required by the regulations. For UST systems without specific equipment to detect leaks, the leak detection requirements can be met through inventory reconciliation, which can be verified through a review of the inventory records.

For both release prevention and release detection SOCs, documenting that the required inspections and tests have been performed is critical to passing a MassDEP inspection.

Table 1 below describes the specific SOCs for both categories.

Table 1
Description of EPA's Significant Operational Compliance (SOC) Measures

Type of SOC	Requirements Assessed
Release Prevention	• Spill prevention equipment is present and operating properly • Overfill prevention equipment is present and operating properly • Tanks and pipes are tightness tested within six months of UST system repairs • Corrosion protection systems are tested for functionality within 30 days of UST system repairs • Corrosion protection systems are operating and maintained properly. Systems with cathodic protection must be inspected periodically to assess whether the cathodic protection is functioning properly (e.g., systems with impressed current must be inspected every 60 days, galvanic systems must be inspected at installation and at least every three years thereafter) • Corrosion protection is in place for all tanks and pipes • Lined tanks are inspected periodically and lining is in compliance (Note: this SOC was not included in the analysis because there were no facilities in the samples to which it applied)

Type of SOC	Requirements Assessed
Release Detection	• Leak detection systems are in place • Leak detection systems are operating properly • Leak detection systems meet the applicable performance standards • Suspected releases are responded to properly • All tanks and pipes are monitored at the required frequency and records are kept • Hazardous substance USTs meet leak detection requirements (Note: this SOC was not included in the analysis because there were no facilities in the samples to which it applied) • Out of service tanks containing product meet leak detection requirements (Note: this SOC has been excluded from analysis because it is not applicable in MA)

To assess compliance with SOCs, MassDEP annually selects a random, statistically significant sample of registered UST systems, which are inspected by MassDEP inspectors during the federal fiscal year. While not assessing the compliance of every UST system in Massachusetts in each year, the agency has determined that this approach is sufficient to allow the agency to draw conclusions about the compliance status of the full universe of UST systems. Approximately 60 randomly selected inspections are needed to be able to generalize the results to the full UST system universe.

In 2010, MassDEP conducted a more in-depth evaluation of compliance in order to establish a baseline to which the results of random inspections in subsequent years can be compared. For this baseline assessment, the agency wanted to assess the compliance of five groups of UST systems that reflected the variety of UST systems and types of owners, so it selected UST systems randomly for inspection within each group:

- Gas stations where owner owns >5 facilities *(27% of universe, sample size = 55)*
- Gas stations where owner owns $\leq$ 5 facilities *(36% of universe, sample size = 48)*
- Manufacturing/Utilities *(10% of universe, sample size = 43)*
- Miscellaneous Small Business & Municipalities *(18% of universe, Sample Size = 53)*
- Institutional/State & Federal Government *(9% of universe, sample size = 42)*

In addition, MassDEP assessed the performance of a separate sample of UST systems from the group of facilities that had submitted their third-party inspection reports by July 2010.

The results from these inspections are summarized in Tables 2 through 4. In August 2011, MassDEP presented the results of the 2009-10 baseline compliance inspections to a meeting of UST stakeholders (the full presentation is available at: http://www.mass.gov/eea/agencies/massdep/news/advisory-committees/underground-storage-tank-ust-stakeholder-group.html, scroll down to find the material for the August 2, 2011 meeting).

Table 2
UST System Inspection Results: Release Prevention SOCs

Federal Fiscal Year/Number of Active UST Tanks		Number of Randomly Selected MA UST Systems Inspected*	Percentage of Inspected Systems in Significant Operational Compliance with **Release Prevention** Requirements	
			% MA Systems	% National
2009-10	11,321	198	85%+	83%
2011	9,732	58	81%	84%
2012	11,375	60	90%	85%

* MassDEP inspected several hundred UST systems in each of these years, but only assesses compliance with EPA's SOCs at facilities that were selected randomly for inspection.

+This percentage reflects the results of all of the random inspections conducted in FFY 2009 and 2010, and therefore differs from the data that MassDEP reported to EPA and that EPA has published on its website for these federal fiscal year (which covered only a portion of these random samples).

Table 2 summarizes the results of UST system inspections with respect to EPA's release prevention SOCs. Important findings about compliance with the release prevention SOCs that were described in the August 2011 presentation included:

- Most UST systems that were inspected had installed equipment that prevents spills from being released into the environment (e.g., spill buckets and overfill protection), as well as corrosion protection that keeps metal tanks from rusting.

- In general, this equipment was functioning at the time of the inspection.

- Almost all UST systems had been tested to ensure that they were tight within 30 days of being repaired.

- Fewer UST systems were in compliance with requirements for corrosion protection systems to be tested within six months of a system repair, inspection of impressed current cathodic protection systems every 60 days, and with documentation that corrosion protection systems were being adequately operated and maintained.

In general, overall compliance with EPA's release prevention SOCs was higher than the national average and has remained close to the national average in subsequent years.

Table 3
UST System Inspection Results: Release Detection SOCs

Federal Fiscal Year/Number of Active UST Tanks		Number of Randomly Selected MA UST Systems Inspected*	Percentage of Inspected Systems in Significant Operational Compliance with **Release Detection** Requirements	
			% MA Systems	% National
2010	11,321	198	44%+	77%
2011	9,732	58	45%	79%
2012	11,375	60	33%	79%

*Please note that MassDEP inspected several hundred UST systems in each of these years, but only assessed compliance with EPA's SOCs at facilities that were selected randomly for inspection.

+ This percentage reflects the results of all of the random inspections conducted in FFY 2009 and 2010, and therefore differs from the data that MassDEP reported to EPA and that EPA has published on its website for these federal fiscal year (which covered only a portion of these random samples).

MassDEP's August 2011 presentation to UST stakeholders about the results of the 2009-10 baseline compliance assessment included several points about compliance with release detection SOCs, which are summarized in Table 3, above:

- Most (90%) UST systems that were inspected had methods in place to detect releases of the substances stored in tanks.

- However, only 65% of the systems inspected could document that their primary release detection systems were operating properly, and that all of their release detection systems met EPA's performance standards.

- About 60% of the systems could demonstrate that their tanks and pipes were being monitored at required frequencies and were keeping the required records.

- Fewer than 10% of the systems inspected could document that they had responded properly to leaks that had occurred.

These issues led to a rate of compliance with EPA's SOCs that was significantly less than the national average. The compliance rate of Massachusetts UST systems has fallen further in federal fiscal year 2011 and 2012, while the national compliance rate has improved slightly.

Table 4 (below) describes the rates of compliance by inspected UST systems with both the release prevention and release detection SOCs. In general, these inspections show that the equipment required to prevent and detect releases from UST systems has been installed, but that a significant portion of Owners and Operators of Massachusetts UST systems were not able to document that the operation and maintenance requirements were being met, and therefore it was not possible for inspectors to determine whether release detection equipment was working properly. Compliance in these areas was

not only significantly lower than the national average, it was the worst in the country in federal fiscal years 2011 and 2012[7].

Table 4
UST System Inspection Results: Compliance with Both Sets of SOCs

Federal Fiscal Year/Number of Active UST Tanks		Number of Randomly Selected MA UST Systems Inspected*	Percentage of Inspected Systems in Significant Operational Compliance with **BOTH Release Prevention and Release Detection Requirements**	
			% MA Systems	% National
2009-10	11,321	198	42%+	69%
2011	9,732	58	33%	71%
2012	11,375	60	32%	71%

*Please note that MassDEP inspected several hundred UST systems in each of these years, but only assessed compliance with EPA's SOCs at facilities that were selected randomly for inspection.

+ This percentage reflects the results of all of the random inspections conducted in FFY 2009 and 2010, and therefore differs from the data that MassDEP reported to EPA and that EPA has published on its website for these federal fiscal year (which covered only a portion of these random samples).

These findings provide critical information that has informed the development of the proposed regulations. MassDEP remains committed to ensuring that new UST systems are properly installed with the equipment required to prevent and detect releases. At the same time, both existing and new UST systems must be correctly operated and maintained, so that system Owners, Operators, regulators, and the public can be assured that the systems are intact and continue to operate as designed.

The proposed regulations require UST Owners and Operators to do more than they are currently required to do to operate and maintain their systems. However, the additional costs that could be incurred are orders of magnitude less than the costs of responding to leaks and repairing the resulting environmental damage. Over time, these regulations should substantially reduce the number of leaks from UST systems into the environment and the costs associated with responding and remediating them. This result would be a "win/win", for the environment, UST system Owners, and our communities.

[7] EPA posts data reported by all states at: http://www.epa.gov/oust/cat/camarchv.htm. Please note that Massachusetts data for federal fiscal years 2008 and earlier was reported by DFS and was not based on a randomly selected sample of UST systems. Therefore, the earlier data should not be compared to the data for federal fiscal years 2010 and subsequent years.

II. PROPOSED REGULATIONS

A. Regulation Development Process

Shortly after the UST program was transferred to MassDEP, the Department began drafting its own UST regulations, which have evolved into the proposed draft that this background document accompanies. To ensure that MassDEP's regulations will establish a program that protects the environment, can be implemented efficiently by MassDEP, and reflects UST system Owners' business practices to the maximum extent feasible, the agency engaged stakeholders soon after the transfer legislation was enacted. In addition to the regulated community, the stakeholder group included EPA, DFS, the Massachusetts Department of Revenue, and a representative of watershed protection advocacy groups, all of whom provided MassDEP with invaluable guidance and assistance.

MassDEP held its first stakeholder meeting to discuss draft UST regulations on June 29, 2010. For the next 18 months, MassDEP met with stakeholders regularly (usually monthly) to discuss various draft sections of the UST regulations. This process generally involved holding an initial meeting on the first draft of a section prepared by MassDEP, receiving oral and written comments on that draft from the stakeholders and other participants, re-drafting the section by MassDEP, and distributing the revised draft back to stakeholders. Stakeholders were invited to submit further comments on the second draft in writing. After all the sections were vetted with the stakeholders, MassDEP put the sections together, to give stakeholders an opportunity to review the pre-public hearing draft as a whole. MassDEP held an all day meeting on May 1, 2012 to review major issues in the draft, and received additional oral and written comments over subsequent weeks.

On June 26, 2012, MassDEP met with DFS to clarify the responsibilities of DFS and MassDEP under the proposed regulations. Although MassDEP is now responsible for the majority of the UST program, some areas, such as flammable storage requirements, UST closure, and public safety issues, will remain under the purview of DFS. MassDEP also received comments on the draft regulations from EPA and made changes at their request to ensure that the Massachusetts regulation will be consistent with the federal rules.

B. Program Vision

In February 2012, MassDEP developed and circulated a Vision Statement for the UST program, which described the roles and responsibilities of the chief groups of actors: UST system Owners and Operators, third-party inspectors, and MassDEP. MassDEP made a draft of the Vision Statement available to stakeholders for comment, and revised it based on the comments received. This Statement is available on MassDEP's web site: http://www.mass.gov/eea/docs/dep/public/committee-3/ustv0312. This Vision Statement provided a critical underpinning for the proposed regulations, although some of the details have evolved from the published version through the regulation development process.

MassDEP envisions the UST compliance and inspection program as a "three legged stool" with the three legs being Owners and Operators, third-party inspectors, and MassDEP. Owners and Operators have the most immediate, day-to-day responsibility for ensuring proper installation, operation, and maintenance as well as the responsibility to certify compliance once every three years; third-party inspectors have a major responsibility every three years to ensure that UST systems are being properly operated and maintained and to inform Owners/Operators of deficiencies; MassDEP has the responsibility to oversee Owners and Operators and third-party inspectors to ensure that they are complying with requirements, provide compliance assistance as appropriate, and provide information about the program to the public.

MassDEP's assessment of current compliance with EPA's SOC performance measures indicates that the success of the UST program depends on these three parties working together to increase compliance at UST facilities. The roles and responsibilities of each of these entities are discussed in more detail below.

Owners/Operators: Owners, Operators and their employees play a key role at UST facilities because they are the individuals who have a daily presence at the facilities and make key operational and financial decisions. MassDEP's Vision Statement notes that Owners and Operators would be responsible for ensuring that:

- UST systems are properly designed and installed,
- All required routine inspections are performed,
- UST Systems are inspected by an independent third-party inspector every three years, and
- Certifications about the UST System's compliance status are filed with MassDEP periodically.

Through stakeholder discussions since the Vision Statement was published, MassDEP has considered shifting its original proposal for routine inspections from monthly and semi-annual requirements for all types of UST Systems to a model that is more risk-based (at the suggestion of stakeholders), in which the proposed inspection and testing frequency would be based on the type of equipment installed at the UST facility: facilities using more sophisticated, state-of-the-art equipment would require less frequent inspections and testing than facilities with less sophisticated equipment. Discussions with stakeholders resulted in a hybrid proposal: the risk-based approach is being proposed for turbine, intermediate, and dispenser sumps, but more standardized periodic inspections are being proposed for all spill buckets (whether they are double-walled, have other release protection features, or not). The proposed inspection and testing frequencies are described in more detail in Section III.C below.

The proposed regulation requires that UST systems be inspected by a third-party inspector every three years. To ensure that systems are being operated and maintained in between these "snapshot" evaluations, MassDEP is proposing to require that Owners/Operators submit a compliance certification form every three years (18 months after each third-party inspection). This certification would verify that the Owner/Operator is in compliance with the UST regulations, but it would not require any additional inspections or testing. MassDEP has used this "self-certification" approach for more than a decade to achieve compliance with environmental requirements in several industrial sectors that it regulates, e.g., printers, dry cleaners, photo-processors, dentists, and gas stations (for the Stage II vapor recovery systems that must be operated and maintained). The agency has found it to be quite effective in increasing and maintaining compliance. For more information about this approach, see: http://www.mass.gov/eea/docs/dep/service/compliance/erpbckgrnd.htm.

Third-Party Inspectors: The federal Energy Policy Act of 2005 requires states to conduct triennial inspections of every UST system in their state. In its Grant Guidelines, EPA gave states the option of instituting a third-party inspection program in which independent inspectors who register with the state conduct inspections of UST facilities and submit their inspection reports to the state. DFS used the third party inspector model when establishing its program and registered more than 200 third-party Inspectors who have continued to perform these inspections and submit reports to MassDEP since the transfer legislation was enacted.

MassDEP is proposing to continue the third-party inspection program, but with enhancements. These proposed enhancements include the requirement that all third-party inspectors pass a state-administered examination, which may include a field component, before conducting third-party inspections. Individuals who are not currently registered third-party inspectors would be required to have five years experience in UST installation or operation/maintenance, two years of which may be substituted for by a college degree, before they are eligible to take the examination[8] and become certified. After becoming certified, third-party inspectors would be obligated to take annual training in order to remain certified. MassDEP is also proposing conflict of interest standards that would prohibit employees and contractors who work at a particular UST facility from inspecting UST systems at that same facility. The proposed regulations describe in detail at 310 CMR 80.48(7) what a third-party inspector is required to inspect and the steps the third-party inspector and the Owner/Operator must follow after the third party inspection is completed.

MassDEP's intent in enhancing the third-party inspection program is to ensure that the inspectors who are conducing inspections on behalf of the Commonwealth are experienced, qualified and independent from the UST facility they are inspecting.

MassDEP: As the agency that has been delegated authority to implement the federal UST program in the Commonwealth, MassDEP must establish standards and requirements for UST systems to ensure that they are properly installed, operated and maintained, and must also inspect UST facilities to ensure that they are complying with the requirements. In accordance with EPA's Grant Guidelines, MassDEP must also audit third party inspections, follow up on complaints, conduct inspections to evaluate a facility's return to compliance, and take appropriate enforcement actions. MassDEP will conduct inspections as part of its on-going program of reviewing general environmental compliance with the UST regulations and will provide EPA with information on SOC performance measures as required by the Grant Guidelines.

C. Overview of Proposed 310 CMR 80.00

When drafting the proposed regulations, MassDEP started with the current DFS regulations and EPA's regulations, and Grant Guidelines. MassDEP used DFS's regulations because the regulated community knows them well (since they have been in place for over 30 years). EPA's regulations and Grant Guidelines were also important because all state UST program regulations have to be at least as stringent as EPA's requirements in order for the state regulations to be approved by EPA.

MassDEP is proposing to replace the portions of DFS's regulations that address environmental protection. The new regulation has been designed to cover all requirements in the EPA regulations and to address additional environmental issues that are important for Massachusetts. Some requirements have been tightened to meet these goals. In addition, some flexibility has been incorporated into the draft regulation to allow for the use of new technology. In general, MassDEP has attempted to make the draft regulation as clear as possible, to assist with compliance.

All or portions of the proposed regulations would apply to UST systems that are covered by M.G.L. c. 21O: tanks and associated piping that hold petroleum products or hazardous substances listed in the U.S. Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and that have more than ten percent of their volume underground. In accordance with the statute, the proposed

[8] Third-party inspectors who are currently registered with MassDEP would not have to have to meet this experience/education requirement in order to take the examination.

regulation exempts certain types of tanks from this program altogether (e.g., septic tanks). In addition, only some of the regulatory requirements would apply to other types of underground tanks: for example, farm and residential tanks holding 1,100 gallons or less that store motor fuel for non-commercial purposes and heating oil for consumptive use on the premises would only be subject to certain sections of the regulation. MassDEP is also proposing to exclude certain other types of tanks that are excluded from federal regulations, and to establish some minimum requirements for the types of UST systems for which EPA has deferred regulation.

The proposed exclusions are:

- Hazardous waste UST systems;
- Wastewater treatment UST systems regulated by the Clean Water Act;
- Equipment or machinery that contains regulated substances for operational purposes, such as hydraulic lift tanks and electrical equipment tanks;
- UST systems containing a *de minimus* concentration of regulated substance; and
- UST systems that hold less than 110 gallons.

MassDEP is proposing to establish some minimum requirements that are similar to those that EPA has adopted to certain types of UST systems for EPA has deferred regulation:

- Tanks containing radioactive material,
- Tanks serving emergency generators at nuclear facilities, and
- Wastewater tanks that are not regulated by the U.S. Clean Water Act.

The proposed regulations contain ten sections:

- *General Provisions,* which defines key terms, describes which UST systems are regulated and exempt, and generally describes the regulatory provisions that apply to various types of regulated UST systems.
- *Design, Construction and Installation,* which describes what an Owner/Operator needs to know when installing an UST system or UST facility. This includes, but is not limited to, the standards for tanks, piping and other UST components.
- *General Operating Requirements,* which establishes most day-to-day requirements for Owners and Operators and may be the section in the regulations that is referred to most frequently by Owners and Operators. It includes most of the inspection, testing and record keeping requirements, and the compliance certification requirements. It also establishes the requirements for operating and monitoring leak detection systems and cathodic protection systems.
- *Operator Training,* which was promulgated as an emergency regulation, effective on February 3, 2012. This section of the regulations sets forth the requirements for Class A, B and C operators. Please note that MassDEP is proposing to move this section from 310 CMR 80.01

and 8.02 to 80.36, and is only seeking comments about its new location, since its content has already been promulgated.

- *Out-of-Service Systems and Closure* establishes the requirements for UST systems that go through a change-in-product, temporarily go out-of-service and/or are permanently closed. It also establishes a procedure for bringing back into service UST systems that have been out-of-service for more than the five years.

- *Release Response, Reporting and Remediation* establishes the requirements for the Owner/Operator if an UST system has a release or leakage.

- *Delivery Prohibition* establishes the requirements for a "red tag" program under which UST systems with severe deficiencies are prohibited from having regulated product delivered until the deficiency(ies) has been corrected.

- *Third Party Inspection* establishes the schedule for triennial third party inspections, the certification process and qualifications for a third-party inspector, conflict of interest requirements, requirements for a third party inspection, and the procedure for submitting a third-party inspection report.

- *Enforcement and Appeals* establishes the procedures for enforcement taken by MassDEP and for administrative appeals.

- *Financial Responsibility* establishes requirements for Owners and Operators to ensure that they have the means to pay for corrective action for releases of a regulated substance, as well as claims for bodily injury and property damage that can arise from these releases. This section establishes the types of financial assurance mechanisms that can be used and describes requirements for each type of mechanism.

D. Major Changes from 527 CMR 9.00 (the current DFS regulation)

Beginning in 1989, DFS required all new and replacement underground storage tanks and piping to be double-walled[9]. This requirement was instrumental in reducing the number of releases of regulated substance from UST systems. However, approximately 37% of Massachusetts UST systems were installed before 1989 and may or may not be double-walled. Therefore, the proposed regulations focus on future tank installations and on the operation and maintenance of existing and new UST systems, as that is the key to ensuring that aging tanks and their associated piping do not release regulated substances to the environment.

While MassDEP is proposing to modify some of the requirements of 527 CMR 9.00, many of DFS's requirements remain substantially the same. However, the regulation looks quite different, as it is organized in a manner that is similar to other MassDEP regulations. The draft regulations are also longer because the financial responsibility section is fully incorporated into 310 CMR 80.00 rather than incorporated by reference, as it is in the DFS regulations. The draft regulation is also more detailed in certain sections.

[9] 527 CMR 9.05(A)

The proposed 310 CMR 80.00 would make the following significant changes in DFS's regulation:

- *310 CMR 80.03(4) and 80.20(3): Upgrading tanks that currently use a submersible pump without a turbine sump.* Under the DFS regulations, only tanks installed after March 21, 2008 are required to have submersible pumps enclosed in a sump. MassDEP inspectors have come across many instances of submersible pumps and piping that are not equipped with a sump to contain a release at the point where the pipe comes out of the ground. A tank using a submersible pump should be surrounded by an impermeable turbine sump to contain any leaking regulated substance and prevent its release into the environment. Without a turbine sump, the regulated substance will release directly into the environment. The proposed regulation includes a requirement for installing a turbine sump at tanks using submersible pumps by January 1, 2018 or when the tank top is upgraded, whichever is earlier.

- *310 CMR 80.19(2)(e): Leak Detection for UST systems serving emergency generators and emergency engine-driven pumps.* DFS regulations do not have any leak detection requirements for emergency generator tanks and emergency engine driven pumps. MassDEP is proposing to require that owners/operators install and use one of the following leak detection methods: (1) continuous interstitial monitoring; (2) static in-tank monitoring system; (3) continuous in-tank monitoring; (4) statistical inventory reconciliation; (5) if the tank holds more than 1,000 gallons, monthly tank gauging and annual tank tightness test; or (6) if the tank holds 1,000 gallons or less, weekly tank gauging.

  Please note: EPA's current regulation does not allow monthly tank gauging to be used to detect leaks in UST systems for which leak detection is required and that hold more than 2,000 gallons of regulated substances, primarily due to concerns that manual gauging may not be a reliable testing method for larger tanks. However, EPA currently does not require that UST systems serving *emergency generators and emergency engine-driven pumps* be equipped with leak detection. MassDEP is proposing to allow manual tank gauging as a leak detection method for any UST system serving *emergency generators and emergency engine-driven pumps.* This provision will need to be revised if EPA adopts a regulation that prohibits the use of this leak detection method for larger UST systems serving emergency generators and emergency engine-driven pumps.

- *310 CMR 80.04(3) and 310 CMR 80.16(3): Piping installed before May 28, 1999*: DFS required that piping installed after May 28, 1999 be equipped with continuous monitors that detect the loss of regulated substances. MassDEP is proposing to continue to require that piping installed after May 28, 1999 have continuous interstitial monitoring and pressurized piping systems must also have an Automatic Line Leak Detector. The Department is also proposing to require UST systems installed before this date with piping that does not have a continuous interstitial monitor to conduct an annual tightness test and monitor containment ports quarterly or conduct Statistical Inventory Reconciliation (SIR). Pressurized piping systems installed before May 28, 1999 must also have an Automatic Line Leak Detector. European suction systems are not required to have leak detection. This amendment will bring the Massachusetts regulation into line with EPA's requirements for pressurized piping leak detection.

- *310 CMR 80.21(1)(a): Minimum size specification for spill buckets installed after the effective date of 310 CMR 80.00.* Under the DFS regulations, spill buckets are required to have a minimum capacity of three gallons. EPA recommends that spill bucket capacity be between 5 and 15 gallons. MassDEP originally suggested a 15 gallon spill bucket but received many negative responses from

the regulated community because of the potential difficulty of installing spill buckets that significantly differ in size from the current requirement. MassDEP believes that 5 gallons is a reasonable compromise, although at the low end of EPA's recommended size capacity. MassDEP is proposing that a 5 gallon spill bucket be installed at new UST facilities and when an existing three gallon spill bucket is replaced. MassDEP is also proposing a narrow exemption to this requirement if it is physically impossible to install a 5 gallon spill bucket.

- *310 CMR 80.21(2)(a): Use of ball floats after the effective date of 310 CMR 80.00.* MassDEP is proposing to phase out ball floats as an overfill prevention device because these devices break or malfunction easily. Ball floats installed in an UST system that has loose fittings or other non-tight tank top components will not restrict flow and can allow overfills. Therefore, MassDEP is proposing to allow existing ball floats to continue to be used as the primary method of overfill prevention until they fail. At that time, the regulation would not allow the installation of a new ball float as the primary method of overfill prevention. MassDEP would allow the continued use of ball float valves if a facility wants to use them as a secondary means of overfill prevention if they do not interfere with the primary overflow prevention device.

- *310 CMR 80.27 and 80.28: Inspection and testing of sumps, spill buckets and overfill prevention equipment*. Sumps, spill buckets and overfill prevention equipment are barriers that keep regulated substance from entering the environment. Sumps and spill buckets are vulnerable to cracks, especially in New England where temperature swings are large, and maintaining their integrity is critical to preventing releases to the environment. As discussed previously, MassDEP is proposing a risk-based schedule of inspection and testing for sumps, to provide an incentive for upgrading components and recognizing those Owner/Operators who already have installed newer equipment

  Testing requirements proposed for dispensers, intermediate and turbine sumps ("sumps") are outlined in Table 5 below. While some of the equipment listed in the table is not widely used at the present time, the proposed regulations would allow Owners/Operators who upgrade their equipment to do less frequent inspections and testing.

Table 5
Summary of Proposed Inspection and Testing Requirements for Sumps

Type of Sump	Inspections	Testing
Tanks using a submersible pump without a turbine sump	Every 30 days	N/A
Single-walled without continuous monitoring sump sensors	Every 90 days	Once within two years of the effective date of the regulation and after repairs
Single-walled with sump sensors	Annually, provided that: 1. Sensors are correctly placed; 2. Sensors are tested annually; and 3. System operator(s) respond to alarms	Once within two years of the effective date of the regulation and after repairs
Double-walled without continuous monitoring sump sensors	Every 90 days	Once within two years of the effective date of the regulation and after repairs
Double–walled with sump sensors	Annually, provided that: 1. Sensors are correctly placed; 2. Sensors are tested annually; and 3. System operator(s) respond to alarms	Once within two years of the effective date of the regulation and after repairs

The Department considered a similar risk-based approach to determining appropriate inspection frequencies for spill buckets, which are another significant barrier that prevents regulated substances from entering the environment. Based on a stakeholder's suggestion, a tiered inspection schedule was drafted that would have required more frequent inspections of spill buckets that are single-walled and lack continuous monitoring than double-walled spill buckets with continuous interstitial monitoring capability. However, MassDEP was advised that this proposal would have been difficult to implement. Therefore, the proposed regulation requires that all spill buckets must be:

- inspected on a monthly basis, and
- tested within two years of the effective date of the regulation, once every five years after the first inspection, and after repairs.

In addition to these provisions, the proposed regulation includes additional requirements for periodic testing of other types of equipment, such as overfill prevention equipment (testing as per the manufacturer' specifications or on an annual basis if the manufacturer does not specify a testing schedule) and periodic inspections of cathodic protection systems (with the frequency depending on the type of protection) to ensure that they continue to work as designed.

- *310 CMR 80.31: Requirements for Inventory Monitoring for Abnormal Substance Loss.* To prevent and provide early detection of leaks, DFS's regulation requires operators of all (new and existing) UST systems to prepare, reconcile and maintain daily inventory records for each tank and also for each combination of interconnected tanks with a common level of product. Any abnormal gains of water (more than an inch in a 24-hour period) must be addressed by removing the water and disposing of it properly, checking the tank again for water 24 hours later (while no product can be

added to the tank). MassDEP's proposed regulation requires that the inventory in single-walled tanks that lack continuous monitoring continue to be measured daily to determine if the tank has an abnormal substance loss. Only tanks that are subject to the daily inventory requirements are required to test for abnormal water gain.

- *310 CMR 80.*35*: Monthly Visual Inspections*. DFS's regulation currently requires monthly inspections to determine that certain equipment is operating properly. MassDEP is proposing to retain this monthly inspection requirement but not require the inspection of components that are more for public safety than environmental protection. These inspections, which would be done by a Class A or B Operator (or under their supervision), would cover:

    - Verifying that electronic monitoring equipment is on and properly operating to monitor the product and leak detection systems;
    - Inspecting each spill buckets to identify product, water or debris; and
    - Verifying that grade level covers are properly color-coded;

- *310 CMR 80.48: Delivery Prohibition.* EPA requires states to set up a program that prohibits the delivery of product to tanks that are significantly out of compliance with release prevention and release detection requirements. This regulation must contain criteria for determining which tanks are ineligible to receive deliveries of product, mechanisms for identifying the ineligible tanks, and procedures to ensure that Owners get adequate notice that the prohibition is being imposed. MassDEP is proposing to change two aspects of the delivery prohibition established in 527 CMR 9.07(O):
    - EPA classifies several types of violations for which delivery prohibitions must be imposed. In general, these are failures to install several types of equipment designed to prevent and detect releases, including spill prevention, overfill protection, leak detection, and corrosion detection equipment, for which MassDEP is proposing to *require* the imposition of a delivery prohibition (DFS's regulation allows the imposition of a delivery prohibition but does not require it). In addition, the draft regulation proposes to add three situations for which MassDEP *may* impose a delivery prohibition: Situations in which the equipment specified above is not operating in accordance with the applicable regulation; situations where an Owner or Operator does not have financial assurance; and situations where other violations of 310 CMR 80.000 pose a significant threat of harm to public health, safety, or the environment;
    - If MassDEP does not return to an UST system for which a delivery prohibition Order has been issued to remove the lock and to lift the Order within 24 hours of receiving written confirmation from the UST system Owner or Operator that required repairs have been completed, the proposed regulation would allow a third-party inspector to remove the "red tag" after providing a certification to MassDEP that the deficiencies resulting in the delivery prohibition have been appropriately addressed.

- *310 CMR 80.49(3): Requirements for third-party inspectors.* As discussed previously, third-party inspectors play a critical role in inspecting UST facilities. Massachusetts has adopted a third-party inspection program through which third-party inspectors conduct inspections on behalf of the Commonwealth. MassDEP is relying, to a great extent, on this approach to ensure compliance. Therefore, MassDEP is proposing to upgrade the requirements for becoming a third-party inspector. In order to be certified as a third-party inspector, an individual must have five years experience in UST installation or operation/maintenance (two of which may be substituted for a

college degree), pass a state administered examination, and take an annual training course. MassDEP is also proposing to hold third-party inspectors to a high standard of conduct by requiring them to meet new conflict of interest standards at 310 CMR 80.48(5).

- *310 CMR 80.52(1): UST systems holding hazardous materials other than petroleum products would be subject to financial responsibility requirements.* Under the DFS regulations, which incorporate the federal UST regulations by reference, only tanks used to store petroleum products are required to have financial responsibility. MassDEP is proposing to require that all regulated UST systems subject to 310 CMR 80.00 have financial assurance. MassDEP believes there are approximately 1000 tanks that hold a regulated substance other than a petroleum product (i.e., a hazardous material regulated under CERCLA). If these tanks release a regulated substance to the environment, the Owner and Operator are responsible for the cost of the remediation. The proposed requirement is designed to ensure that Owners and Operators have the means to pay for cleanup, if needed. Without this proposed requirement, the state would be responsible for cleanup if the Owner and Operator do not have the means to pay, costs which the Commonwealth cannot absorb.

E. Other Regulatory Changes

MassDEP is proposing several other minor regulatory changes to ensure consistency with 310 CMR 80.00:

- As noted above, MassDEP promulgated emergency regulations for operator training in early 2012. 310 CMR 80.01 is currently the applicability and definition section for the operator training regulations. MassDEP is proposing to delete 310 CMR 80.01 in its entirety and to incorporate the operator training and applicability into 310 CMR 80.03 and 80.04 which apply to all regulated UST systems. MassDEP is also proposing to move the substantive operator training requirements that are currently in 310 CMR 80.02 to 310 CMR 80.36, which is a more logical place for this section. Since 310 CMR 80.02 has already been promulgated, MassDEP will only take comment on its proposed relocation to 310 CMR 80.03, 80.04 and 80.36.

- Proposed amendments of 310 CMR 70.00, the Environmental Results Program (ERP) regulations, would incorporate UST certification compliance requirements into ERP in accordance with 310 CMR 80.34. Text of proposed amendments is in the "Proposed Regulation" document.

- Proposed amendments of 310 CMR 30.000, the Hazardous Waste regulations, would delete references to 527 CMR 9.00 and delete requirements that are no longer necessary. Text of proposed amendments is in the "Proposed Regulation" document.

F. Issue Deferred: Large Consumptive Use Tanks

"Consumptive use tanks" store fuel exclusively for area heating and/or heating domestic hot water on the premises where the fuel oil is stored. These tanks have been regulated less stringently than other tanks covered by the UST program. While DFS has generally required that any new or replaced consumptive use tanks installed after January 1, 1989 be designed and constructed to minimize the risk of corrosion and leakage, these tanks have not had to meet all of the requirements imposed on tanks that store regulated substances for other uses or sale. For example, large consumptive use tanks (those holding more than 1,100 gallons) that were installed before January 1989 are exempt from the requirement to upgrade with leak detection and cathodic protection. In addition, owners and operators

of consumptive use tanks are not required to comply with financial responsibility provisions, and smaller consumptive use tanks (those holding less than 1100 gallons) that were installed before March 21, 2008 have less stringent design and construction requirements. Single-walled steel consumptive use tanks are also exempt from the requirement that all single-walled steel USTs must be removed by August 7, 2017. Without cathodic protection, steel tanks rust, and without leak detection, Owners and Operators have no way to know whether a tank has released a regulated substance into the environment until a large release has occurred (see example in Section 1).

In this draft regulation, MassDEP is proposing to require that Owners/Operators of consumptive use tanks establish procedures for responding to emergencies. Large consumptive use tanks that were installed before January 1, 1989 would continue to be exempt from requirements for leak detection and corrosion protection.

Consumptive use tanks are exempt from the notification requirements of M.G.L. c. 21O, §4. Therefore, MassDEP does not have information on their number, location, and types of Owners. MassDEP plans to start discussions with the owners of types of facilities that are likely to have large consumptive use tanks and may propose some additional specific requirements for these tanks to ensure that they will not pose threats to the environment in the future.

MassDEP would appreciate information that commenters may provide to help better characterize the universe of large consumptive use tanks in the Commonwealth:

- How many large consumptive use tanks are in place in Massachusetts?
- Where are they located?
- What types of businesses/entities own and operate consumptive use tanks?

III. ECONOMIC IMPACTS

A. MassDEP

The major economic impact from the UST program on MassDEP was in 2009 when the UST program was transferred from DFS to MassDEP, which was somewhat offset by EPA's grants. However, EPA's grants to Massachusetts do not fully cover MassDEP's costs for processing UST registrations and other required submittals, or the resources needed to assess UST system compliance. To cover these unfunded costs, MassDEP is currently considering establishing annual compliance fees that would be paid by UST system Owners or Operators to cover the agency's costs of processing UST required submittals and other reasonable program costs that are not covered by EPA's grant. These fees would be proposed in a separate package of draft regulations, and would only be adopted after the public has an opportunity to comment on the proposals.

In addition, MassDEP is procuring contractor services to develop an enhanced information technology ("IT") system for the UST Program, which would allow on-line submittals and processing of the thousands of registration and third-party inspection forms that are currently being submitted to MassDEP. The EPA grants that support much of the Massachusetts UST program would pay for the development and some operation and maintenance of these IT enhancements. The proposed regulations are expected to add only a small cost to the IT enhancements.

B. Regulated Community

It is difficult to determine the overall economic impact of the proposed regulations on the regulated community though some examples are provided below. Although this program is new to MassDEP, the DFS UST program has been in place for many years, and MassDEP's proposed regulation contains many of the provisions that DFS adopted. However, MassDEP is proposing to delete or amend some of the DFS requirements, and is also proposing some new requirements. Because the costs of compliance with new and modified requirements will vary considerably depending on the type of UST system, on balance it is not possible to estimate the overall impact on UST System Owners and Operators.

For example, the current DFS regulations have a monthly inspection requirement at 527 CMR 9.07(Q) that became effective on August 8, 2012. MassDEP has proposed to lessen the financial impact of this requirement on UST system Owners and Operators by allowing sumps that are more environmentally protective (e.g., double-walled with continuous monitors) to be inspected annually, while sumps that provide less environmental protection will need to continue to be inspected monthly. MassDEP made an effort to lessen the financial impact of these requirements on the Owners and Operators by establishing inspection and testing procedures that could be conducted by the Owners and/or Operators themselves (without requiring the use of a third-party contractor, for example).

Costs for testing spill buckets range from $100/bucket to $300 for an entire facility. Costs for testing sumps range from $250 to $275/sump to $675/facility. If the spill bucket contains liquid or debris, costs will be incurred to test the contents. If the sumps and spill buckets have not been properly maintained, they can generate hazardous waste during the testing. If they are found to contain water that has been contaminated with a regulated substance, the material will need to be managed as "hazardous waste" and additional costs will be incurred to properly manage it. MassDEP's discussions with testing companies indicate that they charge approximately $0.90/gallon for pumping and disposal if the water is "hazardous". Based on the range of sump and spill bucket sizes, hazardous waste management costs could range from $45-$270/sump and $3-$5/spill bucket.

Some Owners and Operators would be required to upgrade their UST systems to comply with new and modified requirements. In these situations, the proposed regulations would have an economic impact on these Owners and Operators. For example:

- The cost of installing a 5-gallon spill bucket can range from $1300 to $2950.
- Installing a sump on a tank that is not currently equipped with one is expected to cost between $7,500 and $10,000.
- Repair or replacement of a sump can range from $2,500 (for an individual sump in an uncomplicated situation) to $15,000. The high end of this range includes costs associated with situations where portions of concrete paving around the tank must be removed to access a sump and/or where other complications are found.

Please note that the estimated costs for installing or repairing a sump do not include the installation of sump sensors for leak detection.

However, these costs are significantly less than the costs of cleanup of releases of oil and hazardous materials that are released into the environment. EPA has estimated that one gallon of gasoline can contaminate more than 1.2 million gallons of groundwater at concentrations that exceed the risk-based standard of 5 parts per billion of benzene. In 2005, EPA estimated that the average cost to clean up soil contamination from a leaking UST was approximately $100,000. If groundwater is affected by a release, cleanup costs can easily exceed $1 million.

Finally, any fee that MassDEP adopts (as discussed briefly above) would be paid by UST system Owners and/or Operators. MassDEP's fee legislation requires that the Agency document the work that would be done for the fee charged. This analysis will be available as part of any draft fee regulation package that is proposed for public comment.

IV. ENVIRONMENTAL IMPACTS

Leaking underground storage tanks contribute to the deterioration of groundwater resources and affect the soils and biota with which they come into contact. Many of these releases involve flammable materials, which can be explosive when the regulated substance breaks out into basements or other subterranean structures. These releases also affect the air quality in affected structures and can expose people to adverse health impacts.

Ensuring that UST systems are equipped with release prevention and release detection devices is key to preventing releases, and, in the event that a release occurs, detecting the release before extensive environmental damage is done. Properly operating, maintaining and inspecting these devices are also critical steps for environmental protection. Non-working and/or deteriorating equipment cannot perform the function for which it was designed. The MassDEP program described in the proposed regulations provides for UST systems to be equipped with the appropriate release detection and prevention devices, for these devices to be periodically inspected and tested, and for these devices to be properly operated and maintained so they will function reliably.

V. IMPACTS ON OTHER PROGRAMS

A. Toxics Use Reduction

Implementation of toxics use reduction is a MassDEP-wide priority. Toxics use reduction is defined as in-plant practices that reduce or eliminate the total mass of contaminants discharged to the environment. While the proposed UST regulation is not likely to affect the quantities of petroleum and hazardous substances that are used in commerce in Massachusetts, the regulation has been designed to significantly reduce the quantities of these substances that are released into the environment.

B. Impacts on Cities and Towns

Executive Order 145 requires MassDEP to assess the fiscal impact of new regulations on the Commonwealth's municipalities.

If a city or town owns an underground storage tank(s) that is not otherwise exempt from regulation, it will have to comply with the 310 CMR 80.00. This requirement has been in effect under DFS's regulation. MassDEP estimates that there are about 416 UST facilities that are owned by a city or town. The costs incurred for compliance with 310 CMR 80.00 by municipalities will not be different than the costs incurred by the private sector facilities that operate UST systems. Furthermore, MassDEP notes that ownership and operation of a UST system, which municipalities may voluntarily undertake, is not a mandated municipal service. Therefore, costs associated with UST system operation are not mandated costs subject to the restrictions of Proposition 2 ½[10].

[10] Town of Norfolk v. Department of Environmental Quality Engineering, 407 Mass 233 (1990)

C. MEPA

Pursuant to the Massachusetts Environmental Policy Act Regulations at 301 CMR 11.03(12), these proposed regulations will not reduce standards for environmental protection, opportunities for public participation in permitting or other review processes, or public access to information generated or provided in accordance with these regulations. Therefore, promulgation of these regulations does not require the filing of an Environmental Notification Form under MEPA.

D. Agricultural Impacts

Massachusetts General Laws, Chapter 30A, Section 18, requires state agencies to evaluate the impact of proposed programs on agriculture within the Commonwealth. To the extent agricultural businesses have UST systems that are subject to UST regulations, they will have to comply with the proposed regulations. Farm and residential UST systems of less than 1100 gallons that store motor fuel for noncommercial purposes are exempt from most of the requirements at 310 CMR 80.00.

The costs incurred by farms to comply with 310 CMR 80.00 will not be any different than those costs incurred by the larger regulated community.

VI. IMPLEMENTATION

Both Owners and Operators of UST systems and the general public will benefit from MassDEP's proposed regulations. The proposal clearly lays out responsibilities for Owners and Operators and is more specific about the requirements to which the regulated community is subject. MassDEP believes that the proposed regulations, coupled with compliance assistance from the agency and trade associations, will increase the compliance of UST systems and will result in significant benefits for the protection of public health and the environment.

VII. PUBLIC PARTICIPATION

As noted above, the proposed regulation was developed through many discussions with stakeholders since the Legislature transferred responsibility from DFS to MassDEP in 2009. Information about stakeholder meetings and documents reviewed is available at: http://www.mass.gov/eea/agencies/massdep/news/advisory-committees/underground-storage-tank-ust-stakeholder-group.html. MassDEP will hold a public comment period on the draft regulations described in this document, in accordance with M.G.L c. 30A. The agency will publish a notice of the hearings and comment period on February 10, 2014, and will hold six public hearings during March 2014. The public hearing schedule is available on MassDEP's web site: http://www.mass.gov/eea/agencies/massdep/news/comment/. Comments must be submitted to MassDEP by March 31, 2014. After the close of the public comment period, MassDEP will review all comments submitted and may revise the regulations before promulgating them. The final regulations will be published in the Massachusetts Register. They will also be available on MassDEP's web site, accompanied by a "Response to Comments" document.