

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 4: Material Storage and Transportation

IN THIS CHAPTER

Purpose and Applicability of Regulations.....	4-1
Agencies and Their Laws and Rules	4-2
4.1 Secondary Containment.....	4-4
4.2 Use and Storage Area.....	4-6
4.3 Storage Tanks.....	4-8
4.4 Hazardous Material-U.S. DOT Transportation, Shipping, and Receiving	4-17
4.5 Storage of Polychlorinated Biphenyls (PCBs).....	4-26
WHERE TO GO FOR HELP	4-32
APPENDIX 4-A: SUMMARY OF SECONDARY CONTAINMENT REGULATIONS	

Purpose and Applicability of Regulations

The potential to adversely affect human health and the environment is always present when using, storing, and transporting regulated materials. Consequently, numerous regulations have been created to prevent accidents and reduce the risk of exposure to regulated materials.

Complying with these regulations will minimize your liability and protect your employees, the community, and the environment. This chapter provides only a summary of the requirements. You must refer to the regulations for more specific detail on the requirements.



*Note: There are many regulations pertaining to the storage, use, and transportation of materials. Each regulation targets a specific group of materials that exhibit certain characteristics. Appendix B, which can be found in the back of this book, contains definitions of the various regulated groups of materials found in the material storage, use, and transportation regulations. These defined terms appear throughout this chapter in bold lettering. In some instances, multiple agencies use the same term to describe a regulated group of materials; however, its definition differs. Such terms will be followed by a dash and the acronym of the defining agency or regulation. For example, the Michigan Department of Environmental Quality (DEQ), the U.S. Department of Transportation (U.S. DOT), and The Department of Licensing and Regulatory Affairs all have differing definitions for the term “hazardous material.” Therefore, the DEQ, U.S. DOT, AND Act 207 definitions of hazardous material will appear as “**hazardous material-DEQ**,” “**hazardous material-U.S. DOT**,” and “**hazardous material-Act 207**,” respectively.*

Agencies and Their Laws and Rules

The state, federal, and local agencies that enforce the regulations that apply to the storage, use, or transportation of regulated materials are listed below. Identify the regulations that apply and contact the appropriate agency if you have any material storage, use, or handling questions.

State Agencies

The Department of Environmental Quality (DEQ) regulates material storage and transportation under the following parts of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451) or other regulations that are covered in this chapter:

- Liquefied petroleum gases under the [Act 207](#) and the [Act 207 Liquefied Petroleum Gas Rules](#) (see Chapter 4.3.2) (see Chapter 4.3.2)
- Compressed natural gases under [Act 207](#) and the (see Chapter 4.3.2)
- Hydrogen under [Act 207](#) and the [Act 207 Storage and Handling of Gaseous and Liquefied Hydrogen Systems Rules](#) (see Chapter 4.3.2)

The DEQ also regulates material storage and/or transportation under a number of other regulations that are not summarized in this chapter but are instead covered under the chapters referenced below:

- Air emissions from storage tanks under Part 55 (Air Pollution Control) of Act 451, the Part 55 Rules, and the Federal Clean Air Act (see Chapter 1.4)
- **Hazardous waste** under [Part 111](#) (Hazardous Waste Management) of Act 451 and the [Part 111 rules](#) (see Chapter 2) and the Hazardous Materials Transportation Act (Public Act 138 of 1998) (**hazardous material-DEQ**) (see Chapter 4.4.11)
- Solid waste under [Part 115](#) (Solid Waste Management) of Act 451 and the [Part 115 rules](#) (see Chapter 2)
- **Liquid industrial by-products** under [Part 121](#) (Liquid Industrial By-products) of Act 451 (see Chapter 2), and the Hazardous Materials Transportation Act (Public [Act 138](#) of 1998); (**hazardous material-DEQ**) (see Chapter 4.4.11)
- Scrap tires under Part 169 (Scrap Tires) of Act 451 (see Chapter 2)
- Medical waste under [Part 138](#) (Medical Waste Regulatory Act) of the Public Health Code, Act 368 of 1978, as amended (Act 368) and the [Part 138 rules](#). (see Chapter 2)
- Radioactive materials and radioactive waste (see Chapter 10)
- Storage and use areas for **oil-DEQ**, **salt**, and other **polluting materials** under the Part 31 (Water Resource Protection) of Act 451, Part 5 administrative rules “Spillage of Oil and Polluting Materials” ([Part 5 Rules](#)) (see Chapter 4.2 and 6.2.2)
- Outdoor storage and use areas at facilities subject to storm water permits (see Chapter 6.2.4)

The Michigan Department of Licensing and Regulatory Affairs (LARA) regulates:

- Underground storage tanks under [Part 211](#) (Underground Storage Tanks Regulations) of Act 451, the [Part 211 Rules](#), [Part 213](#) (Leaking Underground Storage Tank) of Act 451, , the Fire Prevention Code, Public [Act 207](#) of 1941 as amended (Act 207), and the [Act 207 Storage and Handling of Flammable and Combustible Liquids Rules](#) (see Chapter 4.3.1).
- Aboveground storage tanks and containers holding **flammable and combustible liquids-Act 207** under [Act 207](#) and the [Act 207 Storage and Handling of Flammable and Combustible Liquids Rules](#) (see Chapter 4.3.2)
- Material storage and use, pursuant to the Michigan Occupational Safety and Health Act (MIOSHA), Public Act 154 of 1974, as amended (Act 154). See Chapter 13 “Hazard Communication/Employee Right-To-Know” and Chapter 34 “Flammable and Combustible Liquids” for more information.
- Requirements for building or remodeling a business under the Michigan Construction Code, Plumbing Code, and other codes including requirements for high-hazard materials storage areas (see Chapter 36).

The design, construction, installation and maintenance of underground storage tanks storing [regulated substances](#). The regulatory authority is under Part 211, Underground Storage Tank Regulations, of Act 451 of 1994, as amended, and the [Michigan Underground Storage Tank Rules \(MUSTR\)](#).

The Michigan State Police, [Commercial Vehicle Enforcement Division](#) regulates:

- The transportation of [hazardous materials-U.S. DOT](#), including motor carriers, shippers, drivers, and cargo tank facilities. The **hazardous material-U.S. DOT** regulations are adopted into state law under Public [Act 181](#) of 1963, as amended (Act 181) and are enforced by [Motor Carrier Officers](#) of the Michigan State Police.

Federal Agencies

The U.S. Environmental Protection Agency (U.S. EPA) regulates:

- **Oil-EPA** storage under the Spill Prevention, Control, and Countermeasure (SPCC) requirements (see Chapter 6.2.3).
- Title III of the Superfund Amendments and Reauthorization Act (SARA), which requires that hazardous material inventory information be submitted to state and local agencies (see Chapter 5).
- Polychlorinated biphenyls (PCB) clean-up, storage, disposal and use under the [Toxic Substances Control Act](#) and the regulations found in [Title 40, Part 761](#) of the Federal Code of Regulations (40 CFR Part 761).
- Hazardous waste under the federal [Resource Conservation and Recovery Act \(RCRA\)](#) are contained in [Title 40, Parts 260-279](#), of the Code of Federal Regulations (40 CFR 260-279) (see Chapter 2).
- Wastewater under the federal [Clean Water Act](#). (see Chapter 3)

SECTION ONE: Environmental Regulations

The U.S. DOT regulates:

- Inter- and intra-state transportation of **hazardous materials-U.S. DOT** under authority of the Federal Hazardous Materials Transportation Act and [Title 49 of the Code of Federal Regulations](#), the [Pipeline and Hazardous Materials Safety Administration](#), and Federal Motor Carrier Safety Administration ([PHMSA](#)), in conjunction with the Michigan State Police.

Local Agencies

- Local ordinances overseen by local authorities. Contact your local building official and fire department for questions concerning the fire code, specific secondary containment requirements, and local reporting requirements. Contact county or city clerk regarding local business licenses. See Chapters 36 and 37 for more information.

4.1 Secondary Containment

One way to reduce the damage caused by chemical releases is to control their impact to air, groundwater, surface water, and drains. This can be done by rapid excavating or using items such as sorbents and devices to block drains. Some regulations require secondary containment structures to control releases, depending on what is being stored. See Appendix 4-A at the end of this chapter for a summary of many of these regulations but be advised there are some industry sectors that may have containment requirements not addressed in the guidebook. The DEQ's document "[The Guide to Understanding Secondary Containment Requirements in Michigan](#)" provides additional information on calculating and designing secondary containment structures.



Even if you are not required by law to have secondary containment, you are encouraged to use it for all materials that may pose a risk to human health and the environment if released. You can consider purchasing pre-fabricated containment units or fabricated units built to your specifications. Many environmental regulations do not specify how these structures must be built; only that they keep the material from reaching surface water and groundwater or the regulations provide general conditions like the containment must be compatible with, and impervious to, the contained material.

The volume that secondary containment structures must be able to hold varies with the type of substance stored. If the regulations do not specify a greater amount, it is generally acceptable that the containment area be designed to hold, at a minimum, the greater volume of either ten percent of all the container volumes, or 100 percent of the largest container volume, plus any precipitation that may accumulate in the area. Discuss secondary containment volume requirements about:

- ✓ Hazardous waste with the DEQ, [District Office](#), Hazardous Waste Program (see Chapter 2.4.7 and Appendix C).
- ✓ Flammable and combustible liquids with the Storage Tank Program on any storage that falls within the scope of the Act 207 Storage and Handling of Flammable and Combustible Liquids (FL/CL) Rules (R 29.5601 to 5917). The requirements of these rules supersede local requirements if different than what is required in Act 207 or the FL/CL Rules (see Chapter 4.3).

- ✓ Polluting materials as defined by the Part 5 Rules with the [DEQ, District Office](#), Water Resources Program (see Chapter 4.2).
- ✓ Flammable and combustible liquids with LARA MIOSHA when subject to those regulations (see Chapter 34).
- ✓ Oils storage when have 1,320 gallons or more storage capacity with the [U.S. EPA, Region 5](#) (see Chapter 6.2.3).

Local authorities may have containment requirements. Jurisdiction varies between communities but may be with the waste water treatment plant, county health department environmental health section, and fire department.

Also check if your insurance company has any additional requirements pertaining to your coverage policy. Your chemical distributor/manufacturer may also have services to help design or construct storage areas.

If the materials you have on hand are affected by other regulations, follow the more stringent requirements. Examples of secondary containment structures include:

- ✓ Curbing
- ✓ Dikes, berms, or retaining walls
- ✓ Drip pans
- ✓ Enclosed cabinets with sealed flooring
- ✓ Portable containment units
- ✓ Spill diversion and lined detention ponds for larger areas
- ✓ Weirs, booms, or other barriers

Consider the following when selecting or designing a structure:

- *Structural strength* so the containment is capable of supporting the weight of the loads placed on it, including the materials and equipment that will enter the area.
- *Impermeability* so the containment is resistant to penetration of the materials contained in the structure. For example, a solid concrete structure with a linter that prevents the material from penetrating the concrete and infiltrating into the ground.
- *Compatibility* of the construction materials with the substances contained in the structure, and the structure's design should provide separation areas for incompatible substances. Look at the MSDS for storage recommendations and search Web sites about material compatibility.
- *Integrity* to avoid having any drains, other piping, or openings of any kind where liquids may escape. Seal all joints and cracks and do not include floor drains in the area or use cinder blocks in the construction. Have a regular maintenance schedule to locate and repair any cracks.
- *Security* to prevent vandalism and the entry of unauthorized persons to the area. The containment must allow emergency personnel and equipment to enter. Sumps included in the design should be manually controlled.
- *Protection* from extreme temperatures including ignition sources.

SECTION ONE: Environmental Regulations

- *Squirt distance control* to contain any liquids spurting from containers if a leak occurred.
- *Capacity* so the containment meets the regulatory minimum holding capacity. Consider the amount of precipitation, such as snow and rainfall that may accumulate in the containment structure. Generally, areas in Michigan receive an average of 3.9 inches in a 24-hour rainfall. A record 24-hour precipitation in Michigan was nearly 10 inches.

Some other things to consider when designing your secondary containment area include:

- Avoid creating confined spaces. See MIOSHA confined space information in Chapter 18.
- Provide adequate lighting and ventilation. Consider if explosion proof equipment is needed.
- Adhere to required isolation distances from property lines, public ways, buildings, etc.
- Consider how employees will move materials in and out of the storage and use area and the loading and unloading dock area.
- Consider using alternative materials that are less hazardous and have fewer regulatory requirements
- Keep valves and piping inside the secondary containment

Any collected liquids from secondary containment structures must be **characterized** to determine if it is a regulated **hazardous waste** or **liquid industrial by-product**. If hauled off site, the applicable waste regulations must be followed (see Chapter 2). If it is discharged on site, it must be in accordance with the rules associated with Part 31 (Water Resources Protection) of Act 451 (i.e., Part 4 - Water Quality Standards, Part 5 - Spillage of Oil and Polluting Materials, and Part 22 - Groundwater Quality). The Part 5 and Part 22 rules allow discharges of captured precipitation from secondary containment to the ground if the discharge does not contain released materials and meets the conditions listed in R 324.2005(2) and the water quality standards overseen by the Water Resource Division. The discharge cannot be, or become, injurious; and cannot cause runoff to, ponding on, or flooding of adjacent property. It also can not cause erosion or nuisance conditions.

When doing a visual inspection before discharging, look for odor, color, turbidity, floatable matter, deposits, or stains. See the U.S. EPA Storm Water Management Fact Sheet “[Visual Inspection](#)” for more information and discuss discharge requirements with the DEQ, District Office, Water Resource Division (see Appendix C). If your facility is also subject to the Storm Water Discharge Permit Program (see Chapter 3.2.3), you will need to meet the sampling and monitoring requirements explained in your permit.

4.2 Use and Storage Area

Facilities must review their permits and determine if they are subject to any regulations that have requirements regarding use and storage areas, including loading and unloading areas. Many of the regulations are written to allow the facility flexibility in meeting requirements to keep materials out of the environment. In addition, a facility may be subject to MIOSHA housekeeping and other requirements (see Section Two of the Guidebook). See [Chapter 2](#) for the requirements that apply to the storage and transportation of waste.

Manufacturers with **polluting materials** as defined in the Part 5 Rules have requirements for their use and storage areas beyond the secondary containment requirements for liquid **polluting materials** discussed in the previous section, if they meet or exceed the listed threshold management quantities and don't meet any of the listed exemptions in R 324.2003.

Salt: Solid form 5 tons
Liquid form 1,000 gallons

Oil: 660-gallon tank storage capacity, or
1,320-gallon total above ground storage capacity

Other **polluting materials** listed in [R 324.2009](#) in discrete use or storage areas:

Outdoors 440 pounds
Indoors 2,200 pounds

***Polluting materials** include mixtures of the materials listed to the left if they contain one percent or more, by weight, of the materials listed to the left.*

Facilities subject to the Part 5 Rules are required to have adequate surveillance of the facility to detect releases and implement procedures to prevent the **polluting materials** from reaching the surface water or groundwater. Each facility needs to determine how to meet this requirement, as it depends on what and how much **polluting material** is involved, how it is stored and used, how close it is to surface water or drains leading to surface water, what soil characteristics and other conditions could impact groundwater exposure, and the availability of pollution prevention and emergency response equipment, etc.

All use areas and indoor storage areas are required to be designed, constructed, maintained, and operated to prevent releases of **polluting materials** into a public sewer system or to surface water or groundwater.

Solid **polluting materials**, including salt storage and use areas, must meet the following requirements:

- Be managed to prevent releases to public sewer systems or to surface water or groundwater.
- Not be stored within 50 feet of a designated wetland or shore or bank of any lake or stream.
- Be designed and constructed to remain effective during a 100-year flood if located within a 100-year floodplain.

Discuss your use and storage area requirements for **polluting materials** with the DEQ, [District Office](#), Water Resource Division (see Appendix C).

SECTION ONE: Environmental Regulations

Some **polluting materials** may also have requirements in other regulations. For example:

- **Highly hazardous chemicals**, toxics, and reactives; see Chapter 17 “Process Safety Management of Highly Hazardous Chemicals”
- **Flammable and combustible liquids-Act 207/MIOSHA** or a **hazardous substance-CERCLA**; see Chapter 4.3 “Storage Tanks” and Chapter 34 “Flammable and Combustible Liquids”. **Polluting materials** exceeding the threshold management quantities in tanks that are exempted from the storage tank regulations, such as process tanks, are subject to the Part 5 Rules.
- Oils under U.S. EPA Spill Prevention Control and Measures regulations; see Chapter 6.2.3.
- Chemicals of interest under the US Department of Homeland Security’s Chemical Facility Anti-Terrorism Standards (CFATS); see Chapter 6.2.9

If a facility is subject to the storm water permit as required in Chapter 3, it is necessary to also include storage procedures and procedures for removing storm water from the containment in the Storm Water Pollution Prevention Plan.

4.3 Storage Tanks

Many businesses utilize underground storage tanks (USTs), aboveground storage tanks (ASTs), or both in their day-to-day operations. The storage and handling of products such as gasoline, diesel fuel, fuel oils, and other liquid chemicals can have environmental and safety consequences if the tanks are not properly installed and maintained. Also, the product transfer operations must be properly managed to minimize the possibility of releases and possible fire hazards. Storage tank regulations were designed to promote the safe storage and handling of flammable and combustible liquids such as petroleum products and other hazardous substances. Following the regulations will promote safer storage and handling practices and result in economic benefits to manufacturers and consumers.



4.3.1 Underground Storage Tanks

Prior to December 22, 1988, USTs containing **flammable and combustible liquids-Act 207** were solely regulated under the authority of the Act 207 and the FL/CL Rules. These rules adopted by reference some of the National Fire Protection Association codes and standards and provided a significant number of state additions and amendments. The FL/CL Rules applied not only to USTs but to ASTs as well. The last update of these rules took effect in October 2014. On December 22, 1988, the federal UST Rules were promulgated by the U.S. EPA. Following the promulgation of the federal rules, the MUSTR were promulgated under the authority of Part 211 (Underground Storage Tanks Regulations) of the Natural Resources and Environment Protection Act, Public Act 451 of 1994, as amended. The MUSTR adopted by reference the federal rules with state specific additions and amendments and incorporated by reference the relevant language of the Storage and Handling of FL/CL Rules. The last update of these rules took effect in October of 2015 and called for increased emphasis on environmental protection.

The Underground Storage Tank Program implements the regulations under Part 211 (4.3.1 Storage Tank Regulations [MUSTR]).

Background

Michigan has approximately **17,500** USTs installed at **6,700** facilities. An underground storage tank system is defined as a UST or combination of USTs and underground connected piping that have at least 10 percent of their volume underground and are, were, or may have been used to contain a regulated substance. Many of these USTs have released or will release petroleum and other regulated chemicals into the environment through spills, overfills, or failures in the tank and piping system. The extensive contamination of soils and groundwater due to LUSTs is a serious problem nationwide.

UST facility locations that fit one or more of the following conditions must be plan reviewed and certified by the Storage Tank Program:

- A business or commercial facility that stores petroleum-based products, a **CAA Section 112(r) substance**; or any chemical included on the **hazardous substance-CERCLA** list in the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), in amounts greater than 110 gallons (**MUSTR-UST**).
- A facility that supplies **flammable liquid or combustible liquid-Act 207** that has an individual aboveground tank storage capacity of more than 1,100 gallons.
- A farm or residential location that stores motor fuel for non-commercial purposes in amounts greater than 1,100 gallons.
- A facility that supplies gaseous or liquefied hydrogen or a facility that stores gaseous or liquefied hydrogen in a container(s).
- A facility that stores liquefied petroleum gas (LPG) in a tank larger than 2,000 gallons individual or 4,000 gallons aggregate, or any size tank that is used for dispensing into either tanks or vehicles.
- A facility or residence that uses an UST to store heating oil for consumptive use on the premises where the tank is located does not require a plan review or yearly fees plus certification.

Registration

All regulated USTs must be properly registered with the Storage Tank Program. You must complete a “*Registration for Underground Storage Tanks*” ([BFS 3821](#)). A UST discovered during tank removal and renovation must also be registered with the Storage Tank Program. You must send an amended form to the Storage Tank Program any time the registration information changes. The registration form must be submitted within 30 days from the date of the change.

Financial Responsibility

You must have pollution liability insurance or demonstrate financial responsibility to cover the costs of cleanups, property damage, and third-party compensation for bodily injury resulting from leaking underground storage tanks. You will be required to show proof of financial responsibility when you register the tanks. For further information regarding financial responsibility requirements, visit the [Financial Responsibility for Underground Storage Tanks](#) on the Storage Tank Program Web site at www.michigan.gov/storagetanks (select “Underground Storage Tanks”).

SECTION ONE: Environmental Regulations

The Michigan Underground Storage Tank Authority (MUSTA) was created by Public Act 416 on December 30, 2014. The Michigan Underground Storage Tank Authority (MUSTA) serves Michigan's petroleum underground storage tank owners and operators, local units of government, and country road commissions by managing the Underground Storage Tank Cleanup Fund, Legacy Release Program, and Public Highway Cleanup Program on a sound fiscal basis. MUSTA assists stakeholders in meeting their financial responsibility requirements and providing financial assistance to remediate contamination caused by releases from petroleum underground storage tanks.

For further information visit the *Michigan Underground Storage Tank Authority* Web site at www.michigan.gov/deqmusta.

Existing Installations

The UST system must be protected from potential releases and monitored. Since June 27, 2008; new UST systems are required to have approved secondary containment. Without these safeguards in place, the UST is more likely to leak, damage the environment, and leave you with costly cleanups. USTs that are not in compliance with the December 22, 1988, upgrade requirements of corrosion protection, overfill prevention, release detection, and spill prevention must have been closed by December 22, 1999. Closure may occur by removing the UST or filling the UST with inert material if removal threatens a structure.



For more information on release detection, spill protection, overfill prevention, and corrosion protection, call the Storage Tank Program at 517-241-8847 or visit www.michigan.gov/storage tanks.

New Installations

The requirements for secondary containment, spill protection, overfill prevention, corrosion protection, and release detection must be met at the time of installation. A "*Notice of Proposed Installation of Underground Storage Tanks*" (BFS 3820) must be completed, detailing the materials and part numbers used on the UST installation as appropriate, and submitted with the site diagram.

At least 30 days before you install or use a UST system in Michigan, you must submit installation plans for review to the Storage Tank Program. The plans submitted for installation approval must include: a site diagram detailing the location of USTs, dispensers, other storage tank systems, property lines, buildings, and drinking water wells; and a list of materials used for the UST installation as described in MUSR. R 29.2109 (Rule 9) of MUSR also has specific requirements concerning secondary containment and the placement of UST systems near drinking water wells and wellhead protection zones. UST systems with pressurized piping, placed after January 2, 1999, must be installed with secondary containment piping.

The plans are reviewed within 45 days, and then an approval or deficiency letter is sent to you. After approval of the plans, you must notify the Storage Tank Program of the installation date of the UST system seven days prior to the installation. The Storage Tank Program field staff will inspect the installation within two working days following this notification. Following inspection of the site and prior to use of the UST system, a registration form must be sent to the Storage Tank Program. A certificate will then be mailed to the owner/operator to be displayed at the facility location.

Any person who installs or removes a regulated UST system in Michigan must obtain \$1 million of pollution liability insurance. This insurance should not be confused with the financial responsibility requirements found previously in this chapter.

Tank Removal, Closure, and Changes of Stored Material

There are two types of closures for UST systems that are allowed: temporary and permanent. A temporary closure is allowed for up to a 12-month period, only if it is intended to bring the UST back into service. To temporarily close a UST system, you must submit an “*Intent of Removal, Closure, or Change-in-Service of Underground Storage Tanks*” (BFS 3824) form notifying the Storage Tank Program of the temporary closure. You must also continue operating the corrosion protection and release detection systems. Release detection is not required if the UST system is empty. A temporarily closed UST system may not be brought back into service unless it is fully upgraded for corrosion protection, overfill prevention, release detection, and spill protection. The UST system must also pass tank and line tightness testing.

A UST system is considered permanently closed when the UST system is empty for 30 days or more and does not meet the requirements for temporary closure or change-in-service. A permanently closed UST system must be emptied and cleaned by removing all liquids and accumulated sludge and purging all vapors.

When materials are removed from tanks, it is necessary to characterize those materials and sludges to determine if they are subject to waste regulations:

- Material that will be **used as is**, either by the generator or another company, is not considered a waste. This exclusion does not apply if the material has to be filtered or altered in any way before use. If the material is classified as a US Department of Transportation hazardous material, transportation of that material must meet that agency’s requirements (see Chapter 4.4).
 - Waste gasoline, diesel fuel, or other fuels that are being sent to a fuel blender are not considered hazardous waste because they were originally a fuel and are being recycled into a fuel. These would have to be shipped to the blender as a liquid industrial by-product.
- Contaminated soils, groundwater, or other debris generated as the result of contamination from leaking underground storage tanks are exempted from the hazardous waste regulations only if they:
- exhibit benzene or other D019 to D043 constituents;
 - the site is being cleaned up under storage tank regulations; AND
 - The tank is an underground storage tank.

This exemption does not apply to aboveground storage tank cleanups or from contamination associated with a UST due to overfilling or other causes besides leaking.

Removed materials may be characteristic or listed hazardous waste if the above situations do not apply. The tank must also be verified as **empty**. Discuss any waste determination questions with your consultant or DEQ, [District Office](#), Hazardous Waste Program.

SECTION ONE: Environmental Regulations



To determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, view the DEQ recorded waste characterization and generator status webinar available at www.michigan.gov/deqwaste under the “Hazardous Waste and Liquid Industrial By-products Webinar Series” link on the “Announcement” tab or see Chapter 2.4.

If waste is generated from the tank cleanout, it may affect a facility’s hazardous waste generator status because of the increased waste generation in that month. See Chapter 2.4.4 for more information about re-notifying or obtaining a Site Identification Number if the facility has not previously shipped hazardous waste off-site. It will also be necessary to use permitted and registered transporter, complete and submit copies of hazardous waste manifests, and meet other hazardous waste requirements when shipping hazardous waste off-site. There are different requirements for shipping liquid industrial by-products. To ensure proper handling of waste generated from tank closures. See Chapter 2 which discusses the management standards for both hazardous waste and liquid industrial by-product in detail.

Tanks not being reused must be **emptied**, inerted, cleaned, and rendered unusable by cutting holes in the tank heads and shell. Before the tank is cut up for scrap or disposal, the atmosphere in the tank must be tested to ensure its safety. If it is a steel tank, it can be sent to a recycler. Check the yellow pages under the scrap metal heading or go to the [Recycled Material Market Directory](#) at www.michigan.gov/deqrmmd. If it is a fiberglass tank, it can be disposed as a solid waste. Contact the landfill for specific requirements.

As detailed above, materials removed from inside the tank must be **characterized**. Generally, any materials removed from a tank will be subject to hazardous waste or liquid industrial by-product regulation upon removal. The handling requirements vary based on the character, composition, volume and ultimate disposition of the waste (recycling or disposal). Only when contaminated fuel is shipped directly to a fuel blender for recycling and reuse as fuel are the materials not subject to waste regulation. In that case, the contaminated fuel may be shipped using a bill of lading in accordance with the U.S. DOT regulations. For questions about the waste regulations that apply to the tank contents, see the resources above and contact the DEQ, [District Office](#), Hazardous Waste Program staff for assistance.

All permanently closed UST systems must be removed from the ground and the Storage Tank Program must be notified of the pending removal by submitting an “*Intent of Removal, Closure, or Change-in-Service of Underground Storage Tanks*” (BFS 3824) 30 days prior to the pending removal date. A site assessment must be performed as described on page 4-13. In cases where a permanent structure is above or near the UST, the UST system may be closed in-place. A closed in-place UST must be filled with an inert solid material such as concrete or pea gravel. A site assessment must be performed. Once the UST is closed, you must submit an amended “*Registration for Underground Storage Tanks*” (BFS 3821) to the Storage Tank Program within 30 days of the closure. In place of an amended BFS 3821, the “*Underground Storage Tank System Site Assessment Report and Closure or Change-In-Service Registration*” (BFS 3881) can be submitted within 45 days of permanent closure or change-in-service.

To facilitate UST removal and unrestricted closure of former UST sites, the state and federal hazardous waste regulations exclude petroleum contaminated media and debris that are D018-D043 characteristically toxic and not ignitable from being a hazardous waste if the site is being cleaned up under the storage tank regulations.

When the material stored in a UST is changed from a regulated substance to a non-regulated substance (such as water or heating oil), follow the same procedures as though you permanently closed the UST system.

Record Keeping Requirements

It is important to keep records of your daily operations, purchases of equipment, and other information relating to the operation of your UST system. These records are needed by the inspector and might also help you obtain cheaper insurance rates. Records must be kept on routine maintenance of the UST system, release detection, inventory control, site assessment results, reporting of releases, and corrective actions. These records should be kept on site and be immediately available upon request. If the records are kept at an alternative site, they must be available for inspection. It is recommended you keep these records indefinitely.

Releases, Reporting, and Investigation

Any time a non-emergency release is suspected or confirmed, you must report the release within 24 hours to the Storage Tank Program. See Chapter 6 for instructions and regulations on how to properly report a non-emergency spill. Once a suspected release has been reported, you have 14 days to investigate the release and either confirm the release or cancel the suspected release report. If a suspected release is upgraded to a confirmed release, or if you initially know that you have a confirmed release, you must begin corrective action as described on page 4-14.



All emergency spills or releases must be reported immediately to the Pollution Emergency Alerting System (PEAS) at 800-292-4706 in Michigan or 517-373-7660 if outside Michigan.

To report a confirmed release from a UST call 517-335-7279, fax the release report to 517-332-1428, or use the online form 'BFS 3826' located at www.deq.state.mi.us/sid-web/Forms_Docs.aspx?strId=FORMS.

Site Assessments

When a UST system is closed or a change-in-service occurs, the UST site must be assessed for past releases where contamination is most likely to be present. A proper site assessment requires sampling of soil and/or water. A laboratory using U.S. EPA or state acceptable methods must analyze these samples. R 29.2155 ([Rule 55](#)) of MUSTR lists the proper sampling guidelines for site assessments. The site assessment results must be submitted to the Storage Tank Program on the “*Underground Storage Tank System Site Assessment Report and Closure or Change-in-Service Registration*” ([BFS 3881](#)). Also, Storage Tank Program’s Informational Memoranda “*Test Methodology for Site Assessments*” ([IM-3](#)), succinctly lists the site assessment sampling requirements.

A site assessment is not required if contaminated soils, groundwater, or free product are discovered. If you find one of the following indicators of a release of regulated product, you must report a confirmed release to the Storage Tank Program within 24 hours of discovery: visible or olfactory evidence of contamination at the UST site during excavation, if field screening

SECTION ONE: Environmental Regulations

instrumentation (e.g., a photo ionization meter [PID]) indicates the presence of contamination, or if your site assessment shows contamination. You must then follow the Remediation Division's (RD) guidelines for further testing and clean up the contamination as described on page 4-13.

Corrective Action

You must hire a qualified underground storage tank consultant (QC) to perform corrective action at your site. The QC must have \$1 million coverage in pollution liability insurance. Be aware that even though you must hire a QC, you are ultimately liable for assuring that corrective actions are performed at your site.

After a release has been reported, you or your QC must immediately begin to perform initial response actions. If the corrective action is not completed after performing the initial response activities, then the QC must determine the extent of the contamination, conduct a risk-based corrective action (RBCA) assessment, and prepare a Corrective Action Plan (CAP) to further address the contamination at the site. You can find more information on CAPs and related reporting requirements in Part 213 (Leaking Underground Storage Tanks [LUST]) of Act 451. In addition to the above requirements, the QC must submit the following reports to the RD: initial assessment report, final assessment report, and the closure report.

FOLLOW-UP REPORTS FOR LUST

Forms required by regulation, due within:

90 days ----- LUST Initial Assessment Report ([BFS 3841](#))

365 days ----- LUST Final Assessment Report ([BFS 3842](#))

Submitted within 30 days after the
completion of the Corrective Action ----- LUST Closure Report ([BFS 3843](#))

	Free Product Fax Transmittal (BFS 3800)
	Notice of Migration of Contamination (BFS 4482)
Miscellaneous reports that are required (as applicable to the site) -----	Notice Regarding Discarded or Abandoned Containers (BFS 4476)
	Notice to Impacted Parties of Corrective Action (BFS 3852)

Each site must be evaluated and cleaned up based on the current cleanup criteria and the level of risk that the site poses to public health and the environment as determined by the QC performing the corrective action. The American Society of Testing and Materials' document entitled "*Standard Guide for Risk Based Corrective Action (RBCA) Applied at Petroleum Release Sites*" (E-1739-95) has been adopted by reference and is effective for all UST releases. This standard allows for a more streamlined approach to cleanups in Michigan. The RD has the necessary tables and guidance documents to implement RBCA.

Baseline Environmental Assessment (BEA)

Please see Chapter 7 for information on the BEA process and how to avoid liability for existing contamination when purchasing/leasing/operating at a site of contamination.

4.3.2 Aboveground Storage Tanks

Aboveground storage tanks (ASTs) are often used for the same purposes as USTs. An AST system has less than 10 percent of the volume of the storage tank system underground. While AST systems do not pose the same environmental or human health risks as USTs, the impacts may be significant if their contents are accidentally released. One advantage of ASTs is that they are highly visible, so any leaks or defects can be detected early.

The Storage Tank Program regulates ASTs that are used to store **flammable and combustible liquids-Act 207** with a flashpoint of less than 200 degrees Fahrenheit. The aboveground storage of **flammable and combustible liquids-MIOSHA** with a flashpoint greater than 200 degrees Fahrenheit can be regulated under the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids and/or the fire prevention code adopted by the local municipality. See Chapters 34 and 37 for more information.

Aboveground storage locations that fit one or more of the following conditions must be plan reviewed and certified by the Storage Tank Program:

- A facility that supplies gaseous or liquefied hydrogen or a facility that stores gaseous or liquefied hydrogen in a container(s).
- Any flammable compressed gas or liquefied petroleum gas container filling location.
- A facility that supplies flammable compressed gas or any liquefied petroleum gas that has a tank with a water capacity of more than 2,000 gallons, two or more tanks with an aggregate water capacity of more than 4,000 gallons, or any tank used to fill other tanks or cylinders.
- A facility that supplies **flammable liquid or combustible liquid-Act 207** that has an individual tank storage capacity of more than 1,100 gallons.

Installation

The plan review form, “*Application for Installation of Aboveground Storage Tanks*” ([BFS 3859](#)), gives you a complete list of what must be submitted with your application, including the plan review fee of \$203 for each AST being installed (exemption from fee exists for any tank storing a refined petroleum product). Plans are reviewed within 45 days after receipt. Following review of the plans, you will receive a letter indicating approval or denial of the plan. For a denial, the deficiencies are listed. The deficiencies need to be corrected before approval can be granted. Once the plan review is approved, a Storage Tank Program Hazardous Materials Storage Inspector will inspect your facility after the installation is complete and prior to placing an AST in service.

A certification fee of \$61.50 is assessed annually per year/per tank, for any tank storing non-refined petroleum products. The billing period is October 1 of year X through September 30 of the following year. The certification fee for hydrogen and CNG tanks is based on standard cubic feet per minute (SCFM) storage capacity. One CNG tank is considered to be 18,500 SCFM, and one hydrogen tank is considered to be 36,000 SCFM.

To request the applicable plan review form, “*Application for Installation of Aboveground Storage Tanks*” ([BFS 3859](#)) and get assistance completing it, call the Storage Tank Program at 517-241-8847 or go to www.michigan.gov/storagetanks (select “Aboveground Storage Tanks”).

ASTs storing **flammable and combustible liquids-Act 207** that do not have to be plan reviewed are still subject to the following requirements found in the Storage and Handling of FL/CL Rules.

SECTION ONE: Environmental Regulations

Secondary Containment

Most ASTs must have secondary containment. Several containment systems are acceptable to the Storage Tank Program: tanks with built in secondary containment, vaulted systems, concrete encasement, and lightweight thermal insulated tanks. For information on secondary containment, call the Storage Tank Program directly at 517-241-8847. There are also alternative methods of secondary containment, which must be approved during the plan review conducted by the Storage Tank Program. For more information about secondary containment, see Chapter 4.1.

Spill and Overfill Protection

Since August 12, 2008; all new or existing ASTs must have spill and overfill protection.

Corrosion Protection

ASTs must have a type of approved corrosion protection. A single- or double-bottom shop manufactured tank that has an external mastic-coated bottom can only be installed on a concrete or asphalt pad that is higher than the surrounding dike floor. Cathodic protection that is properly engineered and maintained must be used for the exterior of single- or double-bottom tanks that are installed on earth and gravel. Also, cathodic protection can be used on single- or double-bottom tanks that are installed on a concrete or asphalt pad at the same level as the rest of the dike floor. Additional requirements and guidelines can be found in the Storage and Handling of FL/CL Rules.

Control of Ignition Sources

ASTs, as regulated by the Storage Tank Program, have fire hazards. Precautions should be taken to prevent the ignition of flammable vapors. Sources of ignition include but are not limited to: open flames, cutting and welding, thermal heat, spontaneous ignition, stray currents, smoking, etc. All equipment such as tanks, machinery, and piping must be bonded or otherwise connected to the ground to prevent static electricity.

AST System Out-of-Service

An AST system that is going to be out-of-service for more than 12 months must follow the proper procedures. The AST system owner/operator is required to have the tank and related piping completely emptied and cleaned (professionally) to a vapor free condition. The piping must be disconnected from the AST system. The AST system must also be safeguarded against trespass. The owner/operator has the option of removing the tank system from the property. All tanks removed from the property must be disposed of properly. The facility owner/operator must submit the “*Change of Information Form*” ([BFS 3858](#)) for ASTs to notify the Storage Tank Program that the AST system is out-of-service or of the AST removal. See Section 4.3.1 above for details on emptying the tank and manage any wastes requiring removal.

Releases, Reporting, and Investigation

Releases or suspected releases of a regulated substance from flammable and combustible liquid ASTs and heating oil ASTs must be reported to the appropriate Remediation Division District Office (see Appendix C) and the local fire department having jurisdiction, or PEAS at 800-292-4706 within Michigan or 517-373-7660 if outside Michigan. Some signs that a release has occurred are visibly stained soils, holes in the AST, and odoriferous soils. For more information about handling media and debris from an AST release, see section *Tank Removal, Closure and*

Changes of Stored Material related to USTs. However, note that there is no exclusion from the state and federal regulations for petroleum contaminated media from an AST.

Emergency Planning and Training

You need to know what to do in case of a fire, spill, or any on-site emergency. An emergency action plan must be available and made known to employees to respond to fire or other emergencies. (Alternate fire safety measures on-site must be in place while any fire safety equipment is shut down.) This emergency plan should be coordinated with your local emergency response agencies, such as fire, police, etc. In most cases, your local agencies will respond to your alarm or call. Additional requirements for release prevention and response planning are found in Chapter 6. Without a proper emergency plan in place, you are likely to lose more products, increase your costs of cleanup, and endanger the environment and human lives.

Baseline Environmental Assessment (BEA)

Please see **Chapter 7** for information on the BEA process and to avoid liability for existing contamination when purchasing/leasing/operating at a site of contamination.

4.4 Hazardous Material-U.S. DOT Transportation, Shipping, and Receiving

The transportation of **hazardous material-U.S. DOT** is regulated by the U.S. Department of Transportation. The U.S. DOT operates under the authority of the Hazardous Materials Transportation Act and the Federal Hazardous Materials Regulations (FHMR) contained in Title 49, Parts 100-185 of the Code of Federal Regulations, administered by the Pipeline and Hazardous Materials Safety Administrations (PHMSA). Within U.S. DOT, the Federal Motor Carrier Safety Administration (FMCSA) is responsible for enforcing the FHMR as it applies to highway transportation. At the state level, the Michigan State Police (MSP) Commercial Vehicle Enforcement Division is responsible for enforcing the FHMR and the Federal Motor Carrier Safety Regulations, both of which have been adopted into state law under Michigan's Motor Carrier Safety Act, Public Act 181 of 1963, as amended (Act 181).

Note: Hazardous materials –DEQ are defined to include only hazardous waste and liquid industrial waste.
Hazardous materials – U.S. DOT includes products and waste that pose a hazard during transport.

4.4.1 Hazardous Material-U.S. DOT Transporters

The U.S. DOT defines a **hazardous material-U.S. DOT** as “a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, which includes hazardous waste.” **Hazardous material-U.S. DOT** may pose varying degrees of risk in transportation, depending on the type of substance. Transporters of **hazardous material-U.S. DOT** must be aware of how these materials are classified to ensure compliance with packaging, handling, marking, labeling, placarding, shipping paper, and training requirements. **Hazardous material-U.S. DOT** may be classified as any of the following: explosives, gases, flammable liquids, flammable solids, oxidizers, poisons and infectious substances, radioactive material, corrosives, miscellaneous goods, and other regulated materials (ORM).



SECTION ONE: Environmental Regulations

A table of **hazardous material-U.S. DOT** classes and an index to their class definition are included in Title 49, Part 173.2 of the Code of Federal Regulations. If the commodity you are transporting is included in one of the classifications identified, you are subject to the U.S. DOT's Hazardous Materials Regulations. Another table of **hazardous materials-U.S. DOT** is contained in Title 49, Part 172.101 of the Code of Federal Regulations. This table is more detailed, lists proper descriptions for the materials, and provides guidance for the packaging and handling of specific **hazardous materials-U.S. DOT**. This table can be downloaded off the Internet at www.phmsa.dot.gov/hazmat (Select "Hazardous Materials Regulations" then "Part 172").

4.4.2 Liability of Improper Shipments of Hazardous Material-U.S. DOT

Compliance with the hazardous materials regulations is the responsibility of both the shipper and carrier. General shipper responsibilities are contained in Title 49, Part 173 of the Code of Federal Regulations. In many cases, shipper and carrier responsibilities overlap. Although both the shipper and the carrier can perform the task, the carrier is ultimately responsible for the shipment during transportation. Title 49, Part 387 of the Code of Federal Regulations sets the insurance requirements for vehicles transporting certain amounts of **hazardous materials-U.S. DOT**.



Both Michigan and federal law require the carrier to maintain proof of financial responsibility on the federal form, "Endorsement for Motor Carrier Policies of Insurance for Public Liability Under Sections 29 and 30 of the Motor Carrier Act of 1980" (MCS-90). Additionally, both carriers and shippers must properly train their employees as required in Title 49, Part 172 of the Code of Federal Regulations. Table 4.2 summarizes shipper and carrier responsibilities.

TABLE 4.2 SHIPPER AND CARRIER RESPONSIBILITIES

Party	Responsibilities
Shipper Responsibilities (49 CFR 171.1, Pre-transport functions)	<ul style="list-style-type: none"> • Determine whether the material meets the definition of a hazardous material-U.S. DOT. • Determine class/division. • Prepare shipping papers. • Apply hazard warning labels. • Properly package, mark, and placard materials and vehicle. • Ensure compatibility between materials. • Properly block and brace cargo. • Identify and maintain 24-hour emergency response telephone number and emergency response information. • Ensure all employees handling hazardous materials-U.S. DOT are properly trained.
Carrier Responsibilities (49 CFR 171.1, Transport functions)	<ul style="list-style-type: none"> • Meet shipper's requirements when performing shipper's functions. • Ensure vehicle is properly marked and placarded. • Ensure compatibility between materials. • Ensure that the cargo is properly blocked and braced.

4.4.3 Hazardous Material-U.S. DOT Registration Program

The hazardous materials regulations require registration for each person that offers or transports any shipment of hazardous materials that requires placarding (with an exception for farmers offering or transporting hazardous materials in direct support of their farming activities). Each person subject to the requirements of this subpart must pay an annual fee. Registrants must maintain a copy of the application statement and the Certificate of Registration at their principal place of business for a period of three years from the date of issuance.

Each motor carrier subject to the registration must carry a copy of its current Certificate of Registration or another document bearing the registration number identified as the “US DOT Hazmat Reg. No.” This document must be on board each truck and truck tractor (not including trailers and semi-trailers) used to transport hazardous materials subject to registration. It must be made available, upon request, to enforcement personnel.

Information about the U.S. DOT’s Hazardous Materials Registration Program including the registration statement (**DOT F 5800.2**) and instruction booklet can be found at www.phmsa.dot.gov/registration/registration-overview. You can also call the Hazardous Materials Registration Program at 202-366-4109 or 1-800-942-6990 to receive instructions on how to register and obtain the “*Hazardous Materials Registration Statement*” (DOT F 5800.2).

4.4.4 Hazardous Material-U.S. DOT Shipping Papers

Stipulations for **hazardous material-U.S. DOT** shipping papers are contained in [49 CFR 172](#), Subpart C. According to the Hazardous Materials Regulations, a shipping paper is any shipping document that communicates a hazard and conforms to the requirements contained in the subpart. Essentially, all shipping papers must have four elements referred to as a basic shipping description:

1. identification number (4-digit number preceded by “NA” or “UN”)
2. proper shipping name
3. hazard class/division;
4. packaging group in Roman numerals as designated for the hazardous material in column (5) of Sec. 172.101 table.



When preparing shipping papers, the basic shipping description must be entered in the order shown above. The requirement for this sequence went in to effect on January 1, 2013, and is commonly referred to as “ISHP” given the acronym follows the required order:

1. **I** for ID #;
2. **S** for Shipping Name
3. **H** for Hazard Class, and
4. **P** for Packing Group, if applicable.

In addition to the basic shipping description, shipping papers must also contain the following:

- The total quantity transported,
- The number and type of packages,
- Shipper certification - certifies materials being transported are in compliance with regulations,
- Emergency response telephone number, and
- Emergency response information – specific requirements pertaining to this information are outlined in [49 CFR 172.602,604](#).

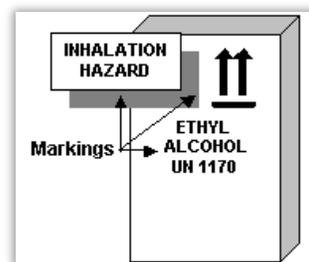
SECTION ONE: Environmental Regulations

Note: The North American [Emergency Response Guidebook](#) is a reference guide that identifies the proper response procedures that should be taken in the event of a hazardous materials spill or accident. It also lists specific and generic hazards associated with a particular material. The guidebook can be accessed from the Internet at www.phmsa.dot.gov/hazmat/erg/emergency-response-guidebook-erg. A free [ERG App](#) can be downloaded from this site.

Shippers are required to retain shipping papers for a period of 3 years for hazardous waste and 2 years for all other hazardous material shipments after the material is accepted by the carrier. The carrier is required to retain shipping papers for a period of 3 years for hazardous waste and 1 year for all other hazardous materials. Depending on the material being transported, there may be additional requirements contained in 49 CFR 172.203. For more information, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletin on Shipping Papers, which can be accessed at www.michigan.gov/documents/V01N01_115476_7.pdf.

4.4.5 Hazardous Material-U.S. DOT Marking

Markings are placed directly on the outer packaging of **hazardous material-U.S. DOT** to identify the contents inside. The marking will provide a descriptive name, identification number (4-digit number preceded by “UN” or “NA”), specifications, plus any required instructions and/or cautions. The provisions for marking packages are contained in [49 CFR 172](#), Subpart D. The basic marking requirement consists of the proper shipping name (e.g., Ethyl Alcohol) and the identification number (e.g., UN 1170) of the **hazardous material-U.S. DOT** contained in the package. This information is provided in the Hazardous Materials Table contained in 49 CFR 172.101, which can be downloaded off the Internet at www.phmsa.dot.gov. Select “Hazardous Materials Regulations, then select Part 172 Subpart C. Depending on the material, there may be additional marking requirements. Empty container exceptions as well as information on authorized abbreviations; bulk packaging; liquid hazardous materials; and marking requirements for explosives, poisonous, and ORM-D materials can all be found in [49 CFR 172](#), Subpart D.

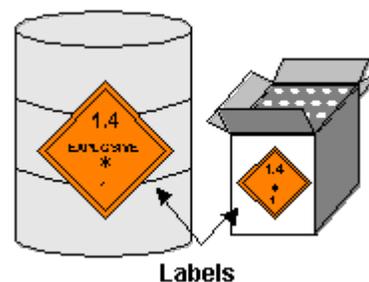


For more information, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletin on Marking Requirements for Bulk and Non-Bulk Packages at www.michigan.gov/documents/msp/Hazardous_Materials_Bulletins_212350_7.pdf.

4.4.6 Hazardous Material-U.S. DOT Container Labeling

A label is a prescribed hazard warning notice that is applied to the outside of shipping containers of **hazardous material-U.S. DOT**. Labels identify the primary and subsidiary hazards specific to materials and may give information about handling precautions and prohibitions as well.

If you are transporting **hazardous material-U.S. DOT**, the containers must be labeled accordingly. General labeling requirements are contained in [49 CFR 172](#), Subpart E. A table that identifies proper labeling specifications for each **hazardous material-U.S. DOT** class and division can be found in 49 CFR 172.400. Other sections in Subpart E address authorized label

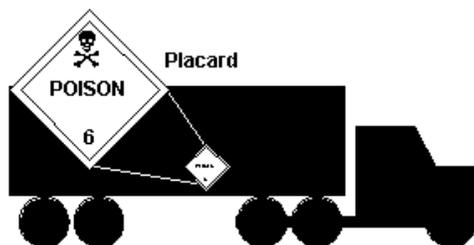


modifications, label placement, and specifications. Title 49, Part 172, Subpart E of the Code of Federal Regulations provides a separate section for each authorized label and gives a description and an example of the label. It is recommended that for specific information on labeling requirements, you refer directly to 49 CFR 172, Subpart E.

For more information, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletin on Labeling Requirements at www.michigan.gov/documents/msp/Hazardous_Materials_Bulletins_212350_7.pdf.

4.4.7 Hazardous Material-U.S. DOT Placarding of Carriers

Placards are displayed on each end and each side of a vehicle and are used to communicate the hazard to industry personnel, the public, and first responders. Unless the regulations tell you differently, each person who offers or transports a regulated **hazardous material-U.S. DOT** must comply with the placarding requirements.



General placarding requirements are contained in [49 CFR 172](#), Subpart F. Placard specifications for each **hazardous material-U.S. DOT** class and division are found in 49 CFR 172.500-560.

When evaluating placarding requirements, you should be familiar with two classification tables, referred to as “Table 1” and “Table 2”, located in 49 CFR 172.504. These tables identify when a carrier must be placarded. According to the regulations, the following **hazardous material-U.S. DOT** classes must be placarded regardless of quantity:

CLASS	DIVISION
Explosives	1.1, 1.2, 1.3
Poisonous Gas	2.3
Dangerous When Wet	4.3
Organic Peroxide	5.2*
Poison/Toxic	6.1**
Radioactive	7

* Type B, liquid or solid, temperature controlled

** PG1, Inhalation Hazard, Zone A and B

Except for the materials listed above, a placard is not required for materials if the individual package does not exceed 450 liters for liquid, 400 kilograms for solid, and 454 kilograms for gas and the aggregate gross weight of the total load of hazardous materials does not exceed 1,001 pounds. If the cargo exceeds these limits, they require placards. If a single container exceeds these limits, they are a “bulk package” and must also be placarded. Some materials have mandatory subsidiary hazard placard requirement (see 49 CFR 172.505). Subsidiary hazards that require a placard include: (1) Poison Inhalation Hazards (PIH); (2) Dangerous When Wet (4.3); (3) Radioactive materials with a corrosive subsidiary and poison subsidiary for Uranium Hexafluoride. All other subsidiary hazards may be placarded, but it is not required.

SECTION ONE: Environmental Regulations

Empty, non-bulk packages containing only the residue of a **hazardous material-U.S. DOT** do not have to be placarded. Neither do containers that are cleaned and purged or refilled with a non-hazardous material.

Additional information on placard applicability, placement, specifications, and other requirements can be found in 49 CFR 172, Subpart F. Also, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletin on Placarding at www.michigan.gov/documents/msp/Hazardous_Materials_Bulletins_212350_7.pdf.

4.4.8 Materials of Trade Exclusion from Hazardous Material-U.S. DOT

Materials of Trade (MOTs) are hazardous materials that are carried on a motor vehicle for at least one of the following purposes:

- To protect the health and safety of the motor vehicle operator or passengers (e.g., insect repellent, self-contained breathing apparatus, and fire extinguishers).
- To support the operation or maintenance of a motor vehicle or auxiliary equipment (e.g., engine starting fluid, spare battery, and gasoline).
- When carried by a private motor carrier to directly support a principal business that is not transportation (e.g., lawn care, pest control, plumbing, welding, painting, and door-to-door sales).

Since MOTs are transported in small quantities, usually as part of a business, they are subject to less regulation. Title 49, Part 173.6 of the Code of Federal Regulations identifies the rules that apply to MOTs, the exceptions, and qualifying factors.

Basically, MOTs do not require shipping papers, emergency response information, placarding, formal training, or record keeping. However, if you operate a vehicle containing MOTs, you must know the materials are hazardous and you must be aware of the requirements for MOTs. There are some packaging and marking requirements that apply to certain MOTs that are explained in [49 CFR 173.6](#).

If you would like more information about MOTs, download a copy of the publication “What are Materials of Trade, and What Regulations Apply?” at www.phmsa.dot.gov/hazmat/library. Also, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletins at www.michigan.gov/documents/msp/Hazardous_Materials_Bulletins_212350_7.pdf.



You can also call the U.S. DOT's Hazardous Materials INFO-LINE at 800-467-4922 for more information about Materials of Trade.

4.4.9 Loading and Unloading, Compatibility, and Packaging of Hazardous Material-U.S. DOT

Regulations pertaining to the loading and unloading of **hazardous material-U.S. DOT** to and from a motor carrier are contained in Title 49, Part 177, Subpart B of the Code of Federal Regulations. [49 CFR 177](#), Subpart B identifies the general unloading and loading regulations that apply to all **hazardous material-U.S. DOT** transportation and specific regulations that pertain to the unloading and loading of a particular class or division of **hazardous material-U.S. DOT**. Since there are so many regulations that refer to specific materials, it is best to find them in the

regulations cited above. In addition to these federal regulations, specific unloading and loading instructions for **flammable and combustible liquids-Act 207** are provided in administrative rules R 29.2201-2234, promulgated under the Michigan Fire Prevention Code, Public Act 207 of 1941, as amended.

Both shippers and carriers are responsible for compatibility. The requirement for shippers to comply with compatibility considerations is contained in 49 CFR 173.22. These provisions are to ensure that incompatible substances are segregated during transport. In order to determine compatibility for shipments by highway, shippers and carriers should refer to 49 CFR 177.848, Segregation of Hazardous Materials.

General requirements for packaging and packages are contained in 49 CFR 173.24. This section addresses topics like applicability, specifications, compatibility, closures, and venting. Empty packages are regulated under 49 CFR 173.29. Except where otherwise stated, empty packaging that contains only the residue of a **hazardous material-U.S. DOT** shall be offered for transportation and transported in the same manner as when it previously contained a greater quantity of that **hazardous material-U.S. DOT**.

4.4.10 Hazardous Material-U.S. DOT Employee Training

The **hazardous material-U.S. DOT** employee training requirements can be found in [49 CFR Part 172](#), Subpart H (Sections 172.700-704) and applies to intrastate and interstate transportation, and to both shippers and motor carriers. Transportation training modules and other training resources are available at www.phmsa.dot.gov/training.

The training standard requires training in the following five areas for both the shipper and carrier: (1) General Awareness/ Familiarization; (2) Function Specific; (3) Safety; (4) Security Awareness; and in certain circumstances, (5) In-depth Security Training.

The General Awareness/Familiarization Training requires each hazmat employee to be provided general awareness/familiarization training with the FHMR, and to enable the employee to recognize and identify hazardous materials consistent with the hazard communication standards (markings, labels, placards, etc.).

Function-Specific Training specifies that employees must receive training concerning the regulations that are specifically applicable to the functions the employee performs. The specific training provided will vary depending on the individual's involvement in the transportation system. For example, a shipping clerk would need training in the regulations applicable to shipping papers, whereas a dock employee would need loading and unloading, outage standards and package integrity, segregation and separation training, etc. This also includes hazardous waste manifest training.

Safety Training must cover the emergency response information required in [49 CFR 172](#), Subpart G, measures to protect the employee from the hazards associated with materials to which they may be exposed to in the workplace, and methods and procedures for avoiding accidents. One exception to this portion of the training requirement are employees who repair, modify, recondition, or test hazardous materials packaging, and who do not perform any other function subject to the regulations, do not have to receive safety training.

SECTION ONE: Environmental Regulations

Security Awareness Training was added to the safety training requirements and must be done as part of the regular hazmat training. As part of the required training, a hazmat employee must receive training on recognizing and responding to possible security threats and an awareness of security risks associated with hazardous material transportation. All safety training was required to include a security awareness training component provided to shippers and carriers as of March 24, 2006.

In-depth Security Training is required of hazmat employees or persons who are required to have a Security Plan in accordance with [49 CFR Part 172](#), Subpart I (see Chapter 6.2.7). This training must include company security objectives, specific security procedures, employee responsibilities, actions to take in the event of a security breach and the organizational security structure.

In addition to the above training, carriers are required to meet the mode-specific training requirements for highway transportation found in 49 CFR 177.816. This section requires training on the Federal Motor Carrier Safety Regulations (FMCSR); the safe operation of the vehicle (backing, braking, parking, etc.); pre-trip safety inspections; use of vehicle's controls and equipment, including emergency equipment; effects of braking and curves, speed on vehicle control; hazardous weather or road conditions; operations in tunnels, bridges, and railroad crossings; vehicle attendance, parking, smoking, routing, and incident reporting; segregation of cargo; loading and unloading, load securement; and specialized training for cargo tank and portable tank operations, and other specific requirements. The Commercial Driver License (CDL) testing requirements may be used for compliance with this portion of the training for person with a hazardous materials or tank vehicle endorsement.

Other training standards may be substituted for portions of the U.S. DOT training requirements, if they meet the standards outlined in [49 CFR Part 172](#), Subpart H. For example, OSHA or U.S. EPA training may cover portions of the training required by U.S. DOT, and would not have to be repeated. If the training differs in any technical areas, like definitions, then the employee must be trained in those areas. Additionally, training completed by previous employers may also be used, if documented.

The training for a hazmat employee must be completed within 90 days after employment.

Employees who change hazardous materials job functions must complete training in the new job

“Hazmat employee” means a person who is employed by a hazmat employer and who in the course of employment directly affects hazardous materials transportation safety. This term includes an owner-operator of a motor vehicle which transports hazardous materials in commerce. This term includes an individual, including a self-employed individual, employed by a hazmat employer who, during the course of employment: (1) Loads, unloads, or handles hazardous materials; (2) Manufactures, tests, reconditions, repairs, modifies, marks, or otherwise represents containers, drums, or packagings as qualified for use in the transportation of hazardous materials; (3) Prepares hazardous materials for transportation; (4) Is responsible for safety of transporting hazardous materials; or (5) Operates a vehicle used to transport hazardous materials.

“Hazmat employer” means a person who uses one or more of its employees in connection with: transporting hazardous materials in commerce; causing hazardous materials to be transported or shipped in commerce; or representing, marking, certifying, selling, offering, manufacturing, reconditioning, testing, repairing, or modifying containers, drums, or packaging as qualified for use in the transportation of hazardous materials. This term includes an owner-operator of a motor vehicle which transports hazardous materials in commerce. This term also includes any department, agency, or instrumentality of the United States, a State, a political subdivision of a State, or an Indian

function(s) within 90 days after the change. A hazmat employee may perform new hazardous materials job functions before completing training if he does so under the supervision of a properly trained and knowledgeable hazmat employee.

Training must be done every three years. However, assumed in that requirement is the fact that any time the regulations change affecting a particular job function, the employee(s) responsible for that function must be trained on the changes. The training may be done within the company or through other public or private sources.

A record of current training, inclusive of the preceding three years, must be created and retained by the employer for each hazmat employee for as long as they are employed as a hazmat employee and for 90 days thereafter. The record must include the employee's name; the most recent training completion date; a description, copy, or the location of the training materials used to meet the requirements; the name and address of the instructor(s); and a certification that the hazmat employee has been trained and tested.

There are no exceptions to the training standards for any quantities or classes of hazardous materials, unless a particular operation or material is excepted from the entire subchapter. While the regulations provide great flexibility in the details of the training supplied (i.e., no minimum number of hours or test questions), inherent in that flexibility is a large amount of liability should a hazardous materials incident occur, especially if employee error is a causative factor. Employers are cautioned to thoroughly examine the training program their employee receives, particularly if the training is offered through an outside source.

Additionally, Section 49 CFR 172.606(a), requires carriers to instruct drivers to contact the carrier in the event of a hazardous materials incident.

As soon as practical but no later than 12 hours after the occurrence of any reportable incident as defined in CFR 49 Part 171.15 requires each person in physical possession of a hazardous material shall provide notice by telephone to the National Response Center (NRC) on 800-424-8802. A more detailed incident report must be submitted on DOT Form F 5800.1 within 30 days of discovery of the incident. The report shall be submitted to the Information System Manager, at the Pipeline and Hazardous Materials Safety Administration, Dept. of Transportation, East Building, 1200 New Jersey Ave., SE, Washington, DC, 20590-0001.

4.4.11 Michigan Transportation Requirements

Michigan's [Motor Carrier Safety Act](#), Public Act 181 of 1963, as amended, adopted the Federal Hazardous Materials Regulations into state law. Aside from these regulations, there are some additional requirements that have been implemented by the state to further regulate the transportation of materials.

Permits and Registration

Michigan's [Hazardous Materials Transportation Act](#), Public Act 138 of 1998 (Act 138), regulates transporters hauling hazardous materials as defined by Act 138 (**hazardous materials-DEQ**). Act 138 defines **hazardous materials-DEQ** to include **hazardous waste** and **liquid industrial by-products**. Transporters of **hazardous materials-DEQ** in Michigan must be registered and permitted as part of the [Alliance for Uniform Hazmat Transportation](#). Transporters of liquid industrial by-products are also required to be permitted and registered under Act 138. Registrations must be renewed annually, and the permits are effective for three years. In

SECTION ONE: Environmental Regulations

Michigan, this program is administered by the DEQ, Hazardous Waste Program, Southeast Michigan District Office (see Appendix C).

The registration and permit application and instructions for hazardous waste transportation can be found at www.hazmatalliance.org. Hazardous waste applications must be completed [online](#) and require the Attachment A fee worksheet (EQP 5122A) if authorization to transport liquid industrial by-products is also desired. For transporting only liquid industrial by-products, applications can be downloaded off the Internet at www.michigan.gov/deqwaste by selecting “Transporters” and “Liquid industrial By-product Permits and Registration Forms & Instructions” or calling 586-494-5091 or 586-753-3850.

License Requirements

In Michigan, you are required to obtain a commercial driver’s license (CDL) to operate a commercial vehicle. In addition to this certification, special endorsements on your CDL are required to transport certain cargo. A Hazardous Materials Endorsement (“H”) is necessary for any vehicle, regardless of gross vehicle weight rating (GVWR) that needs to be placarded under the Federal Hazardous Materials Regulations. A Tank Endorsement (“N”) is required for anyone operating a tank vehicle, according to the [Michigan Vehicle Code](#), Public Act 300 of 1949, as amended.

4.5 Storage of Polychlorinated Biphenyls (PCBs)

Polychlorinated Biphenyls (PCBs) are subject to state and federal regulations. However, in December 2012, the state rescinded Part 147 of the Natural Resource and Environmental Protection Act, Act 451 of 1994, and the corresponding Part 147 rules. Michigan now defers to U.S. EPA’s implementation of the federal [Toxic Substances Control Act \(TSCA\)](#) to oversee the handling and disposal of PCB containing materials in Michigan.



PCBs, and oils and other compounds or products containing 1% or more, by weight, of PCBs, are a **polluting material** under the state Part 5 Rules (Spillage of Oil and Polluting Material) promulgated under Part 31 of Act 451 except if it is in active installations of oil containing electrical equipment such as transformers and capacitors. The DEQ oversees the state rules, which includes secondary containment, Pollution Incident Prevention Plan (PIPP), and release reporting requirements if the manufacturer meets the facility definitions and threshold management quantities listed in these rules for all other PCBs and **polluting materials** on-site. See Chapters 4.2 and 6 for more information about those Part 5 Rule requirements.

The U.S. EPA carries out the requirements of the federal Toxic Substances Control Act (TSCA) and its implementing regulations found at Chapter 40 of the Code of Federal Regulations Part 761 (40 CFR) Part 761). The U.S. EPA’s regulations apply to the manufacture, processing, distribution in commerce, marking, use, storage, cleanup, and disposal of PCBs. There are different requirements based on the following PCB concentration levels:

- < 50 ppm (or ≤ 10 micrograms/100 cm² for certain contaminated surfaces)
- ≥ 50 ppm to < 500 ppm (or > 10 micrograms/100 cm² but < 100 micrograms/100 cm² for certain contaminated surfaces)
- ≥ 500 ppm (or ≥ 100 micrograms/100 cm² for certain contaminated surfaces)

Since the rules are too numerous to include in this publication, the following only summarizes how to identify PCBs and mentions a few requirements. Go to www.epa.gov/pcbs for more information on the PCB regulations, approved disposal facilities, and guidance documents. U.S. EPA's PCB Question and Answer Manual is a good place to start when researching U.S. EPA policy and guidance on PCB regulations. It covers the breadth of the PCB regulations, including the use, cleanup, and disposal of PCBs. The PCB Question and Answer Manual can be found on-line at www.epa.gov/pcbs/polychlorinated-biphenyl-pcb-question-and-answer-manual-and-response-comment-documents.



If you have questions about PCBs, call the U.S. EPA, Region 5 PCB Coordinator at 312-886-7890.

4.5.1 Identifying PCBs

PCBs can be found in liquid, non-liquid, and a combination of liquid and non-liquid forms. Usually this chemical can be found in electrical equipment such as transformers, circuit breakers, light ballasts, switches, large capacitors, etc.; or other equipment like air compressors; or may be a byproduct of the manufacturing process. See the definitions for “excluded manufacturing process” and “excluded PCB products” in the regulations to determine if any exclusions apply to your PCB waste (40 CFR 761.3). PCBs may be found in dielectric fluids, solvents, oils, hydraulic fluids or other heat transfer fluids, paints, caulks, or coatings, sludges, slurries, and other chemical substances.

See www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs for information about identifying PCB wastes. PCBs were marketed under various trade names. These include:

- Abestol
- Inerteen
- Aroclor
- Kennechlor
- Askarel
- No-Flamol
- Chlophen
- Phenoclor
- Chlorextol
- Pyralene
- DK
- Pyranol
- EEC-18
- Saf-T-Kuhl
- Fenclor
- Solvol

You can do any of the following to determine if you have regulated PCB concentrations:

- Look at the equipment label or nameplate for the words “No PCBs” or “PCBs” or any of the PCB trade names. If the nameplate is not readable, you may want to check with the equipment manufacturer for documentation as to the PCB concentration.
- Review service records or other documentation that indicates the PCB concentration of all fluids used since the article was first manufactured. You may need to check with your utility company to see if they have any records regarding the PCB concentration.
- Have the equipment tested.

If you do not have documentation or have not had tests conducted that identify the PCB level, you may use the following assumptions regarding PCB concentrations for use or

SECTION ONE: Environmental Regulations

storage for reuse. You will need to know the actual concentration at the time of disposal. See also 40 CFR 761.2 for the PCB concentration assumptions for use.

- Transformers and capacitors with less than 3 pounds of fluids, circuit breakers, reclosers, oil-filled cable, and rectifiers can be assumed to contain less than 50 ppm.

If you don't know how much dielectric fluid is present in the capacitor, the TSCA regulations provides the following assumptions:

- ✓ If the capacitor total volume is less than 100 cubic inches, assume it has less than three (3) pounds of dielectric fluid.
- ✓ If the capacitor total volume is more than 200 cubic inches, assume it has more than three (3) pounds of dielectric fluid.
- ✓ If the capacitor volume is between 100 and 200 cubic inches, and if the total weight is less than nine (9) pounds, assume it has less than three (3) pounds of dielectric fluid.
 - Mineral oil-filled electrical equipment manufactured before July 2, 1979, contains ≥ 50 ppm to < 500 ppm. If the date of manufacture is unknown, assume it is PCB-contaminated.
 - Transformers manufactured before July 2, 1979, that contain 3 pounds or more of fluid other than mineral oil contain ≥ 500 ppm. If the date of manufacture is unknown, assume it is a PCB-transformer.
 - Capacitors manufactured before July 2, 1979, contain ≥ 500 ppm. Assume any capacitors manufactured after that date are non-PCB. If the date of manufacture is unknown, assume it contains ≥ 500 ppm.
- For any electrical equipment manufactured after July 2, 1979, assume it is non-PCB.

You must label specific items with the applicable mark that identifies them as containing PCBs. See 40 CFR Part 761, Subpart C regarding these marking requirements. To prevent PCB contamination in used oil and be able to identify the source if you find they are present, follow the best management practices recommended by U.S. EPA in their the [Preventing and Detecting PCB Contamination in Used Oil](#) Fact Sheet.

4.5.2 General Record Keeping and Reporting Requirements

As of February 5, 1990, owners or operators of the following facilities must maintain annual records (manifests, certificates of disposal, and inspection and cleanup records) and prepare an annual document log:

- Facilities that do not commercially store or dispose of PCBs and that use or store at any one time at least:
 - 45 kilograms (99.4 pounds) of PCBs contained in PCB containers; or
 - one or more PCB transformers; or
 - 50 or more PCB large high- or low-voltage capacitors.
- Commercial storage and disposal facilities of PCBs and PCB Items.

The log must be prepared by July 1 and must include specific information for bulk PCB, PCB articles, PCB containers, and PCB article containers for the previous calendar year (January through December). All these records must be kept at least three years after the facility ceases use or storage of the PCBs (20 years for PCB landfills).

Keep a copy of all manifests (with the transporter's signature) that your facility generated or received. For manifests used to ship PCB wastes to storage or disposal facilities, keep the manifest until you receive signed copies back from the storage or disposal facility. You should receive this copy within 30 days of delivery of the PCB waste. Keep the copy signed by the receiving facility for at least three years from the date of shipment, unless it is part of the annual records discussed above. Use the manifest required by the state where the storage or disposal facility is located. See 40 CFR § 761, Subparts J & K for more details and Chapter 2.4.9.f for codes used on Michigan manifests.

In addition, commercial storage and disposal facilities must prepare an annual report summarizing the records *and* annual document log and submit it to U.S. EPA each year by July 15 for the previous calendar year (January through December).

4.5.3 Notification Requirements

All transporters, commercial storage and disposal companies, and companies conducting research and development activities must notify the U.S. EPA when handling regulated PCBs. A generator with a regulated PCB storage area as per 40 CFR Part 761.65(b) must notify the U.S. EPA. See also 40 CFR 761.205. A generator that keeps PCBs longer than 30 days must notify. The U.S. EPA has two notification forms on the Internet—a “*Notification of PCB Activity*” ([Form 7710-53](#)) and a “*PCB Transformer Registration*” ([Form 7720-12](#)).

To notify, complete and submit the “*Notification of PCB Activity Form*” ([U.S. EPA Form 7710-53](#)) if one has not already been sent to the U.S. EPA or if your PCB activities have changed since it was last submitted. A facility will then obtain an identification number from the U.S. EPA if they don't already have one. If the facility already has a Site Identification Number also known as a U.S. EPA Identification number assigned under the hazardous waste program (see Chapter 2), the U.S. EPA will confirm the use of this number under the TSCA program. If facilities do not have a Site Identification Number, also known as a U.S. EPA Identification Number assigned under another program, the U.S. EPA will issue an EPA-PCB identification number under the TSCA program. Do NOT use the “*Michigan Site Identification Form*” (EQP 5150) to request an EPA-PCB identification number for handling PCBs under the TSCA program.

If a facility has a PCB transformer (i.e. ≥ 500 ppm), it must fill out the “*PCB Transformer Registration*” ([Form 7720-12](#)). Both of these forms are found on-line at www.epa.gov/pcbs/disposal-and-storage-polychlorinated-biphenyl-pcb-waste#notifications.

4.5.4 Storing PCB Articles

Different regulations apply to storing PCBs for reuse (see 40 CFR § 761.35) and storing PCB waste prior to disposal (see 40 CFR § 761.65). PCB articles such as capacitors, transformers, electric motors, pumps, and other manufactured items can be stored in non-permitted areas for reuse by the owner or facility operator, under specific conditions. For example, combustible materials such as paints, solvents, plastics, paper, wood, etc.) must be stored at least 16.4 feet away from PCB transformers. There are also requirements to have markings or signs that state PCBs are in the area. PCB articles can be stored for reuse no more than five years after being removed from use or five years after August 28, 1998, whichever is later. If necessary to store longer, you must request an extension period from the U.S. EPA or place the article in an area that meets specific design requirements or has a RCRA permit. Articles may be stored for use indefinitely if kept in an area that meets specific design requirements under 40 CFR §761.65(b), such as having a roof, walls, and diking, or has a RCRA permit for managing hazardous waste. Discuss the specific storage design requirements with the U.S. EPA. Call the DEQ, Hazardous Waste Program, Permit Unit at 517-284-6838 to discuss RCRA permit requirements. Any PCB article stored for reuse must be authorized for use and follow the requirements under 40 CFR § 761.30 or it must be disposed of under 40 CFR 761 Subpart D. Storage for reuse must comply with the federal regulations found at 40 CFR § 761.35

PCBs being stored for disposal must comply with the regulations found at 40 CFR § 761.65, including storage area design requirements and the one-year limit on storage for disposal. In addition, commercial storage facilities that store more than 500 gallons at one time of regulated PCBs generated by others must have a PCB storage approval (permit) from U.S. EPA.

Use areas and indoor storage areas for PCB containing materials must be designed, constructed, maintained, and operated to prevent releases of polluting materials through sewers, drains, or to a public sewer system or to surface water or groundwater. If the PCB material is stored outdoors and is in liquid form, there are secondary containment requirements under Part 31 of Act 451 administrative rule R 324.2005 if the facility meets those regulatory threshold planning quantities.

PCB wastes can also be sent to an approved storage facility with a manifest before being disposed. The U.S. EPA has a list of these facilities on the Internet. Be sure to allow enough time to transport the PCB waste from the storage facility to the disposal company, and have the waste disposed of within the allowable one year time frame.

4.5.5 PCB Disposal

Contact the U.S. EPA Region 5 for disposal requirements if the facility manufactured PCB equipment at any time. Disposal of PCB waste is regulated by the U.S. EPA. If the PCB waste is liquid, it is also subject to Part 121 of Act 451. Any regulated PCB waste under TSCA must be disposed of within one year from the date it was determined to be a waste, unless the U.S. EPA granted an extension. See also 40 CFR 761 Subpart D for more details.

Identification Numbers

See Chapter 4.5.3 for information on notification and obtaining an EPA-PCB identification number. Consider the following for documenting PCB containing wastes for disposal:

- **Waste contains PCB concentration of 50 ppm or greater:** Generator may use the Site Identification Number, also known as the EPA Identification Number, issued by the DEQ. If the facility does not have a Site Identification Number, the generator may use the generic identification number “40 CFR Part 761” on the waste manifest if the generator meets the TSCA exemption in 40 CFR 761.205.
- **Solid waste containing PCB concentrations less than 50 ppm:** Check with municipal solid waste landfill if they will accept. Under the federal PCB regulations, the generator must provide written notice, including the quantity to be shipped and highest concentration of PCBs at least 15 days before the first shipment of bulk PCB remediation waste and/or PCB bulk product waste as defined in 40 CFR 761.3 from each cleanup site by the generator, to each off-site facility where the waste is destined (40 CFR 761.61 and 761.62(b)(4)). If they do, it is not necessary to obtain a Site Identification Number or use a Uniform Manifest for hazardous waste disposal. If landfill won’t accept the waste, contact a PCB disposal company to determine what they require.

Manifests and Disposal Records

Regulated PCBs must be **manifested** on a **uniform hazardous waste manifest** form and disposed of at a U.S. EPA approved facility. See Chapter 2.4.5 to learn more about uniform manifest requirements for shipping hazardous waste and shipping document requirements for shipping discarded liquids. For manifesting waste containing PCBs, check with the waste disposal company about which waste code(s) to use for manifesting the different types of PCB wastes. For more information on uniform manifests, go to www.michigan.gov/deq/waste, select the “Hazardous Waste” tab on the left, then select “Uniform Manifest Information” under the “Forms” heading.

You should receive a “*Certificate of Disposal*” from the disposal facility within 30 days of the disposal completion date, unless a different time frame is identified in a contractual agreement between the generator and disposal facility.

Refer to the definition of PCB bulk product waste found under 40 CFR § 761.3 and the manifesting and disposal requirements for PCB bulk product waste prescribed under 40 CFR § 761.62). Bulk product waste generally includes waste derived from manufactured products that are in a non-liquid state and have PCB concentrations greater than or equal to 50 ppm and not contaminated by spills from regulated PCBs like debris from building demolition and other manmade structures manufactured, coated, or serviced with PCBs; applied dried paint, caulking, etc. Refer to the definition of PCB bulk remediation waste found in 40 CFR 761 and the clean-up, manifesting and disposal requirements for PCB bulk remediation waste prescribed under 40 CFR 761.61. PCB bulk remediation waste generally includes the following materials: soil, gravel, dredge materials, sewage sludge, and spill clean-up materials like buildings and other man-made structures (such as concrete floors, wood floors, or walls) contaminated from a release of PCB. See the definition for additional materials that may be managed as PCB bulk remediation waste.

For a summary of requirements for small capacitors and ballasts in fluorescent light fixtures, see Chapter 2.7.f. For information about PCB soil cleanup criteria, see Chapter 6.4.3.d.

WHERE TO GO FOR HELP

SUBJECT: Secondary containment of flammable and combustible liquids-Act 207

CONTACT: LARA, Storage Tank Program
517-241-8847 | www.michigan.gov/storagetanks

SUBJECT: Secondary containment of flammable and combustible liquids-MIOSHA

CONTACT: MIOSHA, Consultation Education & Training Division
517-322-1809 | www.michigan.gov/miosha

PUBLICATIONS: 1. Onsite Consultation Abatement Method Advice For: Flammable & Combustible Liquids (OSC-113)

SUBJECT: Secondary containment of hazardous waste-DEQ

CONTACT: DEQ, [District Office](#), Hazardous Waste Program
See Appendix C for phone numbers
www.michigan.gov/deqwaste

PUBLICATIONS: 1. [The Guide to Understanding Secondary Containment Requirements in Michigan](#)

SUBJECT: Secondary containment for polluting materials (DEQ)

CONTACT: DEQ, [District Office](#), [Part 5 Rules Staff](#)
See Appendix C for phone numbers
www.michigan.gov/deqwater and select "Part 5 Rules: Spillage of Oil/Polluting Materials" from the Quick Links box on the right

PUBLICATIONS: 1. [Pollution Incident Prevention Plan \(PIPP\) and Part 5 Rules and Information Packet](#)
2. [Salt and Brine Storage Guidance](#)
3. [U.S. EPA Bulk Storage Container Inspection Fact Sheet](#)

SUBJECT: ASTs and USTs Regulations

CONTACT: LARA, Storage Tank Program
517-241-8847 | www.michigan.gov/storagetanks

PUBLICATIONS:

Informational Charts:

1. Owner's Responsibility - Life of an Underground Storage Tank
2. Owner's Responsibility - Closure of an UST

Forms:

1. Notice of Proposed Installation of Underground Storage Tanks (EQP3820)
2. Application for Installation of Aboveground Storage Tanks (EQP3859)
3. Application for Installation of Liquefied Petroleum Gas Facilities (EQP3861)
4. Application for Installation of Compressed Natural Gas Fueling Facilities (EQP 3860)
5. Registration for Underground Storage Tanks (EQP 3821)
6. Release Report (EQP 3826)
7. Intent of Removal, Closure, or Change-In-Service of USTs (EQP 3824)
8. UST System Site Assessment Report and Closure or Change-In-Service Registration Form (EQP 3881)
9. Change of Information Form Aboveground Storage Tanks Only (EQP 3858)
10. LUST Initial Assessment Report (EQP 3841)
11. LUST Final Assessment Report (EQP 3842)
12. LUST Closure Report (EQP 3843)
13. Free Product Fax Transmittal (EQP 3800)
14. Notice of Migration of Contamination (EQP 4482)
15. Notice Regarding Discarded or Abandoned Containers (EQP 4476)
16. Notice to Impacted Parties of Corrective Action (EQP 3852)

Informational Brochures:

1. The Aboveground Storage Tank Program - An Overview
2. Michigan-Straight Talk on Tanks: Leak Detection Methods for Petroleum USTs & Piping
3. Michigan Dollars and Sense - Financial Responsibility Requirements for Michigan USTs
4. Causes of UST Leaks and Recommendations
5. Operating and Maintaining Underground Storage Tank Systems in Michigan
6. Tips for Underground Storage Tank Owners and Operators

Storage Tank Program Informational Memoranda:

1. Test Methodology for Site Assessments (IM-3)
2. Enforcement of Financial Responsibility (IM-6)
3. Site Assessment at Closure or Change-In-Service After a Leaking Underground Storage Tank Closure (IM-10)
4. Monthly Monitoring Requirements for Release Detection (IM-11)
5. Storage of Compressed Natural Gas for Vehicle Fueling (IM-12)
6. Storage of Liquefied Petroleum Gases (IM-14)
7. Storage of Flammable and Combustible Liquids in AST Systems (IM-15)
8. Reporting Releases (IM-18)
9. Repairs to Cathodically Protected Underground Storage Tanks (IM-20)
10. Ten-Year Inspection of Lined Underground Storage Tank Systems (IM-21)

Storage Tank Program Operational Memoranda:

1. Alternate Methods of Secondary Containment for AST Systems (15)
2. Manual Tank Gauging as the Sole Method of Release Detection for
3. Tanks with a Nominal Capacity of 550 Gallons or Less (16)
4. Criteria for the Installation of Belowground, Partly Belowground, or
5. Mounded Liquefied Petroleum Gas Storage Containers (17)
6. Cathodic Protection Testing Criteria (18)

SUBJECT: **Underground Storage Tank Cleanup Fund, Legacy Release Program, and Public Highway Cleanup Program**

CONTACT: Michigan Underground Storage Tank Authority (MUSTA)
517-284-6537 | www.michigan.gov/deqmusta

SECTION ONE: Environmental Regulations

SUBJECT: Risk Based Corrective Action (RBCA)
CONTACT: American Society for Testing and Materials (ASTM)
610-832-9585 | www.astm.org
PUBLICATIONS: Standard Guide for RBCA Applied at Petroleum Release Sites (E-1739-95)

SUBJECT: National Fire Protection Association (NFPA) Publications
CONTACT: National Fire Protection Association (NFPA)
800-344-3555 | www.nfpa.org/codesonline
PUBLICATIONS: 1. Flammable and Combustible Liquids Code (NFPA 30 [2012 edition])
2. Automotive and Marine Service Station Code (NFPA 30A [2012 edition])
3. Standard for the Installation of Oil-Burning Equipment (NFPA 31 [2011 edition])
4. Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines (NFPA 37 [2010 edition])
5. Compressed Natural Gas (CNG) Vehicular Fuel Systems Code (NFPA 52 [2013 edition])
6. Liquefied Petroleum Gases Code (NFPA 58 [2014 edition])

SUBJECT: PCB storage
CONTACT: U.S. EPA Region 5
312-886-7890 or 800-621-8431 | www.epa.gov/pcbs
PUBLICATIONS: PCB Transformer Registration (Form 7720-12)

SUBJECT: Transportation of hazardous material-U.S. DOT
CONTACT: Michigan State Police, Commercial Vehicle Enforcement Division
517-241-0506 | www.michigan.gov/motorcarrier

SUBJECT: Transportation of hazardous material-U.S. DOT
CONTACT: U.S. Department of Transportation
800-467-4922 or 517-853-5990 | <http://phmsa.dot.gov/hazmat>

SUBJECT: Transportation of hazardous material-DEQ (hazardous waste and liquid industrial by-products)
CONTACT: DEQ, Hazardous Waste Program
586-753-3850 or 586-494-5091 | www.michigan.gov/deqwaste
("Transporters") / noechelj@michigan.gov or rays1@michigan.gov

SECTION ONE: Environmental Regulations

APPENDIX 4-A: SUMMARY OF SECONDARY CONTAINMENT REGULATIONS

The material that you store at your facility may be regulated by more than one agency and, therefore, listed in more than one row of this table. Due to limited space, not all of the requirements are explained. If you have questions on how materials are regulated, go to the chapter of the guidebook that is referenced under the “Regulation References” column. The bolded words that appear in the table are defined in Appendix B, “Definitions of Regulated Materials.” The bullets in the individual columns do not correspond with bulleted information in the other columns of that row. The bullets are only used as an indicator for another point.

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
Cyanide	All surface coating operations	Dikes or other arrangements must be provided to prevent the possibility of intermixing of cyanide and acid in the event of tank rupture.	MIOSHA ¹ General Industry Health Standards – Part 526 R 3320(10), Open Surface Tanks	LARA, General Industry Safety and Health Division Consultation, Education & Training Division 517-322-1809
Flammable and Combustible Liquids-MIOSHA	Varies with container type and class of material and whether material is stored indoors or outside. Limits how much material can be kept in storage cabinets.	<ul style="list-style-type: none"> • Storage room size varies with amount stored and fire protection rating (see MIOSHA document “OSC-113” and MIOSHA General Industry Safety Standards – Part 75). • At least 6” outdoor curb height. • At least 4” sill height or sunken floor for inside storage room. 	MIOSHA General Industry Safety Standards – Part 75, Flammable and Combustible Liquids (see Chapter 34)	LARA, General Industry Safety and Health Division Consultation, Education & Training Division 517-322-1809
Flammable and Combustible Liquids-MIOSHA associated with coating, finishing, treating, or similar processes	<ol style="list-style-type: none"> 1. Dip tanks of over 150 gallons in capacity or 10 square feet in liquid surface area 2. Dip tanks over 500 gallons in liquid capacity 	<ol style="list-style-type: none"> 1. Equipped with trapped overflow pipes which prevent passage of vapors and which lead to a safe location outside buildings. Smaller dip tanks shall also be so equipped, where practical. 2. Have trapped drain which is discharged to a closed properly vented salvage tank or to a safe location outside which will not endanger property. <p>Note: capacity must be able to handle fire suppression water</p>	MIOSHA General Industry Safety and Health Standards – Part 76 Spray Finishing and Dip Tanks	LARA, General Industry Safety and Health Division Consultation, Education & Training Division 517-322-1809

Chapter 4: Material Storage and Transportation

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
<p>Flammable and Combustible Liquids-Act 207</p> <p>Hazardous Materials-Act 207</p>	<p><u>Aboveground Storage</u></p> <ul style="list-style-type: none"> • AST² 60 gallons or larger capacity. • Any size container holding flammable liquids requires means of preventing flow into adjacent building area. • Any container less than 660 gallons capacity if secondary containment is determined to be necessary by authorities. • Loading/unloading areas 	<ul style="list-style-type: none"> • Volume varies with amount stored and fire protection level; indoor/outdoor restriction; distance requirements between tanks, buildings, and property lines; aisle width between containers; etc. • Tanks must be in an area capable of containing 100% volume of the largest tank, plus the volume occupied by other tanks in the same area measured from the height of the dike wall. • At least 4" sill height or sunken floor for inside storage room or use of open-grated trench. • At least 6" curb height for outside storage area or sloped away from building. • Capacity to hold release and water from fire protection system to prevent release from reaching surface water, ground water, and subsurface soils. • Storage cabinet may be required for containers. 	<ul style="list-style-type: none"> • Michigan Fire Prevention Code, Public Act 207 of 1941 • FL/CL Rules R 29.5601 – R 29.5917 and adopted NFPA Standards <p>(see Chapter 4.3.2)</p>	<p>LARA, Storage Tank Program 517-241-8847 www.michigan.gov/storagetanks</p>
<ul style="list-style-type: none"> • Hazardous Substance-CERCLA • Petroleum products (oil, gasoline, diesel fuel) • A substance listed in Section 112 of part A of title I of the clean air act, chapter 360, 84 Stat. 1685, 42 U.S.C. 7412 	<p>Underground Storage</p> <p>Regulated underground storage tank located in an exclusion zone or secondary containment zone.</p>	<ul style="list-style-type: none"> • Requires double-walled tanks or integral secondary containment tanks. 	<ul style="list-style-type: none"> • Part 211 (Underground Storage Tanks) of Public Act 451 of 1994 • UST Rules R 29.2101 – 29.2172 • FL/CL Rules R 29.5601 – R 29.5917 • 40 CFR 302.4 • Clean Air Act Section 112 <p>(see Chapter 4.1)</p>	<p>LARA, Storage Tank Program 517-241-8847 www.michigan.gov/storagetanks</p>

SECTION ONE: Environmental Regulations

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
<p>Highly Hazardous Chemicals</p>	<p>At or above the threshold quantity specified in the MIOSHA General Industry Safety and Health Standards – Part 91 and 591</p>	<p>Varies with physical and chemical characteristics of the hazardous chemical. Standard requires equipment in a covered process to comply with generally accepted good engineering practices (secondary containment is a good engineering practice).</p>	<p>MIOSHA General Industry Safety and Health Standards – Part 91 and 591, Process Safety Management of Highly Hazardous Chemicals (see Chapter 17)</p>	<p>LARA, General Industry Safety and Health Division Consultation, Education & Training Division 517-322-1809</p>
<p>Hazardous Waste-DEQ and U.S. EPA</p>	<p>SQGs³ accumulating more than 2,200 lbs. of liquid hazardous waste. LQGs⁴ accumulating any amount of hazardous waste. SQGs or LQGs accumulating any waste with codes F020, F021, F022, F023, F026, and F027. Anyone accumulating more than 2.2 lbs. of acute or severely toxic waste. Generators with regulated waste tanks. Conditionally exempt small quantity generators are not required to have secondary containment unless they accumulate greater than 2,200 lbs., but they must manage the waste so there is no release into the environment, sewers, or drains. There are specific requirements for treatment, storage, and disposal facilities; and transporters. If in regulated storage tanks and has flashpoint below 200 degrees Fahrenheit, also meet Flammable and Combustible Liquids-Act 207 requirements</p>	<p>Capacity must be able to contain 100% of the largest container or 10% of the volume of all the containers in the system, whichever is larger, of liquid hazardous waste or those identified “F” code wastes plus any precipitation that gets in the accumulation area. NOTE: Spill pallets do not provide adequate squirt protection and are not acceptable for liquid hazardous waste containment. NOTE: Even if secondary containment is not required, it is recommended for all hazardous waste accumulation areas.</p>	<ul style="list-style-type: none"> • Part 111 (Hazardous Waste) of Public Act 451 of 1994. • R 299.9101 - 299.11107 • Federal Resource and Conservation Act (RCRA) • 40 CFR 260-279 <p>NOTE: If you handle hazardous waste, you will also need to meet emergency notification and planning requirements. (see Chapters 2.3 and 5.2)</p>	<p>DEQ, District Office www.michigan.gov/deqwaste U.S. Environmental Protection Agency www.epa.gov</p>
<p>Universal waste</p>	<ul style="list-style-type: none"> • Contain if waste or package is leaking, spilled, or damaged 	<p>Place damaged package into another container or replace container</p>	<ul style="list-style-type: none"> • Hazardous waste rule R 299.9228 • 40 CFR 273 	<p>DEQ, District Office www.michigan.gov/deqwaste</p>

Chapter 4: Material Storage and Transportation

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
<p>Oil-U.S. EPA, if any discharge can reach navigable water</p>	<ul style="list-style-type: none"> If total storage capacity is more than 1,320 gallons (count containers 55 gal and larger). If underground storage capacity is more than 42,000 gallons. See 40 CFR 112 for exemptions. 	<ul style="list-style-type: none"> 100% of the largest single container plus sufficient freeboard to allow precipitation. Constructed to prevent release from escaping containment system before cleanup occurs. 	<ul style="list-style-type: none"> The Clean Water Act (CWA) 40 CFR 112 <p>NOTE: If your storage capacity is regulated under these federal regulations, a Spill Prevention, Control, and Countermeasures (SPCC) plan is required (see Chapter 6.2).</p>	<p>U.S. Environmental Protection Agency Oil Program 312-353-8200 www.epa.gov/oilspill</p>
<ul style="list-style-type: none"> Salt Polluting Materials listed in R324.2009 	<ul style="list-style-type: none"> Salt <ul style="list-style-type: none"> Solid form is more than 5 tons. Liquid form is more than 1,000 gallons. Listed polluting materials <ul style="list-style-type: none"> Outdoor use and storage areas 440 pounds. Indoor use and storage areas 2,200 pounds. Includes mixtures of above materials if their concentration is 1% or more by weight based on the MSDS information. Sites where DEQ determines necessary to protect surface water and groundwater. 	<p>Capacity for LIQUID polluting materials stored OUTDOORS must be able to contain not less than 10% of total volume of the tanks or containers, or 100% of the largest container within the containment structure, whichever volume is higher.</p> <p>Storage of solid materials must be contained to prevent releases through drains, sewers, etc. into wastewater treatment plants, surface water or groundwater</p> <p>NOTE: If subject to SPCC, meet federal oil containment requirements.</p>	<ul style="list-style-type: none"> Part 31 (Water Resource Protection) of Public Act 451 of 1994 R 324.2001-R324.2009 <p>NOTE: If you have chemicals or salt stored, a Pollution Incident Prevention Plan (PIPP) is required (see Chapter 6.2).</p>	<p>DEQ, District Office www.michigan.gov/deqwater</p>

¹MIOSHA – Michigan Occupational Safety and Health Administration

²AST – Aboveground Storage Tank

³SQGs – Small Quantity Generators

⁴LQGs – Large Quantity Generators