

# SECTION ONE – ENVIRONMENTAL REGULATIONS

## CHAPTER 2: Waste Management

### Purpose and Applicability of Regulations

Everyone generates waste on a daily basis and is subject to the state’s waste regulations. When waste is improperly handled and disposed (i.e., illegal dumping along roadsides, in the woods, in illegal landfills, in wetlands, in lakes and streams, or by being improperly burned), both surface and groundwater quality, as well as air quality, can be impacted. Your legal responsibility as a generator of any quantity of waste extends from “cradle to grave.” This covers the time from when the waste is first generated through its ultimate disposal. State and federal court decisions have consistently upheld that legal liability remains with the original generator, in some instances even after disposal.



As you review this chapter, consider referencing Appendix B, which provides definitions for the various terms that appear in bold throughout the chapter. Also note that in some instances, multiple agencies use the same term to describe a different regulated group. Such terms are followed by a dash and an acronym for the defining agency or regulation. For example, the U.S. Department of Transportation (U.S. DOT), the Michigan Fire Prevention Code, Public Act 207 of 1941, as amended (Act 207), and the Michigan Hazardous Materials Transportation Act, Public Act 368 of 1998 (Act 368) all have differing definitions for the term “hazardous material.” Therefore, the U.S. DOT, Act 207, and Act 368 definitions of hazardous material will appear as “**hazardous material-U.S. DOT**,” “**hazardous material-Act 207**,” and “**hazardous material-DEQ**,” respectively.

### Agencies and Their Laws and Rules

Several different agencies are involved with overseeing proper waste management. State agencies include the Michigan Department of Environmental Quality (DEQ); the Michigan Department of Licensing and Regulatory Affairs (DLARA); the Michigan Department of Agriculture and Rural Development (DARD); and the Michigan State Police (MSP). Federal agencies include the U.S. Environmental Protection Agency (U.S. EPA), U.S. DOT, U.S. Nuclear Regulatory Commission (U.S. NRC) and the U.S. Drug Enforcement Administration (U.S. DEA). In addition, local entities such as solid waste management authorities, wastewater treatment plant authorities, local fire departments, and county health departments may have jurisdiction over proper waste management.

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The following identifies Michigan’s common waste regulations (laws and rules implementing the law) that are overseen by the DEQ:

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- Solid waste regulations under [Part 115](#) (Solid Waste Management) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451), the Part 115 [administrative rules](#), and [Part 89](#) (Littering) of Act 451. (Summarized in Chapter 2.2)
- Scrap tire regulations under [Part 169](#) (Scrap Tires) of Act 451. (Summarized in Chapter 2.2)
- Liquid industrial by-product regulations under [Part 121](#) (Liquid Industrial By-product) of Act 451. (Summarized in Chapter 2.3)
- Hazardous waste requirements under [Part 111](#) (Hazardous Waste Management) of Act 451 and the Part 111 [administrative rules](#). (Summarized in Chapter 2.4)
- Transportation of **hazardous materials-DEQ** requirements, which includes both liquid industrial by-product and hazardous waste, under the Hazardous Materials Transportation Act ([Public Act 138 of 1998](#)). (Summarized in Chapter 2.3 and 2.4)
- Used oil recycling regulation under [Part 167](#) (Used Oil Recycling) of Act 451.
- Consumer and small electronics from business with ten or less employees under [Part 173](#). (Electronics) of Act 451. (See Chapter 2.4.9.m)
- Disposal of batteries regulations under [Part 171](#) (Battery Disposal) of Act 451.
- Medical waste requirements under [Part 138](#) (Medical Waste Regulatory Act) of the Public Health Code, Act 368 of 1978, as amended (Act 368) and the Part 138 [administrative rules](#). (Summarized in Chapter 2.5)
- Radioactive waste under [Part 135](#) (Ionizing Radiation Rules) of Act 368; the Part 135 [administrative rules](#); [Part 111](#) (Hazardous Waste Management) of Act 451; and the Part 111 [administrative rules](#). (Summarized in Chapter 10)
- Wastewater regulations under [Part 31](#) (Water Resource Protection) of Act 451 and the Part 31 [administrative rules](#). (Summarized in Chapter 3)
- Air pollution regulations under [Part 55](#) (Air Pollution Control) of Act 451 and the Part 55 [administrative rules](#). (Summarized in Chapter 1)

The following identifies common federal waste regulations (laws and rules implementing the law):

- Federal hazardous waste regulations implementing 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).
- Transportation regulations for **hazardous materials-U.S.DOT** overseen by U.S. DOT and MSP are contained in [49 CFR Parts 100-199](#). (See Chapter 4)
- Polychlorinated biphenyls (PCB) materials and waste regulations overseen by the U.S. EPA are in the federal [Toxic Substances Control Act \(TSCA\)](#) and [Title 40, Part 761](#) (40 CFR 761). (See Chapter 4.5 and 6.4.3)
- Radioactive waste regulations are overseen by the [U.S. NRC](#). (See Chapter 10)
- Controlled substance regulations are overseen by the [U.S. DEA](#).
- Federal wastewater regulations implementing the federal [Clean Water Act](#). (See Chapter 3)
- Federal air pollution regulations implementing the federal [Clean Air Act](#). (See Chapter 1)



## 2.1 Waste Reduction, Recycling, and Diverted Waste



Different terms are used in regards to waste reduction practices. “Waste minimization” is a term found in RCRA that refers to source reduction and environmentally sound recycling of RCRA hazardous waste. “Pollution prevention” or “P2” is a term found in the federal [Pollution Prevention Act](#) of 1990 that refers to source reduction of all toxic wastes, including those released to air, water and land resources. Source reduction includes any practice that reduces the quantity and/or toxicity of pollutants entering a waste stream prior to recycling, treatment, or disposal. Examples include equipment or technology modifications, reformulation or redesign of products, substitution of less toxic raw materials, improvements in work practices, maintenance, worker training, and better inventory control. There are specific [mandates under the federal statutes](#) to evaluate and implement waste minimization and pollution prevention activities.

Per the provisions of the Pollution Prevention Act, when Small Quantity and Large Quantity Generators of hazardous waste (see Chapter 2.4.3) sign their waste manifest for shipping hazardous waste, they must certify that as a:

- Large Quantity Generator, they have a program in place to reduce the volume and toxicity of waste generated to the degree they have determined to be economically practicable and have selected the practicable method of treatment, storage, or disposal currently available which minimizes the present and future threat to human health and the environment. Large Quantity Generators are required to have a written waste minimization program in place that reduces the volume and/or toxicity of hazardous waste and promotes recycling of wastes; or as a
- Small Quantity Generator, they have made a good faith effort to minimize their waste generation and selected the best waste management method that is available and that they could afford.

No matter what waste minimization term is used, you need to know what types of waste and how much waste is being generated before beginning a waste reduction or recycling program, and to determine what waste regulations apply to the facility. Resources to help you in this task include:

- Chapter 2.4.1 and 2.4.2 regarding waste determinations, and Chapter 12 for pollution prevention tips.
- DEQ’s recorded Introduction to Hazardous Waste Webinar Series found at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) under the “Introduction to Hazardous Waste Regulations Webinars” link.
- U.S. EPA guidance and tools for identifying hazardous waste minimization practices like the U.S. EPA P2 Resource Exchange at [www.epa.gov/oppt/p2home/pubs/p2rx.html](http://www.epa.gov/oppt/p2home/pubs/p2rx.html), the waste minimization resources at [www.epa.gov/osw/hazard/wastemin/index.htm](http://www.epa.gov/osw/hazard/wastemin/index.htm), and the pollution prevention resources at [www.epa.gov/p2/](http://www.epa.gov/p2/).

### ***Identifying Wastes and Waste Reduction Opportunities***

It doesn’t matter if you are a manufacturer, service provider, non-profit, university, hospital, or municipality, waste reduction and recycling activities generally pay off with reduced costs and environmental benefits. To get started, conduct a waste survey to identify the types and quantities of waste generated at your site. After identifying and inventorying your waste, evaluate what measures you can institute to reduce the volume and/or toxicity. Performing a waste survey will also help to determine waste streams that may be subject to hazardous waste

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regulation (see Chapter 2.4 for more information). When conducting a waste survey:

- Tour the whole facility and ask employees questions about work processes and the waste generated. Identify what is regulated as a hazardous waste, liquid waste, solid waste, or other waste type and how much waste is generated. Ask for suggestions about how waste could be reduced as a first option and recycled as a second option. Consider all wastes that are being generated from the different facility areas. Look both inside and outside the facility, including drains and sewers that may collect leaks. Look at discontinued operations that may have waste within them and equipment requiring disposal. Look at product storage areas to see if you have expired materials or items no longer used in your operation, and look at wastes generated through general office operations. Make sure to routinely purge unwanted materials and equipment to reduce the likelihood of having a single month where you generate a much larger volume of hazardous waste subjecting your facility to additional regulations, higher fees, and more reporting.
- Trace all chemical purchases for each step of every process or activity in the facility. Consider whether materials can be substituted to generate less or no hazardous waste.
- Identify where in-house recovery and reuse of hazardous and non-hazardous materials are possible. Chapter 2.4 provides details about on-site recycling for some materials. For questions about the regulations and any waste permitting or licensing requirements for recycling, contact the DEQ, [District Office](#), Hazardous or Solid Waste Program (see Appendix C).
- Also, check with the [District Office](#), Air Quality Division (AQD) if you will install equipment to recycle that may generate an air contaminate to see if an air quality permit is required.



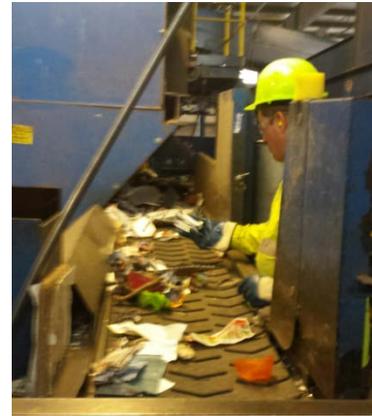
To determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, view the DEQ's recorded waste characterization webinar available at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) under the "Introduction to Hazardous Waste Webinars" or see Chapter 2.4.

- Observe to see if employees are creating more hazardous waste by mixing other waste with known hazardous waste. For example, your facility may be able to reduce its volume of hazardous waste by not placing non-hazardous paints in the same container as waste solvents.
- Determine if different wastes are being mixed together. This mixing usually makes recycling difficult, if not impossible, and disposal more expensive.
- Develop and maintain accurate inventory control of all products. This helps to eliminate excessive inventory. Buying in bulk or ordering on a schedule will not be cost effective if the product has to be disposed of because it has expired.

If your facility finds it has unwanted materials that can be used as a product, it might be possible to find another company looking for the material by using a [materials exchange](#). Once you know where the wastes are being generated, you may be able to reduce disposal costs by implementing waste reuse, reduction and recycling programs. Along with saving money on disposal costs, you might save money by purchasing less material and even earn money by selling the collected materials. You need to have both management and staff support to make these programs work. So engage employees all levels in the process and report the benefits back to everyone to show the successes, in both waste reductions, reuse increases, cost savings, etc.

Waste reduction involves implementing activities that result in less waste being generated. These activities may include any of the following:

- Change processes so less scrap is created.
- Purchase supplies that are made of less toxic materials.
- Purchase supplies that have less packaging.
- Have materials shipped in returnable and reusable containers.
- Use materials on a “first in, first out” basis so products don’t expire.
- Replace disposable materials with reusable and recyclable materials.
- Establish an incentive program that encourages workers to suggest ways to reduce waste.
- Train employees in waste reduction methods.
- Install reclamation units to reduce the amount of waste needing disposal. For example, recover spent solvents from parts washers.
- Purchase raw materials that contain post-consumer recycled materials to complete the cycle.



Recycling involves converting materials from the waste stream into other usable goods. The first step for facilities involves the collection of those materials. If the materials cannot be used in-house, then the collected materials can be marketed through private brokers or local community recycling programs. Several areas in Michigan now have reuse centers that offer these materials for community or school activities.

Check with your broker or local program (see [www.michigan.gov/deqrecyclingcontacts](http://www.michigan.gov/deqrecyclingcontacts)) to find out what they accept, how the materials must be prepared, and other collection details. You may need to use different brokers or several different recycling programs to market your collected materials because the individual broker or program might not handle the type or volume of material you have. To find companies in your area that accept the recyclable materials you collect, go to <http://recyclesearch.com/profile/michigan-directory> or [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd) and search the directories, or call the Environmental Assistance Center at 800-662-9278 to be connected with a DEQ recycling specialists. The local recycling specialist contact list is available at [www.michigan.gov/deqrecycling](http://www.michigan.gov/deqrecycling) under the “In the Community” tab.

Michigan manufacturers and service providers deliver the goods and services that make Michigan’s economy vibrant. They also hold the power to purchase products that can be recycled and to purchase recycled materials. Doing so not only conserves natural resources by reducing the need for virgin materials, but also lengthens the life of existing landfills, reduces pollution, saves energy, and ultimately saves money if implemented properly. While it takes energy to transport and recycle materials, the energy put into recycling is generally less than that needed to obtain and process virgin materials. Recycling supports a “loop” that results in extracted natural resources remaining utilized instead of being landfilled.

Commonly recycled materials include:

- Computers, cell phones and other household electronics
- Plastic

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- Glass
- Paper, including office paper and corrugated cardboard
- Scrap metal
- Wood pallets
- Other materials as described in Chapter 2.4.9

### 2.1.1 Solid Waste Exclusions and Exemptions

Solid waste recycling is regulated under [Part 115 of Act 451](#) and the Part 115 [administrative rules](#). Only material specifically defined as “recyclable material” are excluded from the waste regulations when recycled in accordance with the rules. Some solid waste is also not well suited for landfill disposal and can be managed as “diverted waste” if collected for diversion to an environmentally preferred management option. In either case, the collected materials cannot be speculatively accumulated. This means that typically at least 75 percent of the incoming materials must be sent onto the environmentally preferred management option within a year. For questions about recycling and/or diverting solid waste, see the following sections and contact the DEQ, [District Office](#), Solid Waste Program (see Appendix C).

#### 2.1.1.a Recyclable Materials

Recyclable materials are specifically defined in the law and include commonly recycled materials like glass, paper, plastic, metal (bits and pieces), untreated and uncoated wood, textiles, yard clippings, and other materials approved by the DEQ. These materials are not subject to solid waste regulation when:

- site, source separated at the generating site;
- at least 90% free of other solid waste
- not speculatively accumulated at a secondary site, and
- recycled within 1 year.



Materials are accumulated speculatively if less than 75 percent of the recyclable materials are recycled into marketable raw materials, marketable new products, or transferred to a different site for recycling within 1 year. If site, source separated recyclable materials are speculatively accumulated at a location other than the generating site, the activity is subject to solid waste regulation and requires a solid waste permit and license, and the site activities must be included in the [county solid waste plan](#). For some low hazard materials approved by the DEQ, the material may be accumulated for up to 3 years, at the site of generation, without being considered speculatively accumulated. See page 2-10 for more information on low hazard industrial waste.

Additional materials may be specified as “recyclable materials” if approved by the Director. Recyclable materials approved by the Director include the following:

- [Concrete Grinding Slurry](#)
- [Scrap Wood](#)
- [Ethanol](#)
- [Fish Waste Exemption](#)
- [Flue Gas Desulfurization Sludge](#)

- [Gypsum Drywall](#)
- [Lime Sludge](#)
- [Manure, Paunch, and Pen Waste](#)
- [On Farm Anaerobic Digestion](#)

More details regarding the management standard that must be met for the Director approved recyclable materials can be found online on the DEQ Solid Waste Program, Exemptions and Guidance Web page found at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste), after selecting the “Solid Waste” tab on the left.

### 2.1.1.b Organic Wastes

Nationally organic waste make up the largest waste stream currently being disposed in municipal solid waste landfills. Organic waste consists of following materials which are specifically defined under Part 115 of Act 451:

1. Yard clippings (see Section 11506(14)) – Yard clippings include leaves, grass clippings, vegetable or other garden debris, shrubbery, or brush or tree trimmings, less than 4 feet in length and 2 inches in diameter, that can be converted to compost humus. Yard clippings do not include stumps, agricultural wastes, animal waste, roots, sewage sludge, or garbage.
2. Garbage (see Section 11503(14)) – Garbage includes rejected food wastes including waste accumulation of animal, fruit, or vegetable matter used or intended for food or that results from the preparation, use, cooking, dealing in, or storing of meat, fish, fowl, fruit, or vegetable matter.
3. Wood (see Section 11503(14)) – Wood includes trees, branches, bark, lumber, pallets, wood chips, sawdust, or other wood or wood product. Wood does not include treated wood (e.g. creosote, pentachlorophenol, or chrome copper arsenate); wood made with glue, resins or fillers (e.g. plywood, particle board, pressed board, oriented strand board, fiberboard, resonated wood); painted wood or painted wood products; or any wood or wood products that have been contaminated during manufacture or use.
4. Food processing residuals (see Section 11503(15)) – Food processing residuals include:
  - (a) Residuals of fruits, vegetables, aquatic plants, or field crops.
  - (b) Otherwise unusable parts of fruits, vegetables, aquatic plants, or field crops from the processing thereof.
  - (c) Otherwise unusable food products which do not meet size, quality, or other product specifications and which were intended for human or animal consumption.

Yard clippings are specifically prohibited from being landfilled unless they are diseased, infested, or are an invasive species collected as part of a control program. In Michigan, most yard clippings are composted at composting facilities operated in accordance with Section 11521 of Part 115. To locate registered composting facility in Michigan, go to [www.michigan.gov/deqrecycling](http://www.michigan.gov/deqrecycling), select “Composting” and “[List of Registered Compost Facilities](#).”

Yard clippings; organic recyclable materials like paper and wood; and source separated ‘garbage’ as defined above may also be recycled at an anaerobic digester, a gasification plant, or composting facility (see Section 11506(6)) To located a registered compost facility that

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accepts source separated food waste, go to the List of Registered Composter Facilities above and see the facilities listed in bolded. To locate anaerobic digesters located in Michigan, go to the Waste Data System at [www.deq.state.mi.us/wdsp/AdvancedSearch.aspx](http://www.deq.state.mi.us/wdsp/AdvancedSearch.aspx), select “Utilization Activities”, “Commercial Anaerobic Digester” and/or “On Farm Anaerobic Digester,” and “Done,” then scroll to the top of the page and elect “Run Query”.

Food processing residuals and “garbage” as defined above, may also be fed to animals and/or land applied consistent with the Right to Farm Act overseen by the Michigan Department of Agriculture and Rural Development. Food use activities that meet the MDARD Right to Farm Act requirements are exempt from solid waste regulation. For more information on the Right to Farm Act, go to [www.michigan.gov/mdard](http://www.michigan.gov/mdard), select “Environmental Programs,” and “Michigan Right to Farm.”

For questions about organics recycling, including whether an activity is exempted from solid waste regulation or requires a solid waste permit. License, or registration, please contact your DEQ, [District Office](#), Solid Waste Program (Appendix C).

### 2.1.1.c Residential Recycling

In April 2014, Governor Rick Snyder called Michigan to action to double its residential recycling rate from 15% to 30%. While Michigan residents have a high rate of recycling returnable beverage containers, returnable beverage containers only make up about 2% of our municipal waste stream and Michigan’s recycling rate was identified as one of the lowest in the nation.



Residential recycling programs across Michigan need to provide for the collection of recyclable material at residents’ curbs, at one or more drop-off sites, or a combination of both. Municipal programs may also provide for processing and/or marketing of collected materials to close the loop and prevent collected materials from being landfilled. For more information about funding and operating a municipal recycling program, please see the [DEQ Guide to Operational and Funding Options for Municipal Residential Recycling Programs](#) and contact a DEQ [recycling specialist](#). The local recycling specialist contact list is available at [www.michigan.gov/deqrecycling](http://www.michigan.gov/deqrecycling), under the “In the Community” tab.

Establishing a residential recycling program involves more than just providing residents with recycling bins and collecting the materials they offer. It also requires a consumer education component. Consumers need to know what is and isn’t recyclable. Unfortunately recycling isn’t as simple as searching for a recycling symbol on a container and tossing it into a bin for pick-up. Many packages wear the “recycle” symbol but require special processing that is not available locally. Residents need to know what is and isn’t recyclable in a given community. Before they put an item into a bin, they also need to know that excessive residues need to be removed. Recyclers rely on clean, quality materials to market them for use in manufacturing. If the materials are not clean enough, they may just end up taking a long trip to the landfill. For more information about residential recycling, please see the [DEQ Recycling 101 Guide](#) and contact your DEQ [recycling specialist](#). The local recycling specialist contact list is available at [www.michigan.gov/deqrecycling](http://www.michigan.gov/deqrecycling) under the “In the Community” tab.

**2.1.1.d Inert Materials**

Section 11504 of [Part 115 of Act 451](#) defines specific materials as inert materials. Inert materials are not a waste when managed as specified under the law. Inert materials and their conditional exclusions from the waste regulation include the following materials when managed as specified:



- Rock
- Trees, stumps, or other land clearing debris if the following conditions are met:
  - The debris is buried on the site of origin or another site, with the approval of the owner of the site.
  - The debris is not buried in a wetland or floodplain.
  - The debris is placed at least 3 feet above the groundwater table as observed at the time of placement.
  - The placement of the debris does not violate federal, state, or local law or create a nuisance.
- Uncontaminated excavated soil or dredged sediment. Excavated soil or dredged sediment is considered uncontaminated if it does not contain more than de minimis amounts of solid waste and 1 of the following applies:
  - The soil or sediment is not contaminated by a hazardous substance as a result of human activity. Soil or sediment that naturally contains elevated levels of hazardous substances above unrestricted residential or any other part 201 generic soil cleanup criteria is not considered contaminated for purposes of being inert. A soil or sediment analysis is not required under this subparagraph if, based on past land use, there is no reason to believe that the soil or sediment is contaminated.
  - For any hazardous substance that could reasonably be expected to be present as a result of past land use and human activity, the soil or sediment does not exceed the background concentration, as that term is defined in part 201.
  - For any hazardous substance that could reasonably be expected to be present as a result of past land use and human activity, the soil or sediment falls below part 201 generic residential soil direct contact cleanup criteria and hazardous substances in leachate from the soil or sediment, using, at the option of the generator, EPA method 1311, 1312, or any other leaching protocol approved by the department, fall below part 201 generic residential health based groundwater drinking water values or criteria, and the soil or sediment would not cause a violation of any surface water quality standard established under Part 31 at the area of placement, disposal, or use.
- Excavated soil from a site of environmental contamination, corrective action, or response activity if the soil is not a listed hazardous waste under part 111 and if hazardous substances in the soil do not exceed generic soil cleanup criteria for unrestricted residential use as defined in part 201 or background concentration as defined in part 201, as applicable.
- Portland cement clinker produced by a cement kiln using wood, fossil fuels, or solid waste as a fuel or feedstock, but not including cement kiln dust generated in the process.
- Asphalt pavement or concrete pavement that meets all of the following requirements:
  - Has been removed from a public right-of-way.
  - Has been stockpiled or crushed for reuse as aggregate material.
  - Does not include exposed reinforcement bars.

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- Cuttings, drilling materials, and fluids used to drill or complete a well installed pursuant to part 127 of the public health code, 1978 PA 368, MCL 333.12701 to 333.12771, if the location of the well is not a facility under part 201.
- Any material determined by the department under section 11553(5) or (6) to be an inert material, either for general use or for a particular use, including:
  - Scrap tires as specified in the [Designation of Inertness #13-I-001](#).

### 2.1.1.e Beneficial Use By-products

In September 2014, the [Part 115](#), Solid Waste Management provisions of Act 451 were amended to establish certain materials as being eligible for use as “beneficial use by-product” when managed in accordance with one or more of five beneficial use options added to the statute under Sections 11502(8), 11551, 11551a, 11552, and 11553.

The Part 115 beneficial use by-products designated in the statute include:

1. **Cement Kiln Dust/Lime Kiln Dust** - Particulate matter collected in air emission control devices serving portland cement kilns and lime kilns.
2. **Coal Bottom or Wood Ash** - Ash particles from combustion of coal or any type of ash or slag resulting from wood burning.
3. **Coal or Wood Ash** - Material recovered from an air pollution control system or non-combusted residue from combustion of coal, wood, or both.
4. **Dewatered Concrete Grinding Sludge** – Sludge collected from grinding concrete when an agency builds or repairs a public roadway.
5. **Flue Gas Desulfurization Material** - Material recovered from air pollution control systems that capture sulfur dioxide during wood, coal, or fossil fuel combustion including synthetic gypsum.
6. **Foundry Sand** - Silica sand used in metal casting processes from ferrous or nonferrous foundries.
7. **Lime Softening Residuals** – Material recovered from the treatment and conditioning of water for domestic use or community water supply.
8. **Mixed Wood Ash** - Material recovered from air pollution control systems or non-combusted residue from combustion of wood, scrap wood, railroad ties, and tires.
9. **Pulp and Paper Mill Ash** - Non-combusted residue remaining after combustion of coal, wood, pulp and paper mill material, wood, or biomass pellets, rail road ties, tires, and scrap wood.
10. **Pulp and Paper Mill Material** - Materials generated at pulp and paper mills including wastewater treatment sludge; rejects from screens, cleaners, and mills; bark, wood fiber, and chips; scrap paper and causticizing residues.
11. **Soils Washed or Removed from Sugar Beets**
12. **Spent Media from Sandblasting** – Spent media from sandblasting with uncontaminated soil, newly manufactured, and unpainted steel.
13. **Stamp Sands**: Finely grained crushed rock resulting from mining, milling, or smelting of copper ore and includes native substances contained within the crushed rock and any ancillary material associated with the crushed rock.

The five use options for the beneficial use by-product materials listed above include:

- **Beneficial Use 1** - Use of the material as aggregate, road material, or building material if it will be bonded or encapsulated by cement, limes, or asphalt.
- **Beneficial Use 2** - Use of the material as construction fill, road base, soil stabilizer, or road shoulder material.
- **Beneficial Use 3** - Use of the material as a fertilizer, soil conditioner under Part 85, or a liming material under 1955 PA 162.
- **Beneficial Use 4** - Use of the material to stabilize, neutralize, or treat solid waste, wastewater, or hazardous substances; or to serve as a landfill construction material.
- **Beneficial Use 5** - Use of the material as a component of a manufactured soil.

All of the beneficial use options are not available for all of the beneficial use by-products. For help determining the beneficial use options for each material, consider reviewing the following:

- [DEQ Beneficial Use Matrix](#)
- DEQ Beneficial Use Options Condition Summaries [1](#), [2](#), [3](#), [4](#), and [5](#)
- [DEQ Beneficial Use Frequently Asked Questions](#)



#### 2.1.1.f Petitions to Classify Solid Waste

For solid waste not otherwise excluded from regulation by statute or rule, a waste generator may petition the DEQ under Rule 118a of the Part 115 rules to designate a material:

- a beneficial use by-product for beneficial use options 1, 2, 4, or 5;
- an inert material;
- a source separated recyclable material;
- a site separated recyclable material;
- a low hazard industrial waste;
- a recycled agricultural or silvicultural material (see Rule 111);
- an inert material appropriate for specific reuse (see Rule 117); or
- a compostable material (see Rule 121).

When seeking to classify a waste, a petitioner must submit the information specified under Rule 118a to the DEQ for review and approval. Petitions must include information to verify the character and composition of the waste. Inertness often relies upon verification that the material is at or below the Part 201 residential generic criteria for any parameters of concern. As such, the Part 201, [table 1](#) “Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk Based Screening Levels” and [table 2](#) “Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels” are key to any petition for classification.

#### 2.1.1.g Low Hazard Industrial Waste

If a material is not eligible for reclassification for use, it may be eligible for classification as a low-hazard industrial waste pursuant to [Part 115 of Act 451 under](#) Section 11553(7) which allows the generator:

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- to store the waste at the site of generation for up to 3 years pursuant to Rule 105(l);
- to store the waste in a non-contained waste pile under Rule 129 and
- to dispose of the material in a low-hazard industrial waste landfill without performing any testing.

The following tables provide the threshold values used for classification of a low-hazard industrial waste. The waste must be at or below the threshold when tested in accordance with Part 115, Rule 302(2)(a) for approval.

### Metals

Constituent	Low-Hazard Waste Threshold Value (mg/l Milligrams per Liter)
Aluminum	0.50
Antimony	0.06
Arsenic	0.50
Barium	20.0
Beryllium	0.04
Boron	5.0
Cadmium	0.1
Cobalt	0.4
Chromium	0.5
Copper	10.0
Iron	3.0
Lead	0.5
Manganese	0.50
Mercury (inorganic)	0.02
Nickel (soluble salts)	1.0
Selenium	0.1
Silver	0.5
Thallium	0.02
Vanadium	0.045
Zinc	24.0

### Phenolic Compounds

Constituent	Low-Hazard Waste Threshold Value (mg/l Milligrams per liter)
2-chlorophenol	0.45
o-Cresol (2-methylphenol)	3.7
m-Cresol (3-methylphenol)	3.7
p-Cresol (4-methylphenol)	3.7
2,4-Dichlorophenol	0.730
2,4-Dimethylphenol	3.7
2,6 -Dimethylphenol	0.044
3,4 Dimethylphenol	0.1
2-Methyl-4,6-dinitrophenol	0.2
Pentachlorophenol	10.0
Phenol	44.0
2,4,5-Trichlorophenol	7.3
2,4,6-Trichlorophenol	1.2

## Volatile Organic Compounds

Constituent	Low-Hazard Waste Threshold Value (mg/l Milligrams per Liter)
Benzene	0.05
Benzyl chloride	0.077
Bromodichloromethane	0.8
Bromoform	0.8
Bromomethane	0.1
Carbon tetrachloride	0.05
Chlorobenzene	10.0
Chloroethane	4.3
Chloroform	0.8
Chloromethane	2.6
Dibromochloromethane	0.8
Dibromomethane	0.8
1,2-Dichlorobenzene	6.0
1,3-Dichlorobenzene	66.0
1,4-Dichlorobenzene	0.75
Dichlorodifluoromethane	17.0
1,1-Dichloroethane	8.8
1,2-Dichloroethane	0.05
1,1-Dichloroethylene	0.07
Cis-1,2-dichloroethylene	0.7
Trans-1,2-dichloroethene	1.0
1,2-Dichloropropane	0.05
1,3-Dichloropropene	0.085
Diethyl ether	0.1
Ethylbenzene	0.74
Methylethylketone (2-butanone)	130.0
Methylisobutylketone (4-methyl-2-pentanone)	18.0
Methylene chloride	0.05
1,1,1,2-Tetrachloroethane	0.77
1,1,2,2-Tetrachloroethane	0.085
Tetrachloroethylene	0.07
Toluene	7.9
1,1,1-Trichloroethane	2.0
1,1,2-Trichloroethane	0.05
Trichloroethylene	0.05
Trichlorofluoromethane	26.0
1,2,3-Trichloropropane	0.42
Vinyl chloride	0.02
Total xylene isomers	2.8

## 2.1.1.h Diverted Waste

In March 2014, [Part 115 of Act 451](#) was amended to remove regulatory barriers to the collection of materials not well suited to traditional landfill disposal. Section 11521b was added to establish waste diversion center operating requirements that allow for the collection of site, source separated waste. These provisions only apply to solid waste that can lawfully be disposed in a licensed landfill or municipal solid waste incinerator if the collected waste is being diverted to an environmentally preferred management



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method. Prior to the waste diversion amendment, all household hazardous waste collections were subject to the solid waste transfer facility permitting, licensing, operating requirements, as well as the county's solid waste planning requirements.

### **Diverted waste is a waste that meets each of the following:**

- ✓ It is generated by a household, business, or governmental entity and can be lawfully disposed in a licensed sanitary landfill or municipal solid waste incinerator.
- ✓ It is separated from other waste by the waste generator.
- ✓ It is commonly collected at community household hazardous waste collections.

Diverted waste examples include pharmaceuticals, electronics, batteries, light bulbs, pesticides, fertilizers, thermostat, mercury switches, mercury bearing thermometers, devices containing elemental mercury, household sharps, corrosive cleansers, oils, solvents, paints, etc. that can be readily separated from solid waste for diversion to an environmentally preferred management method.

Some of the primary requirements for operating a waste diversion center include ensuring that the diverted waste is:

- collected safely and lawfully by personnel knowledgeable about safe management of the material;
- collected at a secure location protected from weather, fire, physical damage, and vandals;
- not processed except to the extent necessary for safe and efficient transport;
- managed to prevent release to the environment;
- not stored for more than 1 year; and
- documented (waste types, volumes, and disposition) for at least 3 years.

See the law for the specific requirements for managing diverted waste.



To determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, view the DEQ's recorded waste characterization webinar available at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) under the "Introduction to Hazardous Waste Webinars" or see Chapter 2.4.

## 2.2 Solid Waste Disposal and Littering

No matter how effective your waste reduction and recycling programs are, you probably will still need to dispose of some solid waste. Solid waste includes garbage, rubbish, yard waste, ashes, incinerator ash and residue, industrial sludges, and solid commercial and industrial waste. Solid waste management as discussed in this section does not pertain to hazardous waste that is in a solid form.

Examples of solid waste that usually require disposal include: non-recyclable office paper, break room waste such as discarded food, non-recyclable packaging materials including empty containers (see Chapter 2.4.1.d.2 for definition of “empty”), and other materials which are not hazardous waste.

Wastes prohibited from landfill disposal under Part 115 of Act 451 include:

- Used oil
- Whole tires
- Liquid industrial by-product
- Returnable beverage containers
- Lead acid batteries
- Yard clippings and compost (see the registered composting facility information at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste), select “Solid Waste,” then “Composting” for facilities managing more than 200 cubic yards of yard clippings)
- Medical waste
- Sewage/Septage (see Chapter 3)
- Asbestos unless landfill meets specific federal requirements
- Empty drums unless crushed
- Hazardous waste from Small Quantity Generators and Large Quantity Generators (see Chapter 2.4)
- Low level radioactive waste
- PCB waste unless landfill meets specific requirements



Moreover, used oil is required to be recycled under [Part 167](#) (Used Oil Recycling) of Act 451. See the [Used Oil Overview](#) guidance and additional guidance links provided therein for more information about the regulations and requirements that apply for managing used oil. For more information about banned waste, go to [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste), select “Solid Waste,” then “[Landfill Prohibited Material and Appropriate Disposal Options.](#)”

Open dumping and open burning of business waste is prohibited (see Chapter 2.2.1). Before solid waste is hauled to a licensed disposal facility:

- Store it in leak-proof, covered containers and control odors. This will prevent contaminated stormwater runoff, help keep the waste from blowing away, prevent access by rodents and other animals, and reduce odor problems. If odors are a concern due to the nature of the waste, consider double bagging, scheduling more frequent pick-ups, or both.
- Check if your local authorities have an ordinance that requires a privacy-type fence around the dumpster.
- Discuss using solid waste piles and necessary permits with your DEQ, [District Office](#), Solid Waste Program (Appendix C).
- Check if the licensed disposal facility accepts your type of waste. They may request documentation, like test results, showing it is not a hazardous or liquid industrial by-product to ensure they can accept the waste. Examples of special wastes include remediation waste, fluorescent bulbs, asbestos waste, aerosol cans, compressed gas cylinders or bulky items. They typically offer special wastes service for these items to divert them from landfills to preferable management options.

Solid waste must be disposed of at licensed disposal facilities.

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- You can haul your own waste to a licensed landfill, incinerator, or transfer/processing facility. If you are considering shipping your solid waste out of your county, check with your [county planning agency](#) after reviewing the county planning [import/export report and description](#) (see the list of [County Designated Planning Agency Contacts](#) at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) “Solid Waste” “Solid Waste Planning”) to confirm that is acceptable under the provisions of your county’s, and the receiving county’s, solid waste management plans. Those plans identify where solid waste can be transported for disposal within Michigan.
- You can also contract with a solid waste hauler to transport your solid waste to an approved facility in accordance with the county solid waste plan(s).

Currently there are no DEQ licensing requirements for haulers of solid waste (except scrap tires—see Chapter 2.2.2), but there are requirements regarding the waste carrying portion of the vehicle. See the [Solid Waste Hauler Resources](#) at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) “Solid Waste”. Some counties do require a local solid waste hauler license. You should know how the hauler handles and disposes of waste because you can be held liable for damages and cleanup costs if the waste is improperly managed. You may contact your DEQ, [District Office](#), Solid Waste Program (see Appendix C) about:

- Shipping solid waste out-of-county.
- Handling sludge from industrial processes and trench or drain cleanout residue under either the solid waste or liquid industrial by-product regulations (see Chapter 2.3).
- Whether or not your waste is regulated as a solid waste, or how to properly manage it. For help determining whether you have a solid waste, liquid industrial by-product, hazardous waste, or other waste, go to [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste), select the “Introduction to Hazardous Waste Webinars,” on the “Announcements” tab, then select the “Hazardous Waste Characterization and Generator Status” recorded webinar materials and/or review Chapter 2.4.

Manifests are not required for hauling and disposing of solid waste, with the exception of scrap tires (see Chapter 2.2.2). Although you don’t have to manifest solid waste, you may want to keep records of when, where, and how much solid waste was removed from your business. This practice gives you an accurate record of waste disposal for management purposes and is valuable if a liability question arises.

All waste generators except households are required by law to:

- Determine the regulatory status of their waste (hazardous waste, liquid industrial by-product, solid waste, etc.).
- Keep records of waste evaluations for 3 years

View the recorded webinar on waste characterization at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) under the “Introduction to Hazardous Waste Webinars” link or see Chapter 2.4. Waste characterization requirements apply to all businesses, not just manufacturing. This includes service industries, governmental operations, health care, etc.

Contact your DEQ, [District Office](#), Solid Waste Program (see Appendix C), for information on permitting, licensing, and solid waste planning requirements that may apply to:

- storing solid waste at a location other than the site where it was generated;
- treating or processing solid waste; and/or
- disposing of solid waste.

### 2.2.1 Open Burning and Open Dumping

Open burning is the burning of unwanted materials, where smoke and other emissions are released directly into the air without passing through a chimney or stack. Open burning is regulated by air quality and solid waste regulations, and sometimes under local ordinance.

Open burning of trash from a business is prohibited. Michigan residents are also prohibited from open burning household trash that contains plastic, rubber, foam, chemically treated wood, textiles, electronics, chemicals or hazardous materials. Open burning of brush, logs, stumps, and trees is prohibited within 1,400 feet of an incorporated city or village limit. The open burning of grass clippings and leaves is not allowed in municipalities having a population of 7,500 or more unless the local governing body has specifically enacted an ordinance authorizing it. A burn permit may be required prior to conducting open burning. For information on obtaining a burn permit go to [www.michigan.gov/burnpermit](http://www.michigan.gov/burnpermit). Structures may not be burned for the purpose of demolition. Air quality regulations allow structures to be intentionally burned for the purpose of [fire suppression training](#) only.

Open burning may also be regulated by the local unit of government. Contact local authorities about their ordinances. Additional information about open burning can be found at the DEQ's Open Burning website at [www.michigan.gov/openburning](http://www.michigan.gov/openburning) (see also Chapter 1.3.3).

Open dumping of solid waste is prohibited of both businesses and residents across Michigan under the solid waste regulations. Open dumping generally refers to illegal dumping along roadsides, in the woods, in illegal landfills, in wetlands, in lakes and streams. Local authorities very often have local ordinances that also prohibit the dumping of solid waste. For complaints or problems with solid waste open dumping, contact your local authorities to discuss ordinance requirements. If a municipality is lacking a local ordinance, they may independently take action to enforce the state's prohibitions against littering under [Part 89](#) of Act 451.

### 2.2.2 Scrap Tires

[Part 169](#) was amended in January 2015. Haulers are now required to maintain a bond and there are amended requirements for displaying the scrap tire hauler registration on a vehicle transporting scrap tires, for record keeping and increased penalties for violations of the statute. See Section 16905 for more details on hauler registration and bonding.

It is illegal for anyone to discard scrap tires on property which is not in compliance with storage, bonding, and registration requirements under [Part 169 \(Scrap Tires\)](#) of Act 451. Scrap tires include any used vehicle tires and also hi-low or forklift and other equipment discarded tires. Scrap tire information is available online by going to [www.michigan.gov/scrap tires](http://www.michigan.gov/scrap tires).



The basic requirements for scrap tire generators are as follows:

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- Store scrap tires in a safe manner at the location of generation to reduce safety and fire risks. Check with the local fire department about local requirements. If you have 500 or more scrap tires, you must register as a scrap tire collection center and meet additional storage requirements. Requirements and [common violations](#) can be found at the above Web site.
- Ensure scrap tires are taken to [registered scrap tire collection sites and scrap tire processors](#) such as licensed energy recovery facilities, reuse, retreading, or recycling facilities. You can:
  - Haul ten or fewer of your own tires without being a registered hauler but make sure the loads are secure so tires do not fall out of the vehicle. If you haul more than ten of your own tires, you must register as a hauler.
  - Hire a currently registered scrap tire hauler for the removal of scrap tires. [Lists of registered haulers and sites where to haul tires](#) is at the above Web site under the “Information” heading titled “List of Scrap Tire Facilities.” Many solid waste haulers won’t accept used tires in the trash because whole scrap tires are prohibited by law from being landfilled. If you are offered extremely low prices for scrap tire disposal, you might want to question whether the hauler and/or disposal facility is simply accumulating the tires without intending to comply with the regulations.
- Haulers must [register](#) and maintain bonding in favor of the DEQ in the amount of \$10,000 and the registration must be renewed annually. Haulers must carry their registration, which includes the expiration date and a list of collection sites where they can take the tires, and the original [manifest](#) when transporting scrap tires. In addition, they must visibly display their registration number on the vehicle transporting the tires. Compare the disposal site listed on the manifest to the sites listed on the hauler’s current registration. If a hauler is not taking the scrap tires to a disposal site listed on its registration, question it before shipping your scrap tires.



Scrap tire collection site and generator/hauler inspection forms are available at [www.michigan.gov/scrap tires](http://www.michigan.gov/scrap tires), under the link titled “Scrap Tire General Documents and Procedures.”

- Obtain and keep the following copies of the scrap tire manifest for each shipment of scrap tires for at least 3 years after shipment:
  - Copy of the scrap tire manifest/transportation record signed by the scrap tire hauler and generator at time of each pickup (form EQP 5128 or EQP 5128a for consolidated loads)
  - Copy of the scrap tire manifest/transportation record signed and returned from the end user, processor, or disposer within 30 days of their receipt of the scrap tires.

You can call the DEQ, Scrap Tire Program at 517-614-7431 or the DEQ, [District Office](#), Scrap Tire Program (see Appendix C) for information about the compliance status of a hauler or disposal site, or if you have questions about [registering](#) as a hauler or collection location.

## 2.3 Liquid Industrial By-product

Liquid industrial by-products are regulated under [Part 121 of Act 451](#). On December 17, 2015, Part 121 was amended and renamed from “liquid industrial waste” to “liquid industrial by-product.” The changes resulting from the amended law are reflected throughout this chapter and guidebook. This chapter focuses on generator requirements; not liquid industrial by-product receiving facility or “designated facility” requirements. For information on the designated facility requirements resulting from the statutory changes, go to [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) and select “Part 121 Liquid Industrial By-Products (formerly Liquid Industrial Waste) Statutory Changes.” For questions on permitting and licensing of designated facilities, go to [www.michigan.gov/deqpermits](http://www.michigan.gov/deqpermits) to better understand the regulatory requirements associated with treatment, storage and disposal of liquid industrial by-products, including who to contact for additional information.

Liquid industrial by-products generally include any material that:

- is discarded by a non-household,
- fails the paint filter test (see Chapter 2.4.2.c),
- is not exempted or excluded under [Part 121 of Act 451](#), and
- is not regulated as hazardous waste or medical waste (see Chapters 2.4 and 2.5).



Common examples of liquid industrial by-product include used oil that is being recycled, storm sewer and sanitary sewer clean-out residue, grease trap clean-out residue, industrial wastewater, uncontaminated precipitation removed from secondary containment structures, antifreeze that isn't a hazardous waste, some off-specification commercial chemical products, liquids exempted from hazardous waste regulation, and other discarded liquids that can no longer be used for their original intended purpose without reclamation or treatment. Liquids that are fully contained in a manufactured article are considered discarded when they are removed from the manufactured item or when the manufactured item is destined for recycling or disposal.

Liquid industrial by-product management is overseen by several entities:

- The DEQ, Hazardous Waste Program oversees the management of liquid industrial by-product at generator sites, when in transport, and at “designated facilities” receiving liquid industrial by-product.
- The DEQ, Hazardous Waste Transporter Program oversees the permitting and registering of liquid industrial by-product transporters (see Chapter 4.4.11).
- The DEQ, Water Resource Division (WRD) oversees the discharge and permitting of liquid by-products into surface water and groundwater (see Chapter 3).
- The local publicly owned treatment works (POTW) oversees the discharge and permitting of liquid by-products to its POTW if the business is connected to a municipal sanitary sewer system (see Chapter 3). You must obtain permission from the sanitary sewer authority before discharging waste to the sanitary sewer system. Discharge to storm sewers is prohibited.
- Other local agencies, which vary between communities that oversee local ordinances. Authority is often under the county, city, or township zoning or building office, the public health department's environmental health section, or the fire department.

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- The [Michigan State Police, Commercial Vehicle Enforcement Division](#) and [U.S. DOT](#) oversee transportation requirements if the liquid by-product is a **hazardous material-U.S. DOT** (see Chapter 4).
- Insurance companies may have requirements for storage and shipping.



To determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, view the DEQ recorded waste characterization webinar available at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) under the “Introduction to Hazardous Waste Webinars” or see Chapter 2.4.

If you generate liquid industrial by-product, you need to:

- Characterize the liquid to determine if it is non-hazardous, hazardous, or subject to other waste regulations and keep a record of the characterization for at least three years after shipment for treatment, storage, or disposal.
- Meet storage requirements:
  - ✓ Protect containers and tanks from weather, fire, physical damage and vandals.
  - ✓ Containers and tanks must be labeled so workers and emergency responders know what is in them.
    - A good example of labeling would be marking a container of liquid industrial by-product antifreeze as “spent antifreeze,” “spent ethylene glycol,” or “spent propylene glycol” depending on the material used.
    - Labels should include language that is commonly used in commerce and emergency response. This may include a product name and may include details regarding the process generating the waste. Labels should be consistent with the waste type used on the shipping documents and the characterization records documenting the liquid industrial by-product determination.
    - “Used Oil” labeling is required for liquid industrial by-product which is used oil - see Chapter 2.4.9.a for more details regarding the requirements specific to used oil and see Chapter 4).
  - ✓ Manage liquid industrial by-product to prevent unauthorized sudden or non-sudden releases into air, soil, drains, surface water or groundwater.
    - Containers must be maintained in good condition.
    - Any leaking containers must be replaced.
    - Containers must be kept closed except when adding or removing liquid industrial by-product. For liquid industrial by-product, closed means that container covers are securely affixed with a bolted ring clamp or closed snap ring, bung plugs are installed in openings, and threaded covers are screwed shut. Non-pressurized mobile oil drain pans must be, at a minimum, emptied when not in use. If a funnel is routinely used, to avoid having to remove the funnel and reclose the container regularly, a threaded funnel with a one-way valve, ball valve, or funnel with a latchable, gasketed cover can be used. Containers can also be closed in accordance with other state law. Documentation of the applicable state law is recommended.

See [Operational Memo 111-20](#) for more information about closed containers.



**Non-pressurized mobile oil drain pan**

- Containers must be compatible with the type of liquid industrial by-product being stored in them. The SDS for the virgin ingredients may provide some recommendations or see Web sites like [www.flw.com/datatools](http://www.flw.com/datatools).
  - Incompatible wastes must not be placed in the same container.
  - Other environmental regulations may require secondary containment. See Chapter 4 for more details on secondary containment requirements.
  - ✓ Liquid industrial by-product that has a flashpoint at or above 140 degrees and below 200 degrees Fahrenheit and stored in aboveground containers and tanks would also be regulated as a flammable and combustible liquid by the DLARA, Bureau of Fire Service, Storage Tank Division; by the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids; and the local municipality's fire prevention code (see Chapters 4, 34 and 37 for more information).
  - ✓ Liquid industrial by-product in an underground storage tank that is a [regulated substance](#) under Part 211 (Underground Storage Tanks) of Act 451 would have additional requirements under the tank regulations implemented by the DLARA, Bureau of Fire Service, Storage Tank Division (see Chapter 4).
  - ✓ There are no state time limit requirements on storing liquid industrial by-product at the generating facility, but local ordinances may have limits.
  - If operating an on-site reclamation, treatment, or disposal facility, keep records of all liquid industrial by-product produced and reclaimed, treated or disposed at the facility for at least three years unless facility is under investigation which requires them to be kept longer. Many companies keep records indefinitely to document they have properly managed their waste when they want to sell the business or property.
  - If liquid industrial by-product is treated, stored or disposed of in a surface impoundment, obtain the applicable Part 31 (Water Resources Protection) of Act 451 discharge permit (see Chapter 3) and manage leachate appropriately. Discuss specific requirements with the DEQ, [District Office](#), WRD (see Appendix C).
  - Complete and maintain proper shipping documents demonstrating proper recycling or disposal. As of March, 16, 2016, Site ID numbers are no longer required for generators shipping liquid industrial by-product and/or conditionally exempt small quantity generator hazardous waste liquids for recycling or disposal.
- 
- Generators choosing to use a Uniform Hazardous Waste Manifest as a shipping document to meet Part 121 are encouraged to use their Site ID number if they have one. If no Site ID number is assigned, generators are encouraged to complete the manifest as follows for the Generator ID Number field:
- ✓ Use "MILIB" for manifests documenting shipment of only liquid industrial by-product;
  - ✓ Use "MICESQG" for manifests documenting shipment of only CESQG liquid hazardous waste; and
  - ✓ Use "MICESQGLIB" for manifests documenting shipment of both CESQG liquid hazardous waste liquids and liquid industrial by-product.

As of March 16, 2016, liquid industrial by-products and/or conditionally exempt small quantity generator hazardous waste liquids shipping documents may be a log, invoice, bill of lading, Uniform Hazardous Waste Manifest, or other record in written or electronic format. The liquid industrial by-product shipping document must include:

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- ✓ The name and address of the generator
- ✓ The name of the transporter
- ✓ The type and volume of liquid industrial by-product in the shipment
- ✓ The date the liquid industrial by-product was shipped off-site from the generator
- ✓ The name, address, and Site ID number of the designated facility

The former liquid industrial waste codes are no longer used by the DEQ. At the time of shipment, the generator must certify the shipping document stating he/she is fully and accurately describing the liquid industrial by-product on the shipping document, that the liquid industrial by-product is in proper condition for transport, and that the information contained on the shipping document is factual. An electronic signature is acceptable for electronic records. The certification included on Uniform Hazardous Waste Manifests meets the Part 121 certification requirement.

All waste generators except households are required by law to:

- Determine the regulatory status of their waste (hazardous waste, liquid industrial by-product, solid waste, etc.).
- Keep records of waste evaluations and support information used to determine proper the management, transport, treatment, storage, and disposal standards that apply.
- Keep records for 3 years

See Chapter 2.4 for more information about waste characterization.

Upon pick-up, the transporter must sign the shipping document with a certification statement confirming the liquid industrial by-product was accepted for transport. Both the generator and the transporter are required to retain a copy of the shipping document. The transporter copy of the shipping document must accompany the shipment in transport. The transporter must deliver the liquid industrial by-product only to the designated facility identified on the shipping document. The designated facility shall only accept delivery if the facility is the designated facility identified on the shipping document. Following acceptance, the designated facility must provide confirmation of receipt of the shipment to the generator. The confirmation may be written or electronic via email, receipt, copy of the shipping document transmitted, invoice, etc.

Shipments may be documented on a consolidated shipping document if the shipment includes multiple pick-ups of the same type of liquid industrial by-product. A receipt must be provided to the generator which includes the transporter's name, transporter's Site ID, transporter's signature, date of pickup, type and quantity of by-product accepted, the consolidated shipping document number and the designated facility Site ID number. See Chapter 2.4.5.a for more information about consolidated manifests and the [Liquid Industrial By-products Frequently Asked Questions](#) for more information about consolidated shipping documents.

- Hire a [permitted and registered transporter](#) to take the liquid industrial by-product to an appropriate disposal facility (see Chapter 2.4.10) or meet the requirements to haul the company's own waste (see Chapter 2.4.5).

- Report releases to the Pollution Emergency Alerting System at (800) 292-4706 that could threaten the public health, safety, or welfare, or environment, or that has reached surface water or groundwater unless the release was already reported as required under a different state regulation. Prepare a written report summarizing incident and response measures and keep on-site and submit copy to DEQ if requested. A [summary table](#) of state and federal regulations that require release reporting is included in Chapter 6 and at [www.michigan.gov/chemrelease](http://www.michigan.gov/chemrelease). Some liquid industrial by-product may also be subject to the Part 5 rules of Part 31 (Water Resource Protection) of Act 451 (See chapter 6).

Cleanup all spills (see Chapter 6).

- Depending on the liquid by-product, emergency planning may be required under other regulations (e.g. Part 5 rules mentioned above) if threshold management quantities are reached (see Chapter 6).
- If using pump and haul tanks, see the [Liquid Non-hazardous Waste \(By-Product\) Holding Tank](#) guidance for more information.
- If emptying tanks or containers, see the [Emptying Tanks or Containers](#) guidance.

**TABLE 2.2 Liquid Industrial By-Product and Used Oil Generator Summary (includes most used oil)**

Amount generated in calendar month	Maximum amount that can be accumulated on-site	Maximum time period before liquid industrial by-product must be shipped
Liquid Industrial By-product and Used Oil Generator Any amount <sup>1</sup>	No maximum amount under state regulations. <sup>2</sup> If the generator is also a designated facility receiving liquid industrial by-product from off-site there are many additional requirements. <sup>1</sup>	No state time limit as long as containers in good shape and closed, but check local ordinances for any time limits.

<sup>1</sup>See Part 121 for possible liquid industrial by-product exemptions and designated facility requirements.

<sup>2</sup>Other regulations requiring containment and emergency planning may apply when threshold management quantities are met e.g. [federal Spill Prevention Control and Countermeasure \(SPCC\)](#) for oils and [state Part 5 rules](#) “Spillage of Oil and Polluting Materials” of Part 31 (Water Resource Protection) of Act 451 (see Chapters 4 and 6) and any local ordinances.

## 2.4 Hazardous Waste

All waste generators except households are required by law to:

- Determine if any of their waste is hazardous waste.
- Keep records of waste evaluations and other information used to determine the type of waste at least three years after the waste is shipped for treatment, storage, or disposal.
- Properly manage the waste.

These requirements apply to all businesses, not just manufacturing. This includes service industries, governmental operations, health care, etc. It is highly recommended you develop a record keeping system where all the waste determination records, manifests, shipping documents, land disposal restrictions records, reports, contingency plans, training records etc.

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are filed so you can easily provide these documents upon an inspection. Legal responsibility as a generator of any quantity of waste extends from “cradle to grave.” This covers the time from when the waste is first generated through its ultimate disposal. State and federal court decisions have consistently upheld that legal liability remains with the original generator, in some instances even after disposal.



When reading this guidebook, do not confuse the term hazardous waste with **hazardous**

**material-U.S. DOT, hazardous material-DEQ, and hazardous material-**

**Act 207.** Each term has specific regulatory definitions and requirements. See Chapter 4 to learn about the differences in these definitions and the regulations that govern their management.

All hazardous waste that is required to be shipped with a Uniform Hazardous Waste Manifest is defined as a **hazardous material-U.S. DOT**. There are some wastes that are not regulated as a hazardous waste, yet are regulated as a **hazardous material-U.S. DOT**. The following information discusses the general requirements regarding **hazardous waste**. More detailed information is provided for common hazardous waste streams in Chapter 2.4.9. The specific requirements that must be met depend upon the quantities of hazardous waste generated and accumulated within a specific time period at your site.

This chapter focuses on generator requirements and not hazardous waste treatment, storage and disposal facilities (TSDF) and transporter requirements. For information on the licensing required for storing hazardous waste at a location other than where it was generated, or for treating or disposing of hazardous waste at any location, please contact your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C). If you have any questions about managing your hazardous waste, call your environmental consultant or the DEQ, [District Office](#), Hazardous Waste Program (see Appendix C). For questions about transport, see Chapter 4.

### 2.4.1 Defining Hazardous Waste

Hazardous wastes are wastes that have been determined to be a threat to human health or the environment. Federal and state regulations define wastes as hazardous if they 1) are included on specific lists within the regulations (listed hazardous waste) or 2) exhibit hazardous characteristic(s) specified in the regulations (characteristic hazardous waste). Each hazardous waste type, regardless of whether it is a listed hazardous waste or characteristic hazardous waste, is assigned a specific number for purposes of waste tracking and management. Michigan regulates more hazardous wastes than what is included in the federal regulations. Wastes that are included in both the federal and state regulations have a U.S. EPA waste number that begins with a letter followed by 3 digits. The additional Michigan hazardous waste numbers begins with the 3 digits and ends with a letter. There are some wastes that can have several waste numbers that apply. The regulations also allow businesses the option of handling some waste streams under streamlined management standards called the “universal waste” standards. For further information on universal wastes and their management standards, please see Chapter 2.4.1.c in addition to the following sections. If you have waste containing radioactive materials, please see Chapter 10.



To determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, view the DEQ recorded waste characterization webinar available at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) under the “Introduction to Hazardous Waste Webinars” or see Chapter 2.4.

**2.4.1.a Listed Waste**

Listed waste includes waste materials listed by name or generation source that are identified on the federal and Michigan lists of hazardous waste. If listed hazardous waste is mixed with other waste, then that mixture is defined as a listed hazardous waste under the “mixture rule” as incorporated under the state and federal regulations. The intent is to ensure that the solution to pollution is not dilution. Only waste meeting a regulatory exclusion identified in the Part 111 rules are excluded. Even waste excluded under Rule 203(7) is still subject to land disposal restrictions (see Chapter 2.4.5.c). Moreover, any waste excluded from Part 111, hazardous waste regulation would generally be subject to Part 121 if liquid, or Part 115 if solid.

To determine if a waste is a listed hazardous waste, you need to know the process used to produce the waste and/or the chemical names, and in some instances the chemical concentrations for the materials used to generate the wastes. When claiming an exclusion or exemption, be prepared by having good records for your determination as required under Rule 202(5), Rule 302, and Rule 307(1). To determine if a waste is a listed hazardous waste, you must review the lists of listed hazardous wastes found in the regulations. When reviewing these lists, it is helpful to know they are grouped as follows:

- **Common wastes from non-specific sources.** The list of common wastes from non-specific sources is found under Table 203a of the Part 111 rules. It includes wastes from equipment like degreasers and wastewater treatment operations used at many manufacturing and service businesses. Common wastes from non-specific sources are referred to as the “F” listed hazardous wastes because the waste codes assigned to these wastes all begin with an “F.” Many manufacturers generate F001-F005 spent solvents. To generate an “F” listed solvent waste, the virgin solvent must contain the constituents included in the waste descriptions at or above the concentration specified in the table. Besides knowing the solvent constituents and their concentration, proper characterization of “F” listed solvent waste also depends on how the solvent was used (see Chapter 2.4.9.h). Some “F” listed hazardous wastes also have an “(H)” designation included in the hazard code column of the table. An “H” hazard code designation identifies the listed hazardous waste is an acute hazardous waste that triggers full regulation as a hazardous waste if greater than 2.2 pounds are generated in one month. Michigan has the same F list as the federal regulations.
- **Waste from specific industries.** The list of wastes from specific industries is found under Table 204a of the Part 111 rules. It includes wastes from industries like chemical manufacturing, petroleum refining, and iron and steel production, among others. The listed wastes from this table are referred to as the “K” listed wastes because the waste codes assigned to these wastes all begin with a “K.” Most Michigan manufacturers do not generate “K” wastes. Most Michigan “K” wastes are generated from the iron and steel production and petroleum refining industries. Michigan has the same federal “K” list and rescinded the additional state “K” waste list on November 5, 2013.
- **Discarded commercial chemical products, off-specification chemicals, and their spill or container residues.** Discarded commercial chemical products, off-specification chemicals, and their spill or container residues are a listed hazardous waste if they are found listed in Tables 205a, 205b, and 205c of the Part 111 rules. These wastes all have waste codes that begin with a “P” or “U.” Discarded commercial chemical products or off-specification chemicals are “P” or “U” listed hazardous wastes if they contain, as their sole active ingredient, one of the chemicals identified in the “P” or “U” lists in the Part 111 rules. Formulations with a sole active ingredient have only one ingredient that serves a function. Chemicals which have a sole active ingredient may contain water, oil, or other materials that serve as a carrier for the sole active ingredient. An example of a commercial chemical product is technical grade toluene

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that is used for cleaning. It is a U220 hazardous waste if the product was discarded before being used even if there was another ingredient included in the formulation as a carrier. It is a F005 waste if it was used for cleaning and then is discarded. Businesses have “P” or “U” wastes when disposing of unused or off-specification chemicals, when cleaning up a spill of these listed chemical products and/or chemical intermediates having the generic names listed, or when disposing of a container with container residues from the “P” or “U” listed hazardous wastes. Pharmaceutical industries generate “U” and “P” wastes, especially when they are involved with take back programs with hospitals, pharmacies, and other medical facilities. Chemicals included on the “P” list are designated as acutely hazardous, triggering full regulation as a hazardous waste if greater than 2.2 pounds is generated in one month. “U” wastes include toxic chemicals and chemicals that display a characteristic like ignitability. Michigan has the same federal “P” and “U” lists and some additional state U waste numbers.

### 2.4.1.b Characteristic Waste

Waste exhibiting any of five characteristics identified in the Michigan and federal regulations is also defined as a hazardous waste. These wastes have a U.S. EPA or Michigan hazardous waste number that begins with a “D” or ends with or “S”. The five characteristics are:



**Ignitable** - Starts burning easily; liquids with a flashpoint below 140 degrees Fahrenheit, solids that spontaneously ignite, oxidizing materials, and ignitable compressed gases. Ignitable compressed gas are those that meet the criteria in 40 CFR 261.21(a)(3), not the criteria referenced in the U.S. DOT regulations. This includes gases that form flammable mixtures in air. Examples of wastes that are characteristic hazardous wastes due to their ignitability include: mineral spirits, methyl isobutyl ketone and other solvents, solvent-based paints, solvent-soaked rags, gasoline, cleaning fluids, naphtha, sludges containing petroleum, and ignitable compressed gas like hydrogen, propane, and acetylene. These wastes have a hazardous waste number of D001.



**Corrosive** - Liquids that dissolve steel or aqueous wastes with a pH less than or equal to 2.0 or greater than or equal to 12.5. Examples of wastes that are characteristic hazardous wastes due to their corrosivity include caustics like alkaline cleaners and battery acid. These wastes have a hazardous waste number of D002.



**Reactive** – Undergoes rapid or violent chemical reaction and necessitates special handling requirements. Examples of wastes that are characteristic hazardous wastes due to their reactivity include organic peroxides, cyanides, sulfides, nitroglycerine, and explosives. These wastes have a hazardous waste number of D003.



**Toxic** - Poisonous to humans and other living organisms. Waste becomes regulated as a characteristic hazardous waste due to its toxicity when a toxic substance in a sample extract from the waste meets or exceeds chemical concentration levels specified in Table 201a of the Part 111 rules. See Table 2.3 for the list of toxic substances that may cause a waste to be a characteristic hazardous waste due to its toxicity. These wastes are assigned hazardous waste numbers D004 through D043. Wastes that are a characteristic hazardous waste due to their toxicity are sometimes called toxicity characteristic leaching procedure (TCLP) wastes because a TCLP laboratory test is used to evaluate whether the waste meets the hazardous waste characteristic (see Chapter 2.4.2.c). Examples of wastes that are generally characteristic hazardous wastes due to their toxicity include: fluorescent lamps, electronic waste, dry cell batteries, various metal-bearing solutions, solvents, mercury switches, lead tire weights, some pesticides, some medical related wastes including mercury thermometers and older antiseptics containing mercury from medical kits, and other organic chemicals. An example of a D009 hazardous waste includes mercury

from electric lamps or switches that have a TCLP test concentration result of 0.2 milligrams per liter (mg/l) or more of mercury and are not being managed under the universal waste rule (see Chapter 2.4.1.c). Methyl ethyl ketone (MEK) waste has a waste number of D035 if the TCLP concentration is 200 mg/l or more of MEK. MEK can also be an “F” listed hazardous waste if it meets any of those regulatory definitions.



**Severely toxic** – Severely toxic to humans and other living organisms. These Michigan hazardous wastes contain 1.0 parts per million (PPM) or more of a severely toxic material listed in Table 202 of the Part 111 rules. These materials are regulated at quantities of one kilogram, which is just over two pounds or more. Severely toxic hazardous wastes are assigned hazardous waste numbers 001S through 007S. Most businesses do not generate this waste.

**TABLE 2.3 Characteristic Hazardous Wastes for Toxicity  
(if waste meets or exceeds the listed concentration)**

U.S. EPA Hazardous Waste Number	Chemical Abstract Services Number	Material	Extract Concentration from TCLP analysis in milligrams per liter
D004	7440-38-2	Arsenic	5.0
D005	7440-39-3	Barium	100.0
D018	71-43-2	Benzene	0.5
D006	7440-43-9	Cadmium	1.0
D019	56-23-5	Carbon tetrachloride	0.5
D020	57-74-9	Chlordane	0.03
D021	108-90-7	Chlorobenzene	100.0
D022	67-66-3	Chloroform	6.0
D007	7440-47-3	Chromium	5.0
D023	95-48-7	o-Cresol	200.0**
D024	108-39-4	m-Cresol	200.0**
D025	106-44-5	p-Cresol	200.0**
D026	-----	Cresol	200.0**
D016	94-75-7	2,4-D (2,4-Dichlorophenoxyacetic Acid)	10.0
D027	106-46-7	1,4-Dichlorobenzene	7.5
D028	107-06-2	1,2-Dichloroethane	0.5
D029	75-35-4	1,1-Dichloroethylene	0.7
D030	121-14-2	2,4-Dinitrotoluene	0.13*
D012	72-20-8	Endrin (1,2,3,4,10,10-hexachloro-1,7-Epoxy-1,4,4a,5,6,7,8,8a octahydro-1,4-endo, endo-5,8-dimenthano naphthalene)	0.02
D031	76-44-8	Heptachlor (and its Epoxide)	0.008
D032	118-74-1	Hexachlorobenzene	0.13*
D033	87-68-3	Hexachlorobutadiene	0.5
D034	67-72-1	Hexachloroethane	3.0
D008	7439-92-1	Lead	5.0
D013	58-89-9	Lindane (1,2,3,4,5,6-hexa-chlorocyclohexane, gamma isomer)	0.4
D009	7439-97-6	Mercury	0.2
D014	72-43-5	Methoxychlor (1,1,1-trichloro-2,2-bis(p-methoxyphenyl)ethane)	10.0
D035	78-93-3	Methyl ethyl ketone	200.0
D036	98-95-3	Nitrobenzene	2.0
D037	87-86-5	Pentachlorophenol	100.0
D038	110-86-1	Pyridine	5.0*
D010	7782-49-2	Selenium	1.0
D011	7440-22-4	Silver	5.0
D039	127-18-4	Tetrachloroethylene (also called perchloroethylene)	0.7

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U.S. EPA Hazardous Waste Number	Chemical Abstract Services Number	Material	Extract Concentration from TCLP analysis in milligrams per liter
D015	8001-35-2	Toxaphene (C <sub>10</sub> H <sub>10</sub> C <sub>18</sub> , Technical chlorinated camphene, 67-69 percent chlorine)	0.5
D040	79-01-6	Trichloroethylene	0.5
D041	95-95-4	2,4,5-Trichlorophenol	400.0
D042	88-06-2	2,4,6-Trichlorophenol	2.0
D017	93-72-1	2,4,5 TP Silvex (2,4,5-Tri-chlorophenoxypropionic acid)	1.0
D043	75-01-4	Vinyl chloride	0.2

\*Quantitation limit is greater than the calculated regulatory level, so the quantitation limit becomes the regulatory level.

\*\*IF o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

### 2.4.1.c Universal Waste

The **universal waste** standards are streamlined standards for managing common types of hazardous waste. Hazardous wastes volumes managed under the universal waste standards are not included when determining your hazardous waste generator status (see Chapter 2.4.3). A primary benefit of managing hazardous waste under the universal wastes standards is that it reduces your monthly hazardous waste volumes. This may reduce your generator status and consequently reduce the overall regulatory requirements that your facility must meet when managing hazardous waste. For example, a Large Quantity Generator that manages part of its hazardous waste stream as universal waste may be able to become a Small Quantity Generator and be subject to fewer hazardous waste regulations and lower waste handler fees. The universal waste standards give facilities the choice of handling the following waste types as a universal waste or hazardous waste:

- **Lamps**, or what we commonly call light bulbs, including fluorescent, high intensity discharge, sodium vapor, mercury vapor, neon, and incandescent lamps. A lamp is defined as the bulb or tube portion of a lighting device specifically designed to produce radiant energy. Broken lamps are not universal wastes (see Chapter 2.4.9.e).
- **Batteries**, including nickel cadmium dry cell (see Chapter 2.4.9.d) and lead acid types (see Chapter 2.4.9.c which also discusses another lead acid battery management option).
- **Mercury containing devices**, including thermostats, switches, thermometers, and other devices which contain elemental mercury.
- **Pesticides**, including certain suspended, canceled, or unused pesticides.
- **Consumer electronics**, including computers, televisions and other equipment containing circuit boards commonly found in homes (see Chapter 2.4.9.m).
- **Antifreeze** (see Chapter 2.4.9.o).
- **Pharmaceuticals** (drugs), including nicotine, coumadin, nitroglycerine, epinephrine, and other drugs (see Chapter 2.4.9.q).

There are two types of universal waste handlers – a Small Quantity Handler and a Large Quantity Handler. Do not confuse universal waste handler types with hazardous waste generator types (e.g. Small Quantity Generator and Large Quantity Generator). See Table 2.4 below which summarizes the universal waste handling requirements for large and small quantity universal waste handlers. For more detailed information on handling universal waste, please also see Chapters 2.4.4, 2.4.5, 2.4.7, 2.4.8 and 2.4.9. The requirements for universal waste transporters and destination facilities are not discussed in this guidebook.

Table 2.4 Summary of Universal Waste Handler Categories

Issue	Small Quantity Handler (SQH)	Large Quantity Handler (LQH) <sup>1</sup>
Amount of all universal waste types accumulated at any time during the calendar year beginning January 1	Less than 5,000 kilograms (11,000 pounds)	5,000 kilograms (11,000 pounds) or more
Maximum amount of all universal waste types that can be accumulated on-site during the calendar year beginning January 1	Less than 5,000 kilograms (11,000 pounds)	No limit
Maximum time period before waste must be shipped	1 year after generated or received from another facility	1 year after generated or received from another facility
Accumulation	Accumulate in closed containers compatible with the waste, labeled as specified in Chapters 2.4.9. See <a href="#">universal waste handler</a> guidance. Note that satellite accumulation standards do not apply to hazardous waste managed to meet the universal waste standards.	Accumulate in closed containers compatible with the waste, labeled as specified in Chapters 2.4.9. See <a href="#">universal waste handler</a> guidance. Note that satellite accumulation standards do not apply to hazardous waste managed to meet the universal waste standards.
Notification Required <sup>2</sup>	No.	Yes, use form <a href="#">EQP 5150</a> See Chapter 2.4.4
Manifests <sup>3</sup> or shipping papers <sup>2</sup>	If liquids, use shipping document or keep alternative records. See Chapter 2.4.5.a and b.	If liquids, use shipping document or keep alternative records. See Chapter 2.4.5.a and b.
Employee Training & Emergency Response	Yes, see Chapters 2.4.12 and 6	Yes, see Chapters 2.4.12 and 6
Permitted and registered transporters required to be used <sup>2</sup>	No, unless liquid which is managed as liquid industrial by-product (Chapter 2.4.10)	No, unless liquid which is managed as liquid industrial by-product (Chapter 2.4.10)
Export/Import	Additional federal notification and reporting requirements, see Chapter 2.4.5.d	Additional federal notification and reporting requirements, see Chapter 2.4.5.d
Universal Waste Receiving Facility <sup>4</sup>	Universal waste must be delivered to a universal waste handler, a universal waste destination facility, or a universal waste foreign destination facility. Destination facility requirements vary and may require a hazardous waste license.	Universal waste must be delivered to a universal waste handler, a universal waste destination facility, or a universal waste foreign destination facility. Destination facility requirements vary and may require a hazardous waste license.

<sup>1</sup> Once the LQH status is reached, the business must keep that designation through the end of that calendar year.

<sup>2</sup> Universal wastes that are a liquid would need to be transported by a registered and permitted transporter to meet the liquid industrial by-product regulations. In addition, some universal waste may be regulated as U.S. DOT hazardous material if it meets the criteria specified in 49 CFR 173.2. For example, shipments of more than one pound of mercury per package, and many pesticides, are regulated U.S. DOT hazardous materials. The amount of mercury varies in the different devices. This material must be packaged, labeled, marked, placarded, and transported with the

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proper shipping papers according to U.S. DOT requirements. Contact the Michigan State Police, Commercial Vehicle Enforcement Division at 517-241-0506, the U.S. DOT at 517-853-5990 or visit their Web site at [www.phmsa.dot.gov/hazmat](http://www.phmsa.dot.gov/hazmat) for information about their requirements. Also see Chapter 4.4 for further discussion of these requirements.

<sup>3</sup> Liquid universal wastes would be shipped to meet the Part 121 liquid industrial by-product transport and shipping requirements. When manifesting universal waste that is liquid, follow the Part 121 requirements for shipping documents.

<sup>4</sup> For questions about acceptable receiving facilities, contact your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C).

### 2.4.1.d Hazardous Waste Exclusions and Exemptions

Some waste streams may meet applicable exclusion and exemption criteria and not be fully regulated as a hazardous waste. These exclusions and exemptions are too numerous to include in their entirety in this publication, but the following summarizes some common ones and others are identified in Chapter 2.4.2.d. Additional management requirements are included in Chapter 2.4.9 for some specific wastes. See the U.S. EPA's [RCRA Orientation Manual](#) at [www.epa.gov/wastes/inforesources/pubs/orientat/](http://www.epa.gov/wastes/inforesources/pubs/orientat/) and the [RCRA, Superfund, & EPCRA Hotline Training Modules](#) at [www.epa.gov/superfund/contacts/sfhotline/cerep.pdf](http://www.epa.gov/superfund/contacts/sfhotline/cerep.pdf) for more information about exclusions and exemptions. Discuss any exclusion or exemption questions you have with your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C).

#### ***Hazardous Waste Recycling***

Recycling may occur at the generator's site or off-site. Different regulations apply to companies recycling their own wastes and those offering commercial recycling services. Generators must keep records of on-site reclamation and the treatment performed must be performed in accordance with an exemption found under Rule 503 of the [Part 111 Rules](#) (R 299.9503). As provided in Rule 205(5) of the Part 111 Rules (R 299.9205), in some cases the waste may not need to be counted when determining your monthly generator status.

Companies that offer commercial recycling services are listed in the [Recycled Materials Market Directory](#) at [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd). As the generator, you should ensure the recyclers are meeting the applicable environmental regulations. For example, if the recycling company offers transportation services, ask if they meet the applicable transporter regulations to haul your type of waste and what authorization or exclusion from waste regulation they have to treat and/or store the waste. It is necessary to consider all the regulations (e.g. Parts 31, 55, 111, 115, and 121) that may be applicable to meet requirements to recycle materials. In some cases recycling a material may be exempt under all the waste regulations but the recycling process itself may be subject to air regulations (Part 55) and wastewater discharge limitations (Part 31). In other situations, some hazardous waste that is recycled is excluded from being regulated as a hazardous waste but it is regulated as liquid industrial by-product. For example, gas removed from an abandoned storage tank or a gas/water mixture that is shipped off site to be burned as a fuel at a cement kiln is exempt from being a hazardous waste, but it must be shipped and managed as a liquid industrial by-product. See Rule 206 of the Part 111 rules (R 299.9206) and discuss your specific recycling questions with your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C).

Materials that are directly used or reused are not regulated as hazardous waste when they are:

- Used as an ingredient to make a product without first being reclaimed. A material is "reclaimed" if it is processed to recover a usable product, or if it is regenerated which may include filtering or any other processing before reuse.

- Used as an effective substitute for a commercial chemical product.
- Returned to the original process from which it was generated, without first being reclaimed. However, if the material is reclaimed prior to reuse or is used to produce products that are applied to or placed on the ground or burned for energy recovery, the material and the recycling process are fully regulated.

Note too that the hazardous waste regulations require that any exemption or exclusion claim be demonstrated by the generator of the waste. There are also speculative accumulation limits for materials being collected for recycling. Speculative accumulation under the hazardous waste regulations does not include collected materials when at least 75 percent of the material (either by volume or weight) is recycled, or transferred to another site for recycling, within the calendar year beginning January 1. Keep inventory records to verify recycled materials are not speculatively accumulated, and thus are exempted from the hazardous waste regulations. See Rule 107(z) of the Part 111 rules (R 299.9107(z)) for the definition of hazardous waste speculative accumulation and see Section 12112(3) of Part 121 for this definition in the liquid industrial by-product regulations.

### **Laboratory Samples**

A waste sample that is sent to a laboratory to determine if it is a hazardous waste is exempt from most of the hazardous waste regulations if it meets certain conditions. Send the smallest amount needed for the test (typically this is less than one gallon) to the laboratory, and the laboratory may return any remaining sample to the generator. If the waste is determined to be a hazardous waste this exemption no longer applies to the sample after it is no longer needed for waste characterization purposes. See Chapter 2.4.2.b for shipping record requirements.

### **Empty Containers**

Empty containers, liners, and residue from “empty containers” are not subject to the hazardous waste requirements if the following conditions are met:

1. The container or the inner lining that held non-acute hazardous waste has had as much material removed as possible using practices commonly used to remove that material (e.g. pouring, pumping, and aspirating), AND the amount of hazardous waste residue in the container or liner meets any of the following:
  - One inch or less; OR
  - No more than three percent by weight of the total capacity for containers 119 gallons or less in size; OR
  - No more than 0.3 percent by weight of the total capacity for containers over 119 gallons.

Smaller containers can generally be emptied beyond the one inch or 3% standard. Therefore, smaller containers must be emptied to the extent possible using common practices for emptying the container type.

2. The containers that held acutely or severely toxic hazardous waste (e.g., waste identified on the “P” or “S” lists and “F” wastes with a “H” hazard code) have been triple-rinsed using a material capable of removing the product or by another proven cleaning method, or the inner lining that prevented contact of the chemical with the container has been removed from the container. For containers or inner liners that held acute hazardous waste listed solely for a hazardous waste characteristic and the formulation in the container or inner liner no longer exhibits that characteristic, the container or inner liner is empty if the above requirements in

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condition #1 are met. Any rinsate generated from rinsing a container or tank that held acutely or severely toxic hazardous waste is a listed hazardous waste unless it meets an exemption under the hazardous waste regulations (e.g. it is direct discharged to a POTW under an authorization issued by the sanitary sewer authority and there is no accumulation or storage prior to the discharge to the sanitary sewer).

3. Compressed gas cylinders have been emptied to the point where the pressure in the container approaches atmospheric pressure. To ensure the container is empty, listen for audible liquids and check to see if it is clogged. If the container is clogged and has audible liquids, manage it as a non-empty container.

### ***Wastewater Discharges to Municipal Sanitary Sewer Systems***

Wastewater that contains hazardous waste and is discharged through sanitary sewers to the publicly owned treatment works (POTW) is exempt from the hazardous waste regulations at the point of discharge into the sanitary sewer system IF the discharge is approved by the POTW (see Chapter 3.2.1). However, any hazardous waste generation, treatment, or storage prior to that discharge may be subject to the hazardous waste regulations. This exemption does not apply to any hazardous waste that is transported by truck or rail to a POTW and cannot be used for the discharge of any wastewater to a storm sewer.

An exemption from the mixture rule exists if very small amounts, or de minimis amounts, of listed hazardous waste are discharged to a wastewater treatment plant with large volumes of non-hazardous wastewater. De minimis losses are inadvertent releases to a wastewater treatment system. There are additional requirements if claiming the de minimus exemption including meeting wastewater discharge requirements.

If hazardous waste is discharged to a POTW for disposal, keep a copy of the federal clean water act permit application or the submission to the POTW at the facility with their approval and records of your hazardous waste discharges for at least three years. See Chapter 3 for more information. If a facility is doing any on-site treatment, including waste neutralization, that involves discharges to a sanitary sewer system, they need to have a certified wastewater operator (see Chapter 3.5).

Discuss this exemption with your DEQ, [District Office](#), Hazardous Waste Program and WRD, as well as the local POTW (see Appendix C).

### ***2.4.2 Determining If You Generate Hazardous Waste***

**All facilities must determine if the waste they generate is hazardous or non-hazardous.** If the materials used, or the process generating the waste changes, or there are other impacts from business operations that may change the waste (e.g. cross contamination from aerosol overspray), it will be necessary to re-evaluate the waste determination. The regulations do not require a specific timeframe (like annually) to re-evaluate the waste; however it should periodically be re-evaluated. You may want to check if the disposal company has a retesting schedule. Keep any records obtained during waste determinations (i.e., test analysis results, material safety data sheet (SDS) (see Appendix E), or other documentation such as product information from a supplier or manufacturer) at least three years from the time the waste stream was last sent for treatment, storage, or disposal.

If Large Quantity Generators are doing on-site treatment, they must also have a waste analysis plan (WAP) under the land disposal restriction regulations (40 CFR 268.7(a)(5)). See U.S. EPA guidance at [www.epa.gov/wastes/hazard/tsd/ldr/wap330.pdf](http://www.epa.gov/wastes/hazard/tsd/ldr/wap330.pdf).

### 2.4.2.a Who can do waste determinations for a business?

A business may either:

- Hire a consultant or use a disposal company's waste characterization services. Be aware the waste generator is still ultimately responsible for meeting the waste regulations.
- Characterize the waste themselves by either:
  - ✓ Using knowledge of the material and the process it came from. Information from the Safety Data Sheets (SDS), supplier and manufacturer literature, or other documentation may be useful when you have unused product needing disposal. A SDS often provides information about the flashpoint, pH, or if a discarded product is a hazardous waste. However, a SDS is not completely reliable for determining if a used material is hazardous waste because:
    - it does not include information about contaminants that might be in the waste as a result of its use, and
    - it may not list all hazardous constituents of concern for disposal, since the SDS may only identify hazardous constituents of concern for occupational safety.

The SDS can be obtained from the suppliers or manufacturers of the products you are using. If using a SDS to characterize the waste, confirm with the manufacturer that all hazardous constituents in the product are listed on the SDS, making note of your confirmation, as part of your waste evaluation record. Some SDS' are also available on Internet sites like [www.hazard.com](http://www.hazard.com). A waste stream may conservatively be presumed to contain certain constituents above regulatory thresholds for compliance purposes, but disposal facilities may still require testing before accepting a waste stream. Applying your knowledge is more useful when declaring something is a hazardous waste than when saying a waste is NOT hazardous.

- ✓ Having a representative sample of the waste tested.

### 2.4.2.b What are testing requirements?

Before collecting samples and submitting them for testing, contact your disposal company to ensure you perform the correct tests. The disposal company might require specific tests or may only accept analysis data from specific laboratories. Ask the disposal company for a list of the test(s) they require, the purpose of the tests, approved testing methods, and acceptable laboratories. This will prevent you from spending money on laboratory tests that are not necessary or do not meet the disposal company's requirements. The waste rules identify which laboratory methods can be used. If the waste is from cleanup activities, see the methods in the [Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria](#), but before testing discuss your cleanup situation with the DEQ, Remediation and Redevelopment Division (see Appendix C).



To find a DEQ certified laboratory performing chemistry, microbial, or radiological analyses, go to [www.michigan.gov/deqlaboratoryservices](http://www.michigan.gov/deqlaboratoryservices) and select “Certifications” then select “Drinking Water Analysis Laboratory.”

It is wise to obtain estimates from two or more [laboratories](#). In some cases, the tests will save you money by showing that you do not have hazardous waste. When hiring testing services, use a reputable firm and obtain a written contract. The contract should clearly identify which specific services the company will provide. For example, instead of vague language about sampling waste, identify:

- ✓ Who is responsible for collecting samples?
- ✓ Who will arrange to have it analyzed?
- ✓ Who will arrange to have an expert look at the analysis results?
- ✓ Who will determine if the waste is hazardous and at which regulatory limit?

Waste samples being sent to laboratories are exempt from most of the hazardous waste regulations if it meets certain conditions. Submit the smallest sample amount as possible for testing (typically less than one gallon), and the laboratory may return any remaining waste sample to the generator. The exemption no longer applies when the sample is determined to be hazardous waste and is no longer needed for waste characterization purposes.

Contact the laboratory about its procedures for accepting samples. When shipping the sample, you must meet U.S. Postal Service or U.S. DOT labeling and shipping requirements. U.S. DOT questions can be directed to Michigan State Police, Commercial Vehicle Enforcement Division at 517-241-0506 or the U.S. DOT at 800-467-4922. If these agencies’ regulations do not apply to the sample, it must be packed so it does not leak, spill, or vaporize. Waste samples being shipped to a laboratory are not required to be manifested, but the following information must accompany the shipment:

- ✓ Sample collector’s name, mailing address, and telephone number.
- ✓ Laboratory’s name, mailing address, and telephone number.
- ✓ Date of shipment.
- ✓ Quantity of the sample.
- ✓ Description of the sample.

### 2.4.2.c What are common laboratory tests?

The hazardous waste rules reference the acceptable test methods that are to be used to determine if wastes are hazardous or not. These methods can be found in the U.S. EPA publication “SW-846” at [www.epa.gov/epawaste/hazard/testmethods/sw846/index.htm](http://www.epa.gov/epawaste/hazard/testmethods/sw846/index.htm).

The **paint filter test** is [U.S. EPA Method 9095A](#) that is used to determine the presence of free liquids in a representative sample of waste. A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-minute test period, it contains free liquids. If these wastes are not regulated under the hazardous waste regulations, they are regulated under Part 121 of Act 451 as a liquid industrial by-product.

The **Toxicity Characteristic Leaching Procedure (TCLP)** is [U.S. EPA Method 1311](#) that is used to determine if a waste has toxicity characteristics in amounts that meet or exceed regulatory limits causing it to be regulated as hazardous waste. The TCLP was designed to predict whether a waste is likely to leach chemicals into groundwater. It simulates the conditions a waste might encounter in a typical municipal solid waste landfill. Be aware that it is not necessary to identify every chemical component of the waste in order to meet the hazardous waste regulations and ensure adequate treatment or disposal. It may not be necessary to run a TCLP for every constituent included on the “D” list in Table 201a of the [Part 111 rules](#) if you are familiar with your process. For example, you may only need to have a



TCLP done for metals and volatiles if you know that the other constituents are not present in the waste. If you are unsure of the types and concentrations of hazardous contaminants present in the waste, a cost-effective option to running a TCLP test is to first run a total waste analysis to demonstrate if a waste exhibits toxicity characteristics. If the waste is 100 percent solids, divide the total constituent concentration by 20 and then compare the resulting theoretical concentration to the regulatory limit in Table 2.3. This is sometimes called the 20 times rule. If none of the theoretical concentrations equal or exceed the regulatory limits, the solid cannot exhibit the toxicity characteristic and the TCLP does not need to be run. If the waste is a liquid or contains both liquids and solids, go to [www.epa.gov/rcraonline](http://www.epa.gov/rcraonline) and search for “Total Waste Analysis” for more information and a formula to convert totals results.

In other situations, you may only need to know if a liquid waste is ignitable and can request a flashpoint test; or to find out if it is corrosive, a pH test can be done. Special tests might be required if you have drums or containers of mixed or unidentified old waste. You may be able to minimize laboratory testing costs by providing information about your waste streams and operations that were previously collected during your waste survey.

Although it is not commonly done, you may be able to conduct some tests on your own to determine if you have hazardous waste. For example, used oil can be tested on-site by using a commercial test kit to determine if it contains total halogens greater than 1,000 PPM requiring it to be handled as a hazardous waste. Discuss these testing options with your permitted and registered waste transporter; treatment, storage, and disposal facility (TSDF); or recycling company to see if they will accept these test results.

#### **2.4.2.d Steps when doing waste determinations**

- A. Conduct a waste survey as described in Chapter 2.1 to identify all your waste streams. Hazardous waste may be generated in many areas of your business from the shop floor to offices. The following list identifies some commonly overlooked hazardous wastes with the reasons why they may be hazardous noted in parenthesis:
- Spent fluorescent tubes and other lighting fixtures (toxic for mercury).
  - Disposable rags containing free liquids with a flashpoint of less than 140 degrees Fahrenheit or used with a listed solvent (ignitability, spontaneous combustion, used with “F” listed solvents).
  - Spent activated carbon media, included in some air filters and other equipment (contains “F” listed solvents).
  - Used solvents with low flashpoint (toxic, ignitability).

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- Used solvents with high flashpoints (toxic, ignitability).
  - Drain or sump sludge, including loading/unloading area trenches (contains toxic metals or “F” solvents, ignitability due to gasoline from trucks).
  - Painting materials and waste including paint thinners, enamel reducers, epoxies, primers, enamels, solvent-based paints, and paint booth filters (contains “F” solvents, metals, ignitability).
  - Aerosol cans that are not empty (contains “U” or “P” chemicals, ignitability, corrosive).
  - Solvent-based adhesives (toxic, ignitability).
  - Antifreeze (may be toxic for lead).
  - Dry cleaning solvents with a flashpoint above 140 F (may be toxic for chrome).
  - Batteries - lead acid and dry cell (toxic for lead, cadmium, and mercury, corrosive).
  - Used water-based or synthetic lubricating fluids containing high concentrations of heavy metals (toxic metals of concern include lead, chromium, cadmium, and barium).
  - Listed wastes mixed with another non-hazardous waste.
  - [Office computer equipment](#) (may contain lead in the cathode ray tubes, mercury switches, batteries, heavy metals in the circuit boards).
  - Discarded, unused chemical products from inventory reduction activities (any of the commercial chemical products on the “P” and “U” lists in the state or federal regulations).
  - Pharmaceuticals (may be toxic for mercury, creosol, silver and others or contain “U” or “P” chemicals).
  - Medical kits containing mercury thermometers or antiseptics containing mercury (toxic).
- B. Identify if the material can be used “as is” without any processing, filtering, etc. and thus can be used as a product and not be disposed of as a waste. Consider using business connections to find another company to use the product. See Chapter 2.4.1.d for additional details.
- C. Identify if the material is a characteristic and/or listed hazardous waste as identified in Part 2 (Identification and Listing of Hazardous Waste) of the [hazardous waste rules](#) and [Part 111](#) of Act 451. Be aware Michigan regulations identify more hazardous wastes than does the U.S. EPA under the federal [Resource Conservation and Recovery Act \(RCRA\)](#) and [rules](#).

Consider these five questions when doing a hazardous waste characterization:

1. Is the unwanted material a waste (solid, semisolid, liquid, or gas)?
2. Is the material specifically excluded, exempted, or partially exempted from the hazardous waste regulations? See the complete descriptions in the [Part 111 rules](#). Some common materials include:
  - [Universal waste](#), which includes lamps like fluorescent light bulbs (see Chapter 2.4.9.e), batteries (see Chapter 2.4.9.c and d), devices containing mercury, consumer electronics including computers (see Chapter 2.4.9.m), certain pesticides, antifreeze (see Chapter 2.4.9.o), and pharmaceuticals (see Chapter 2.4.9.q, 2.5 and 2.6).
  - Rags and other textiles being cleaned for reuse (see Chapter 2.4.9.h)
  - The remaining residue in “empty containers” (see Chapter 2.4.1.d)
  - Solvents (see Chapter 2.4.9.i)

- Oils and filters (see Chapter 2.4.9.a and 2.4.9.b)
  - Lead acid batteries (see Chapter 2.4.9.c),
  - Spent chlorofluorocarbon refrigerants
  - Scrap metal when recycled (see Chapter 2.4.9.l and p). Be aware that [scrap metal](#) from sealed radioactive sources, typically installed in measurement gauges used in manufacturing operations or in hospital equipment and other sources, may also contain radioactive materials (see Chapter 10). Companies hauling industrial scrap metal for hire must meet requirements overseen by the Department of Licensing and Regulatory Affairs, Michigan Public Service Commission (MPSC) under the [Motor Carrier Act](#) (Act 254 of 1933). Contact the Motor Carrier Credentials & Customer Service Section at 517-241-6030.
3. Is the waste a "listed" hazardous waste? To be considered listed waste, either the chemical or the process used to generate the waste is specifically included in the listed hazardous waste tables in the Part 111 rules. Listed wastes include "F," "K," "P," and "U" in the hazardous waste number (see Chapter 2.4.1.a). When listed hazardous waste is combined with other non-hazardous waste, the mixed waste is generally all regulated as listed hazardous waste. See Chapter III of the U.S. EPA [RCRA Orientation Manual](#) for an overview of the "mixture and derived from" and the "contained in" rules along with an overview of hazardous waste characterization and exemptions/exclusions. For a printed copy, call 800-424-9346 to order document # EPA 530-R-02-016. To minimize the amount of hazardous generated and the amount of regulations your facility is subject to, do not mix listed hazardous waste with non-hazardous solid waste.
4. Does the waste exhibit a characteristic of hazardous waste? The waste could be flammable, corrosive, reactive, or it meets or exceeds the toxicity levels identified for the materials identified in Tables 201a and 202 of the Part 111 rules (see Chapter 2.4.1.a). Characteristic wastes include "D" and "S" in the hazardous waste number. Use all waste codes that apply when managing your hazardous waste.
5. Is the waste subject to the [Land Disposal Restrictions \(LDR\)](#)? (See Chapter 2.4.5.c)
- D. If the waste is not hazardous waste, does it contain free liquids which would make it a [Part 121](#) liquid industrial by-product in Michigan? Does it meet any exclusion listed in Part 121 of Act 451? If you are unsure if liquids are present, it may be necessary to have a paint filter test done. Please note [used oil](#) has requirements under both Parts 111 and 121. Process wastewater discharged to a septic system is normally regulated as Part 121 liquid industrial by-product and not septage waste regulated under [Part 117](#) (Septage Waste Servicers) of Act 451. The septic system will need a [groundwater discharge permit](#) or exemption from the DEQ, WRD (see Chapter 3). Waste from medical treatment may also be subject to regulation as a [medical waste](#) and hazardous waste if medical waste is mixed with pharmaceuticals or drugs subject to hazardous waste regulation (see Chapters 2.5 and 2.6).
- E. If it is not hazardous waste or a liquid industrial by-product, is it a solid waste regulated under [Part 115](#) of Act 451, a scrap tire regulated under [Part 169](#) of Act 451, or a [NESHAP regulated asbestos waste](#)? Does it meet any exclusion included in these regulations? (See Chapter 2.2.)
- F. In some instances, it may be necessary to determine if the material is a [medical waste](#) (see Chapter 2.5), a [radioactive waste](#) (see Chapter 10), or regulated under the federal Toxic Substances Control Act (TSCA) such as [PCB waste](#) (see Chapter 4.5).

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### 2.4.2.e Additional waste determination resources

- [RCRA Online](#) is a compendium of U.S. EPA correspondence related to RCRA. RCRA Online allows the user to search based on topic, word, title, author, recipient, statutory citation, among other criteria.
- Look for free on-line alternatives where waste characterization data is shared like the U.S. EPA pharmaceutical wiki at <http://hwpharms.wikispaces.com> developed for pharmacists to share their determinations.
- U.S. EPA – “[Hazardous Waste Generator Regulations A User-Friendly Reference Document](#).”
- U.S. EPA “[Guide for Industrial Waste Management, Chapter 2 Characterizing Waste](#).”
- [RCRA Training Modules](#) including “Hazardous Waste Identification”, “Exclusions”, and “Definition of Solid Waste and Hazardous Waste Recycling.”
- Federal [List of Lists](#) can help identify federal RCRA listed and toxic hazardous wastes. It does not include all characteristic wastes or the additional listed Michigan hazardous wastes.
- Use Internet tools such as the [U.S. EPA Envirofacts Datasets](#) and Safety Data Sheet (SDS) information to search for chemical and hazardous waste information. SDS can be obtained from the product supplier, manufacturer, or Internet.
- Purchase characterization publications from private companies or associations. For example, the American Society for Testing and Materials has their “[ASTM Manual 42 RCRA Waste Management: Planning, Implementation, and Assessment of Sampling Activities](#).”
- Discuss waste determination requirements with the DEQ, [District Office](#), Hazardous Waste Program (see Appendix C).



Not properly characterizing and keeping records of waste characterizations are common waste violations.

### 2.4.3 Hazardous Waste Generator Status & Requirements Summary Chart

Under the regulations, businesses must evaluate their generator status on a continual basis. A facility's hazardous waste generator status is based on 1) the total quantity of the hazardous waste generated each calendar month and 2) the amount of hazardous waste accumulated at a site at any one time. A facility's generator status is used to determine the disposal requirements that apply to the waste generated from a site. The more hazardous waste generated in a month, the more regulations apply when managing and disposing of the waste. Therefore, to minimize the regulations that apply to your facility, you should initiate measures to minimize the volume of hazardous waste generated. Moreover, your generator status and the regulations that apply to your facility when disposing of waste can vary month to month. Since there is no exclusion for one time generating events that change a facility's generator status, facilities that periodically generate large volumes of hazardous waste may be best able to meet the regulatory requirements by meeting the additional regulation that periodically apply on a routine basis. See Table 2.5 for a summary of the different generator categories and Table 2.6 for a summary of the hazardous waste generator requirements for the different generator types.

You must notify the DEQ of your facility's generator status and other waste handling activities when you apply for a [Site Identification Number](#), also known as Site ID or EPA Number, or EPA ID (see Chapter 2.4.4). Facilities are subject to [annual handler and manifest user fees](#) based on the largest hazardous waste generator status they operated at during the previous calendar year. Just like the requirements, the fees increase as the business generates more hazardous waste. For each of the generator status types, there are storage time limits and accumulation volume limits. If the generator does not exceed these limits, a hazardous waste storage operating license is not required.

When calculating your hazardous waste generator status, use the results from your waste survey (see Chapter 2.1) and waste determinations that identified all of the hazardous waste streams your business generates (see Chapter 2.4.2). You DO NOT count the following hazardous wastes when determining your monthly generator status:

- Waste that is not a regulated hazardous waste.
- Hazardous waste that is being managed as a universal waste (see Chapters 2.4.1.c, 2.4.9.d, 2.4.9.e, and 2.4.?).
- Reusable shop towels or other textiles that do not contain free liquid and are sent to a commercial cleaning service (see Chapter 2.4.9.h).
- Scrap metal being recycled (see Chapter 2.4.9.p).
- Some materials being recycled such as used oil and filters (see Chapter 2.4.9.a and 2.4.9.b) and lead acid batteries (see Chapter 2.4.9.c).
- The remaining residue in "empty containers" (see Chapter 2.4.1.d.2).
- See Rule 205(5) of the Part 111 rules (R 299.9205(5)) for additional wastes that are recycled, reclaimed or treated on-site which are not counted.

You also DO NOT count the volume of liquid industrial by-product when determining your hazardous waste generator status.

Keep in mind that different activities at the site may change the facility's generator status. For example, when a facility is taking product tanks, totes, other containers, or equipment containing liquids or residues out of service for maintenance, repair or permanent closure, it is necessary to determine if the materials removed are a product or a waste. If the material is a waste that is subject to hazardous waste regulation, it must be counted when determining your hazardous waste generator status unless specified otherwise under Rule 205(5) of the Part 111 rules (R 299.9205(5)). See the [Emptying Tanks or Containers](#) guidance for more information.

If a business is on the border of a generator category, it is recommended a simple written log be kept by the waste container that shows when and how much hazardous waste was generated per month. This will provide documentation to support the generator status level at which they notified. For example:

<b>Waste Paint Solvent</b>			
<b>Date waste added:</b>	<b>How much added:</b>	<b>By:</b>	<b>Running total for month</b>
<b>1/3/06</b>	<b>1 gal</b>	<b>George G.</b>	<b>1 gallon</b>
<i>1/15/06</i>	<i>9 gal</i>	<i>Pat M.</i>	<i>10 gallons</i>
<b>2/9/06</b>	<b>2 gal</b>	<b>Sammy Jo</b>	<b>2 gallons</b>

A company may lower their hazardous waste generator status and the regulations they must meet if they implement [waste minimization](#) and other [pollution prevention practices](#) and reduce the amount of waste generated (see Chapter 2.1). In addition, when they sign a manifest (see Chapter 2.4.5), they are certifying they have tried to reduce the amount and toxicity of the waste generated.

The waste management requirements are based on the total weight of hazardous waste generated in a calendar month. A facility may need to convert the amount of waste generated in gallons to pounds to determine their generator status. You can weigh the containers of your hazardous waste. If you have unused products that need to be disposed of, you can also use the SDS information in your calculations. The specific gravity, also called the relative density, can be found in the “Physical & Chemical Properties” section of the SDS. It is a unit-less number that tells how much the substance weighs relative to the weight of water. If the specific gravity is 1, the substance weighs the same as water.

**Specific gravity of the product x 8.34 lb./gal (weight of water) = weight of the product in lb./gal**

Since waste generated from a process may not be same weight as the original products, this calculation may not be accurate for the waste. It may weigh more due to contamination from use.



For additional resources on calculating your generator status, view the DEQ's recorded waste characterization and generator status webinar available at [www.michigan.gov/deqworkshops](http://www.michigan.gov/deqworkshops) under the “Introduction to Hazardous Waste Webinars.” Be sure to reference the Webinar Notes for additional information on how to inventory and minimize the amount of hazardous waste you generate monthly.

TABLE 2.5 Summary of the Hazardous Waste Generator Categories

Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG) <sup>1</sup>	Small Quantity Generator (SQG) <sup>1</sup>	Large Quantity Generator (LQG)
Amount of acute or severely toxic hazardous waste generated or accumulated at any time <sup>2</sup>	1 kilogram (2.2 pounds) or less	1 kilogram (2.2 pounds) or less	More than 1 kilogram (2.2 pounds)
Amount of acute spill residue or contaminated soil generated or accumulated at any time <sup>2</sup>	100 kilograms (220 pounds) or less	100 kilograms (220 pounds) or less	More than 100 kilograms (220 pounds)
Amount of non-acute hazardous waste generated in 1 calendar month	Less than 100 kilograms (220 pounds)	At least 100 kilograms (220 pounds) but less than 1,000 kilograms (2,200 pounds)	1,000 kilograms (2,200 pounds) or more
Approximate volume of non-acute hazardous waste <sup>3</sup>	Less than half of a 55gallon drum, or 25 gallons	One-half to five drums, or 25 to 250 gallons	Five full drums, or 200-250 gallons or more
Maximum amount of non-acute hazardous waste that can be accumulated on-site	1,000 kilograms (2,200 pounds)	6,000 kilograms (13,200 pounds)	No maximum amount
Maximum time period before waste must be shipped	No time limit if never exceed 2,200 pounds	180 days, unless shipping over 200 miles, then 270 days	90 days

<sup>1</sup> If you are registered at one generator status but have a monthly hazardous waste shipment larger than the quantities allowed at that status, then you will need to update your generator status by renotifying and meet the additional hazardous waste management requirements (see Chapter 2.4.4).

<sup>2</sup> Acute hazardous wastes are those in the "P" list and certain wastes in other lists indicated with an "(H)" hazard code; severely toxic wastes are those with an "S" in their number.

<sup>3</sup> The liquid volume is only given as an estimate and is based on the waste having approximately the same weight and volume as water. Your liquid hazardous waste might have a different volume based on its weight. The regulations state amounts by weight.

TABLE 2.6 Summary of the Hazardous Waste Generator Requirements

Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG)	Small Quantity Generator (SQG)	Large Quantity Generator (LQG)
Off-site Treatment, Storage or Disposal Destination for Waste	Licensed solid waste disposal facility (solids); Liquid industrial by-product designated facility (liquids); licensed or exempt recycler; or licensed hazardous waste facility. Also, universal waste handler or universal waste destination facility for hazardous waste managed as	Licensed hazardous waste facility; or exempt hazardous waste recycling facility. Also, universal waste handler or universal waste destination facility for hazardous waste managed as universal waste.	Licensed hazardous waste facility; or exempt hazardous waste recycling facility. Also, universal waste handler or universal waste destination facility for hazardous waste managed as universal waste.

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Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG)	Small Quantity Generator (SQG)	Large Quantity Generator (LQG)
	universal waste.		
<b>Maximum Time Period Before Waste Must Be Shipped</b>	No time limit if never exceed 2,200 pounds.	180 days, unless shipping over 200 miles, then 270 days. Storage beyond time period requires a hazardous waste license for storage.	90 days and storage beyond time period requires a hazardous waste license for storage unless meeting Rule 306(7) (R 299.9306(7)).
<b>Maximum Amount Of Hazardous Waste That Can Be Accumulated On-site</b>	2,200 pounds non-acute and/or 2.2 pounds or less acute. If exceed 2,200 pounds non-acute, subject to SQG requirements. If exceed 2.2 pounds acute, subject to LQG requirements.	13,200 pounds non-acute and/or 2.2 pounds or less acute. If exceed 13,200 pounds non-acute, requires a hazardous waste license for storage. If exceed 2.2 pounds acute, subject to LQG requirements.	No maximum amount
<b>On-site Treatment, Disposal, &amp; Waste Analysis Plan</b>	Small and Large Quantity Generator on-site treatment is allowed without a hazardous waste license if conditions in Rule 503 or Rule 206 of the Part 111 rules are met. CESQGs can treat on-site and are not subject to Rule 503. Facilities with waste discharges to a POTW (municipal sanitary sewer system authorized under the Clean Water Act) may need wastewater operator certification depending on process (Chapter 3.5), require POTW approval for discharge, and require records of disposal. LQGs doing on-site treatment must have Waste Analysis Plan and keep records (Chapter 2.4.2) to meet Land Disposal Restrictions.		
<b>Waste Characterization</b>	Records of waste characterization required for all businesses generating waste (Chapter 2.4.2). Keep records at least 3 years from date waste was last sent for on or off site treatment, storage, or disposal.		
<b>Generator Status Determination</b>	Records of monthly generator status determinations required (for all businesses generating hazardous waste Chapter 2.4.3). Keep records at least 3 years from date hazardous waste was last sent for on or off site treatment, storage, or disposal.		
<b>Site/EPA identification Number</b>	No (Chapter 2.4.4)	Yes (Chapter 2.4.4)	Yes (Chapter 2.4.4)
<b>Weekly Accumulation Area Inspections</b>	No, and recommend meet SQG requirements. May be subject to other regulations depending on waste (Chapter 2.4.7)	Yes, and recommend written inspection logs (Chapter 2.4.7)	Yes, and written inspection logs required (Chapter 2.4.7)
<b>Labeling Requirements</b>	Yes under MIOSHA and used oil rule (Chapters 2.4.8, 2.4.9, & 13)	Yes (Chapters 2.4.8 & 2.4.9)	Yes (Chapters 2.4.8 and 2.4.9)
<b>Air Emissions Control for Volatile Organic Compounds Hazardous</b>	No	No	Yes (Chapter 2.4.7.b)
	A facility may have requirements under the AQD regulations that are not referenced in this chapter.		

Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG)	Small Quantity Generator (SQG)	Large Quantity Generator (LQG)
<b>Wastes</b>			
<b>Uniform Hazardous Waste Manifest or Shipping Documents</b>	Shipping document required if liquid and manifest is optional (Chapter 2.3)	Yes required unless meet tolling agreement recordkeeping (Chapter 2.4.5)	Yes, required (Chapter 2.4.5)
<b>Land Disposal Restriction Records</b>	No	Yes (Chapter 2.4.5.c)	Yes (Chapter 2.4.5.c)
<b>Contingency plan<sup>1</sup></b>	No Recommend meet SQG requirements (Chapter 6.2.1). U.S. DOT security plan if shipping excess of 1000 pounds hazardous waste (Chapter 6.2.7)	Yes Basic plan and emergency posting by phones required (Chapter 6.2.1). U.S. DOT security plan if shipping excess of 1000 pounds hazardous waste (Chapter 6.2.7)	Yes Written plan required (Chapter 6.2.10). U.S. DOT security plan if shipping excess of 1000 pounds hazardous waste (Chapter 6.2.7)
<b>Emergency procedures<sup>1</sup></b>	No Recommend meet SQG requirements (Chapter 6.2.1)	Yes (Chapter 6.2.1).	Yes (Chapter 6.2.10)
<b>Personnel training<sup>1</sup></b>	No Recommend meet SQG requirements (Chapter 2.4.12). U.S. DOT training required when shipping hazardous waste (Chapters 4.4.10 & 6.2.7). MIOSHA training may also be required (Chapter 13)	Yes Basic training required (Chapter 2.4.12). U.S. DOT training required when shipping hazardous waste (Chapters 4 & 6). MIOSHA training may also be required (Chapter 13)	Yes Written documentation also required (Chapter 2.4.12). U.S. DOT training required when shipping hazardous waste (Chapters 4 & 6). MIOSHA training may also be required (Chapter 13)
<b>Requirements to use Permitted and Registered Transporter</b>	Self-haul option (see Chapter 2.4.5.a) or permitted and registered transporter if liquid (Chapter 2.4.10)	Permitted and registered transporter (Chapter 2.4.10)	Permitted and registered transporter (Chapter 2.4.10)
<b>Waste minimization requirements</b>	Recommend meet SQG requirements (Chapter 2.1)	Yes (Chapter 2.1)	Yes (Chapter 2.1)

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Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG)	Small Quantity Generator (SQG)	Large Quantity Generator (LQG)
<b>Closure of Accumulation Areas</b>	Meet Part 201 of Act 451 cleanup requirements (Chapter 6.4)	Meet requirements in 40 CFR Parts 265.111 and 265.114. Decontaminate and remove all contaminated equipment, structures, and soil, and minimize the need for further maintenance of your site. Meet unit-specific closure standards for tanks, containment buildings, and drip pads. Also meet Part 201 cleanup requirements (Chapter 6.4)	Meet requirements in 40 CFR Parts 265.111 and 265.114. Decontaminate and remove all contaminated equipment, structures, and soil, and minimize the need for further maintenance of your site. Meet unit-specific closure standards for tanks, containment buildings, and drip pads. Also meet Part 201 cleanup requirements (Chapter 6.4)
<b>Annual Handler and Manifest User Fees</b>	No fees at this time  However, if a facility was on file as a SQG or LQG during any period of the billing cycle, they will receive an invoice for those activities	\$100 user charge  \$8.00/manifest used for hazardous waste shipments in the calendar year	\$400 user charge when generates < 900,000 kg in calendar year; OR \$1000 user charge when generates ≥ 900,000 kg in the calendar year AND \$8.00/manifest used for hazardous waste shipped in the calendar year.
<b>Hazardous Waste/Biennial Report</b>	No	No	Yes (Chapter 2.4.6)
<b>Used Oil Biennial Report</b>	Not required for generators. Used oil processors, re-refiners, and transfer facilities storing used oil more than 35 days are required to submit used oil biennial reports by March 1 of each even numbered year that covers the previous calendar year's activities. See <a href="http://www.michigan.gov/documents/deq/deq-ess-p2tas-usedoilreport_225479_7.pdf">summary (www.michigan.gov/documents/deq/deq-ess-p2tas-usedoilreport_225479_7.pdf)</a> .	Not required for generators. Used oil processors, re-refiners, and transfer facilities storing used oil more than 35 days are required to submit used oil biennial reports by March 1 of each even numbered year that covers the previous calendar year's activities. See <a href="http://www.michigan.gov/documents/deq/deq-ess-p2tas-usedoilreport_225479_7.pdf">summary (www.michigan.gov/documents/deq/deq-ess-p2tas-usedoilreport_225479_7.pdf)</a> .	Not required for generators. Used oil processors, re-refiners, and transfer facilities storing used oil more than 35 days are required to submit used oil biennial reports by March 1 of each even numbered year that covers the previous calendar year's activities. See <a href="http://www.michigan.gov/documents/deq/deq-ess-p2tas-usedoilreport_225479_7.pdf">summary (www.michigan.gov/documents/deq/deq-ess-p2tas-usedoilreport_225479_7.pdf)</a> .
<b>Annual Import/Export Report</b>	Yes for hazardous and universal wastes (Chapter 2.4.5.d).	Yes for hazardous and universal wastes (Chapter 2.4.5.d).	Yes for hazardous and universal wastes (Chapter 2.4.5.d).
<b>U.S. DOT Transport Requirements</b>	Yes, when required by U.S. DOT (Chapters 2.4.8 & 4)	Yes (Chapters 2.4.8 & 4)	Yes (Chapters 2.4.8 & 4)

<sup>1</sup> May also be subject to other emergency planning and training regulations in Chapter 6.

### 2.4.4 Site Identification Numbers

Businesses are required to have a unique [Site Identification Number](#) (Site ID) assigned to each site that manages regulated waste. Some people refer to this as a Site ID, EPA ID, or EPA Number. This numbering system is required of:

- Hazardous waste large quantity and small quantity generators
- Hazardous waste and liquid industrial by-product transporters
- Liquid industrial by-product designated facilities
- Hazardous waste treatment, storage, and disposal or destination facilities, including hazardous waste fuel burners and marketers.
- Universal waste large quantity handlers and destination facilities.
- Used oil collection and aggregation sites, transporters, processors, re-refiners, burners, and marketers.

If it isn't known for sure if a business has a Site ID, or what activities are on file, search the [Waste Data System](#) (WDS) at [www.deq.state.mi.us/wdsp](http://www.deq.state.mi.us/wdsp). If you don't know the Site ID, it is recommended to first search on the street number and zip code in the appropriate address fields. By searching on an address, you avoid getting no matches when a business may be in the system under one name, but commonly known as something else. If you know the Site ID Number, type that in the WDS Quick Search field. If you need help or do not have Internet access, call your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C) or the Environmental Assistance Center at 800-662-9278 for assistance.

See the information posted on the [Waste Data System](#) (WDS) web page at [www.deq.state.mi.us/wdsp](http://www.deq.state.mi.us/wdsp) about applying for a Site ID Number. If an existing facility needs to update information on file with DEQ, Hazardous Waste Program, they should request a pre-populated [Site ID Form \(EQP 5150\)](#) by calling the DEQ, [District Office](#), Hazardous Waste Program (see Appendix C) or the Environmental Assistance Center at 800-662-9278. Facilities needing a new Site ID Number must file the Michigan [Site ID Form \(EQP 5150\)](#) (select initial notification in box I). This form is also used for out of state companies whose state does not issue identification numbers for shipping their non-hazardous liquid industrial by-product or PCB waste to Michigan destination facilities. For Michigan facilities, this form replaces the U.S. EPA Notification of Regulated Waste Activity Form 8700-12, the U.S. EPA Hazardous Waste Permit Part A Form 8700-23, the Michigan Notification of Regulated Waste Activity Form, and the U.S. EPA Notification Identification and Certification Form 8700-13A/B. The Site ID Form is also used in conjunction with the Michigan Hazardous Waste Permit Part A Form (EQP5111). It can also be used to notify of PCB waste management activities. When a Site Identification Number is needed or there is a change in company name or ownership/operators, there is a \$50 application fee. Facilities have the option to pay online or pay with a check or money order.

**TIP:** Make sure to completely fill out the EQP 5150 form. Some commonly missed fields are the tax number, number of employees, no day, month and year in the approximate date when your company became owner or operator, signature, email, and applicable NAICS codes. The NAICS codes can be found at [www.naics.com](http://www.naics.com).

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Do not use outdated versions of the form EQP 5150 (the current version at time of this publication's printing was 5/10). Go to [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) and select Michigan Site Identification Form EQP5150. If you are uncertain about whether you have the correct form or if you need a different Site ID Number, or have questions about hazardous waste and liquid industrial by-product management, contact your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C) or call the Environmental Assistance Center at 800-662-9278. When submitting the form, make sure your form is filled out completely and correctly. Sign the certification section and mail or fax the form to the address or number listed on the form. If paying on-line, fax verification of payment with your updated form for owner or operator charges. Companies are currently issued new numbers beginning with the prefix MIK. Companies may have numbers issued previously with a prefix of MIR, MID, MIT, MIE, or MIO or have a Michigan identification number which has a prefix MIG, MIH, or MIP.

A facility may need to update notification information previously submitted if there are changes regarding their regulated waste activities at the site. It is necessary to check all the boxes that apply to the regulated waste. Examples when a new or updated notification must be submitted by using the form EQP 5150 include:

- A company that had previously only shipped used oil and had a Site ID Number, but now also generates hazardous waste in amounts making them a Small Quantity Generator or Large Quantity Generator. Check the appropriate box in Section A for hazardous waste generator and check box in Section X. E. for liquid industrial by-product generator.
- A company moves to a new location and will be generating or managing regulated waste at the new site. Search the Waste Data System at [www.deq.state.mi.us/wdsp](http://www.deq.state.mi.us/wdsp) to see if the new location has already been assigned a Site ID and complete new Site ID form. If a Site ID exists for the new location, include the property Site ID on the form. See the next bullet if there was a Site ID Number issued for the site where they used to operate.
- A company no longer generates waste that had previously required a Site ID Number at a location but the company is still in operation at that site, or it has gone out of business. Check the box in Section X. F. that states it is no longer in business or not generating waste at that location.
- A company wants to offer a community used oil collection service to accept used oil from individuals changing their own oil and they generate their own used oil. Check the boxes in Section X.C. for collection center or aggregation point that accepts DIY oil.
- A company handles total accumulated amount of 11,000 pounds or more of all universal wastes. Check appropriate boxes in Section X.D.
- A facility accepts liquid industrial by-product from other sites. Check the box in Section X. E. for liquid industrial by-product designated facility and any other regulated activities.

A facility may have an identification number issued under a different program, such as a medical waste registration number issued by the DEQ, Medical Waste Regulatory Program or a federal identification number for PCBs assigned by the [U.S. EPA TSCA Program](#). The TSCA number may be used on a manifest but only when shipping the waste regulated under only the TSCA program. Shipments of regulated hazardous waste require the use of the Site ID Number issued by the DEQ, Hazardous Waste Program, or previously issued by the U.S. EPA.

### 2.4.5 Manifests and Shipping Records

The following summarizes the waste manifest and shipping records requirements under the waste regulations. See Chapter 4.4 for additional shipping requirements overseen by the Michigan State Police related to **hazardous materials-U.S. DOT** and Chapter 4.5 for information on shipping waste containing PCBs. The DEQ has prepared a [generator tracking log](#) (right) to help with tracking waste shipments and recordkeeping. Customize this form to make waste tracking easier.

#### 2.4.5.a Hazardous and Liquid Industrial By-products Manifests & Shipping Documents

When completing shipping documents, you need to know the type of waste you are shipping (e.g. hazardous waste, liquid industrial by-product, or solid waste, etc.) to understand what information that must recorded on what form and available for review.

**Hazardous Waste Shipped from SQGs and LQGs** - When shipping hazardous waste from a small quantity or large quantity generator of hazardous waste, the [Uniform Hazardous Waste Manifest](#) (U.S. EPA Form 8700-22) must be used and the form must be completed in accordance with the [manifest instructions](#). The manifest tracks the shipment from its point of generation to its final destination. Up to six hazardous waste numbers or codes can be listed for each hazardous waste shipped. To locate the hazardous waste numbers, see Table 2.3 and see Part 2 of the [Part 111 rules](#) for the listed hazardous waste numbers. When shipping hazardous waste from a small quantity or large quantity generator, the generator, the transporter, and the receiving hazardous waste treatment, storage, and disposal facility (TSDF) each must sign and keep a copy of the manifest as they handle the waste. The only exception to using a manifest for fully regulated hazardous waste is when the hazardous waste is recycled and reused under a “tolling agreement” between a small quantity generator and the recycler. Under a tooling agreement, the following provisions must be met:

- The vehicle used to transport the waste to the recycling facility and deliver the regenerated material back to the generator is owned and operated by the reclaimer and the reclaimer is permitted and registered to transport liquid industrial by-product.
- The generator maintains a copy of the reclamation agreement for at least three years after the contract expires.
- The generator must also meet the land disposal restriction requirements per 40 CFR 268.7(a)(10) (see Section 2.4.5.c). Keep a copy of the notification and certification on-site with the tolling agreement for at least three years after termination of the agreement.

Most waste companies will provide the [Uniform Hazardous Waste Manifest](#) needed for shipment and assist with completing the form. If you need to get your own forms, you must order them from a U.S. EPA registered printers. A link to the approved printers is online at

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[www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) (select “Uniform Manifest Information” in the “Quick Picks” box). You may contact your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C) with questions. If someone else prepares the manifest for you, be sure to check it over carefully to ensure it is correct as you must sign it to certify the listed information is correct. Any small quantity generator and large quantity generator of hazardous waste who signs the manifests must also meet the **hazardous material-U.S. DOT** training and documentation requirements described in Chapter 4.4.10.

As of March 16, 2016,, generators only need to submit manifests documenting shipments of hazardous waste from small quantity and large quantity generators to out-of-state TSDFs if the out-of-state TSDF fails to provide the DEQ with a timely copy. Please send these to P.O. Box 30038, Lansing, Michigan 48909-7538 at least quarterly within thirty days of the end of the calendar quarter. When submitting manifest copies to the DEQ, be sure they are legible. Often a photocopy of the manifest is necessary to ensure it is legible..

There are time limits by which you should receive the manifest copy from the TSDF with their signature verifying receipt. If you do not get your TSDF copy of the manifest with the destination facility signature within the time frames below, you will need to report the matter to the DEQ.

*If you are a Small Quantity Generator*, a manifest copy signed by the TSDF must be received within 60 days of shipping the hazardous waste. If you have not received the TSDF copy of the manifest with the receiving facility’s signature within this time frame, send a copy of the manifest along with an explanation to the DEQ, Hazardous Waste Program stating you have not received confirmation of the delivery from the TSDF.

*If you are a Large Quantity Generator*, a manifest copy signed by the TSDF must be received within 35 days of shipping the hazardous waste. If you have not received the TSDF copy of the manifest with the receiving facility’s signature on it, contact the transporter and TSDF about the shipment. If you still haven’t received a copy within 45 days after shipment, file an exception report with the DEQ, Hazardous Waste Program. Please send any reports related to this to the DEQ, Hazardous Waste Program, Waste Management and Tracking Unit, P.O. Box 30038, Lansing, Michigan 48909-7538 a

**CESQG Hazardous Waste Liquids and Liquid Industrial By-product** - As of March 16, 2016, the use of a manifest for shipping liquid industrial by-products and CESQG hazardous waste liquids became optional. Now, a manifest, bill of lading, invoice, shipment log or other document that includes the following information, either written or electronic, is acceptable when properly distributed:

- The name and address of the generator
- The name of the transporter
- The type and volume of liquid industrial by-product in the shipment
- The date the liquid industrial by-product was shipped off-site from the generator
- The name, address, and Site Identification (Site ID) number of the designated facility

Liquid industrial waste codes are also no longer used. When using a manifest for shipping CESQG hazardous waste liquids or liquid industrial by-product for a site that does not have a Site ID, the DEQ encourages the use of the following wording so that handlers may easily identify the regulatory status of the shipment:

- Enter “MICESQG” for shipping CESQG hazardous waste liquids
- Enter “MILIB” for shipping liquid industrial by-product(s)
- Enter “MICESQGLIB” for shipping both CESQG liquid hazardous waste and liquid industrial by-product(s).

For more information about liquid industrial by-product shipping documents, please see the [Liquid Industrial By-products Frequently Asked Questions](#).

Consider discussing any manifest exemptions or shipping document questions with your disposal vendor and the DEQ [District Office](#), Hazardous Waste Program (see Appendix C).

### ***Manifest/Shipping Document Required Recordkeeping***

Consider customizing the [DEQ generator tracking log](#) for tracking your shipments and verifying proper treatment or disposal. For manifests, be sure to keep a copy of the manifest signed by the generator and transporter at least until the manifest documenting TSDF receipt is received, then keep the manifest copy with 3 signatures. For CESQG hazardous waste liquids and liquid industrial by-product shipping documents, be sure to keep a copy of the shipping document with the required information, including the certifications. Also keep a record verifying the designated facility confirmed receipt. All manifests and shipping documents must be kept on file by all parties (generator, transporter and receiving TSDF) for at least three years.

#### **2.4.5.b Universal Waste**

Liquid universal waste shipments (e.g. antifreeze, pesticides, and some pharmaceuticals) need to have shipping documents to meet the liquid industrial by-product regulations (see Chapter 2.4.5.a). Although they are not required to be manifested under Part 111, when liquid, they must meet the Part 121 shipping document requirements. In addition, universal wastes not accompanied by a waste manifest may still require U.S. DOT shipping papers if the waste meets the definition of a **hazardous material-U.S. DOT** (see [U.S. DOT regulations](#) under 49 CFR 172 and 49 CFR 171.8). For example, packages containing one pound or more of mercury are subject to U.S.DOT regulation but when in a mercury containing device may be managed as a universal waste. See the following sections pertaining to specific waste streams for more details and contact the Michigan State Police, Commercial Vehicle Enforcement Division at 517-241-0506 or U.S. DOT at 800-467-4922 for more shipping information.

The universal waste rule does not specifically state that a Small Quantity Handler is required to keep records of their universal waste shipments but they would need to meet the liquid industrial by-product shipping document requirements if it is liquid. Additionally, Small Quantity Handlers need to have records to demonstrate they did not accumulate the waste for greater than 1 year and to verify shipment to an appropriately authorized destination facility. As such, shipment documentation that shows your waste was handled properly is necessary to meet the regulations.

Large Quantity Handlers are required to keep records of universal waste they receive and universal waste shipped off-site. These records must be kept at least three years. The records can be in the form of a log, invoice, manifest, bill of lading, or other shipping document. The following information must be recorded:

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- ✓ Name and address where the universal waste came from and/or to where it was shipped.
- ✓ Quantity of each waste type (i.e., batteries, electric lamps, pesticides, etc.) received and/or shipped out.
- ✓ Date when you received the shipment and/or when you sent out the shipment.

See Chapter 2.4.7 for details on tracking accumulated universal waste.



To understand the DEQ hazardous and liquid industrial by-product inspection process and the records inspectors will request, view the DEQ's recorded inspection and recordkeeping webinar available at [www.michigan.gov/deqworkshops](http://www.michigan.gov/deqworkshops) under the "Introduction to Hazardous Waste Webinars."

### 2.4.5.c Land Disposal Restrictions

For each waste sent to each TSD, Small Quantity and Large Quantity Generators must send a one-time written notice with the initial shipment of hazardous waste to the TSD. The notice must contain specific language advising the TSD whether or not the hazardous waste shipment is prohibited from land disposal. A new notification must be sent when there is a waste or facility change. This is commonly called a land ban notification and also known as a land disposal restriction (LDR) notification. The LDR regulations require hazardous waste to undergo physical or chemical changes so that there is less threat to the groundwater, surface water, and air when the hazardous waste is disposed in landfills, surface impoundments, injection wells, concrete vaults, underground mines or caves, waste piles, or other land disposal locations. Both listed and characteristic hazardous wastes must meet the LDR treatment standards before being land disposed. The notification is required for wastes sent to non-land based units. For waste treated on-site prior to shipment, the generator must evaluate whether the waste meets the LDR standards prior to treatment, not after, and the generator must have a waste analysis plan detailing how the treatment meets the LDRs. LDRs are also required for Small Quantity Generators using tolling agreements to ship hazardous waste for recycling (see Chapter 2.4.5.a). Compare the standards that are found in [40 CFR 268.42](#) with the hazardous waste numbers generated at the facility.

The specific treatment standards are too numerous to include in this guidebook. Go to [www.epa.gov/wastes/hazard/tsd/ldr/ldr-sum.pdf](http://www.epa.gov/wastes/hazard/tsd/ldr/ldr-sum.pdf) and [www.epa.gov/wastes/inforesources/pubs/training/ldr05.pdf](http://www.epa.gov/wastes/inforesources/pubs/training/ldr05.pdf) for more information. Also discuss your specific LDR requirements with your TSD or local DEQ, [District Office](#), Hazardous Waste Program (see Appendix C). Many TSDs have preprinted the specific statements on forms that you can use to meet this requirement and will help you properly fill out the information. You are required to keep copies of the LDR notifications, certifications, and LDR waste analysis plan if treating to meet the LDRs for at least three years after the last shipment of that waste.

Common violations regarding land ban notifications include:

- ✓ Failing to keep a copy of the LDR notice
- ✓ Missing a category or subcategory of waste information
- ✓ Listing incorrect (outdated) treatment standards or information that is inconsistent with the waste characterization

### 2.4.5.d Export/Import Records

Companies importing or exporting hazardous waste and universal waste must meet additional federal notification and other requirements overseen by the U.S. EPA. See the following rules:

- Rule 309 of the Part 111 rules (R 299.9309) for hazardous waste exports and [40 CFR 262 Subpart E](#)
- Rule 310 of the Part 111 rules (R 299.9310) for hazardous waste imports and [40 CFR 262 Subpart F](#)
- Rule 312 of the Part 111 rules (R 299.9312) and [40 CFR 262 Subpart H](#) for transfrontier shipments for recovery within OECD-Organization for Economic Cooperation and Development

Contact the U.S. EPA at least 60 days before the intended date of shipment to obtain written consent. The U.S. EPA's "Acknowledgement of Consent" document must accompany the shipment at all times. Contact the following for more information:

- For hazardous waste or universal waste exportation: contact Robert Heiss, U.S. EPA Headquarters at 202-564-4108
- Hazardous waste importation: contact William Damico, U.S. EPA Region 5 at 312-353-8207

The hazardous waste regulations do not require annual reporting in Michigan for shipments in the United States. If you export hazardous waste out of the country, annual reports are submitted to the U.S. EPA.

### 2.4.6 Biennial Reports

If you are a Large Quantity Generator at any time during an odd numbered year, or are a TSDf, you are required to submit a Biennial Report to the DEQ, Hazardous Waste Program by March 1 of every even-numbered year. The Hazardous Waste Report summarizes the previous calendar year's waste activities at your facility.

As of the 2014 reporting year, the DEQ, Hazardous Waste Program began collecting biennial report data electronically. For information about hazardous waste biennial reports, go to [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) and search for "biennial." For questions about biennial reporting e-mail [BiennialReports@michigan.gov](mailto:BiennialReports@michigan.gov) or call the Environmental Assistance Center at 800-662-9278. For copies of a biennial reports from 1999 to present, contact your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C). For copies of biennial reports from 1997 or earlier, contact the U.S. EPA Region 5 at 312-353-5069 or 800-353-2000. Be sure to keep a copy of the biennial report in your records for at least 3 years from the due date. Current facility information reported to the DEQ can be viewed in the Waste Data System. Go to [www.deq.state.mi.us/wdsp](http://www.deq.state.mi.us/wdsp) and search using facility specific data.

The hazardous waste regulations do not require annual reporting in Michigan for shipments in the United States. However, if you export hazardous waste out of the country, annual reports are submitted to the U.S. EPA (see Chapter 2.4.5.d). Used oil processors, refiners, and marketers are also required to submit used oil biennial reports. Used oil generators are not required to submit used oil biennial reports.

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### 2.4.7 Hazardous Waste and Universal Waste Accumulation On-site

There are specific requirements regarding the accumulation of waste, including how long you can accumulate it before shipping and how the containers must be labeled. These requirements are detailed in the following sections and Table 2.7 below.

#### 2.4.7.a Accumulation Time and Amount Limits

You are allowed to accumulate your hazardous waste and universal waste on-site in containers or tanks for a specified number of days.

**TABLE 2.7: Accumulation Time and Amount Limits**

Limit	CESQG	SQG	LQG	SQH	LQH
<b>Storage Time Limit</b>	No state time limit if don't exceed volume limit	180 days (or 270 if distance to disposal site is over 200 miles)	90 days	1 year from generation or receiving from another handler	1 year from generation or receiving from another handler
<b>Total Limit</b>	2,200 pounds non-acute or 2.2 pounds of acute or severely toxic hazardous waste	13,200 pounds non-acute or 2.2 pounds of acute or severely toxic hazardous waste	No limit	<11,000 pounds	No limit

If you wish to exceed this period, you must obtain an operating license for the storage of hazardous waste PRIOR to the storage activity. These limits are determined by your generator status and detailed in Table 2.7 above. In the event a brief extension is required due to an unforeseen, temporary, and uncontrollable circumstance, contact your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C) PRIOR to accumulating hazardous waste beyond the exemption period.

### Hazardous Waste

During this time period, hazardous waste must be properly stored at your facility to prevent contamination of the environment. You must comply with specific state and federal regulations if your company has a Small Quantity Generator or a Large Quantity Generator status (see Table 2.6 which summarizes the hazardous waste generator requirements). If you are a Conditionally Exempt Small Quantity Generator, you are not required by law to meet all of the requirements provided you do not exceed the 2,200 pounds of non-acute hazardous waste or 2.2 pounds acute hazardous waste accumulation limit. However, you must still operate your business in a manner that meets the exemption requirements to be subject to the reduced handling and disposal requirements. All generators are required to prevent contamination and are responsible for any contamination they cause. Conditionally Exempt Small Quantity Generators are recommended to practice storage, secondary containment, and inspection procedures similar to those required of the Small Quantity Generators to provide safeguards against environmental contamination.

### Universal Waste

Universal waste handlers can accumulate universal waste up to one year after generation or after receiving the waste from another handler. A longer storage time may be allowed if it is proven that it's necessary to accumulate enough universal waste to facilitate proper recovery, treatment, or disposal. A handler must be able to show how long they have had the waste. This can be done by one of the following:



- Labeling the container with the first date universal waste was put into it or when the container was received.
- Labeling the individual item with the date it was considered a waste or received as a universal waste.
- Maintaining an inventory system on-site which identifies the date it became a waste or was received.
- Placing the universal waste in a specific accumulation area and identifying the earliest date that any universal waste was put in that area.
- Using any other method that clearly demonstrates how long the universal waste has been accumulating.

Transporters may store universal waste up to ten days. If transporters exceed this period, they need to manage the universal waste according to the respective handler requirements.

#### 2.4.7.b Container and Tank Requirements

### Hazardous Waste

Hazardous waste is commonly stored in either portable containers with lids such as pails, 55-gallon drums, totes, or in aboveground storage tanks. It can also be stored in underground storage tanks, although it is not usually practical for Small Quantity or Conditionally Exempt Small Quantity Generators due to the costs to install, maintain, and monitor the tanks.

Hazardous waste tanks have more regulations than containers. Generally, hazardous waste tanks must have secondary containment and leak detection systems, be certified by a professional engineer, be labeled, meet special requirements for ignitable, reactive, and incompatible wastes, and meet closure and post-closure requirements. Once each operating day the overfill/spill control equipment, monitoring equipment data, and the level of the waste in aboveground storage tank systems must be inspected. For underground storage tanks containing hazardous waste, a complete inventory of the contents must be conducted at least twice every month. Records of these inspections and analyses must be kept for three years.



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Small Quantity Generator Tank and Large Quantity Generator Tank [inspection checklists](#) are available at [www.michigan.gov/deq/waste](http://www.michigan.gov/deq/waste) “Hazardous Waste,” under the link titled “Forms.”

Contact your local DEQ, [District Office](#), Hazardous Waste Program (see Appendix C) for information regarding specific hazardous waste storage tank requirements. See Chapter 2.4.8.a for used oil requirements. In addition, the DLARA, Bureau of Fire Service, Storage Tank Division regulates the storage of flammable and combustible liquids, including waste, with a flashpoint of less than 200 degrees Fahrenheit (see Chapter 4.3 for more information). The aboveground storage of flammable and combustible liquids may also be regulated by the [MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids](#), and the local municipality’s fire prevention code (see Chapters 34 and 37 for more information).

Different containers should be used to segregate different types of waste. It is a good management practice to keep a waste log for liquid wastes noting the type and quantity of waste added to the container. Avoid overfilling containers, especially if they are stored outdoors. Fifty-five gallons of some hazardous liquids can expand to 60 gallons or more when exposed to the heat and sun and may overflow. It is also a good idea to use drip pans under the spigots of containers storing liquid materials. Make sure the drip pans are routinely emptied into the appropriate waste container.

The waste regulations do not require generators to post Hazardous Waste Storage Area signs alerting people of hazardous waste accumulation areas although it is considered a good management practice. Post “No Smoking” signs in areas where ignitable, reactive or incompatible wastes are located.

### Basic Container Storage Requirements

See Chapter 2.4.8.a for satellite container operating requirements. General requirements for all other hazardous waste storage containers include:

- Containers must be labeled and the labels must be visible (see Chapter 2.4.8).
- Containers must be maintained in good condition.
- Any leaking containers must be replaced.
- Containers must be kept closed except when adding or removing waste. For liquid hazardous waste, closed container means that container covers are securely affixed with a bolted ring clamp or closed snap ring, bung plugs are installed in openings, and threaded covers are screwed shut. If a funnel is routinely used, to avoid having to remove the funnel and reclose the container regularly, a threaded funnel with a one-way valve, ball valve, or funnel with a latchable, gasketed cover can be used. For solids, the container cover must have complete contact between the lid and the rim of the storage container, all around the top of the container. If the container is continuously receiving hazardous waste solids, the container must catch and retain all of the hazardous waste.



See [Operational Memo 111-20](#) for more information about closed containers.

- Containers must be compatible with the type of waste being stored in them. The DEQ does not maintain a list of compatible materials but companies can look at the safety data sheets for suggestions and Web sites such as [www.flw.com/material/index.html](http://www.flw.com/material/index.html).
- Incompatible wastes must not be placed in the same container.
- All containers holding hazardous materials must be inspected weekly for signs of corrosion and leaks. The rules do not define "weekly" and a facility can decide what will be the days they want to be considered their "week." The inspections do not have to be done on the same day. The inspectors are looking at whether or not inspections have been done on a regular basis.
  - ✓ Large Quantity Generators are required to keep written documentation of inspections for at least three years.
  - ✓ Small Quantity Generators and Conditionally Exempt Small Quantity Generators are encouraged to keep records.

The DEQ has a [Required Weekly Hazardous Waste Maintenance Checklist](#) available for your use in meeting this record keeping requirement, but you are not required to use this form.



To understand the DEQ hazardous and liquid industrial by-product inspection process and the records inspectors will request, view the DEQ recorded inspection and recordkeeping webinar available at [www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) under the "Introduction to Hazardous Waste Webinars."

- Containers must be kept in an area that meets the required isolation distance from property lines. Check for any local requirements. Large Quantity Generators must have ignitable and reactive hazardous waste stored at least 50 feet from the property line. If a company cannot meet the isolation distance, see Rule 306(1)(a) of the Part 111 rules (R 299.9306(1)(a)) which allows compliance with local fire code to be acceptable. A copy of an approved letter indicating the containers are stored in compliance with the fire prevention code and signed by the authority having oversight of that code shall be maintained at the generator's site.
- Containers must be protected from weather and fire and secure from vandalism and physical damage such as that caused by fork lifts or other equipment. Weather protection is to avoid bulging and damaged drums caused by contents freezing in cold temperatures or expanding due to heat.
- Containers must be accumulated in a manner that provides adequate aisle space for unobstructed movement of emergency equipment and personnel. The waste regulations do not specify a minimum specific distance for aisle space. You should review applicable MIOSHA regulations, local fire code, and [NFPA standards](#) to see if a minimum aisle space is applicable to your facilities.
- Precautions must be taken to prevent containers holding flammable and combustible hazardous waste from igniting. Sources of ignition include but are not limited to open flames; lightning; smoking; cutting and welding; hot surfaces; frictional heat; static, electrical, and mechanical sparks; spontaneous ignition, including heat producing chemical reactions; and radiant heat.

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The flammable and combustible liquid rules require metal containers to be bonded and/or grounded usually by using a bonding strip and ground clamps. Bonding physically connects two conductive objects together with a bond wire to eliminate a difference in static charge potential between them, but there is still the change of difference between objects and ground. Grounding uses a ground wire to eliminate the difference in the static charge between objects and the ground. The flammable and combustible liquid regulations also prohibit smoking except in designated localities and “No Smoking” signs must be conspicuously posted where hazard from flammable liquid vapors is normally present. No smoking signs are also required for Large Quantity Generators storing reactive hazardous waste. Also see Chapter 34 for additional MIOSHA requirements for containers containing flammable and combustible liquids.

Some insurance companies may require all hazardous waste drums to be grounded. In addition, some local fire ordinances may require grounding clamps on hazardous waste containers. If a facility is considering using metal flooring, the flooring and containers must have bond wires and meet MIOSHA standards. Contact your local electrical or building code inspector to see what is required including if the use of a grid or steel floor would be acceptable.

### Secondary Containment

Secondary containment of the hazardous waste accumulation area is required for the following generators but is not required for satellite containers:

- Small Quantity Generators accumulating over 1,000 kg (2,200 pounds) of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste.
- Large Quantity Generators accumulating any amount of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste. Liquid hazardous waste and the above-mentioned “F” wastes must have secondary containment or be managed according to the following:
  - The base must be free of cracks and have an impervious surface.
  - The containment area for containers must be constructed so that it is able to hold either 10 percent of the total liquid volume of all the containers or 100 percent of the volume of the largest container, whichever is greater. If, however, a loss from one container can lead to losses from other containers, the enclosed area must be able to contain 100 percent of all of the liquid portion stored in all the containers. Tank secondary containment must be able to contain 100 percent of the capacity of the tank and precipitation from the 25 year 24 hour storm.
  - The secondary containment area must be designed to prevent run-on or be designed with sufficient excess capacity to contain any rainwater or snowmelt or other precipitation that might accumulate in the storage area. It is recommended that containers be stored in areas protected from the weather, if possible.
  - The containers must be elevated or put on a sloped base that prevents them from coming into contact with any liquid accumulating within the containment area.
  - All spills, leaks, and precipitation must be removed in a timely manner to prevent overflow from the containment area.



Other solid hazardous waste in containers can be put in containment areas where the containers are not in contact with accumulated liquids including precipitation. The containers can be either:

- Elevated, or otherwise protected; OR
- Stored on a sloped surface, or the containment area can be of another design and operated to drain and remove precipitation.

The hazardous waste regulations do not specify exactly how secondary containment areas must be constructed. You can install a curb, a ramped pad, or a containment room; have structures custom-made for your situation; or use commercially available portable pallets that have a holding structure included in their design. Be aware that the spill pallets are not sufficient to meet the secondary containment requirements for liquid hazardous waste because they do not provide adequate protection for “squirt distance,” which is the distance a liquid would squirt out if a leak occurred. As a general rule for containers holding liquids, the secondary containment outer boundary should be at least as far away as the height of the container(s) holding the liquid hazardous waste unless the container is adjacent to a wall. Other design factors and regulations should also be considered when planning secondary containment. See Chapter 6.1 for more information about secondary containment and storage of other materials besides waste.

### **AIR EMISSION CONTROL REQUIREMENTS (SUBPART AA, BB, CC)**

There are additional federal hazardous waste regulations regarding air emissions of hazardous waste from tanks and container. The RCRA air emission standards were promulgated in phases. The first phase includes 40 CFR Part 264/265, Subparts AA and BB. These subparts address air emissions from process vents associated with certain types of hazardous waste management processes (Subpart AA) and leaks from certain types of equipment at TSDFs and Large Quantity Generators (Subpart BB). At such facilities, owners and operators are required to install control equipment and employ management practices to reduce air emissions from affected units and equipment. Phase II of the RCRA air emission standards, Part 264/265, Subpart CC, regulates organic air emissions from tanks, surface impoundments, and containers located at hazardous waste treatment storage and disposal facilities and Large Quantity Generators. If applicable, these facilities must use various monitoring and control mechanisms to meet the Subpart CC requirements which include:

- Controlling volatile organic compound (VOC) emissions from hazardous waste management activities.
- Reducing organic emissions from process vents associated with certain recycling activities and equipment that is in contact with hazardous waste that has significant organic content.
- Controlling VOCs from hazardous waste tanks, surface impoundments, and containers using fixed roofs, floating roofs, or closed-vent systems routed to control devices.

To learn more about the generator hazardous waste handling requirements, view the DEQ’s recorded accumulation, storage, and labelling webinar available at [www.michigan.gov/deqworkshops](http://www.michigan.gov/deqworkshops) under the “Introduction to Hazardous Waste Webinars.”

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The air emissions standards in Part 265, Subpart CC, do not extend to containers used for satellite accumulation. These requirements are too complex to include in this guidebook. Discuss the requirements for your company with your environmental consultant or the DEQ, [District Office Hazardous Waste Program](#) (see Appendix C), or go to the U.S. EPA [www.epa.gov/wastes/inforesources/pubs/training/air.pdf](http://www.epa.gov/wastes/inforesources/pubs/training/air.pdf) and [RCRA Organic Air Emission Standards for TSDFs and Generators](#) for U.S. EPA information on these requirements.\

### Universal Waste

Universal waste must be stored in a way that prevents any spills or releases. Containers must be kept closed, in good condition, and be compatible with the type of universal waste stored in them.

#### 2.4.8 Labeling Requirements

The proper labeling of waste helps to ensure that the waste is not mismanaged. It is a good idea to put one person in charge of making sure the wastes are correctly identified and labeled. Labeling also helps to protect the workers and emergency responders. If the contents of drums are not known, the chances of someone being exposed to hazards or being injured are great. An explosion can occur if wastes that are incompatible are mixed with unknown wastes in a drum.

Labeling requirements differ for hazardous waste being accumulated on-site and that being shipped. More extensive information is required on labels for shipping. In addition to meeting the labeling requirements for containers, you should also clearly mark the accumulation area so employees know that hazardous waste is being kept there. Also make note of any special precautions that must be taken, like no smoking signage would be appropriate for an area used to accumulate ignitable hazardous waste.



The U.S. DOT regulations specify which containers, packaging, labels, and placards must be used for shipping **hazardous materials-U.S. DOT**. They also and define **hazardous materials-U.S. DOT** to include all **hazardous waste** offered for shipment by Small Quantity and Large Quantity Generators of hazardous waste. The hazardous waste regulations specifically require Small Quantity and Large Quantity Generators to have the appropriate placards available for the transporter. Placards are required for hazardous waste shipments in excess of 1000 pounds. For more information about U.S. DOT shipping requirements, go to the Michigan State Police, Commercial Vehicle Enforcement Division Web page at [www.michigan.gov/motorcarrier](http://www.michigan.gov/motorcarrier), the U.S. DOT Web page at [hazmat.dot.gov](http://hazmat.dot.gov), and see Chapter 4.4.

#### 2.4.8.a Labeling Hazardous Waste Satellite Containers

It is permissible to accumulate up to a total of 55 gallons of hazardous waste, or one quart of acutely or severely toxic hazardous waste, in labeled container(s) at the point of generation as long as the operator has control of the processes generating the waste. This accumulation is generally referred to as using satellite containers. These containers must be labeled with the words “Hazardous Waste” AND the waste number OR the chemical name of the contents, and be kept closed at all times except when waste is being added. There is no limit on the number of containers used at one satellite location or how long the satellite container can be kept at its location, as long as it is being used on a regular basis and the total volume limit of 55 gallons is not exceeded. Once the volume meets the allowable amount, the container(s) holding the accumulation must be:

See [Operational Memo 111-2](#) for more information about satellite accumulation.

- Labeled with that date (which would be considered the accumulation date)
- Labeled with the hazardous waste number if the chemical name was initially used on the label
- Moved into the accumulation area within three days

As of November 5, 2013, academic laboratories have additional options for managing laboratory waste under Rule 313 of the Part 111 Rules (see R 299.9313). For more details on the federal academic laboratory rule adopted by Michigan, see the [U.S. EPA Academic Laboratory Rule Web page](#) and their [side-by-side comparison](#) of the academic lab rule and the satellite accumulation requirements.

### 2.4.8.b Labeling Hazardous Waste for Accumulation On-Site

Each container must be labeled with the following when a waste is accumulated on-site and not in a satellite area:

- The words “Hazardous Waste.”
- The hazardous waste numbers.
- An accumulation date (meaning the date waste was first put into the container, unless it was first a satellite container – then it would be the date the volume in the container(s) in the satellite area met or exceeded the 55 gallon allowable amount).

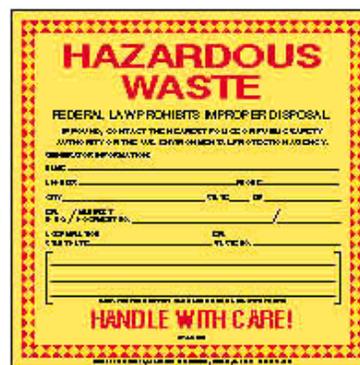
Although not required of accumulation containers, it is helpful for employees to also label the storage containers with the common name of the waste in the container. For example, containers might be labeled with “Used Parts Washer Solvent.” Tanks must also be labeled with the words “Hazardous Waste.”

You are not required to use any specific label to meet these requirements. You can stencil the information on the containers and/or tanks or you can purchase commercially made labels. You may also use the shipping label as long as the required information specified above is filled out. Make sure the label you use does not become unreadable and the label is visible for inspection (e.g. not on the back of a drum against the wall or elevated so high it cannot be readily viewed). Maintaining readable labels is more problematic for containers holding solvents.

### 2.4.8.c Labeling Hazardous Waste for Shipment

Hazardous waste must be shipped in containers acceptable for transportation and properly labeled. Each container of 110 gallons or less must have the hazardous waste numbers identifying the waste as well as the following statement:

*“Hazardous Waste – Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.”*



A container must also have the headings “Generator Name and Address” and “Manifest Document Number,” with that information provided. The label to the right and others are available from commercial firms including mail order companies. Properly labeled containers also include:

- Labels clearly identifying the type of waste and its hazards in that particular container

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- The accumulation date
- Words or symbols for characteristics such as “flammable” and “corrosive” that are clear and understandable to employees
- Label protection from solvents and weather

You may want to cover the label with varnish or clear packing tape. Your hazardous waste transporter should be able to help you properly label the containers for transport. Contact the Michigan State Police, Commercial Vehicle Enforcement Division at 517-241-0506 or U.S. DOT at 800-467-4922 for more shipping information. Also see Chapter 4.4.

### 2.4.8.d Labeling Universal Waste for Accumulation On-Site

You need to label the individual universal waste (such as each thermostat) or the container holding the universal waste with the following while it is being accumulated:

- Electric lamps: the words “universal waste lamps,” or “waste lamps,” or “used lamps.”
- Consumer electronics: “universal waste electronics” or “universal waste consumer electronics”
- Batteries: the words “universal waste battery(ies),” or “waste battery(ies),” or “used battery(ies).”
- Mercury devices: the words “universal waste mercury thermometers,” or “waste mercury thermometers,” or “used mercury thermometers,” and substitute the name of the device if it is not a thermometer.
- Pesticides: include the legible label that was on or accompanied the original product and the words “universal waste pesticide(s)” or “waste pesticide(s).” If the pesticide label is not readable, then use the appropriate label as required by the U.S. DOT.
- Pharmaceuticals: use the original label. If unreadable, it is suggested to label as “universal waste pharmaceuticals.”

### 2.4.8.e Labeling Universal Waste for Shipment

Before shipping the universal waste to another universal waste handler, the originating handler must have made arrangements so that the shipment will be received. If the universal waste is a **hazardous material-U.S. DOT**, then that waste has to be packaged, labeled, marked, and placarded according to the requirements under 49 CFR 172-180. Discuss your specific universal waste shipment requirements with Michigan State Police, Commercial Vehicle Enforcement Division at 517-241-0506 or U.S. DOT at 800-467-4922.

### 2.4.9 Managing Specific Waste Streams

This section provides details regarding the proper management of various types of waste that are commonly generated by businesses.

- 2.4.9.a Used Oil
- 2.4.9.b Used Oil Filters
- 2.4.9.c Lead Acid Batteries
- 2.4.9.d Dry Cell Batteries
- 2.4.9.e Fluorescent Lamps and Other Lights
- 2.4.9.f Small Capacitors and Ballasts

- 2.4.9.g Sorbents
- 2.4.9.h Shop Towels and Other Textiles
- 2.4.9.i Spent Parts Washer and Other Solvents
- 2.4.9.j Aerosols
- 2.4.9.k Painting Wastes
- 2.4.9.l Wastes Containing Silver and Other Precious Metals
- 2.4.9.m Electronic Waste
- 2.4.9.n Waste Containing Radioactive Materials
- 2.4.9.o Antifreeze
- 2.4.9.p Scrap metal
- 2.4.9.q Pharmaceuticals

### 2.4.9.a Used Oil

Used oil in a liquid form CANNOT be disposed of by any of the following methods:

- Dumped down drains or sewers or into surface or groundwater.
- Disposed of in landfills.
- Burned in municipal solid waste incinerators or other incinerators without energy recovery.
- Used as dust control or weed control.



The specific management requirements depend on the type of oil, its flashpoint, how it is stored, hazardous waste generator status, and how much oil storage capacity is on-site. When evaluating what requirements apply to your used oil, keep in mind different regulations define oil differently. Used oil as defined by the [Part 111 rules](#) of Act 451, the federal used oil regulations in [40 CFR Part 279](#), and [Part 121](#) of Act 451 is “any oil which has been refined from *crude oil*, or any *synthetic oil*, which has been used and as a result of use, is contaminated with physical or chemical impurities.” Examples of used oil include:

- ◆ used motor oil.
- ◆ used hydraulic oil.
- ◆ used transmission and brake fluids.
- ◆ spent synthetic cutting and machine oils.
- ◆ spent mineral seal oils.
- ◆ spent quench oils.
- ◆ spent gear oils.
- ◆ non-PCB transformer oils.
- ◆ CFC-contaminated oils from air-conditioning and refrigeration units.
- ◆ Oil-water mixtures if sufficient oil exists for legitimate recycling and oil does not arise from “de minimis” sources. De minimis means small spills, leaks, or other drippings from pumps, machinery, pipes, and other similar equipment during normal operations. (40CFR 279.10(f)).
- ◆ Oil drippings from metal shavings from turning and drawing operations, etc.

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Used oil under the hazardous waste regulations does not include petroleum-based products that are not used as lubricating agents or in other protective applications. It does not include fuels (gasoline, diesel, and fuel oils), mineral spirits, animal fats and vegetable oils, along with test and calibration fluids. Note: all of these above materials would be subject to the federal SPCC regulations (see Chapter 6.2.3) and the state Part 5 rules of Part 31 of Act 451 (Water Resource Protection (see Chapter 6.2.2)). If used oil has a flashpoint below 200 degrees Fahrenheit, then it is also regulated as flammable and combustible liquids in addition to the waste regulations (see Chapters 4.3.2 and 34).

Used oil being recycled which contains less than 1,000 PPM total halogens is not considered hazardous waste and is managed as a liquid industrial by-product under Part 121 of Act 451 when it is accumulated, stored, or treated. However, the following oils are not presumed to be hazardous waste even if the total halogens are greater than 1,000 PPM:

- Metalworking oils or fluids that contain chlorinated paraffin's which are recycled and handled by a tolling arrangement per 40 CFR 279.24(c). A tolling arrangement is a contractual agreement where the oil or fluid is reclaimed and returned to the generator as a lubricant, cutting oil, or coolant. These oils would still need to be recorded on a shipping document as liquid industrial by-product (see Chapter 2.4.5.a).
- Oils containing chlorofluorocarbons (CFCs) removed only from refrigeration units and being reclaimed. These oils would still need to be recorded on a shipping document as liquid industrial by-product.

Used oil is presumed to be mixed with hazardous waste under Part 111 of Act 451 if it contains more than 1,000 PPM total halogens - a test for chlorine, bromine, fluorine, and iodine content. Most haulers will do a quick test for total halogens before picking up the oil, require you to provide characterization information, or both.

You have the option to demonstrate that the used oil does not contain significant concentrations of halogenated hazardous constituents that are listed in 40 CFR 261, Appendix VIII, and thus would not be regulated as hazardous waste. This demonstration is commonly called the "rebuttable presumption." Rebutting the presumption through analysis is costly. If used oil contains halogenated hazardous constituents, it becomes even more difficult and costly for used oil processors and re-refiners to rebut the presumption. As such, to ensure you can easily locate used oil handlers that will recycle your used oil, the DEQ recommends you not mix your used oil with other waste.

The generator may use knowledge or testing to rebut the mixing presumption. If the generator has a SDS for the oil being recycled which shows that it contains chlorinated paraffins, and can also demonstrate that no chlorinated solvents are used in the facility, this should be sufficient knowledge. A facility could also have a laboratory run a chlorinated solvent scan for common halogenated constituents including PERC also known as tetrachloroethylene, 1,1,1-trichloroethane, trichloroethylene, carbon tetrachloride, chloroform, and other halogenated solvents suspected of contaminating the oil. If each halogenated constituent is below 100 PPM, then the oil would be considered to be liquid industrial by-product. See the U.S. EPA [RCRA Used Oil Rebuttable Presumption Guidance](http://www.epa.gov/wastes/conservematerials/usedoil/oil-rebut.pdf) at [www.epa.gov/wastes/conservematerials/usedoil/oil-rebut.pdf](http://www.epa.gov/wastes/conservematerials/usedoil/oil-rebut.pdf) for more information.

Often the used oil transporter will conduct one or two tests at your site to determine if the used oil is a hazardous waste before accepting it. They usually charge a small fee for these tests. As

an alternative, they may require you to determine if the used oil is a hazardous waste and provide them with documentation supporting your results. If the used oil is a hazardous waste, then it must be managed in accordance with the hazardous waste regulations. Also see Chapter 2.4, Table 2.5, Table 2.6 and the following guidance documents for more details about managing used oil:

*“Household Do-It-Yourselfer Used Motor Oil and Filters”* — if employees are asking how to manage their own private vehicle’s motor oil and also have used oil filters

*“Used Motor Oil Generator Requirements”* — for facilities that generate motor oils from servicing their own vehicles and equipment that meets certain conditions

*“Other Used Oil Generator Requirements”* — for facilities that generate other used oil types like cutting fluids, lubricating oils, oils from transformers, etc., or generate oils that don’t meet the conditions listed in the used motor oil generator guidance

*“Used Oil Filters Generator Requirements”* — for facilities that generate used oil filters

*“Burning Used Oil”* — for facilities burning used oil generated on-site or operating an off-spec fuel burner

*“Used Oil Sorbents, Oil Contaminated Textiles, & Other Petroleum Contaminated Materials”* — for facilities that generate these wastes from cleaning up oil spills

*“Oil Water Separators”* — for facilities operating separators and managing the collected oil

*“Used Oil Collection Centers and Aggregation Points”* — for locations that collect oils from do-it-yourselfers, other companies, or from other locations owned by the same facility

*“Mobile Oil Changing Business”* — for companies that offer mobile services where they go to another business or residential location to change oil in vehicles or equipment

*“Emptying Product Tanks and Containers”* — for facilities removing materials due to tank closure, maintenance or repair activities

### **Basic Requirements for Used Oil Storage On-Site:**

- Do not mix other wastes with used oil. This restriction applies to Large Quantity Generators and Small Quantity Generators mixing hazardous waste with used oil. Conditionally Exempt Small Quantity Generators of hazardous waste cannot mix halogenated wastes with used oil as of December 16, 2004. Check with your used oil recycler before mixing any wastes with used oil.
- Store only in containers or tanks that are in good condition and compatible with oil.
- Keep containers closed except when filling or emptying, and keep the exterior clean of waste and residue.
- Label each container or tank, including fill pipes to underground storage tanks, with the words “USED OIL.”
- Protect the accumulation containers from weather, fire, physical damage, and vandals.
- Regularly inspect tanks and accumulation areas for leaks or potential problems.
- Secondary containment is recommended for all oil storage, and is required when threshold management quantities are met e.g. [federal Spill Prevention Control and Countermeasure \(SPCC\)](#) for oils and [state Part 5 rules](#) under Part 31 of Act 451 (Water Resource Protection) “Spillage of Oil and Polluting Materials” (see Chapters 4 and 6).

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- Check if any local ordinances pertain to oil storage.
- Provisions should be made to prevent further release if a leak occurs.

### **Used Oil Burning And On-Site Use:**

A generator may use their used oil at the generating site:

- As a rust preventative coating on farm or construction equipment.
- By mixing it with diesel fuel and using it as a fuel in the generator's own vehicles. Until mixed, the oil must be managed under the used oil regulations.
- As a fuel in a heater. See the "[Burning Used Oil](#)" guidance for the conditions under which it may be burned.



If you have questions about burning used oil, contact the DEQ [District Office](#), AQD to determine if an air permit is required and DEQ [District Office](#), Hazardous Waste Program to determine if other waste regulations apply (see Appendix C for phone numbers and Chapter 1.1 for more details regarding air permitting).

### **2.4.9.b Used Oil Filters**

Look for scrap metal recyclers in the [Recycled Materials Market Directory](#) available at [www.michigan/deqrmmd](http://www.michigan/deqrmmd). When properly drained, used oil filters can be recycled as scrap metal and the filters are not subject to hazardous waste regulations. Used oil filters being disposed are exempt from hazardous waste regulations if they are non-terne plated and hot-drained in a manner that removes the oil. See the [Used Oil Filter Generator Requirements](#) guidance for more information how to drain and prepare them for recycling or disposal.

### **2.4.9.c Lead Acid Batteries**

Lead acid batteries are banned from disposal in Michigan's landfills and incinerators, so you need to return them for recycling. Recyclers can be found in the [Recycled Materials Market Directory](#) available online at [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd). They can also be returned to retailers, distributors, or manufacturers.

Facilities have two options for managing lead acid batteries. Both options are described in more detail in the Universal Waste guidance at [http://www.michigan.gov/documents/deq/deq-ead-tas-univwaste\\_320878\\_7.pdf](http://www.michigan.gov/documents/deq/deq-ead-tas-univwaste_320878_7.pdf).

The options for managing lead acid batteries include:

- Recycle them under Rule 804 of the Part 111 rules (R 299.9804) which exempts them from most of the requirements of Part 111 of Act 451. The generator must characterize the waste batteries and meet land disposal restrictions (see Chapter 2.4.5.c). You do not have to include the battery volume when determining your generator status or use manifests when shipping the used batteries to a recycler. In addition, there is no time limit in the state regulations on how long you may store the batteries before shipping. There may be local ordinances that have time limits or other requirements.

- Manage them as a universal waste. Universal waste batteries or containers need to be labeled with the words “universal waste battery(ies),” or “waste battery(ies),” or “used battery(ies).” Meet the universal waste requirements as outlined in Chapters 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12 and the universal waste guidance specified above.

### 2.4.9.d Dry Cell Batteries

Dry cell batteries (AA, C, D etc.) are used to power portable power tools, flashlights, calculators, etc. and found in computers, clocks, and other equipment.



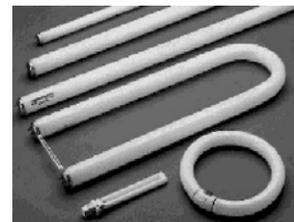
Facilities have the option to:

- Assume they are hazardous waste and manage them as universal waste. Battery recyclers can be found in the [Recycled Materials Market Directory](http://www.michigan.gov/deq/rmmd) available online at [www.michigan.gov/deq/rmmd](http://www.michigan.gov/deq/rmmd). Universal waste batteries or containers need to be labeled with the words “universal waste battery(ies),” or “waste battery(ies),” or “used battery(ies).” Meet the other universal waste requirements as outlined in Chapters 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12, or
- Determine if the batteries exhibit hazardous waste characteristics and dispose of them in accordance to the facility’s generator status.

Both options are described in more detail, along with other regulations that pertain to batteries, in the Universal Waste guidance at [http://www.michigan.gov/documents/deq/deq-ead-tas-univwaste\\_320878\\_7.pdf](http://www.michigan.gov/documents/deq/deq-ead-tas-univwaste_320878_7.pdf). For questions on U.S. DOT requirements related to batteries, see Chapter 4 and contact the Michigan State Police, Commercial Vehicle Enforcement Division at 517-241-0506.

### 2.4.9.e Fluorescent Lamps and Other Lights

Lamp management and disposal options depends on the type of bulbs and the company’s generator status. See the Electric Lamp and Small Ballast guidance at [http://www.michigan.gov/documents/deq/deq-ead-tas-eleclamp\\_320858\\_7.pdf](http://www.michigan.gov/documents/deq/deq-ead-tas-eleclamp_320858_7.pdf) for more specific management requirements. The DEQ recommends companies handle and recycle their spent lamps. Recyclers can be found in the [Recycled Materials Market Directory](http://www.michigan.gov/deq/rmmd). Drum top crushers require an air permit prior to installation and operation. For more information on drum crushers, see the guidance at [www.michigan.gov/deq/air](http://www.michigan.gov/deq/air) when selecting “Clean Air Assistance” and “Fluorescent Light Bulb Crushers.” If you are considering the use of a lamp crusher, contact the DLARA, Consultation Education and Training Program at 517-322-1809 to discuss operating and permitting requirements that address worker safety.



Basic lamp management options include:

1. Determine if you have low mercury bulbs, commonly called green tip bulbs, which are designed by the manufacturers not to be a hazardous waste. Keep documentation supporting that determination like the SDS or sales literature that may have a statement the lamps are not a hazardous waste or not a RCRA waste. Recycling of low mercury bulbs is recommended to reduce a company’s liability in case contamination eventually occurs at the landfill where the solid waste was sent. However, at this time these non-hazardous bulbs can legally be disposed in a permitted solid waste landfill assuming the trash hauler and licensed disposal facility provides approval.

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2. Assume they are hazardous waste and manage them as universal waste. Most recyclers only want to handle unbroken/uncrushed lamps. Broken lamps generally cannot be handled as universal waste in Michigan. If you are managing lamps as a universal waste and experience incidental breakage while handling, if the container remains intact and closed, preventing any release, contact your universal waste handler to determine whether they can accept your waste and any additional requirements you must take to ensure proper handling upon receipt. alternate precautions you must take to ensure proper handling of the universal incidentally broken bulbs. Label unbroken individual lamps or containers with the words "Universal Waste Lamps," "Waste Lamps", or "Used Lamps." Meet the other universal waste requirements as outlined in Chapters 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12.
3. Determine if the bulbs or residue are a hazardous waste when the lamps are not handled as universal waste or are broken by either assuming they are hazardous waste, using knowledge about the lamps, such as documentation from the lamp manufacturer, or by testing. If testing is done, the commonly used lamps would be hazardous waste if the Toxicity Characteristic Leaching Procedure (TCLP) results meet or exceed the following limits:
  - ✓ Fluorescent and High-Intensity Discharge (HID) lamps or other lamps containing mercury at concentrations of 0.2 mg/l or more are a D009 hazardous waste.
  - ✓ Incandescent or other lamps containing lead at concentrations of 5.0 mg/l or more are a D008 hazardous waste.

Disposal options of hazardous waste bulbs will depend on the company's generator status. At this time Conditionally Exempt Small Quantity Generator may put the bulbs in the trash if the hauler and licensed solid waste disposal facility will accept them and it is authorized under MIOSHA standards. Most disposal facilities and haulers will not take them because of safety concerns for their employees. A Small Quantity Generator and Large Quantity Generator would need to dispose of them as hazardous waste unless they are intact, and managed as a universal waste.

### 2.4.9.f Small Capacitors and Ballasts

If small capacitors and ballasts are intact, non-leaking, and contain less than 50 PPM polychlorinated biphenyls (PCBs), they may be disposed of in a licensed landfill if the landfill will accept them. Some ballasts will have "No PCBs" on the label.



Contact the landfill about their acceptance policy. If a company is doing a re-lamping project or getting rid of a number of devices at one time, the landfill may not take them. It is recommended to pack the devices in an U.S. DOT approved drum with adequate absorbent such as sawdust or soil to absorb any potential liquid in the device and label the container. If no free liquids are present, there are no manifesting requirements.

If the devices are leaking and contain 50 PPM PCBs or more, you need a list of PCB disposal sites, for more information about PCBs in other devices, see Chapter 4.5.4 and the U.S. EPA TSCA information online at [www3.epa.gov/epawaste/hazard/tsd/pcbs/pubs/laws.htm](http://www3.epa.gov/epawaste/hazard/tsd/pcbs/pubs/laws.htm). PCB waste that is liquid must be managed to meet the liquid industrial by-product requirements and documented on a shipping document unless a manifest is required under TSCA. For PCB waste that is solid, use the PCB codes required by your disposal facility and discuss any solid PCB manifesting requirements with them.



Questions regarding management and disposal of PCB articles under TSCA should be directed to the U.S. EPA, Region 5 PCB Contact who can be reached at 312-886-7890.

### 2.4.9.g Sorbents

Sorbents used to clean up spills can be sent to a licensed sanitary landfill (Type II) if:

1. The landfill has approved them. Check with the landfill operator;
2. The sorbents contain no free liquids (they pass the paint filter test); and
3. The materials are either of the following:
  - ✓ Are not a hazardous waste, including sorbents used for oil spills or
  - ✓ Are a hazardous waste generated by a Conditionally Exempt Small Quantity Generator.

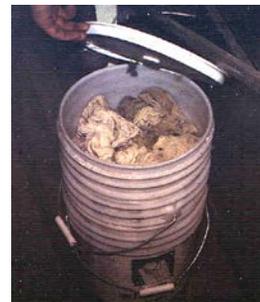
Except under specific circumstances, it is not permissible to intentionally add wastes, including used oil, to sorbents for disposal in a landfill. Used sorbents that are not considered hazardous waste and do not pass the paint filter test must be handled as a liquid industrial by-product.

Generators must handle the sorbents as hazardous waste if the material was used to clean up listed hazardous waste. Generators must also evaluate used sorbents to determine whether they exhibit one or more hazardous waste characteristics and manage them appropriately. This volume of hazardous waste needs to be included in calculating your generator status. Remember that this quantity could affect your generator status and, therefore, your regulatory requirements. See Chapter 2.4 for more details.

A DEQ, Hazardous Waste Program permit is not required to add absorbent materials to hazardous waste in a container if all the conditions in Rule 503(1)(i) of the Part 111 rules (R 299.9503(1)(i)) are met and the treatment does not violate the land disposal restrictions. Some companies offer services where used sorbents are returned to them for oil recovery and then the sorbents are able to be reused. Search for sorbent recyclers in the [Recycled Materials Market Directory](#) online at [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd). For manufacturers and suppliers of sorbents containing recycled materials, go to [www.epa.gov/cpg/](http://www.epa.gov/cpg/) and select products, then sorbents.

### 2.4.9.h Shop Towels and Other Textiles

Disposable rags, uniforms, gloves, and other textiles must be handled as a hazardous waste if they contain free liquids that have a flashpoint below 140 degrees Fahrenheit, were used with a listed waste (commonly the F001-F005 solvents), or exhibit any other hazardous waste characteristics. This also applies to reusable materials that are being discarded. If textiles were used as a sorbent to clean up spills, also see Chapter 2.4.9.g.



Textiles that are spontaneously combustible are a D001 hazardous waste. When determining the waste code for the textiles used with solvents, it is necessary to determine if it is a listed or characteristic hazardous waste. This distinction is based on whether the solvent is a waste before or after the textile is used.

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- If a listed solvent is put onto the textile and the textile is subsequently used to clean a part, the facility needs to determine if the resulting waste is characteristically hazardous.
- If a listed solvent is put onto the part and the textile is then used to remove the excess solvent waste, the textile is automatically a listed hazardous waste because the textile is used to absorb a listed hazardous waste and the mixture rule applies.

Note: In 2013, U.S. EPA issued new federal rules conditionally excluding [solvent-contaminated wipes destined for disposal](#) from hazardous waste regulation. The federal rulemaking is found under 40 CFR 261.4(b)(18). The federal rulemaking has not been adopted into the Part 111 rules. Therefore, generators should continue to recycle and reuse solvent contaminated textiles as provided under Rule 206(3)(g) of the Part 111 Rules (R 299.9206(3)(g)) to minimize the amount of hazardous waste generated monthly. When accumulating recycled solvent contaminated textiles on-site, the textiles must be managed to meet the hazardous waste regulation until they are shipped for laundering in accordance with the U.S. DOT requirements. For questions regarding hazardous waste textile recycling or disposal, contact your DEQ, [District Office Hazardous Waste Program](#) (see Appendix C).

MIOSHA has requirements that rags or waste be put into metal waste cans immediately after use. In addition, the contents of the waste cans are to be properly disposed of at least once daily at the end of each shift. Discuss with MIOSHA Consultation Education and Training Program at 517-322-1809.

Unless the textiles are recycled and reused, the volume of discarded textiles needs to be included when calculating your hazardous waste generator status. It is estimated that a 55-gallon drum holds approximately 125 pounds of used rags without free liquids, but the weight varies with the textiles. As noted above, reusable textiles are exempt from the hazardous waste regulations if the textiles meet all of the following requirements:

- Textiles are being laundered or dry-cleaned and reused.
- Textiles do not contain free liquids (i.e., you cannot squeeze any liquid from the textiles).
- The containers used to store the textiles do not contain free liquids.
- Hazardous waste is not mixed with the textile after its original use.



**Caution:** There have been some instances where textiles have been exposed to chemicals from other business operations when shipped off site for cleaning. If your company has a sensitive process, you may want to make arrangement with the cleaning company that your textiles are cleaned separately from other rags and only your rags are returned to your company.

Let your cleaning company know what type of chemicals you use with these materials so they can determine the best way to clean them and the effect they will have on their own waste stream. Reusable textiles being sent for cleaning are not included when calculating your hazardous waste generator status.

### 2.4.9.i Spent Parts Washer and Other Solvents

There are several different types of solvents used in parts washers, and the management requirements that apply to the used solvent and any sludge depends on if it is a hazardous waste or not (see Chapter 2.4.9.h for information about solvents on rags). Spent solvent and sludge can

be either a listed or characteristic hazardous waste, depending on the chemicals used and contamination sources from use. Cross contamination is also a concern, especially in facilities without strict policies prohibiting employees from using parts washer fluids to clean other equipment or mixing other wastes with it or in facilities using aerosols. Two common situations when cross contamination occurs are when employees:

- Mix solvents used to clean paint guns from the maintenance area with the used parts washer fluids creating a listed F005 hazardous waste by the mixture rule; or
- Add other degreasers that contain tetrachloroethylene (TCE), which is also known as perchloroethylene (PERC), to the parts washer solvents. One suspected practice that may cause contamination involves using aerosol products containing TCE on a part to accelerate the cleaning action and then putting that part into the parts washer. The used parts washer may also become a D039 waste if the TCLP concentration for TCE exceeds 0.7 milligrams per liter or an F listed hazardous waste.

Common parts washer fluids include the following:

- Mineral spirits (naphtha or stoddard solvent) are commonly used. Products containing mineral spirits have varying flashpoints. Mineral spirits with a flashpoint of 140 degrees Fahrenheit and above are not a hazardous waste due to their ignitable characteristic but may be contaminated with other hazardous constituents through use, requiring them to be managed as hazardous waste. Mineral spirits with a flashpoint below 140 degrees Fahrenheit are classified as a D001 hazardous waste. Where economical, the solvents may be recycled instead of being disposed.
- Aqueous cleaners are a recommended replacement for solvent cleaners for several reasons. The aqueous cleaners contain less volatile organic compounds (VOCs), are usually less toxic, and generally result in the waste being non-hazardous unless it is contaminated with a listed waste or has acquired a contaminant that causes the solvent to exhibit a hazardous waste characteristic. One way to manage spent aqueous washers is to discharge this waste stream to a POTW (municipal sanitary sewer system), if the company has permission from the POTW to do so.
- Methylene chloride is occasionally used as a paint remover or to clean carburetors or “white metals” such as die cast zinc or aluminum. Spent methylene chloride used for degreasing usually has a waste code of F001. If it is contaminated with other wastes, however, it may also have a waste code of F005.

**Note:** Some aqueous cleaning formulations contain solvent additives such as terpenes, glycol ethers, and alcohols.

Facilities should evaluate the parts washers they are using to determine if an alternative product can provide the same desired results without generating hazardous waste. Management can also reduce the chance of cross contamination by controlling the inventory of products used at the facility and educating their employees on the importance of not contaminating the parts washer with other wastes. See Chapter 1 or discuss with your [District Office](#), AQD (see Appendix C) questions regarding VOCs emission calculations and operating requirements under Part 55 of Act 451. Air quality regulations require that parts washer lids be kept closed when not in use if the solvents used contains regulated VOCs (see Chapter 1.4). If facility is a Large Quantity Generator, also see Chapter 2.4.7.b section on VOC air emissions.

### ON-SITE SOLVENT RECYCLING

Facilities that use large volumes of solvents should consider recycling the used solvents on-site. See Chapter 12.1.5.e for information on solvent pollution prevention options.

**TIP:** Go to [www.cleansolutions.org](http://www.cleansolutions.org) for information and resources about solvent and process alternatives for parts cleaning and degreasing. See Chapter 12.1 for other tips on pollution prevention.

It is not necessary to obtain a hazardous waste permit to recycle solvents at the site of generation, but there are requirements to operate a solvent distillation unit or still at the site where the used solvents are generated. If recycling on-site generated solvents:

- Manage the solvents both prior to and after recycling under the appropriate hazardous or liquid industrial by-product regulations depending on the type of solvent.
- Keep a log of the amount of waste treated on-site. This amount needs to be included when calculating the company's hazardous waste generator status (see sample calculation below). These logs can also be helpful to document how you handled your waste when you want to sell your business and a Baseline Environmental Assessment is being done (see Chapter 7).
- Meet the generator hazardous waste requirements or liquid industrial by-product requirements while managing solvents on-site (e.g. labeling, containers, containment, etc.).

Use units approved or listed in accordance with UL 2208 Standard for Solvent Distillation Units

- Locate still according to manufacturers' instructions and away from ignition sources.
- Only use with materials specifically listed on the still label or instruction booklet.
- Meet flammable and combustible liquids and waste storage requirements. The NFPA 30 adopted in the flammable and combustible liquid rules have requirements for stills. However, there are several types of operations that are exempted in Chapter 5.11 including stills used in research, testing, or experimental processes, petroleum refineries, chemical plants, or dry cleaners
- Do not exceed 55 gallon batch capacity. An air quality permit is required in advance of installation if there are air emissions from a distillation unit that exceeds the 55 gallon batch capacity. Check with the DEQ, [District Office](#), AQD (see Appendix C) if you are considering using a still and have questions.
- Check if the local fire department and your insurance company have requirements for still operations.
- Periodically review the servicing schedule to determine if the best solvent is being used and the schedule meets the facility's solvent requirements.



### How do I calculate the amount of hazardous waste generated from a recycling still?

The following scenario is given as an example on how to count the used solvent reclaimed through a recycling unit when determining your generator status. The original solvent is counted once during the calendar month, plus any additional solvent added during the month, and any generated still bottoms. The count starts new every calendar month. Counting waste is addressed in Rule 205(5) of the Part 111 rules (R 299.9205(5)).

A company with a painting line uses acetone to clean the paint gun and line. Acetone is a F003 listed solvent. To save on purchasing costs of buying more cleaning chemicals and reduce hazardous waste disposal costs, the company weekly uses a 5 gallon capacity still to recycle the used acetone waste. They collect spent acetone in satellite containers until they put the used solvent into the recycling unit.

**June Week 1**, an employee put 5 gallons of spent solvent in the still and got 4 ½ gallons cleaned solvent and ½ gallon sludge. Need to count the 5 gallons of spent solvent. They then took the 4 ½ reclaimed gallons and added ½ gallon new virgin solvent and used it to clean the equipment.

**June Week 2**, an employee put another 5 gallons of spent solvent in the still and got 4 ½ gallons cleaned solvent and ½ gallon sludge. Since 4 ½ gallons of solvent had already been included in the Week 1 calculation, this week they only count the ½ gallon of additional virgin solvent that was used and ½ gallon sludge towards the generator status.

**June Week 3**, repeat of week 2

**June Week 4**, repeat of week 2

In this scenario, they add 5 + ½ + ½ + ½ (solvent) + ½ + ½ + ½ (sludge) = 8 ½ gallons of hazardous waste was generated in June from solvent use and recycling.

Week	Solvent in gallons	Sludge in gallons	
1	5		The sludge is not counted this first week because the waste is included in the initial amount of used solvent put into the still.
2	½	½	Need to count the new solvent that was used and the amount of sludge generated this week
3	½	½	
4	½	½	
Subtotal	6 ½	1 ½	
	6 ½ gallons X 6.64 (acetone weight in lbs./gallon)		43.16 pounds of liquid acetone hazardous waste generated in month
	1.5 gallons X 8.5 (sludge weight in pounds/gallon)		12.75 pounds of hazardous waste sludge generated in month
	Acetone liquid waste + sludge		55.91 pounds of hazardous waste

### OFF-SITE SOLVENT RECYCLING

A manufacturer may ship the used solvents off-site to a commercial recycler for reclamation. Recyclers can be found in the oils and solvents category of the [Recycled Materials Market Directory](#) available online at [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd). Confirm they are a permitted and registered transporter and meet waste manifest requirements. This waste would be counted towards your generator status. A Small Quantity Generator may ship solvents for reclamation under a tolling arrangement as discussed in Chapter 2.4.5.a. Call the DEQ, District Office, Hazardous Waste Program (see Appendix C) if you have any questions about reuse or recycling of solvents.

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To understand the DEQ hazardous and liquid industrial by-product inspection process and the records inspectors will request, view the DEQ's recorded inspection and recordkeeping webinar available at [www.michigan.gov/deqworkshops](http://www.michigan.gov/deqworkshops) under the "Introduction to Hazardous Waste Webinars."

### 2.4.9.j Aerosols



Aerosols are a commonly overlooked hazardous waste and industry uses numerous spray cans including degreasers, paints, etc. Residues in aerosol containers are exempt from the hazardous waste regulations if the cans are "empty," which means the pressure in the container approaches atmospheric pressure and they contain less than one inch of non-acute residue. One practical test is to turn the aerosol can upside down and press down on the nozzle. If you don't hear or see anything and the can feels light, it is usually empty. This quick test is not accurate if the nozzle is blocked. It is recommended to recycle empty cans for scrap metal where possible. Unfortunately, salvage yards in some areas of the state will not accept them at this time. Check with your local salvage yard or look for recyclers of empty cans in the [Recycled Materials Market Directory](#).

If the spray can contains product and it needs to be disposed of, you must determine if it is a hazardous waste. Not only is it illegal to intentionally spray out the can's contents just so it meets the "empty" definition, it is also costly in lost product. Look at the SDS or label to help determine if its contents are a hazardous waste:

- Are the cans contaminated with "F" listed solvents? On occasion an aerosol is F-listed if, for example, the outside of the aerosol can was contaminated with a spent solvent on the "F" list. That is because the container would be considered to be contaminated by the waste and therefore due to the "mixture rule" it would be an "F" listed waste. Unwanted solvents in the aerosol cans are not normally "F" listed because the solvent has not yet been used.
- Do the contents have the single active ingredient on the "U" or "P" list?
- Do the contents exhibit one or more of the characteristics? Cans containing flammable propellants or ingredients with a flashpoint below 140 degrees F would be ignitable (D001). Some aerosol cans may contain products that reactive (D003), while others, like oven cleaners, may contain corrosive materials (D002). Review the product SDS to determine if the contents exhibits a characteristic.

**Tip:** Consider using products in refillable containers to reduce disposal costs of containers that are hazardous waste only because of the aerosol propellant. There are some metal containers that can be pressurized with air compressors or plastic containers that are pressurized by hand pumps or squeeze triggers.

For example, aerosols products containing a mixture of tetrachloroethylene (PERC) in regulated concentrations (0.7 mg/L when tested using TCLP) or more with other ingredients is a D039 waste. If the unwanted aerosol product is PERC, it would be U210.

## **Aerosol Can Crushers and Puncturing Devices**

Aerosol can crushing and puncturing devices normally fit onto a 55-gallon drum. If you are considering operating an aerosol can device, first contact your District Office, AQD and Hazardous Waste Program (see Appendix C) and MIOSHA, Consultation Education and Training Program at 517-322-1809 to discuss any operating and permitting requirements. It may be possible to meet air permitting and generator on-site waste treatment exemptions if you are only crushing your own aerosol cans at the site where they were used and became a waste. To be exempt from a DEQ, Hazardous Waste Program hazardous waste permit and license, Small Quantity Generators and Large Quantity Generators must meet the requirements of Rule 503(1)(i) (R 299.9503(1)(i)). This includes, but is not limited to, meeting the on-site treatment requirements for container management, secondary containment, and preparedness and prevention specified under this rule. Conditionally Exempt Small Quantity Generators are not subject to this rule.

If you have a can crushing device, determine if the treatment is occurring in a satellite container or a hazardous waste accumulation container and meet the applicable requirements for your generator status for the container and the Rule 503 exemption requirements. See Chapter 2.4.8. for the management requirements that apply to a satellite containers and Chapter 2.4.7 and 2.4.8 for the requirements that apply to hazardous waste accumulation containers.

Facilities must characterize the carbon filters when they are replaced, and any liquids collected in the process, to determine if these materials are a hazardous waste. The collected waste is often flammable (D001) waste so you will want to ensure that no sparking or smoking occurs near the device and meet the other regulations pertaining to flammable and ignitable liquids (See Chapter 4). Other waste codes may apply depending on the products being used. In addition, Large Quantity Generators may be subject to the 40 CFR 264 and 265 Subpart BB and CC air emission requirements. Direct any questions to the DEQ, [District Office](#), Hazardous Waste Program (see Appendix C).

### **2.4.9.k *Painting Wastes***

Proper characterization of air filters, paints, solvents, and other wastes resulting from painting operations requires knowing which chemicals are in the paints and other products used, what is used to clean out the paint guns and lines, and how the solvent was used (also see Chapters 2.4.9.i and 2.4.9.h regarding solvents). If you have any questions about your waste generated from painting operations, call your DEQ, District Office, Hazardous Waste Program (see Appendix C).

Identify if any of the paints and chemicals used are listed or characteristic hazardous waste. If the product ingredients are listed as an “F” waste, determine if the product was used as a cleaning solvent or as an ingredient in a paint product. If it was used as a solvent, then the “F” listing applies (see Chapter 2.4.9.i). Most common paint wastes include F005, F003, D001, D035, and occasionally D039. Paint formulations vary, but metals in paints such as barium, cadmium, lead, and chromium may be in amounts that fail the TCLP, making the waste a toxic characteristic hazardous waste. Confirm with your paint manufacturer that all the chemicals in Table 201a are listed on the SDS and note your review on your waste characterization records. SDS’ were developed for occupational health reasons and some manufacturers do not list all chemicals of concern for disposal on the SDS. Paint filters and waste rags may also be a D001 waste because they are spontaneously combustible or contain enough ignitable liquid waste. Look for paint and solvent recyclers in the [Recycled Materials Market Directory](#) at [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd) and be sure to confirm they are a permitted and registered transporter (see Chapter 2.4.10).

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**Example 1:** A paint booth operation at the facility uses a solvent product (that contained methyl ethyl ketone [MEK] and other listed solvents which resulted in a blend that was over 10 percent by volume of the product). This solvent was used to clean out the paint gun and line and directly sprayed into the filters. The waste solvent would be an F005 waste because the solvent was used for its cleaning properties. The hazardous waste mixture rule would apply to the paint booth filters and they would also be an F005 waste because the F005 solvent was sprayed onto the filters. If the solvent used to clean up the paint gun and line was sprayed into a container instead, the paint booth filters would not be a F005 waste but the used solvent would be a F005 listed hazardous waste.

**Example 2:** A paint product contained MEK and was used for its intended purpose as a paint. The waste paint and paint booth filter waste would not be an “F” listed waste as long as other listed solvents were not used as a gun and line cleaning agent. In this case, the MEK was not used as a solvent. However, it could be a D035 toxic characteristic hazardous waste if the concentration met or exceeded 200 PPM in the waste.

**Example 3:** A solvent based paint was thinned with lacquer thinner before being sprayed. Any leftover paint would probably be an ignitable characteristic hazardous waste. Paints and related wastes may also be regulated hazardous waste because the ingredients contained metals or other chemicals included in the “D” wastes in regulated concentrations or because it met ignitable characteristics.

See Chapter 1 or discuss with your [District Office](#), AQD (see Appendix C) questions regarding VOC emission from painting operations. Also see Chapter 19 for information about the [MIOSHA Standard - Part 76 Spray Finishing and Dip Tanks](#).

### ***2.4.9.I Wastes Containing Silver and Other Precious Metals***

Some industries may have wastes from photo or x-ray processing or other processes that generate wastes containing silver or other regulated wastes. If waste contains economically significant amounts of precious metals (silver, gold, platinum, palladium, iridium, osmium, rhodium, ruthenium, or any combination), it can be managed under alternative standards found under Rule 803 of the Part 111 rules (R 299.9803). A facility is required to include the amount in determining its hazardous waste generator status, obtain a Site ID Number (see Chapter 2.4.4), include the waste in the biennial report for Large Quantity Generators of hazardous waste (see Chapter 2.4.6), and the waste must be shipped using [the Uniform Manifest](#) (see Chapter 2.4.5). Additionally, these materials must not be accumulated speculatively, meaning that at least 75 percent of the waste must be sent for reclamation each calendar year.

The following summarizes requirements when these specific wastes are not managed under the precious metals rule.

#### **Used fixer and other solutions:**

Used fixer or other solutions may contain silver in amounts that cannot be discharged to a wastewater treatment plant or septic system. It may be necessary to install a silver recovery unit. Before purchasing or leasing a unit, check with the wastewater treatment plant for any local requirements to discharge processed liquids. Off-site shipments of the silver recovery unit cartridges and solutions by Small Quantity and Large Quantity Generators must be done by a permitted and registered hazardous waste transporter and manifested as a D011 hazardous waste if the solution has a TCLP concentration of 5.0 milligrams per liter (mg/l) or more of silver.

Conditionally Exempt Small Quantity Generators may take the silver recovery unit cartridges and liquid solution waste to a destination facility themselves if meeting the conditions in Chapter 2.4.5, or hiring a permitted and registered liquid industrial by-product transporter to haul the liquids. Liquid solutions, and cartridges that contain free liquids, that do not meet this silver concentration would be managed and shipped as liquid industrial by-product (see Table 2.1).

Recovered silver flake which does not contain liquids is considered product and is not manifested or shipped as regulated waste when sent off-site. All shipments must comply with U.S. DOT requirements regardless of the status under waste regulations.

### **Used developer and system cleaners:**

Check if the wastewater treatment plant will allow discharges of used developer and system cleaners. If not, check if the fixer recycler will accept the used developer. If the printer is not taking the used developer themselves to a destination facility, hire a permitted and registered transporter when shipping used developer off-site as liquid industrial by-product and record the transport on a shipping document (see Chapter 2.4.5.a). Do not mix used fixer and developer.

Cleaners used in developer systems may contain chromium. Review the SDS and other information to determine if the waste cleaner has a chromium TCLP concentration of 5.0 mg/l or more. If so, it would be considered a D007 hazardous waste. If possible, switch to a non-chromium cleaner.

### **Used film:**

The DEQ recommends that used film be recycled for silver. Recyclers can be found in the [Recycled Materials Market Directory](http://www.michigan.gov/deqrmmd) at [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd). Conditionally Exempt Small Quantity Generators may dispose used film in the trash. Small Quantity and Large Quantity Generators may also put it in the trash unless the used film has a silver TCLP concentration of 5.0 mg/l or more classifying it as a hazardous waste although this is unusual. Unused or expired film can normally be returned to the dealer or manufacturer.

### **2.4.9.m Electronic Waste**

In Michigan consumer electronics can be managed as universal waste. Consumer electronics means devices containing an electronic circuit board, liquid crystal display, or plasma display commonly found in homes and offices and those devices when used in other settings. Common consumer electronic wastes includes computers, printers, telephones, two way radios, and televisions. Label the devices or the containers with “Universal Waste Electronics” or “Universal Waste Consumer Electronics” and meet the applicable universal waste handler requirements (see Chapters 2.4.1.c, 2.4.4, 2.4.5, 2.4.7, and 2.4.8).



Universal waste handlers of electronics may do any of the following and still be a handler:

- Repair the device for potential direct reuse
- Remove other universal waste e.g. batteries from the device
- Remove individual modular components for direct reuse
- Perform processing exempt under Part 111 of Act 451 and its rules when notified as a universal waste destination facility

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See the [Electronic Equipment](http://www.michigan.gov/documents/deq/deq-ead-tas-elecequp_305263_7.pdf) guidance available at [www.michigan.gov/documents/deq/deq-ead-tas-elecequp\\_305263\\_7.pdf](http://www.michigan.gov/documents/deq/deq-ead-tas-elecequp_305263_7.pdf), which provides details about when consumer electronics are a waste, where to recycle electronics, recycling exemptions, and more. Part 173 requires recyclers of consumer electronics to register with the State and to meet certain operational requirements. A listing of those registered recyclers can be found on the Takeback Program website found at [www.michigan.gov/electronicwaste](http://www.michigan.gov/electronicwaste). Electronics that are not typically found in a home are generally a hazardous waste because they fail the TCLP test for metals. This is especially true for equipment that contains cathode ray tubes (lead) and LCD screens (mercury). For more information on this topic, including exemptions for handling electronics that cannot be managed as a consumer electronic under the universal waste regulations, see the electronic equipment guidance at [www.michigan.gov/electronicwaste](http://www.michigan.gov/electronicwaste).

### 2.4.9.n Waste containing radioactive materials

Some companies may generate “mixed waste” which contains both hazardous waste and source special nuclear, or byproduct material subject to the Atomic Energy Act of 1954. This waste is managed under both the hazardous waste and the radioactive material regulations described in Chapter 10. See Rule 822 of the Part 111 rules (R 299.9822) regarding low-level mixed waste (LLMW) and Rule 823 of the Part 111 rules (R 299.9823) regarding LLMW and naturally occurring and/or accelerator-produced radioactive materials (NARM). Discuss requirements with the DEQ by calling 517-241-1275 or the DEQ, [District Office](#), Hazardous Waste Program (see Appendix C). See Chapter 10 for management of exit signs and industrial smoke detectors.

### 2.4.9.o Spent Antifreeze

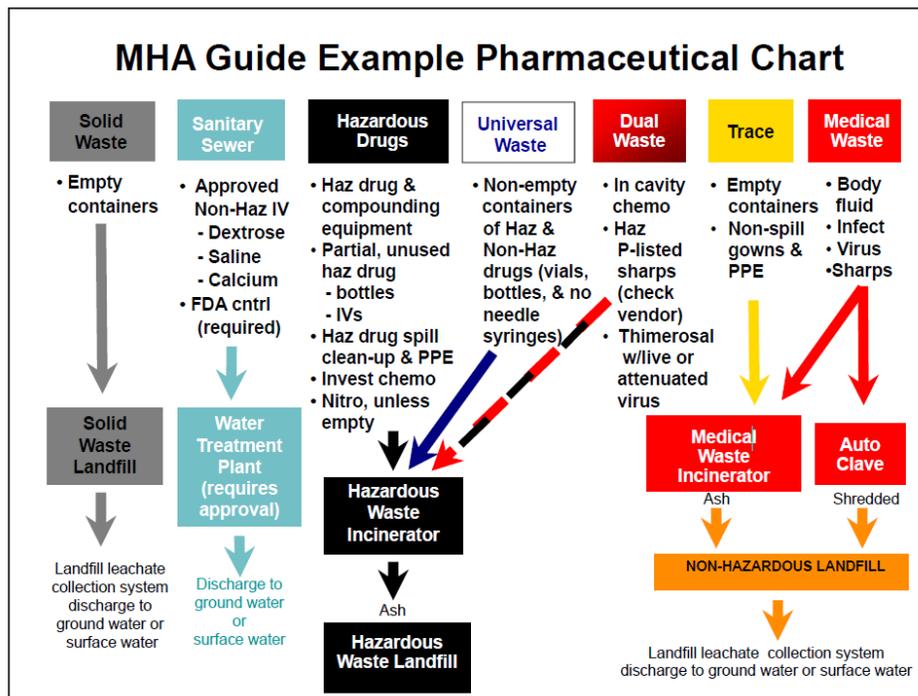
Used antifreeze (ethylene glycol and propylene glycol) may be removed from transportation equipment or cooling/heating systems or the chemicals may have been used for deicing aircraft. Spent antifreeze may be either hazardous or non-hazardous waste depending on its characteristics. There have been increased incidents of antifreeze meeting hazardous waste toxicity characteristics when removed from radiators and equipment that contained lead solder. The higher lead levels are generally exhibited in antifreeze removed from heavy duty equipment. To simplify the management options associated with antifreeze exhibiting the D008 lead characteristic, the DEQ established antifreeze as a universal waste in the 2008. Non-hazardous antifreeze may be managed as liquid industrial by-product, universal waste, or hazardous waste. Hazardous waste antifreeze must be managed as a hazardous waste or universal waste. See the [Antifreeze](#) guidance available in the DEQ publication center at [www.michigan.gov/documents/deq/deq-ead-tas-antifrez\\_320830\\_7.pdf](http://www.michigan.gov/documents/deq/deq-ead-tas-antifrez_320830_7.pdf). Antifreeze recyclers can be found in the [Recycled Materials Market Directory](#) at [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd).

### 2.4.9.p Scrap Metal

Scrap metal is excluded from the hazardous waste and solid waste regulations when it is recycled. Scrap metal is defined as “bits and pieces of metal parts such as bars, turnings, rods, sheets, wire, or metal pieces which may be combined together with bolts or by soldering such as radiators, scrap automobiles, and railroad box cars, which when worn or superfluous may be recycled.” It can also include solder sponges that can be recycled for scrap metal. Accumulation of scrap metal prior to recycling under the hazardous waste regulations is limited to the speculative accumulation conditions under the solid waste regulations (see Chapter 2.1). At least 75 percent of the scrap metal must be recycled in a calendar year to be exempt from the hazardous waste regulations. To find recyclers, look in the [Recycled Materials Market Directory](#) at [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd) or look in the yellow pages under the heading “Scrap Metal.” If you have precious metals, see Chapter 2.4.9.i.

2.4.9.q Pharmaceuticals

Pharmaceuticals are drugs, regardless if they're used in the diagnosis, cure, mitigation, treatment, therapy, or prevention of disease in humans or animals. Pharmaceuticals, like any business waste, must be characterized. A small percentage of pharmaceuticals meet the definition of hazardous waste and need to be managed in accordance with the hazardous waste regulations found under Part 111 of Act 451 and the Part 111 rules. Pharmaceutical waste that is not subject to hazardous waste regulation but is liquid, may be subject to regulation as a liquid industrial by-product under Part 121 of Act 451, unless specifically exempted. Part 121 of Act 451 has an exemption for empty containers that mirrors the empty container regulations for non-acute hazardous waste discussed in Chapter 2.4.1. Pharmaceutical containers that are empty can be disposed of as a non-hazardous solid waste or recycled. For additional information on empty containers, please also see the [Empty Tanks or Containers guidance](http://www.michigan.gov/documents/deq/deq-ess-p2tas-emptyingtanks_225369_7.pdf) available at [www.michigan.gov/documents/deq/deq-ess-p2tas-emptyingtanks\\_225369\\_7.pdf](http://www.michigan.gov/documents/deq/deq-ess-p2tas-emptyingtanks_225369_7.pdf).



To simplify the management requirements that apply to hazardous waste pharmaceuticals, Michigan adopted pharmaceuticals as a universal waste type in 2007. See the [universal waste guidance](http://www.michigan.gov/documents/deq/deq-ead-tas-univwaste_320878_7.pdf) on-line at [www.michigan.gov/documents/deq/deq-ead-tas-univwaste\\_320878\\_7.pdf](http://www.michigan.gov/documents/deq/deq-ead-tas-univwaste_320878_7.pdf). To further clarify the management options for pharmaceutical and infectious medical waste, the DEQ produced a 2012 [Pharmaceutical Waste Tutorial](#) and an extensive [Michigan Health and Hospital Association Pharmaceutical Waste Management Guide](#). Both are available at [www.michigan.gov/deqhealthcare](http://www.michigan.gov/deqhealthcare) under the “Waste Health Care Resources” link, with various other resources for managing unique health care waste. For an overview of the waste types and management options detailed in the MHA Pharmaceutical Waste Guide, see the [MHA Guide Example Posting](#) depicting the impact of the different management options on the environment. For questions related to these resources, contact the Environmental Assistance Center at 800-662-9278 or the DEQ, [District Office](#), Hazardous

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Waste Program (see Appendix C). For more information on managing mixed medical waste, also see Chapter 2.5 and 2.6.

### **2.4.10 Selecting a Transporter and TSDF**

Because transporter and treatment, storage and disposal facilities (TSDF) services and costs are highly varied, you should contact and interview several facilities to obtain price estimates before making a selection. Transporters may be independent companies or may be affiliated with a TSDF. There are requirements for transporters hauling either hazardous waste or liquid industrial by-product. A transporter needs to be registered and permitted under [Act 138](#) to haul either of these materials.

You might want to tour the TSDF yourself to see its operations. Remember that, as the generator, you are ultimately responsible for how your waste is transported and disposed, so it is wise to choose a company on more than price alone. Use the following list of questions as a starting point for your interviews, and compare the companies' responses before making your selection. It is important to select a waste transporter and TSDF that you are comfortable doing business with and who provides the best services for your particular circumstances, at a reasonable price.

#### ***Questions to Ask Prospective Transporters and TSDFs***

1. **Hazardous waste** - Is the hazardous waste transporter currently permitted and registered in Michigan to transport hazardous waste under Act 138? Does the TSDF where the hazardous waste is being taken have a current operating license? You may search the [Waste Data System](#) at [www.deq.state.mi.us/wdsp/](http://www.deq.state.mi.us/wdsp/) for hazardous waste transporters and TSDFs. You may also look for companies in your telephone directory under the heading "Waste Reduction, Disposal, and Recycling Service."

A TSDF can accept only those types of wastes allowed by its permit or operating license. Special fees may be charged for small quantities of hazardous waste requiring extra handling by the facility.

2. **Liquid industrial by-product** - Is the liquid industrial by-product transporter currently permitted and registered to transport liquid industrial by-product under Act 138? Is the liquid industrial by-product being taken to a facility that has notified the DEQ, Hazardous Waste Program as a designated facility that accepts liquid industrial by-product? You may search the [Waste Data System](#) for companies that have notified as being liquid industrial by-product designated facilities and liquid industrial by-product transporters. You may also look for companies that deal with liquid industrial by-product in your phone directory under the heading "Waste Reduction, Disposal, and Recycling Service," or for used oils look under the heading "Oils-Waste."
3. What type and amount of insurance does the transporter or TSDF carry? Permitted and registered transporters are required to have insurance coverage to cover accidents and environmental spills. You may want to ask for proof of current insurance coverage for your records.
4. If you are hiring an independent transporter, find out what TSDF the transporter uses for your type of waste. Do they use a transfer facility? If the waste is going to a treatment facility before disposal, where is the ultimate place of disposal for the treated wastes?

5. Does the transporter or the facility offer special services for small volumes of waste? Some transporters might not service Small Quantity or Conditionally Exempt Small Quantity Generators.
6. Does the transporter or TSDF initially prepare the waste manifests or will they assist you by reviewing manifests you prepare for correct and complete information (see Chapter 2.4.5)? Does the TSDF provide the land ban or land disposal restriction notice forms (see Chapter 2.4.5.c) and do they help complete them?
7. Does the transporter test used oil prior to picking up the waste or do they require you to do any testing (see Chapter 2.4.9.a)? Does the TSDF require specific tests or laboratories to be used (see Chapter 2.4.2).
8. Is there anything additional to the labeling requirements you must do before your waste is picked up by the transporter or accepted at the TSDF? Some facilities have their own requirements as to how they accept waste material. For example, some companies will not accept hazardous waste in drums even though this is a common method of storage and only pick up bulk loads.
9. Does the transporter or TSDF serve other businesses similar to yours? If so, obtain telephone numbers and contact these companies to evaluate the services they received.
10. Does the transporter deliver waste to the treatment, storage, or disposal facility the same day that it's picked up? If not, ask questions about the company/location where the waste will be stored while in transport. Hazardous waste must reach its final destination within 10 days.
11. What steps does the transporter or TSDF operator take to avoid spills or leaks and minimize the facility's own legal liability? You may want to note for your records the method of temporary waste storage used at a treatment or recycling facility. If your waste is going to a hazardous waste landfill, ask about their leachate control and ground water monitoring provisions. Use this information when comparing companies. A company that costs more to take your waste but practices an extensive environmental protection program may actually be cheaper in the long run than a company that initially costs less but does not practice adequate environmental protection. If contamination occurs, you can be held financially responsible for the site cleanup costs.
12. Have any violations of state regulations occurred? You may also search the [Waste Data System](#) for information regarding a company's compliance history. Call the appropriate DEQ, [District Office](#), Hazardous Waste Program (see Appendix C) to discuss the compliance history for prospective transporters or a TSDF. Transporter and TSDF inspection files are kept by the Hazardous Waste Program at the DEQ, District Office responsible for the area where the business is located. If you want to review the files, contact the District Office to confirm the appropriate office and set up an appointment to review the records.
13. Will they enter into a written contract with you? For liability protection, it is a good idea to have a written contract that clearly identifies what specific services the company will provide. Be cautious of firms who do not want to offer a written contract for services.

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Conditionally Exempt Small Quantity Generators are not required to hire a permitted and registered hazardous waste transporter or dispose of hazardous waste at a hazardous waste TSD, but it must be disposed of at a facility that can legally accept the waste. It is recommended that CESQG exempted hazardous waste be sent to a hazardous waste disposal facility or waste recycler. In a few Michigan areas, local household hazardous waste collection programs accept hazardous waste from Conditionally Exempt Small Quantity Generators for a fee. A [list of local collection sites](#) is available at [www.michigan.gov/deqrecyclingcontacts](http://www.michigan.gov/deqrecyclingcontacts). Your waste that is not considered a liquid (passes the paint filter test) can be disposed of at a municipal solid waste landfill if the landfill authority will accept it. Your liquid industrial by-product must be hauled by a permitted and registered transporter, unless you haul your own generated liquid industrial by-product and meet the requirements outlined in Chapter 2.4.5.a.

### **2.4.11 Disposing Hazardous Waste On-Site**

You may NOT dispose of hazardous waste on your site unless you have obtained a construction permit or operating license for disposal from the DEQ, Hazardous Waste Program. Under limited circumstances, it might be legal to dispose of certain types of waste through a discharge to the sanitary sewers to the publicly owned treatment works (POTW). Any such discharge is only legal IF the discharge is approved by the POTW (see Chapters 2.4.1.d and Chapter 3.2). The POTW authorization should be in writing, and made available for review upon inspection.

Any on-site POTW authorized discharge only becomes excluded from regulation as a hazardous waste at the point of discharge to the sanitary sewer. Therefore, any management of the waste in advance of authorized POTW discharge is subject to the hazardous waste regulations and must be counted when determining a facility's hazardous waste generator status. Direct discharges to the sanitary sewer from process equipment are not counted if there is no on-site management of the waste. See Chapter 2.4.1.d and Chapter 3 on wastewater management for more information. Contact your local wastewater treatment facility and your DEQ, [District Office](#), Hazardous Waste Program (see Appendix C) for more information about on-site disposal of hazardous waste to the POTW and how this affects your hazardous waste generator status.

### **2.4.12 Employee Emergency Training**

In addition to the following training requirements, see Chapter 6 for contingency planning, release reporting, and release response requirements.

#### ***Hazardous Waste Training***

This section discusses emergency training requirements under the hazardous waste regulations. Training is required for all employees who are involved with hazardous waste management, such as personnel at the areas of generation, their supervisors, hi-low drivers who move the hazardous waste, shipping dock employees, emergency coordinators, or anyone else who handles the hazardous waste. You must tailor your training specifically to the hazardous waste procedures relevant to your facility and employee involvement.

**TABLE 2.8: HAZARDOUS WASTE TRAINING REQUIREMENTS**

Aspect	CESQG	SQG	LQG
<b>Training type</b>	No specific requirements under hazardous waste rules	Informal training <sup>1</sup>	Classroom setting or on the job formal instruction with written description of training program type and amount of training <sup>1</sup>
<b>Written training records</b>	No specific requirements	Recommended as verification training occurred	Required written records. ✓ For employees who left company, keep records at least 3 years from last day worked. ✓ For current employees, keep records until facility closes.
<b>Training Schedule</b>	No specific requirements	No specific requirements	✓ Initial training within 6 months of starting job involving hazardous waste ✓ Annual training (during calendar year, not necessarily 1 year from date of initial training)
<b>Trainer Qualifications</b>	No specific requirements	No specific requirements. May be someone in-house or hire outside trainer	Someone with significant experience in hazardous waste management. May be someone in-house or outside trainer.
<b>Manifest &amp; Transportation Training</b>	This is required under U.S. DOT regulations. See Chapter 4.4.10.	This is required under U.S. DOT regulations. See Chapter 4.4.10.	This is required under U.S. DOT regulations. See Chapter 4.4.10.

The above summarize requirements under the hazardous waste regulations. Facilities may also be subject to MIOSHA requirements for training and record keeping which are not included here.

<sup>1</sup> This training can be combined with other training sessions as long as a portion of the training is clearly devoted to hazardous waste requirements. Training under the Hazard Communication Employee Right-to-Know Standard (Right-to-Know) alone, as required by MIOSHA (see Chapter 13), is not sufficient to meet the hazardous waste training requirements. Review the DEQ guidance on [Personnel Training Requirements for Large Quantity Generators of Hazardous Waste](http://www.michigan.gov/documents/deq/deq-ead-tas-wmd-perstran_320908_7.pdf) online at [www.michigan.gov/documents/deq/deq-ead-tas-wmd-perstran\\_320908\\_7.pdf](http://www.michigan.gov/documents/deq/deq-ead-tas-wmd-perstran_320908_7.pdf) for more information on hazardous waste training requirements.

See Chapter 4.4 for training requirements under the transportation regulations including manifest training. See Chapters 13 and 23 for information about the MIOSHA regulations that require employees to be trained on proper waste handling and how to effectively respond to emergencies in a manner that protects their safety and the environment. Hazardous waste training involves familiarizing employees with emergency procedures; emergency equipment; emergency systems (such as communication or alarm systems, response to fires or explosions, shutdown of operations, response to unplanned sudden or non-sudden releases of hazardous waste); and their roles in handling hazardous waste or on a day to day basis at your facility, including implementing the hazardous waste contingency plan relevant to their positions.

Some common hazardous waste training violations include:

- ✓ Missing or incomplete documented records of required training for Large Quantity Generators:
  - Job title omitted
  - Job description omitted
  - Employee name omitted
- ✓ Missing written training description for Large Quantity Generators

## SECTION ONE: Environmental Regulations

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- ✓ Using another required emergency training program which does not have a portion clearly devoted to the hazardous waste requirements intended to ensure compliance with the hazardous waste regulations
- ✓ Failing to have employees trained annually for Large Quantity Generators

### Universal Waste Training

Small Quantity Handlers and Large Quantity Handlers must inform employees who handle or have responsibility for managing universal waste about the proper handling and emergency procedures relative to their responsibilities and appropriate for the type of universal waste handled at that facility.

## 2.5 Medical Waste

The management of medical waste is directly or indirectly regulated under federal, state, and local statutes, and rules, and recommended guidelines. The following summarizes the different agencies with regulatory oversight in the management of medical waste.



- The DEQ, [Medical Waste Regulatory Program](#) oversees Michigan's Medical Waste Regulatory Act (Part 138 of Michigan's Public Health Code, Public Act 368 of 1978, as amended [Act 368]) and administrative rules. Part 138 of Act 368 mandates how generators of medical waste must manage their medical waste from point of generation to disposal excluding transport on public roadway which is regulated by the U.S. DOT.
- The [U.S. EPA](#) has regulations and has issued [guidelines](#) for land disposal and incineration facilities handling infectious wastes. The guidelines list minimum performance criteria and outline recommended management procedures.
- The [U.S. DOT](#) regulates packaging, labeling, transportation, and shipping of medical waste on an interstate basis (see Title 49, Part 171 of the Code of Federal Regulations [49 CFR 171]) along with the [Michigan State Police, Commercial Vehicle Enforcement Division](#). Federal guidelines and regulations are basically minimum standards that have been either adopted by Michigan statute, or Michigan has established parallel statutes and rules that are more comprehensive than the federal regulations.
- The MIOSHA Standard - [Part 554](#) "Bloodborne Infectious Diseases" (R 325.70001 through R325.70018), administered by DLARA also addresses the handling of liquids, semi-liquid blood, or other potentially infectious materials (see Chapter 22).
- For local requirements, contact the [local health department](#).

Medical waste as defined under Part 138 of Act 368 includes the following wastes that are not generated from a household, a farm, an agricultural business, a home for the aged, or a home health care agency:

- Cultures and stocks of infectious agents and associated biologicals, including laboratory waste, biological production wastes, discarded live and attenuated vaccines, culture dishes, and related devices.
- Liquid human and animal waste, including blood and blood products and body fluids, but not including urine or materials stained with blood or body fluids.
- Pathological waste which includes human organs, tissues, body parts other than teeth, products of conception, and fluids removed by trauma or during surgery or autopsy or

other medical procedure, and not fixed in formaldehyde. Pathological waste does not include a fetus or fetal body parts.

- Contaminated wastes from animals that have been exposed to agents infectious to humans, these being primarily research animals.
- Sharps, which includes needles, syringes, scalpels, and intravenous tubing with needles attached. The MOSHA Blood borne Infectious Diseases Standard (Part 554) includes additional types of Sharps that are regulated as medical waste as well. Please consult this standard for additional types of Sharps subject to regulation under Part 138 see Section Two – Part 2, Chapter 2.

For wastes generated from households, please see the DEQ brochure titled “*The Point Is...Needles Hurt*” at [www.michigan.gov/documents/deq/whm-stsw-mwrp-The-Point-is-Needles-Hurt\\_257177\\_7.pdf](http://www.michigan.gov/documents/deq/whm-stsw-mwrp-The-Point-is-Needles-Hurt_257177_7.pdf).

Medical waste includes discarded unused sharps. Medical waste *does not* include any medications or pharmaceuticals unless they contain live or attenuated vaccines in which case they are mixed medical waste (see Chapter 2.6). Medical waste also does not include specimens that are fixed, as the fixative renders the waste non-infectious. Similarly, used, decanted formaldehyde (formalin) or other fixative is not a medical waste but is a liquid industrial by-product unless commingled with hazardous waste and subject to hazardous waste regulation.

Medical waste producers must register and all medical waste must be incinerated, autoclaved, or treated by an alternative method approved by the department at a facility authorized to accept medical waste. If medical waste is not mixed with pharmaceuticals, it can be treated by any method contained under Part 138 or any approved alternative method found on the listing of “[Approved Alternative Treatment Technologies](#)” link on the program Web site at [www.michigan.gov/deqmedwaste](http://www.michigan.gov/deqmedwaste) and then disposed in a non-hazardous solid waste landfill.”.



Additional information is available at [www.michigan.gov/deqmedwaste](http://www.michigan.gov/deqmedwaste).  
For questions about medical waste call 517-230-9800 or e-mail  
[MedicalWaste@michigan.gov](mailto:MedicalWaste@michigan.gov).

### 2.5.1 Registration and Record Keeping Requirements

Registration of medical waste producing facilities is required under Section 13815 of Part 138 of Act 368. To register a new facility or renew an existing registration, go to [www.michigan.gov/deqmedwaste](http://www.michigan.gov/deqmedwaste), select the “[Registration and Fee Payment Portal](#)” link and choose the appropriate option at the bottom of the page. If you do not have access to the Internet and are a new registrant, you may also remit the “Initial Application for Registration as a Medical Waste Producing Facility” via postal mail by clicking on the “[Initial Registration Application](#)” link, printing the application, and completing the requested information. Remittance and payment instructions are included on the application. Please contact the Medical Waste Regulatory Program at 517-230-9800 or via email at [medicalwaste@michigan.gov](mailto:medicalwaste@michigan.gov) if you have additional questions.”

Facilities that employ a full time nurse and/or doctor, or operate a health clinic that provides medical services to employees and generates medical waste would be required to register. Discuss requirements about the medical waste on-site management requirements with the DEQ, Medical Waste Program.

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A business that has incidental amounts of medical waste from an employee accident or provides a sharps container and/or first aid kits for employee or student use is not considered a medical waste producing facility. It is recommended, however, that this waste be treated as a biohazard, put in red bags, and picked up by a medical waste hauler. A list of companies that offer medical waste disposal services can be obtained by going to [www.michigan.gov/deqmedwaste](http://www.michigan.gov/deqmedwaste) and selecting “Medical Waste Disposal Services.”

### **2.5.2 Medical Waste Management Plans**

A medical waste management plan is required and must be maintained by all medical waste producing facilities. Major components of the plan must include the following:

- The types of medical waste handled.
- The use and methods of on-site or off-site storage.
- The use of on-site or off-site incineration or disinfection services.
- The use of sanitary landfills, cemeteries, or other final disposal sites.
- The business name of solid waste haulers who transport medical waste for the producing facility’s medical waste.
- The measures used to minimize exposure of the facility’s employees to infectious agents when handling and disposing of the facility’s medical waste.

The medical waste plan must be updated whenever any changes in management of medical waste occur and the plan must be readily available for inspection. A sample medical waste management plan is available from the DEQ, Medical Waste Program or can be obtained by going online to [www.michigan.gov/deqmedwaste](http://www.michigan.gov/deqmedwaste) and selecting “Sample Medical Waste Management Plan.”

## **2.6 Mixed Medical Waste**

Medical waste should not be inadvertently mixed with other wastes because other wastes are subject to different standards and mixing the wastes together may complicate the disposal requirements. The following sections briefly summarize the requirements for managing medical waste mixed with wastes subject to other regulations. If medical waste is not mixed with pharmaceuticals waste, it may be treated at an autoclave and disposed in a non-hazardous solid waste landfill. If medical waste is mixed with pharmaceuticals, it must be incinerated at a facility authorized to take both medical waste and the pharmaceuticals commingled with the infectious waste.

### **2.6.1 Medical Waste Commingled with Hazardous Waste or Liquid Industrial By-product**

Some unused pharmaceuticals discarded as a result of medical treatment meet the definition of hazardous wastes and need to be managed in accordance with the hazardous waste regulations found under Part 111 of Act 451 and the Part 111 rules. Pharmaceutical hazardous waste that is commingled with medical waste, more commonly sharps, must be managed in accordance with Part 138 of Act 368 and Part 111 of Act 451 and its rules. If the pharmaceutical container is empty (see Chapter 2.4.1.d), it could be excluded from hazardous waste regulations and only be subject to the medical waste regulations.

To simplify the management requirements for hazardous wastes, Michigan established [universal waste](#) standards for pharmaceuticals. The universal waste standards can be used when managing medical waste commingled with hazardous and/or liquid industrial by-product (see Chapter 2.4.1.c) if the hazardous waste TSDF is authorized to incinerate medical waste, however this is typically costly. Medical waste commingled with hazardous waste and managed as a universal waste must meet all of the requirements under *both* the medical waste and universal waste regulations. To simplify the management requirements that apply to the different wastes and lower costs, it may be more practical to manage medical waste separately from hazardous waste and/or liquid industrial by-product.

An example of a medical waste commingled with liquid industrial by-product is a partially administered IV bag containing an antibiotic that is not a hazardous waste which remains connected to the tubing and needle used to administer the antibiotic. If the IV bag used to administer the antibiotic was empty, it could be excluded from the liquid industrial by-product regulations and only be subject to the medical waste regulations. The needle and attached tubing that is a medical waste could also be removed from the IV bag and managed separately from the liquid industrial by-product.

Liquid pharmaceutical waste that is not subject to the hazardous waste regulations is subject to the liquid industrial by-product requirements in Part 121 of Act 451. Pharmaceuticals defined as liquid industrial by-product should not be inadvertently commingled with medical waste since the wastes are subject to different management standards. When commingled, the disposal options are limited because most medical waste treatment (e.g. autoclaves) and disposal facilities (e.g. incinerators) are not specifically authorized to accept pharmaceuticals. As such, it appears the only disposal option for medical waste commingled with liquid industrial by-product is a permitted and licensed hazardous waste TSDF that is also authorized to incinerate non-hazardous liquid industrial by-product and medical waste.

Liquid industrial by-product that is not commingled with medical waste or subject to hazardous waste regulation can be solidified on-site by the generator then managed as a non-hazardous solid waste under Part 115. It can also be managed as a liquid industrial by-product under Part 121. Any liquid industrial by-product commingled with hazardous waste, is a hazardous waste and it must be managed in Michigan as a universal waste or hazardous waste under the Part 111 hazardous waste regulations. If liquid industrial by-product is treated and/or disposed on-site, records of characterization of the waste and the on-site treatment and/or disposal must be maintained. If the waste is discharged to the sanitary sewer, the activity must be approved by the POTW and the POTW approval should be in writing and made available during inspection to verify the on-site disposal authorization.

More resources outlining the management options for handling drug waste and medical waste are available at [www.michigan.gov/deqhealthcare](http://www.michigan.gov/deqhealthcare) under the "Waste Health Care Resources" link. Consider viewing the DEQ 2012 [Pharmaceutical Waste Tutorial](#) outlining the simplest compliance option or reviewing the [Michigan Health and Hospital Association Pharmaceutical Waste Management Guide](#) for details on the different management options. For an overview of common health care wastes and the management options detailed in the MHA Pharmaceutical Waste Guide, see the [MHA Guide Example Posting](#). For questions related to these resources, contact the Environmental Assistance Center at 800-662-9278 or the DEQ, [District Office](#), Hazardous Waste Program (see Appendix C). For questions related to medical waste, see the resources at [www.michigan.gov/deqmedwaste](http://www.michigan.gov/deqmedwaste) and call 517-335-1146 or e-mail [MedicalWaste@michigan.gov](mailto:MedicalWaste@michigan.gov).

## WHERE TO GO FOR HELP

**SUBJECT:** Compliance Assistance

**CONTACT:** DEQ, Environmental Assistance Center  
800-662-9278 or [deq-assist@michigan.gov](mailto:deq-assist@michigan.gov)  
[www.michigan.gov/environmentalassistance](http://www.michigan.gov/environmentalassistance)

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**SUBJECT:** Confidential and Free Waste Reduction Assessments

**CONTACT:** DEQ, Environmental Assistance Center, RETAP Coordinator  
800-662-9278  
[www.michigan.gov/p2](http://www.michigan.gov/p2) (select “RETAP” on the left)

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**SUBJECT:** Electronics Recycling

**Contact:** DEQ, Office of Waste Management and Radiological Protection  
[www.michigan.gov/electronicwaste](http://www.michigan.gov/electronicwaste) and select “Electronic Waste Takeback Program”  
517-449-6153

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**SUBJECT:** Hazardous Waste and Liquid Industrial By-product Generators

**CONTACT:** DEQ, [District Office](#), Hazardous Waste Program (see Appendix C)  
[www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) (under “Hazardous Waste,” “Hazardous and Liquid Industrial By-product Management.”)

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**SUBJECT:** Hazardous and Liquid Industrial By-product Manifests and Shipping Documents

**CONTACT:** For questions about manifesting requirements:  
DEQ, [District Office](#), Hazardous Waste Program, See Appendix C

For questions about copies of manifests submitted to DEQ:  
DEQ, Hazardous Waste Program  
517-335-2690

[www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste), select “Hazardous Waste” and “Hazardous and Liquid Industrial By-product Management.”

Look up facility manifests for hazardous waste transport in Waste Data System at [www.deq.state.mi.us/wdsp](http://www.deq.state.mi.us/wdsp) (liquid industrial by-product manifest and shipping document data is not available).

**PUBLICATIONS:**

1. [Manifest Tracking Log](#)
2. [Large Quantity Generator’s Tracking System for Hazardous Waste Manifests](#)
3. [Small Quantity Generator’s Tracking System for Hazardous Waste and All Liquid Industrial By-products Shipments](#)
4. [Consolidated Manifest Operational Memo 121-3](#)

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**SUBJECT:** Hazardous Waste Site Identification Number (U.S. EPA number)

**CONTACT:** DEQ, Hazardous Waste Program  
Waste Tracking and Data Management Unit  
517-284-6562  
[www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) (select “Michigan Site Identification Form”)

**PUBLICATIONS:** [Site Identification Form \(EQP 5150\)](#)

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**SUBJECT:** Hazardous Waste and Liquid Industrial By-products Transporters

**CONTACT:** DEQ, Hazardous Waste Transporter Program  
586-753-3850  
[www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) under “Hazardous Waste” on the left, (select “Transporters”)

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**SUBJECT:** Hazardous Waste Licensed Treatment, Storage, and Disposal Facilities

**CONTACT:** DEQ, Hazardous Waste Program  
517-284-6562  
Perform an “Advanced Search” of the [Waste Data System \(WDS\)](#) at [www.deq.state.mi.us/wdspl](http://www.deq.state.mi.us/wdspl) (select “Hazardous Waste Permitting and Corrective Action,” “Legal/Operating Status Code,” then “PIOP” for “Permitted – Operating, Actively Managing RCRA-Regulated Waste”)

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**SUBJECT:** Hazardous, Liquid, and Solid Waste Regulation Questions and Publications

**CONTACT:** DEQ, Environmental Assistance Center  
800-662-9278  
DEQ, [District Office](#), Hazardous Waste Program (see Appendix C)  
[www.deq.state.mi.us/pubcenter](http://www.deq.state.mi.us/pubcenter)

**PUBLICATIONS:**

1. [Waste Characterization](#)
2. [Universal Waste](#)
3. [Used Oil](#)
4. [Conditionally Exempt Small Quantity Generator](#)
5. [Liquid Waste Generator](#)
6. [Small Quantity Generator](#)
7. [Emergency Information Poster](#)
8. [Required Weekly Hazardous Waste Maintenance Checklist](#)
9. [Personnel Training Requirements for Large Quantity Generators of Hazardous Waste](#)
10. [Manifest Tracking Log](#)
11. [Emptying Tanks or Containers](#)
12. [Non-hazardous Waste Holding Tanks](#)
13. [Mixed Medical Waste](#)
14. [Electronic Equipment](#)
15. [Electric Lamps and Small Ballasts](#)

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16. [Antifreeze](#)
  17. [Directory of Environmental Testing Laboratories](#)
  18. [Recycled Materials Market Directory](#)
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**SUBJECT:** [Household Hazardous Waste Diversion](#)

**CONTACT:** DEQ, Solid Waste Program  
517-284-6588

Local Program Contacts – [www.michigan.gov/deqrecyclingcontacts](http://www.michigan.gov/deqrecyclingcontacts)  
[www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) (select “Hazardous and Liquid Industrial By-product” and “Household Hazardous Waste (HHW)”)

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**SUBJECT:** **Safety Data Sheets, formerly Material Safety Data Sheets**  
[www.hazard.com](http://www.hazard.com)  
[www.reade.com/MSDS\\_Links.html](http://www.reade.com/MSDS_Links.html)

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**SUBJECT:** **Medical Waste Program**

**CONTACT:** DEQ, Medical Waste Program  
517-284-6590 or 517-284-6594  
e-mail: [MedicalWaste@michigan.gov](mailto:MedicalWaste@michigan.gov)  
[www.michigan.gov/deqmedwaste](http://www.michigan.gov/deqmedwaste)

**PUBLICATIONS:** 1. Initial Application for Registration as a Producing Facility of Medical Waste (EQP 1700-1)  
2. [Sample Medical Waste Management Plan](#)

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**SUBJECT:** **Oil Filters Recycling**

**CONTACT:** Oil Filters Manufacturing Council  
800-993-4583  
[www.filtercouncil.org](http://www.filtercouncil.org)

**PUBLICATIONS:** 1. [Household Do-It-Yourselfer Used Motor Oil and Filters](#)  
2. [Used Oil Filters Generator Requirements](#)  
3. [Recycling Materials Market Directory](#)

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**SUBJECT:** **Recycling**

**CONTACT:** DEQ, Solid Waste Program  
517-284-6588  
[www.michigan.gov/deqrecycling](http://www.michigan.gov/deqrecycling)  
Local Program Contacts – [www.michigan.gov/deqrecyclingcontacts](http://www.michigan.gov/deqrecyclingcontacts)  
Recycled Materials Market Directory– [www.michigan.gov/deqrmmd](http://www.michigan.gov/deqrmmd)

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**SUBJECT:** Scrap Tire Storage and Disposal; Scrap Tire Registered Haulers and Collection Sites

**CONTACT:** DEQ, Scrap Tire Program  
517-284-6588

[www.michigan.gov/scraptires](http://www.michigan.gov/scraptires)

**SUBJECT:** Solid Waste Exemptions

**CONTACT:** DEQ, Solid Waste Program  
517-284-6588

[www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) (select “Solid Waste” then “Exemptions and Guidance”)

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**SUBJECT:** Solid Waste Landfills

**CONTACT:** DEQ, [District Office](#) Solid Waste Program  
See Appendix C for a listing of District Office telephone numbers  
[www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) (select “Solid Waste” then “Solid Waste Facilities” for map and list of landfills)

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**SUBJECT:** [Solid Waste Planning Agency Contacts](#)

**CONTACT:** DEQ, Solid Waste Program  
517-614-7426

[www.michigan.gov/deqwaste](http://www.michigan.gov/deqwaste) (select “Solid Waste” and “Solid Waste Planning”)

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**SUBJECT:** Toxic Substance Control Act, PCB information

**CONTACT:** U.S. EPA Region 5  
312-886-7890, 800-621-8431, or 312-353-2318  
[www3.epa.gov/epawaste/hazard/tsd/pcbs/pubs/laws.htm](http://www3.epa.gov/epawaste/hazard/tsd/pcbs/pubs/laws.htm)

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**SUBJECT:** U.S. DOT Hazardous Materials Transportation

**CONTACT:** U.S. Department of Transportation  
800-467-4922 or 517-853-5990  
[www.hazmat.dot.gov](http://www.hazmat.dot.gov)  
Michigan State Police, Commercial Vehicle Enforcement Division  
517-241-0506  
[www.michigan.gov/msp](http://www.michigan.gov/msp)  
  
Michigan Center for Truck Safety  
800-682-4682  
[www.truckingsafety.org](http://www.truckingsafety.org)

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## SECTION ONE: Environmental Regulations

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**SUBJECT:** U.S. EPA Waste Compliance Assistance Publications

**WEB SITE:** [www.epa.gov/epawaste/index.htm](http://www.epa.gov/epawaste/index.htm)

**PUBLICATIONS:**

1. [Hazardous Waste Generator Regulations A User-Friendly Reference](#)
2. [RCRA, Superfund, and EPCRA Hotline Training Modules](#)
3. [RCRA Online](#)
4. [U.S. EPA Waste Ask a Question](#)
5. [RCRA Orientation Manual](#)